STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5858	1	20

REFERENCE: R-5858

PROJECT: 47546

SEE SHEET 3 FOR PLAN SHEET LAYOUT AT TIME OF INVESTIGATION

CONTENTS

CROSS SECTIONS

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

ROADWAY SUBSURFACE INVESTIGATION

COUNTY *CARTERET*

PROJECT DESCRIPTION *INTERSECTION IMPROVEMENTS OF NC 24 (CEDAR POINT BOULEVARD AND WB MCLEAN DRIVE) AT NC 58*

INVENTORY – REVISION 1

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

N. WILLIAMS

J. KNISLEY

S. JOHNSON

INVESTIGATED BY *WOOD E&IS, INC.*

DRAWN BY *R. RAHIE*

CHECKED BY *M. LEAR*

SUBMITTED BY *K. PLUMMER*

DATE *NOVEMBER, 2019*

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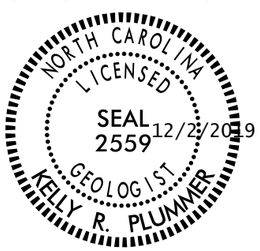


DocuSigned by:
Kelly R. Plummer
6AC1513DAE004CB...
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT REFERENCE NO.	SHEET NO.
R-5858	2

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	50 MX													
#40	30 MX	50 MX	51 MN											
#200	15 MX	25 MX	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	—		—	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	40 MX	41 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
PI	6 MX		NP	10 MX	10 MX	11 MN	11 MN	10 MX	10 MX	11 MN	11 MN			
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	< 4	
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	N/A
	VERY DENSE	> 50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	< 2	< 0.25
	SOFT	2 TO 4	0.25 TO 0.5
	MEDIUM STIFF	4 TO 8	0.5 TO 1.0
	STIFF	8 TO 15	1 TO 2
	VERY STIFF	15 TO 30	2 TO 4
	HARD	> 30	> 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		
PLASTIC RANGE (PI)	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
PL — PLASTIC LIMIT		
OM — OPTIMUM MOISTURE	- MOIST - (M)	SOLID; AT OR NEAR 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 EXCAVATION
- 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
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 4" CONTINUOUS FLIGHT AUGER
- [ ] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [ ] TRICONE _____" STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [ ] CORE BIT (4-INCH DIM.) _____

HAMMER TYPE:
- [ ] AUTOMATIC [ ] MANUAL

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

HAND TOOLS:
- [ ] POST HOLE DIGGER
- [X] 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: ELEVATIONS DETERMINED FROM PROVIDED ELECTRONIC FILES (R5858_ls_tnl_180215.tin)

ELEVATION: FEET

NOTES:

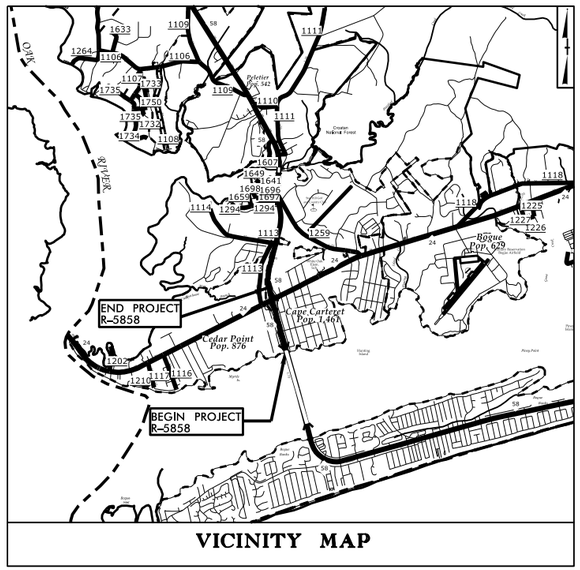
FIAD - FILLED IMMEDIATELY AFTER DRILLING

DATE: 8-15-14

09/08/

CONTRACT: TIP PROJECT: R-5858

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional symbols
See Sheets RW-? Thru RW-? For RW Plan Sheets



VICINITY MAP

65% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CARTERET COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5858	3	20

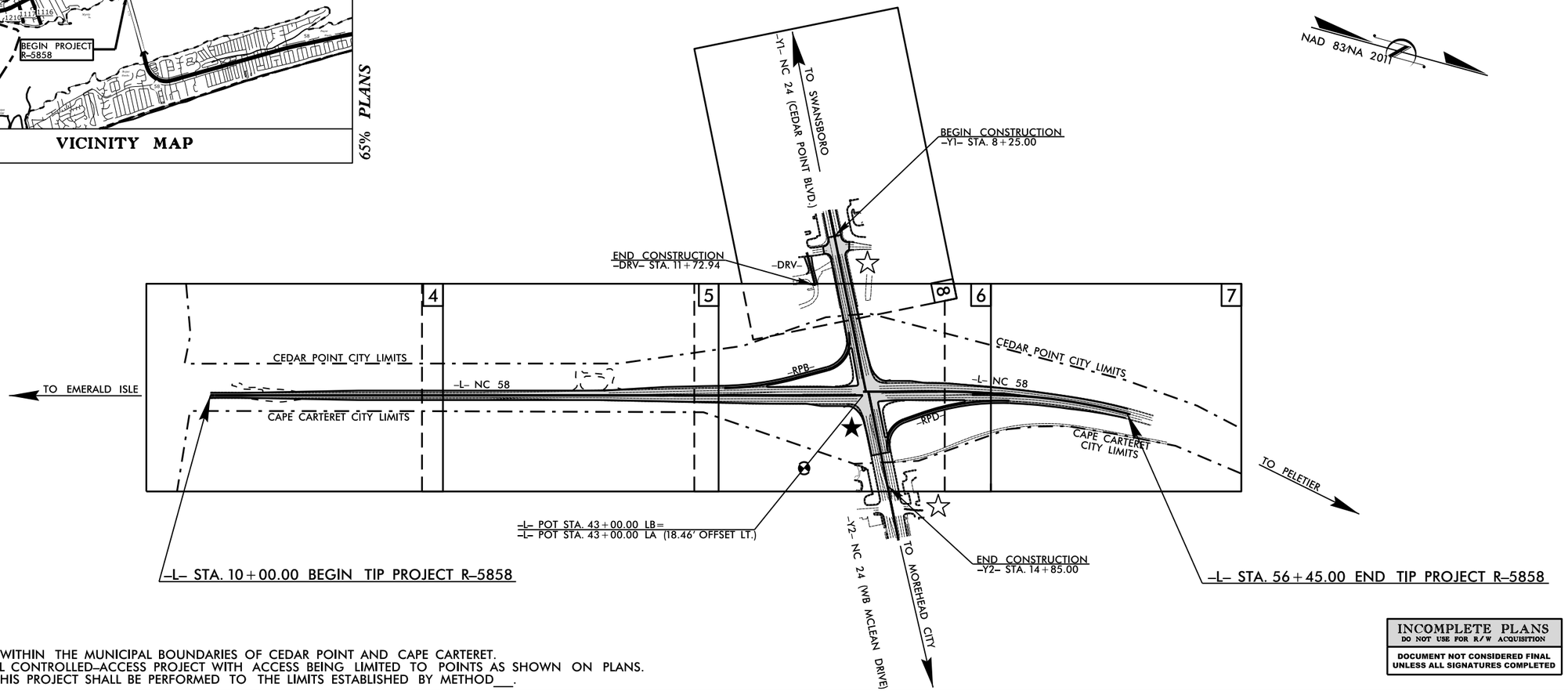
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
47546.1.1	N/A	PE
47546.2.1	N/A	R/W & UTILITIES

LOCATION: INTERSECTION IMPROVEMENT OF NC 24 (CEDAR POINT BLVD. & WB MCLEAN DR.) AT NC 58

TYPE OF WORK: GRADING, DRAINAGE, PAVING, AND SIGNAL UPGRADE

SIGNAL UPGRADE
EXISTING SIGNAL

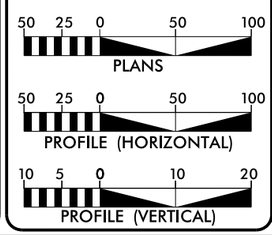
NAD 83/NA 2011



THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF CEDAR POINT AND CAPE CARTERET.
THIS IS A PARTIAL CONTROLLED-ACCESS PROJECT WITH ACCESS BEING LIMITED TO POINTS AS SHOWN ON PLANS.
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

GRAPHIC SCALES



DESIGN DATA

ADT 2017 = 7900
ADT 2040 = 9500
K = %
D = %
T = 6 % *
V = 50 MPH
* TTST = 3% DUAL = 3%
FUNC CLASS = MINOR ARTERIAL "REGIONAL TIER"

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT R-5858 = 0.880 MILES
TOTAL LENGTH TIP PROJECT R-5858 = 0.880 MILES

Prepared In the Office of:
SEPI Engineering & Construction, Inc.
1 Glenwood Avenue
Raleigh, NC 27603
Tel:919.789.9977
Fax:919.789.9591
License: C-2187

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
DECEMBER 20, 2019

LETTING DATE:
OCTOBER 20, 2020

RAJIT RAMKUMAR, PE
PROJECT ENGINEER

DANIEL W. GARDNER, JR., PE
PROJECT DESIGN ENGINEER

RACHELLE BEAUREGARD
NCDOT CONTACT

HYDRAULICS ENGINEER
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
SIGNATURE: P.E.

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

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November 21, 2019

WBS Number:	47546.1.1
TIP Number:	R-5858
F.A. Project:	NA
COUNTY:	Carteret
DESCRIPTION:	Intersection improvement of NC 24 (Cedar Point Blvd. and WB McLean Dr.) at NC 58
Wood E&I Number:	6468199042

SUBJECT: Geotechnical Inventory Report (Revision 1)

Project Description

The project area lies at the intersection of existing NC 24 (Cedar Point Blvd. and WB McLean Dr.) and existing NC 58 between Cedar Point, NC and Cape Carteret, NC. The proposed construction will consist of adding a second dedicated right turn lane from NC 24 east onto NC 58 south, NC 58 north onto NC 24 east, from NC 24 west onto NC 58 north and NC 58 south onto NC 24 west; and extending existing merge lanes towards the bridge along NC 58 to improve operation and increase storage capacity.

The geotechnical field investigation was conducted from April 24 to April 26, 2019. The subsurface investigation was performed using hand auger tools only. Representative soil samples were collected for visual classification in the field and selected samples were submitted for laboratory analysis.

The following alignments, totalling approximately 1,812 feet, were explored. Subsurface profiles and/or cross sections of these alignments are included in this report.

Alignment	Station (±)
-L-	10+00 to 56+45
-Y1-	8+25 to 16+26.91
-Y2-	10+00 to 14+85
-RPB-	10+00 to 17+73.85
-RPD-	10+00 to 17+38.68
-DRV-	10+00 to 11+72.94

Areas of Special Geotechnical Interest

1) The entire project was found to exhibit seasonal high ground water.

2) Fine grained cohesive soils which have the potential to cause embankment/subgrade and/or slope stability problems during construction were encountered at a few locations within the project area.

Physiography and Geology

The project is located within the Coastal Plain Physiographic Province. Topography along the project is nearly flat to gently sloping. Elevations along the project alignment range from 10± to 25± feet mean sea level (MSL). Most of the existing ground surface is either pavement or grass covered with some gravel driveways present.

Surficial soils encountered at the site generally consist of Quaternary aged sand, silt, and clay deposited in marine fluvial, eolian, and lacustrine environments. These surface units are underlain at depth by the Plio-Pleistocene marine deposits of the James City Formation. The James City Formation was not encountered during this investigation due to the shallow boring depths.

Ground Water

Ground water data was collected at the time of the geotechnical field investigation (April 24 to April 26, 2019). Where encountered, ground water depths ranged from approximately 2± to 5± feet below existing ground surface and elevations ranged from approximately 8.3 to 20.9 feet MSL.

Soil Properties

Soils encountered during this investigation have been divided into two categories based on origin, including roadway embankment and undivided coastal plain soils.

Roadway embankment soils are present locally along the project corridor. These soils generally consist of loose, silty fine sand (A-2-4).

Undivided coastal plain soils within the project area were deposited as sea level dropped and the Atlantic Ocean margin regressed eastward to its current position. The undivided coastal plain soils primarily consist of loose, silty fine sand (A-2-4) and locally with medium stiff, fine sandy silt (A-4) beds. The silt (A-4) units typically do not have greater than 40 percent passing the No. 200 sieve and exhibit no plasticity (PI ≤ 2). Natural moisture contents of these undivided coastal plain soils ranged from 5.9 to 49.9 percent. Trace amounts of organic material were observed in soils throughout the site, and soils locally were found to contain little organic material. Organic content test results ranged from 2.1 to 3.6 percent in granular soils.

Prepared By,

Kelly Plummer, PG
Staff Geologist

PROJECT REFERENCE NO.	SHEET NO.
R-5858	4
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

NAD 83/NA 2011

MARGARAT HURST
DB 562 PG 496

WILLIAM B. EMMETT
DB 344 PG 256

N 14°20'27" W 330.00'

S 84°23'33" W 92.69'

S 84°39'33" W 197.50'

EIP EXISTING ROW VARIES

R/W MON

48" WW

-L- POT Sta. 10+00.00
-L- PC Sta. 10+19.08
-L- PT Sta. 10+24.06

MW 48"

CTVM

RETAIN 18" HDPE

60" CONC

MTR

R5858-1

BM 2 ELEV. 11.15'
N 82° 13' 57" E 49.13' RIGHT
FROM R5858-1
BENCHTIE SET IN 10" POPLAR

NC HWY 58 PAVED ROADWAY

N 15° 19' 25.6" W

2-FT BASE CHANNEL CHANGE
wCOIR FIBER MATTING
EST. 5870 SY
SEE DETAIL 1

REMOVE 98 LF OF
CONCRETE DITCH

R5858-2

JB w/MH

REMOVE 178 LF OF
CONCRETE DITCH

PIPE OUTLET CHANNEL
CLASS 'I' RIP RAP
ON BANKS ONLY
SEE DETAIL 3

FALSE SUMP
SEE DETAIL 4

WOODS

BRENDA A. DEANS
DB 1502 PG 2
PB 4 PG 53

MAT C. RAYMOND
ANN MARIE RAYMOND
DB 1574 PG 259
PB 4 PG 53

S 15°15'23" E 208.00'

S 89°23'27" W 77.56'

S 15°23'27" E 212.07'

N 74°44'44" E 75.00'

N 74°33'35" E 150.00'

WESLEY L. ELMORE
ALICE LEE-ELMORE
DB 1489 PG 126
PB 4 PG 53

ROBBIE NEIL UNDERHILL
DB 1505 PG 451
PB 4 PG 53

GREGORY F. BROWN
ELIZABETH E. BROWN
DB 776 PG 85
PB 4 PG 53

CHRISTINE M. SCHMETZKE
KENNETH E. ALLEN JR
DB 902 PG 154
PB 4 PG 53

DOLORES WITT HOLVERSON
DB 1401 PG 493
PB 4 PG 53

W R LAMBERT TRUSTEE
DB 1346 PG 207
PB 4 PG 53

AMY C. ROUSE
CHRISTOPHER E. ROUSE
DB 1423 PG 436
PB 4 PG 53

WILLIAM F. SPIVEY
EDE S. SPIVEY
DB 1314 PG 262
PB 4 PG 53

TONY E. WHITFIELD
CHARLOTTE A. WHITFIELD
DB 1418 PG 285
PB 4 PG 53

CYNTHIA B. SPEAR
DB 1486 PG 226
PB 4 PG 53

PETER R. JACOBSEN
VALERIE JACOBSEN
DB 355 PG 423
PB 4 PG 53

MCLEAN HOLDING LIMITED PARTNERSHIP
DB 1183 PG 125
PB 4 PG 53

MATCHLINE -L- STA. 23+00.00
SEE SHEET 5

SEE SHEET 9 FOR -L- PROFILE
SEE SHEET 2D-1 FOR DRAINAGE DITCH DETAILS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-5858	5
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

NAD 83/NA 2011

N 15°20'27" W
2378.00'

WILLIAM B. EMMETT
DB 344 PG 256

MATCHLINE –L– STA. 23+00.00
SEE SHEET 4

MATCHLINE –L– STA. 37+00.00
SEE SHEET 6

96 Str

48" WW

C I W

R/W MON

EXISTING R/W VARIES

2–FT BASE CHANNEL CHANGE
wCOIR FIBER MATTING
EST. 5870 SY
SEE DETAIL 1

2–FT BASE CHANNEL CHANGE
wCOIR FIBER MATTING
EST. 1200 SY
SEE DETAIL 2

–RPB– PC Sta. 10+00.00=
–L– POT Sta. 35+98.06 (36.59 LT)

CULTIVATED

0501

0502

42" BURIED 1 FT RCP

REMOVE

HW

SOIL

PIPE OUTLET CHANNEL
CLASS I RIP RAP
BANKS ONLY
SEE DETAIL 5

PIPE OUTLET CHANNEL
CLASS I RIP RAP
ON BANKS ONLY
SEE DETAIL 5

20" ID

25

N 15°19'25.6" W

30

35

0506

JB wMH

0508

0505

0507

36"

JS

2 GI

WOODS

R/W MON

CIP

2–FT BASE CHANNEL CHANGE
wCOIR FIBER MATTING
EST. 3040 SY
SEE DETAIL 2

EXISTING R/W VARIES

S 74°38'11" W
121.59'

S 74°38'11" W
107.24'

MCLEAN HOLDING LIMITED PARTNERSHIP
DB 883 PG 125
PB 4 PG 53

GEORGE R. OSBORNE
EVELYN R. OSBORNE
DB 413 PG 146
PB 4 PG 53

LURA W. FULCHER
EDWARD D. FULCHER
DB 954 PG 377
PB 4 PG 53

SEE SHEET 9 FOR –L– PROFILE
SEE SHEET 2D–1 FOR DRAINAGE DITCH DETAILS

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PROJECT REFERENCE NO.	SHEET NO.
R-5858	6
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

NAD 83/NA 2011

MATCHLINE -Y1- STA. 11+00.00
SEE SHEET 8

MATCHLINE -L- STA. 37+00.00
SEE SHEET 5

MATCHLINE -L- STA. 50+00.00
SEE SHEET 7

WILLIAM B. ENNETT
DB 344 PG 256

WAL MART STORES EAST LP
DB 1222 PG 171

LURA M. FULCHER
EDWARD D. FULCHER
DB 954 PG 377
PB 4 PG 53

LURA M. FULCHER
EDWARD D. FULCHER
DB 1083 PG 2
PB 4 PG 53

MCDONALD'S REAL ESTATE COMPANY
DB 1341 PG 156

RBC BANK
DB 729 PG 402
PB 12 PG 35
PB 12 PG 38

HARDEE'S RESTAURANTS LLC.
DB 1443 PG 93

MANATEE INVESTMENTS LIMITED PARTNERSHIP
DB 1430 PG 401
MB 30 PG 768
PB 9 PG 94
TRACT 5 PARCEL A

-RPB- POT 17+73.85=
-Y1- POT 13+14.03 (25.16' LT.)

-RPB- PT 17+49.70

-RPB- PT Sta. 13+60.55

-RPB- PC Sta. 15+33.71

-L- POT Sta. 43+15.17=
-Y1- POT Sta. 16+26.91

-L- PC Sta. 46+99.76

-L- POT Sta. 43+00.00 LB=
-L- POT Sta. 43+00.00 LA (18.46' LT.)

-L- POT Sta. 43+27.43=
-Y2- POT Sta. 10+00.00

-RPD- PT 17+22.08

-RPD- POT Sta. 17+38.68=
-Y2- POT 13+13.44 (36.06' LT.)

-RPD- PT Sta. 14+55.07

-RPD- PC Sta. 15+45.14

N 63°13'04.6" E

S 67°13'04.6" W

N 30°16'52.6" W

N 15°19'25.6" W

N 15°23'06.9" W

N 61°12'39.2" E

S 34°48'18.3" E

BMI ELEV. 24.32'
-BL- STA 43+19
51' LEFT
BENCHTIE SET IN 14" PINE

SEE SHEET 10 FOR -L- PROFILE
SEE SHEET 11 FOR -Y1- AND -Y2- PROFILE
SEE SHEET 12 FOR -RPB- AND -RPD- PROFILE
SEE SHEET 2D-1 FOR DRAINAGE DITCH DETAILS

PROJECT REFERENCE NO.	SHEET NO.
R-5858	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

8/17/99

NAD 83/NA 2011

WAL MART STORES EAST LP
DB 1222 PG 171

S 85°03'28" E
320.37

EXISTING R/W VARIES

-L- PT Sta. 50+15.82

N 10° 12' 40.5" W

-L- PC Sta. 51+43.19

MATCHLINE -L- STA. 50+00.00
SEE SHEET 6

R5858-3

0765

15" RCP-V

PAVED ROADWAY

NC HWY 58 VARIABLE PAVED ROADWAY

55

-L- PT Sta. 56+62.48

-RPD- PC Sta. 10+00.00=
-L- POT Sta. 50+43.85 (30.39' RT.)

10' BST WALK

EXISTING R/W VARIES

R/W MON

2-FT BASE CHANNEL CHANGE
wCOIR FIBER MATTING
EST. 975 SY
SEE DETAIL 2

2-FT BASE CHANNEL CHANGE
wCOIR FIBER MATTING
EST. 1335 SY
SEE DETAIL 2

48" CW FENCE

R5858-4

MANATEE INVESTMENTS LIMITED PARTNERSHIP
DB 1430 PG 401
WB 30 PG 768
PB 9 PG 94
TRACT 5 PARCEL A

N 63°09'49" E
350.36'

MANATEE INVESTMENTS LIMITED PARTNERSHIP
DB 1430 PG 401
WB 30 PG 768
PB 9 PG 94
TRACT 5 PARCEL B

N 63°09'49" E
350.36'

CARTERET RECREATION LLC
DB 1461 PG 85

SEE SHEET 10 FOR -L- PROFILE
SEE SHEET 2D-1 FOR DRAINAGE DITCH DETAILS

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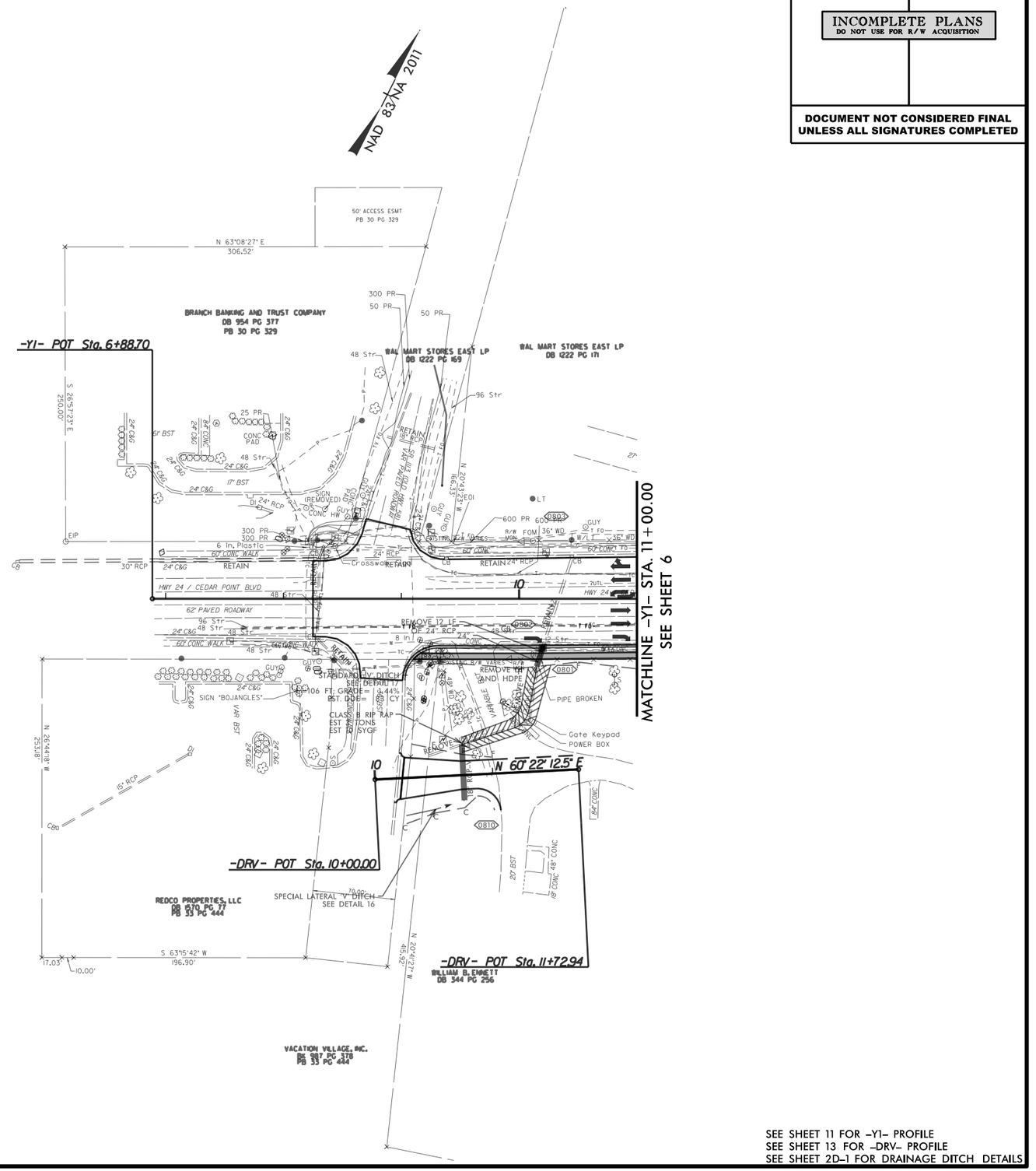
PROJECT REFERENCE NO.	SHEET NO.
U-5858	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



SEE SHEET 11 FOR -Y1- PROFILE
SEE SHEET 13 FOR -DRV- PROFILE
SEE SHEET 2D-1 FOR DRAINAGE DITCH DETAILS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
R-5858	9
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5/14/99

110 100 90 80 70 60 50 40 30 20 10 0 –10 –20 –30 –40 –50 –60 –70 –80

Ⓐ UNDIVIDED COASTAL PLAIN: MEDIUM STIFF, MOIST, BROWN, FINE SANDY SILT (A-4)

S-158 S-166

6 ft LT

BT FIAD 04/19 — 04/19

BT — 04/19

BT DRY 04/19 — 04/19

BT — 04/19

BT — 04/19

UNDIVIDED COASTAL PLAIN: LOOSE, MOIST TO SATURATED, BROWN, GRAY-BROWN, TAN, SILTY FINE SAND, (A-2-4) WITH TRACE ORGANICS

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00

–RPB–

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PROJECT REFERENCE NO.	SHEET NO.
R-5858	10
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

5/14/99

110 100 90 80 70 60 50 40 30 20 10 0 –10 –20 –30 –40 –50 –60 –70 –80

Ⓐ ROADWAY EMBANKMENT: LOOSE, MOIST, BROWN, SILTY FINE SAND (A-2-4) WITH TRACE ORGANICS

Ⓑ UNDIVIDED COASTAL PLAIN: MEDIUM STIFF, MOIST, BROWN, FINE SANDY SILT (A-4) WITH TRACE ORGANICS

S-178
S-179

S-174

S-150
S-151
S-153

S-146
S-149

10 ft LT

Ⓐ Ⓑ Ⓐ

04/19 04/19 04/19 04/19

BT BT BT BT

UNDIVIDED COASTAL PLAIN: LOOSE, MOIST TO SATURATED, BROWN, GRAY-BROWN, TAN, SILTY FINE SAND (A-2-4) WITH TRACE TO LITTLE ORGANICS

–RPD–

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00

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PROJECT REFERENCE NO.	SHEET NO.
R-5858	11
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

BEGIN GRADE -DRV- STA.10+18.19
ELEV.= 25.49'

PI = 10+35.00
EL = 25.15'
VC = 30'
K = 8
DS = 20 MPH

PI = 11+10.00
EL = 20.85'
VC = 30'
K = 5
DS < 15 MPH

(-12.0226%

(-15.7333%

(-10.0667%

END GRADE -DRV- STA.11+25.00
ELEV.= 20.84'

110 100 90 80 70 60 50 40 30 20 10 0 –10 –20 –30 –40 –50 –60 –70 –80

10+00 11+00 12+00

-DRV-

5/14/9

21-NOV-2019 14:39
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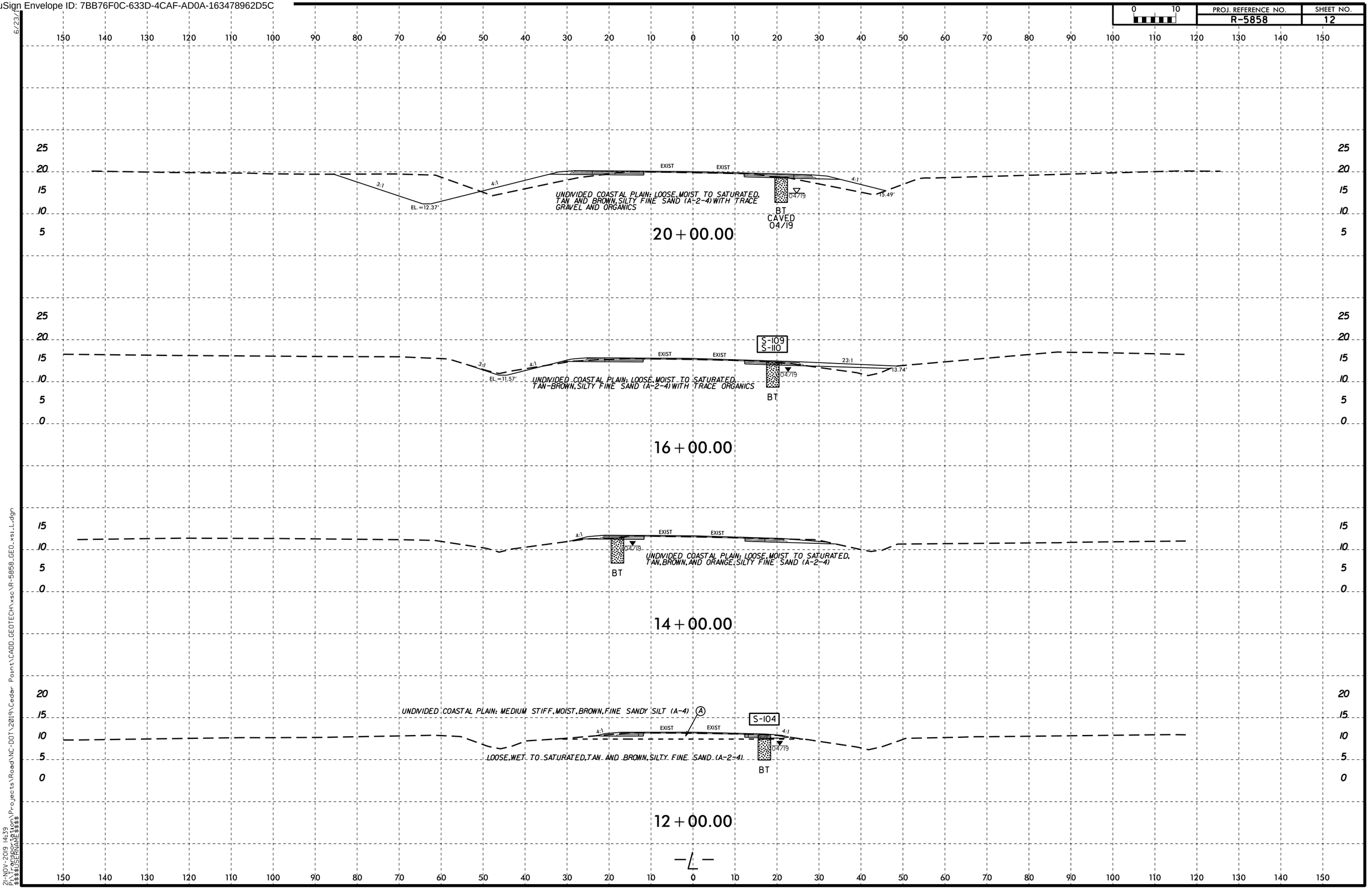


150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

30 25 20 15 10

S-126

EXIST EXIST

3:1 4:1 4:1 4:1

EL. = 14.77'

04/19

BT

UNDIVIDED COASTAL PLAIN: LOOSE, MOIST TO SATURATED, BROWN-GRAY-TAN, SILTY FINE SAND (A-2-4) WITH TRACE ORGANICS

EL. = 15.42'

32 + 00.00

25 20 15 10

EXIST EXIST

UNDIVIDED COASTAL PLAIN: LOOSE, MOIST TO SATURATED, BROWN, SILTY FINE SAND (A-2-4) WITH TRACE GRAVEL

04/19

4:1

BT
CAVED
04/19

EL. = 14.94'

30 + 00.00

30 25 20 15 10

S-134

EXIST EXIST

3:1 4:1 6.2:1

EL. = 13.97'

UNDIVIDED COASTAL PLAIN: LOOSE, MOIST TO SATURATED, BROWN AND TAN, SILTY FINE SAND (A-2-4) WITH TRACE GRAVEL

04/19

BT

17.33'

28 + 00.00

25 20 15 10 5

EXIST EXIST

3:1 4:1 5.8:1

EL. = 13.57'

04/19

BT
CAVED
04/19

UNDIVIDED COASTAL PLAIN: LOOSE, MOIST TO SATURATED, BROWN-GRAY-TAN, SILTY FINE SAND (A-2-4) WITH TRACE GRAVEL AND ORGANICS

17.53'

26 + 00.00

25 20 15 10 5

S-118

EXIST EXIST

3:1 4:1 4:1

EL. = 13.17'

UNDIVIDED COASTAL PLAIN: LOOSE, MOIST TO SATURATED, TAN-ORANGE SILTY FINE SAND (A-2-4) WITH TRACE GRAVEL AND ORGANICS

04/19

BT
CAVED
04/19

16.40'

24 + 00.00

—L—

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

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

30 25 20 15

EXIST EXIST

4:1 4:1 4:1

ROADWAY EMBANKMENT: LOOSE, MOIST, BROWN, SILTY FINE SAND (A-2-4)

UNDIVIDED COASTAL PLAIN: LOOSE, WET, BROWN-TAN, SILTY FINE SAND (A-2-4) WITH TRACE ORGANICS

EL. =18.45'

BT
CAVED
04/19

45 + 00.00

30 25 20 15

EXIST EXIST

S-142

4:1 4:1 4:1 3:1

EL. =17.75'

UNDIVIDED COASTAL PLAIN: LOOSE, MOIST TO SATURATED, BROWN-TAN, SILTY FINE SAND (A-2-4)

04/19

BT

EL. =17.71'

41 + 50.00

30 25 20 15

S-158

-RPB- 12+00

-RPB- STA. 12 + 02.88
OFF 54.47'

0.030

EXIST EXIST

3:1 6:1 4.5:1 4:1

EL. =16.29'

04/19

BT

UNDIVIDED COASTAL PLAIN: LOOSE, MOIST TO SATURATED, BROWN-TAN, SILTY FINE SAND (A-2-4) WITH TRACE ORGANICS

EL. =16.87'

38 + 00.00

30 25 20 15 10

-RPB- STA. 10 + 01.94
OFF 36.63'

-RPB- 10+00

0.020

EXIST EXIST

3:1 4:1 4.5:1 3:1

04/19

BT
FIAD
04/19

EL. =15.71'

UNDIVIDED COASTAL PLAIN: LOOSE, MOIST TO SATURATED, BROWN AND TAN, SILTY FINE SAND (A-2-4) WITH TRACE ORGANICS

EL. =16.39'

36 + 00.00

25 20 15 10

EXIST EXIST

3:1 4:1 4.5:1 4:1

EL. =15.17'

04/19

BT

UNDIVIDED COASTAL PLAIN: LOOSE, MOIST TO SATURATED, BROWN-TAN-GRAY, SILTY FINE SAND (A-2-4) WITH TRACE ORGANICS

EL. =15.91'

34 + 00.00

—L—

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

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

30
25
20
15

4:1 EXIST EXIST

S-178
S-179
50+46

ROADWAY EMBANKMENT: LOOSE, MOIST, BROWN, SILTY FINE SAND (A-2-4)

UNDIVIDED COASTAL PLAIN: LOOSE, MOIST TO SATURATED, TAN AND BROWN, SILTY FINE SAND (A-2-4) WITH TRACE GRAVEL AND ORGANICS

6:1 3:1

04/19

EL. = 19.67'

BT

50 + 50.00

35
30
25
20
15

RPD- STA. 11 + 93.20
OFF 51.64'

S-174

48+45

4:1 EXIST EXIST

0.030 0.030

ROADWAY EMBANKMENT: LOOSE, MOIST, BROWN, SILTY FINE SAND (A-2-4)

UNDIVIDED COASTAL PLAIN: LOOSE, MOIST TO WET, BROWN, GRAY-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE ORGANICS

6:1 3:1

04/19

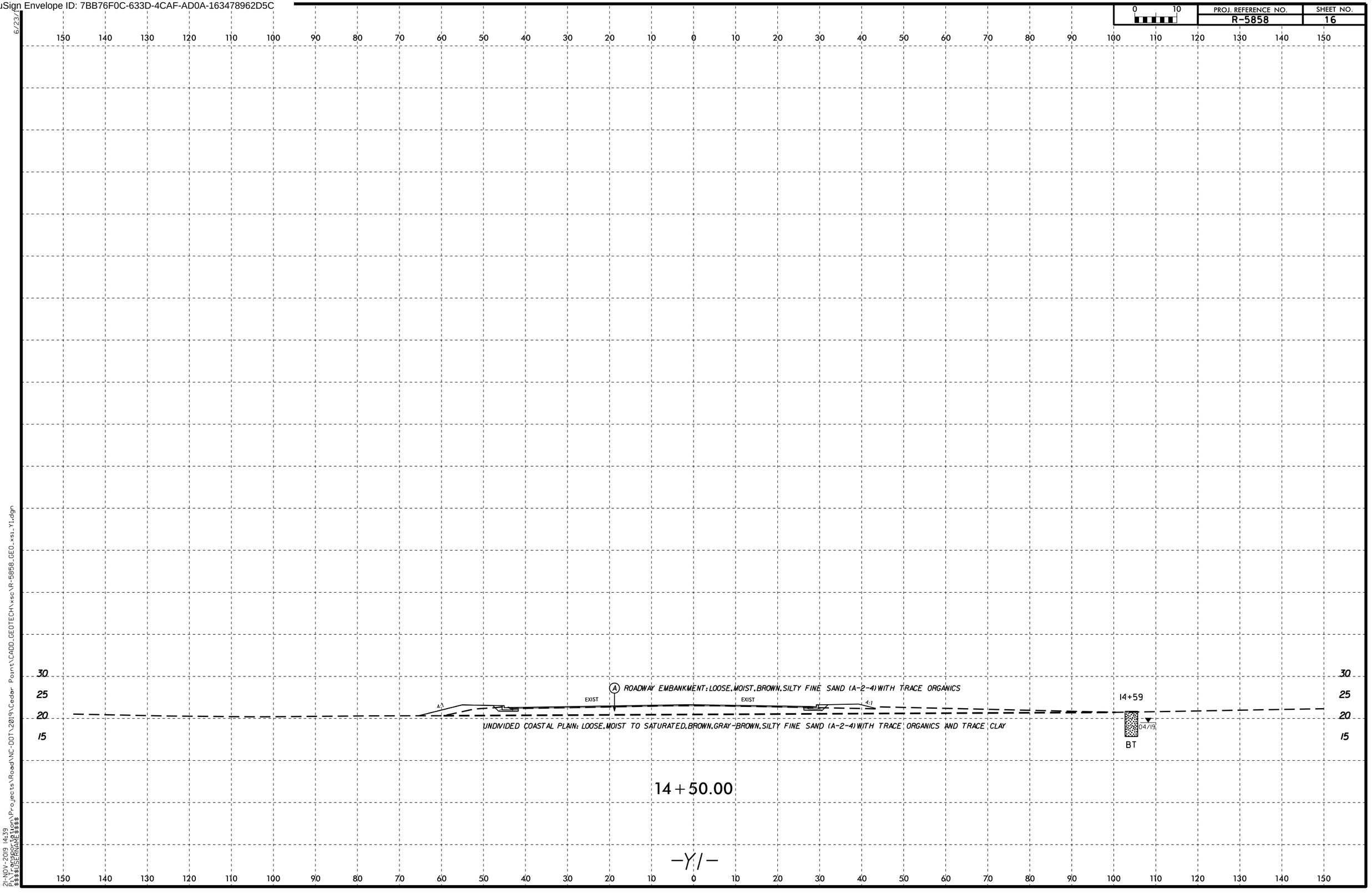
EL. = 19.21'

BT

48 + 50.00

—L—

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



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

35 30 25 20 15

S-146
S-149
11+75
04/19
BT

A ROADWAY EMBANKMENT: LOOSE, MOIST, BROWN, SILTY FINE SAND (A-2-4) WITH TRACE ORGANICS

EXIST

EXIST

UNDIVIDED COASTAL PLAIN: LOOSE, MOIST TO SATURATED, BROWN, TAN, GRAY, AND DARK BROWN, SILTY FINE SAND (A-2-4) WITH TRACE TO LITTLE ORGANICS

12+00.00

-Y2-

35 30 25 20 15

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

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

30 25 20 15

0.040 0.040 3:1 6:1 4:1 4:1 04/19

UNDIVIDED COASTAL PLAIN: LOOSE, MOIST TO SATURATED, BROWN, GRAY-BROWN, SILTY FINE SAND (A-2-4) WITH TRACE ORGANICS

BT

16+00.00

UNDIVIDED COASTAL PLAIN: MEDIUM STIFF, MOIST, BROWN, FINE SANDY SILT (A-4)

A S-166

0.020 0.020 3:1 6:1 7.3:1 4:1 04/19

LOOSE, MOIST TO SATURATED, BROWN, TAN, SILTY FINE SAND (A-2-4) WITH TRACE ORGANICS

BT

15+00.00

℄ STA. 41+21.79
OFF 127.40'

0.020 0.020 3:1 6:1 6:1 3:1 04/19

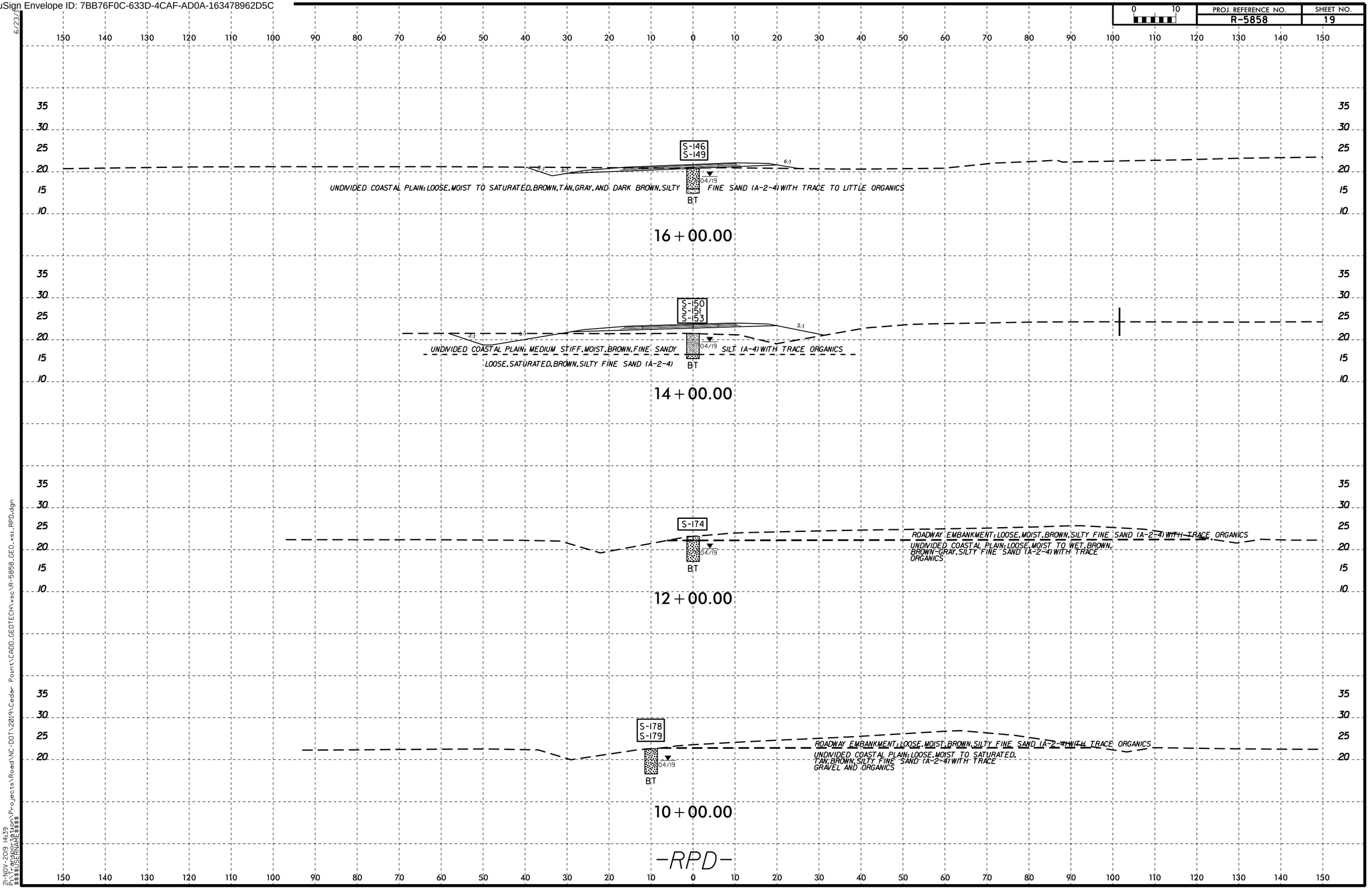
UNDIVIDED COASTAL PLAIN: LOOSE, MOIST TO SATURATED, BROWN, TAN, SILTY FINE SAND (A-2-4) WITH TRACE ORGANICS

BT
DRY
04/19

℄ STA. 40+18.28
OFF 100.69'

14+00.00

-RPB-



R-5858 - INTERSECTION IMPROVEMENT OF NC 24 (CEDAR POINT BLVD. AND WB MCLEAN DR.) AT NC 58	PROJECT NO.	SHEET
	R-5858	20

SOIL TEST RESULTS

SAMPLE NO.	STATION	OFFSET DISTANCE (ft)	LINE	DEPTH INTERVAL (ft)	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING SIEVES			% MOISTURE	% ORGANIC
								C. SAND	F. SAND	SILT	CLAY	10	40	200		
S-104	12+00	17 RT	-L-	0.0-1.0	A-4(0)	18	1	10.6	50.6	28.1	10.3	99.6	97.1	39.0	18.1	-
S-109	16+00	19 RT	-L-	0.0-1.0	A-2-4(0)	19	1	18.1	51.7	17.2	8.1	95.1	91.1	25.8	49.9	-
S-110	16+00	19 RT	-L-	1.0-2.0	A-2-4(0)	16	1	13.8	60.9	18.7	6.6	100.0	96.9	25.8	17.3	-
S-118	24+00	20 RT	-L-	0.0-1.0	A-2-4(0)	NV	NP	20.6	51.7	9.5	9.7	91.5	86.5	19.6	7.0	-
S-134	28+00	27 RT	-L-	0.0-1.0	A-2-4(0)	NV	NP	21.3	58.4	6.6	8.0	94.3	88.7	15.0	6.5	-
S-126	32+00	34 LT	-L-	0.0-1.0	A-2-4(0)	NV	NP	16.4	56.9	17.8	8.4	99.5	95.8	26.5	10.1	-
S-142	41+50	50 RT	-L-	0.0-1.0	A-2-4(0)	NV	NP	27.7	43.0	19.0	10.3	100.0	89.3	29.7	6.0	-
S-158	12+00	CL	-RPB-	0.0-1.0	A-2-4(0)	NV	NP	20.5	53.7	17.5	8.3	100.0	96.6	26.1	6.2	-
S-166	15+00	CL	-RPB-	0.0-1.0	A-4(0)	19	2	21.5	42.7	27.3	8.4	99.9	94.8	36.0	9.2	-
S-178	10+00	10 LT	-RPD-	0.0-1.0	A-2-4(0)	17	1	22.0	43.7	23.1	8.2	97.0	91.2	31.6	10.8	-
S-179	10+00	10 LT	-RPD-	1.0-2.0	A-2-4(0)	NV	NP	28.5	44.1	18.9	8.5	100.0	93.4	27.5	5.9	-
S-174	12+00	CL	-RPD-	0.0-1.0	A-2-4(0)	NV	NP	28.0	45.8	14.4	8.2	96.4	89.6	22.9	12.2	-
S-150	14+00	CL	-RPD-	0.0-1.0	A-4(0)	21	1	21.2	38.0	23.2	13.9	96.3	90.9	37.4	20.7	-
S-151	14+00	CL	-RPD-	1.0-2.0	A-4(0)	19	1	25.6	37.9	23.9	12.6	100.0	94.1	36.7	17.6	-
S-153	14+00	CL	-RPD-	5.0-6.0	A-2-4 (VIS)	-	-	-	-	-	-	-	-	-	23.1	2.1
S-146	16+00	CL	-RPD-	0.0-1.0	A-2-4(0)	18	2	13.5	45.0	15.8	14.4	88.7	82.3	31.8	17.0	-
S-149	16+00	CL	-RPD-	5.0-6.0	A-2-4(0)	NV	NP	27.4	45.0	15.0	12.6	100.0	96.7	27.6	32.9	3.6

NV=No Value NP=Non-Plastic