STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4007B	1	111

WBS NO.	F.A. PROJ. NO.	DESCRIPTION
35008.1.1	STPNHF-17(31)	PE
35008.3.4	NHF-0017(77)	ROW & UTILS.
35008.2.ST1	STM-0017(111)	CONSTR.

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

CONTENTS

LINE	STATION	PLAN	PROFILE
-L-	10+00 TO 77+04	6-11	15-19
-Y2-	81+10 TO 111+30	6,12	36-38
-Y4-	10+00 TO 30+00	7,13	40-41
-Y5-	10+00 TO 22+99	9,14	42
-Y1ASBL-	49+33 TO 81+90	6,12	33-35
-Y2CONN-	10+00 TO 15+34	6	39
-NBL-RAMP-	10+00 TO 50+54	4-6	23-25
-SBL-RAMP-	10+00 TO 50+81	4-6	30-32
-RAMP1A-	10+00 TO 27+07	6-7	26-27
-RAMP1B-	12+62 TO 26+92	6	28-29
-RAMPCC-	10+00 TO 12+70	6	-
-LOOP1A-	10+00 TO 24+19	6	20-21
-LOOP1D-	10+00 TO 23+84	6	22

CROSS SECTIONS	STATION	SHEET
-L-	15+50 TO 17+50	43,44
-L-	24+00 TO 31+00	44-48
-L-	35+00 TO 37+00	48,49
-L-	43+50 TO 57+00	50-61
-L-	61+00 TO 71+50	61-67
-L-	73+00 TO 75+50	68,69
-Y2-	91+00 TO 106+50	84-94
-Y4-	10+50 TO 30+00	95-105
-Y5-	12+00 TO 22+41	106-111
-Y1ASBL-	59+50 TO 63+00	81-83
-NBL-RAMP-	47+50 TO 48+50	75
-SBL-RAMP-	47+50 TO 49+00	80
-RAMP1A-	20+50 TO 26+00	76-79
-LOOP1A-	14+00 TO 16+00	70,71
-LOOP1D-	15+00 TO 21+00	72-74

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

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 35008.1.1 (U-4007B) F.A. PROJ. STPNHF-17(31)

COUNTY ONSLOW

PROJECT DESCRIPTION WESTERN PARKWAY FROM APPROXIMATELY 1300' SOUTH OF COUNTRY CLUB RD. TO WESTERN BLVD.

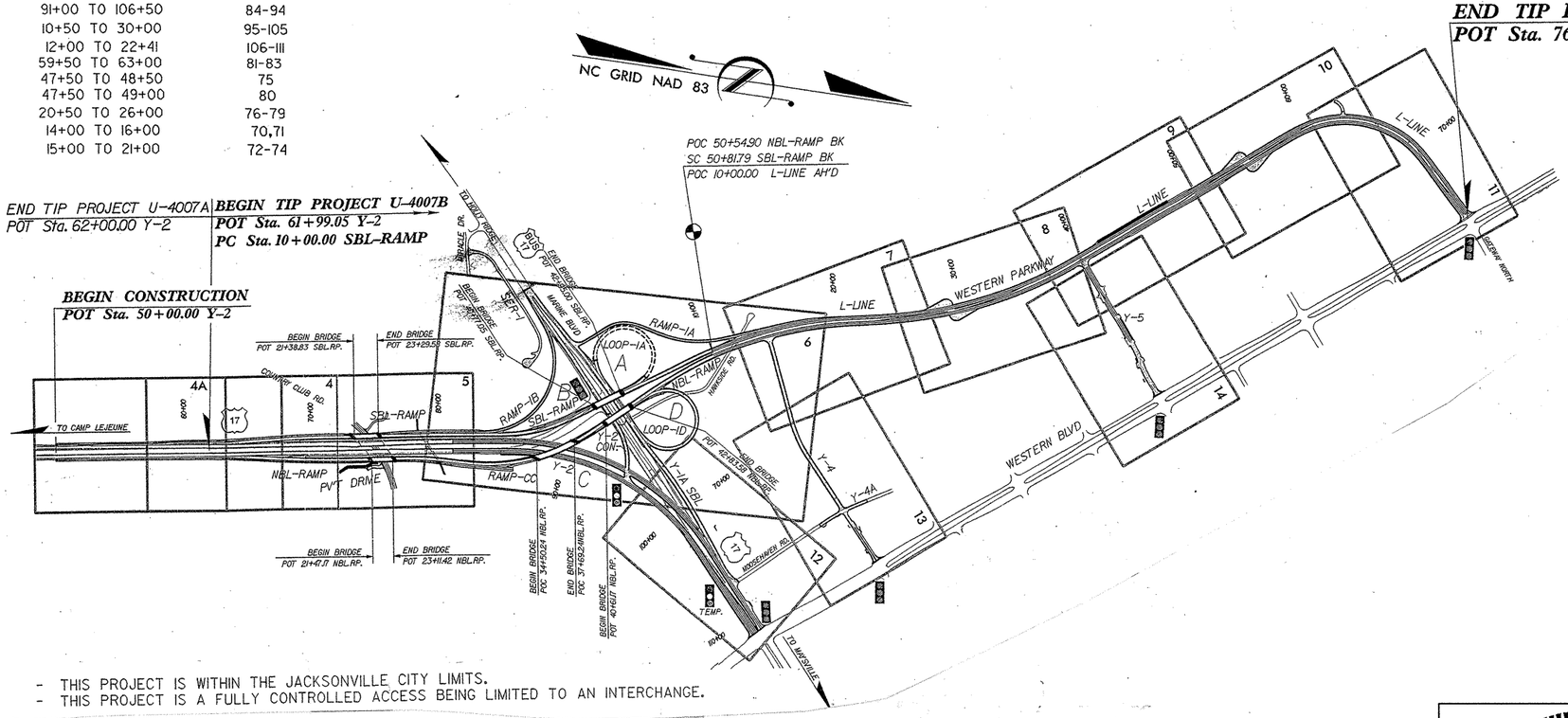
INVENTORY

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) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (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 THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.



END TIP PROJECT U-4007B
POT Sta. 76+58.49 L-LINE

- THIS PROJECT IS WITHIN THE JACKSONVILLE CITY LIMITS.
- THIS PROJECT IS A FULLY CONTROLLED ACCESS BEING LIMITED TO AN INTERCHANGE.

- **Refer to the following 2 Inventory Addenda as well as this Inventory.**

PERSONNEL

CMW

TCB

JRS

RES

JME

S&ME PERSONNEL

INVESTIGATED BY J.L. STONE

CHECKED BY D.N. ARGENBRIGHT

SUBMITTED BY D.N. ARGENBRIGHT

DATE AUGUST 2009

NORTH CAROLINA LICENSED SEAL 2007 GEOLOGIST JOSEPH L. STONE 8/21/09

DRAWN BY: C.R. SUMNER, J.L. STONE

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

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

CONTRACT: C202558 ID: U-4007B

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	2 OF III

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 TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:

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
LIQUID LIMIT PLASTIC INDEX	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 A 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	N/A
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	
	VERY DENSE	>50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	<2	<0.25
	SOFT	2 TO 4	0.25 TO 0.50
	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
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	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.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.

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 WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 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
- SOUNDING ROD
- SPT CPT DPT PMT VST PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- SPT N-VALUE
- REF — SPT REFUSAL

SAMPLE DESIGNATIONS

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

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

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [ ] CME-45C
- [ ] CME-750
- [ ] PORTABLE HOIST
- [X] DIEDRICH D-50
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [X] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [ ] CASING [ ] W/ ADVANCER
- [X] TRICONE 2 15/16 " STEEL TEETH
- [ ] TRICONE _____" TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC
- [ ] MANUAL

CORE SIZE:
- [ ] -B_____
- [ ] -N_____
- [ ] -H_____

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

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 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, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS 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 FEET
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 THE 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, 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:

ELEVATION: FT.

NOTES:

APPROXIMATE LIMITS OF ORGANIC DEPOSITS

CPT BORING

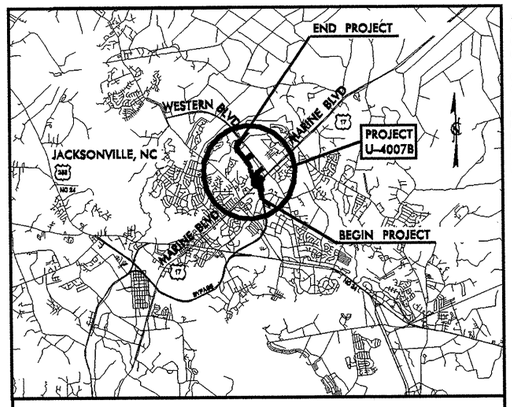
UNDIVIDED C.P. = UNDIVIDED COASTAL PLAIN

REVISED 02/23/06

09/08/99

31-AUG-2009 10:04
Intergraph TIN Investigation\tip\u4007b_geo_rdwy\cadd_geotech\site&sub\u-4007b_geo_rdwytitle&legend_inventory.dgn
Jistone AT GEC248338

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

JULY 28, 2008

25% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

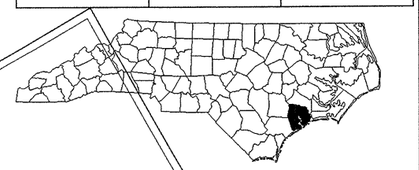
ONSLOW COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4007B	2A	111

WBS NO.	F.A. PROJ. NO.	DESCRIPTION
35008.1.1	STPNHF-17(31)	PE

LOCATION: WESTERN PARKWAY FROM APPROXIMATELY 1300' SOUTH OF COUNTRY CLUB RD. TO WESTERN BLVD.

TYPE OF WORK: GRADING, PAVING, DRAINAGE, CURB, GUTTER, STRUCTURES, & CULVERTS.



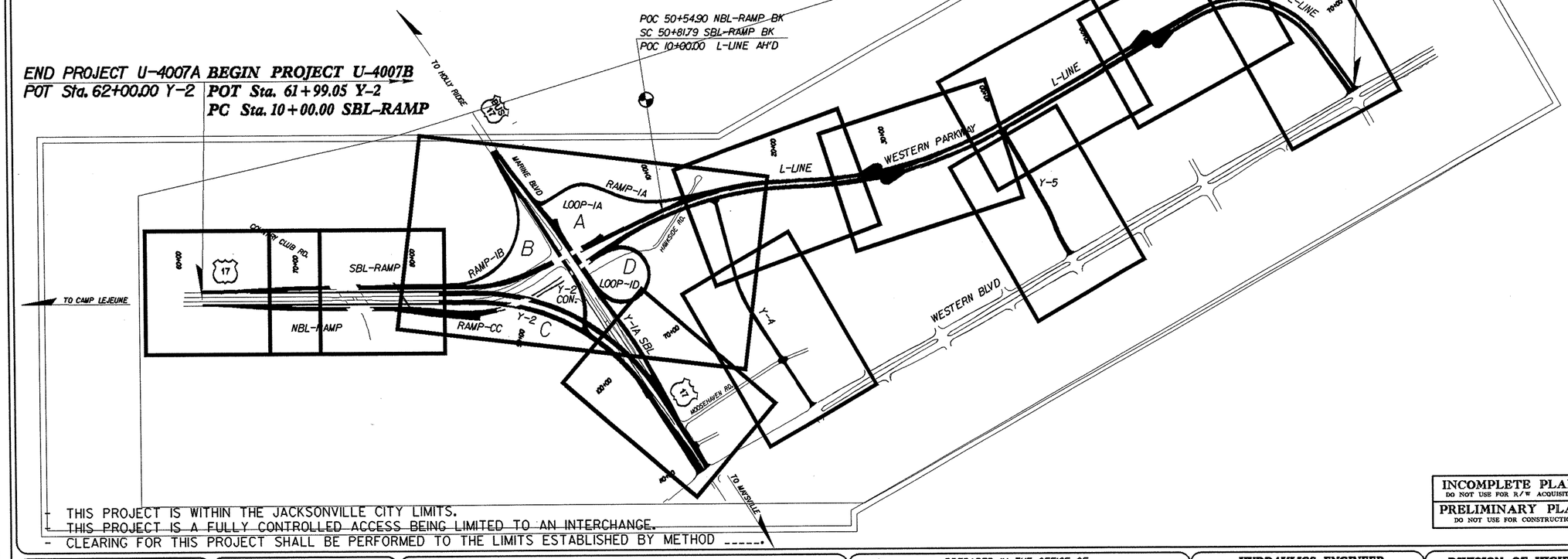
NC GRID NAD 83

END PROJECT
POT Sta. 76+58.49 L-LINE

END PROJECT U-4007A
POT Sta. 62+00.00 Y-2

BEGIN PROJECT U-4007B
POT Sta. 61+99.05 Y-2
PC Sta. 10+00.00 SBL-RAMP

POC 50+54.90 NBL-RAMP BK
SC 50+81.79 SBL-RAMP BK
POC 10+00.00 L-LINE AH'D



- THIS PROJECT IS WITHIN THE JACKSONVILLE CITY LIMITS.
- THIS PROJECT IS A FULLY CONTROLLED ACCESS BEING LIMITED TO AN INTERCHANGE.
- CLEARING FOR THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD _____.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

TIP PROJECT: U-4007B

CONTRACT

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 2011 = 36,300
ADT 2031 = 57,600
DHV = 10 %
D = 60 %
T = 8 % *
V = 50 MPH
(* TTST 3% + DUAL 5%)

PROJECT LENGTH

LENGTH OF ROADWAY T.I.P. PROJECT U-4007B	= 1.177 MI.
LENGTH OF STRUCTURE T.I.P. PROJECT U-4007B	= 0.857 MI
TOTAL LENGTH OF T.I.P. PROJECT U-4007B	= 2.034 MI

PREPARED IN THE OFFICE OF:

Stantec
Stantec Consulting Inc.
Suite 300, 801 Jones Franklin Road
Raleigh, NC U.S.A.
27606
Tel. 919.85 L6866
Fax. 919.85 L7024
www.stantec.com

FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: FEB 20, 2009

LETTING DATE: OCT. 19, 2010

KENNETH W. SMITH, PE
PROJECT ENGINEER

ROBERT A. WILLIAMS, PE
PROJECT DESIGN ENGINEER

KEITH F. HUDSON, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT: B. DOUG TAYLOR, PE
PROJECT ENGINEER - ROADWAY DESIGN

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

August 31, 2009

STATE PROJECT:	35008.1.1 (U-4007B)
F.A. PROJECT:	STPNHF-17 (31)
COUNTY:	Onslow
DESCRIPTION:	Western Parkway from Approximately 1300' South of Country Club Rd. To Western Blvd.
SUBJECT:	Geotechnical Inventory

Project Description

The project area lies in the city of Jacksonville, beginning at a point along Martin Luther King Jr. Parkway approximately 1300 feet south of the intersection of Martin Luther King Jr. Parkway and Country Club Rd. and extending generally northward approximately 2.0 miles to Western Blvd. This geotechnical investigation was confined to the areas of proposed construction.

Fieldwork for this project was conducted from November 2008 through March 2009. Standard Penetration Test borings were advanced with a CME 45-B drill machine with a manual hammer. Cone Penetration Test borings were completed with a Vertek cone penetration machine mounted on a Diedrich ATV using a 1.75" diameter cone. Hand auger borings were also completed. Representative soil samples were collected for visual classification in the field and for laboratory analysis by the Materials and Tests Unit.

The following alignments, totaling 2.03 miles were investigated. Subsurface profiles and selected cross sections of these alignments are included in this report.

Line	Station(±)
-L-	10+00 to 77+04
-Y2-	81+10 to 111+30
-Y4-	10+00 to 30+00
-Y5-	10+00 to 22+99
-Y1ASBL-	49+33 to 81+90
-Y2CONN-	10+00 to 15+34

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT
1589 MAIL SERVICE CENTER
RALEIGH NC 27699-1589

TELEPHONE: 919-250-4088
FAX: 919-250-4237
Website: www.ncdot.org./doh

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC

Line	Station(±)
-NBL-RAMP-	10+00 to 50+54
-SBL-RAMP-	10+00 to 50+81
-RAMP1A-	10+00 to 27+07
-RAMP1B-	12+62 to 26+92
-RAMPCC-	10+00 to 12+70
-LOOP1A-	10+00 to 24+19
-LOOP1D-	10+00 to 23+84

Areas of Special Geotechnical Interest

1) The following sections contain cohesive soils which have the potential to cause embankment stability and/or long term settlement problems:

Line	Station(±)
-L-	10+00 to 16+32
-L-	17+17 to 76+58
-Y2-	81+10 to 84+87
-Y2-	87+25 to 89+86
-Y2-	91+10 to 111+30
-Y4-	10+00 to 30+00
-Y5-	10+00 to 22+99
-Y1A-SBL-	49+33 to 63+17
-Y1A-SBL-	64+55 to 81+90
-Y2CONN-	10+00 to 15+34
-NBL-RAMP-	10+00 to 19+49
-NBL-RAMP-	19+70 to 36+98
-NBL-RAMP-	38+90 to 50+54
-SBL-RAMP-	10+00 to 20+99
-SBL-RAMP-	22+26 to 26+49
-SBL-RAMP-	28+46 to 50+81
-RAMP1A-	10+00 to 27+07
-RAMP1B-	12+62 to 26+92
-RAMPCC-	10+00 TO 12+70
-LOOP1A-	10+00 to 24+19
-LOOP1D-	10+00 to 22+05

2) The following section contains organic soils, which have the potential for embankment stability and/or subgrade problems during construction.

Line	Station(±)
-L-	15+43 to 17+29
-NBL-RAMP-	47+55 to 48+61
-SBL-RAMP-	47+73 to 48+81
-RAMP1A-	24+59 to 25+43
-LOOP1A-	14+16 to 15+24
-LOOP1A-	19+20 to 19+60

3) The following sections were found to exhibit seasonal high ground water.

Line	Station(±)
-L-	10+00 to 13+00
-L-	16+00 to 23+00
-L-	34+50 to 44+50
-L-	53+00 to 76+50
-LOOP1A-	10+75 to 24+19
-LOOP1D-	14+00 to 17+00
-LOOP1D-	21+50 to 23+84
-NBL-RAMP-	10+00 to 37+00
-NBL-RAMP-	39+00 to 42+50
-NBL-RAMP-	45+50 to 50+54
-RAMP1A-	10+00 to 26+50
-RAMP1B-	12+62 to 26+92
-SBL-RAMP-	10+00 to 44+50
-SBL-RAMP-	45+50 to 50+81
-Y1ASBL-	49+33 to 81+90
-Y2-	81+10 to 111+30
-Y2CONN-	10+00 to 13+00
-Y4-	10+00 to 30+00
-Y5-	10+00 to 22+99

4) Along the following sections storm water retention ponds were encountered.

Line	Station(±)
-L-	45+08 to 52+23
-Y4-	25+86 to 26+27

Physiography and Geology

This project corridor is located within the Coastal Plain Physiographic Province. Topography along the project is nearly flat to gently sloping. Natural ground elevations ranged from 32± to 52± feet above sea level.

Surficial soils in this area are generally classified as undivided coastal plain sediments and are underlain by the Castle Hayne Formation.

Ground Water

Ground water data was collected from December 2008 through February 2009, during a time of normal precipitation. Ground water elevations ranged from 25± to 45± feet above sea level.

Soils

Soils within this project area have been divided into four categories, undivided coastal plain soils, formational soils, artificial fill soils, and roadway embankment soils.

Soils classified as undivided coastal plain are comprised of 3± to 32± feet of very loose to dense sand (A-2-4, A-3), 2± to 15± feet of very soft to very stiff sandy and clayey silt (A-4), and 2± to16± feet of very soft to stiff sandy and silty clay (A-6, A-7-6). Moisture samples collected within these cohesive soils ranged from 19% to 126%. Additionally, surficial organic deposits were identified. These soils were primarily 2± to 3± feet in thickness and comprised of very loose sand (A-2-4), and very soft silts and clays (A-4, A-6) Samples taken from within these units indicated organic percentages ranging from 8% to 23% and moisture contents ranging from 18% to 110%

Soils that are described as formational have been identified as belonging to the Castle Hayne Formation. Where encountered, these deposits are composed of 9± to 23± feet of medium dense to very dense sand (A-2-4, A-3), 3± feet of stiff sandy silt (A-4), and 2± to 21± feet of soft to very hard limestone and calcareous sandstone.

Soils classified as artificial fill are composed of 3± to 7± feet of medium stiff to stiff clayey and sandy silt (A-4), and 2± to 5± feet of stiff silty and sandy clay (A-6. A-7-6).

Soils identified as roadway embankment are comprised of 1± to 20± feet of loose to medium dense sand (A-2-4, A-3). These soils were encountered along the existing US 17 Bypass corridor and associated intersecting roads.

Undisturbed Samples

Undisturbed thin wall Shelby tube samples were collected at the following locations and submitted for testing.

Sample No.	Station	Depth	Test
ST-1	-RAMP1B- 15+00 50' LT	9.5-11.5	Consolidation
ST-2	-SBL-RAMP- 43+23 CL	12.6-14.6	Consolidation
ST-3	-NBL-RAMP- 23+45 60' LT	5.3-7.3	Consolidation

Respectfully Submitted,

Joseph L. Stone, L.G.
Project Engineering Geologist

3B/111

Earthwork Balance Sheet

Volumes in Cubic Yards

PROJECT U-4007B COUNTY: Onslow DATE: 5/1/2010 COMPILED BY: RAW SHEET 1 OF 2 SHEETS

STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE			
		TOTAL UNCLASS.	ROCK	* UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	* TOTAL	ROCK	EARTH	EMBANK. +25%		ROCK	SUITABLE	UNSUIT.	TOTAL
Y-2 N & SB AUX. LANES	50+00. TO 62+00.00	1283				1283	1628		1628	2,035	752				
Y-2 NBL 61+99.05	63+25.00	88				88	22		22	28			61		61
NBL-RAMP 10+00.00	21+95.00	946				946	33,948		33,948	42,435	41,489				
SBL-RAMP 10+00.00	21+88.00	750				750	28,186		28,186	35,233	34,483				
PR-1 10+90.00	12+24.13	208				208	1		1	1			207		207
	SUBTOTAL	3,275				3,275	63,785		63,785	79,732	76,724		268		268
NBL-RAMP 22+78.50	34+88.50	279				279	30,442		30,442	38,053	37,774				
SBL-RAMP 22+85.50	41+46.50	295				295	78,984		78,984	98,730	98,435				
Y-2 81+10.00	89+50.00	1,543				1,543	98,940		98,940	123,675	122,132				
RAMP-1B 16+40.86	26+92.31	1,473				1,473	2,591		2,591	3,239	1,766				
SERVICE RD. 10+10.06	22+00.00	1,490		858	141	1,349	1,258		1,258	1,573	224			999	999
	SUBTOTAL	5,080		858	141	4,939	212,215		212,215	265,270	260,331			999	999
NBL-RAMP 37+06.00	40+87.00	2				2	53,003		53,003	66,254	66,252				
Y-2 89+50.00	108+50.00	3,761		1,957		3,761	27,594		27,594	34,493	30,732			1,957	1,957
Y-2 CONN 10+00.00	14+81.01	350				350	1,737		1,737	2,171	1,821				
	SUBTOTAL	4,113		1,957		4,113	82,334		82,334	102,918	98,805			1,957	1,957
NBL-RAMP 42+47.50	50+54.94	1		265		1	42,464		42,464	53,080	53,079			265	265
SBL-RAMP 42+57.00	50+81.29			705			44,175		44,175	55,219	55,219			705	705
L-LINE 10+00.00	13+50.00						10,790		10,790	13,488	13,488				
Y-1A SBL 49+33.02	71+03.25	10,509		1,483		10,509	10,994		10,994	13,743	3,234			1,483	1,483
PR-2 10+19.55	12+55.00	6				6	44		44	55	49				
	SUBTOTAL	10,516		2,453		10,516	108,467		108,467	135,584	125,068			2,453	2,453
RAMP-1A 16+30.09	26+95.19	23		547		23	14,224		14,224	17,780	17,757			547	547
LOOP-1A 13+30.37	21+61.21	7		1,122		7	6,625		6,625	8,281	8,274			1,122	1,122
LOOP-1D 13+50.00	20+53.93	2,383		1,871		2,383	5,435		5,435	6,794	4,411			1,871	1,871
	SUBTOTAL	2,413		3,540		2,413	26,284		26,284	32,855	30,442			3,540	3,540
L-LINE 13+50.00	41+00.00	146		1,140		146	68,300		68,300	85,375	85,229			1,140	1,140
Y-4 10+36.17	30+00.00	421		1,942	110	311	9,082		9,082	11,353	11,042			2,052	2,052
Y-4A 12+25.00	16+43.50	111				111	899		899	1,124	1,013				
	SUBTOTAL	678		3,082	110	568	78,281		78,281	97,852	97,284			3,192	3,192
	SHEET TOTAL	26,075		11,890	251	25,824	571,366		571,366	714,211	688,654		268	12,141	12,409

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

* EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT.

Earthwork Balance Sheet

Volumes in Cubic Yards

PROJECT U-4007B COUNTY: Onslow DATE: 5/1/2010 COMPILED BY: RAW SHEET 2 OF 2 SHEETS

STATION	STATION	EXCAVATION					EMBANKMENT				BORROW	WASTE			
		TOTAL UNCLASS.	ROCK	* UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	* TOTAL	ROCK	EARTH	EMBANK. +25%		ROCK	SUITABLE	UNSUIT.	TOTAL
L-LINE 41+00.00	76+58.49	3,798		4,268	110	3,688	74,095		74,095	92,619	88,931			4,378	4,378
Y-5 10+35.20	22+41.44	574		3,324		574	3,727		3,727	4,659	4,085			3,324	3,324
	SUBTOTAL	4,372		7,592	110	4,262	77,822		77,822	97,278	93,016			7,702	7,702
	TOTAL FROM SHEET 1	26,075		11,890	251	25,824	571,366		571,366	714,211	688,654		268	12,141	12,409
	TOTAL FROM SHEET 2	4,372		7,592	110	4,262	77,822		77,822	97,278	93,016			7,702	7,702
	SUBTOTAL	30,447		19,482	361	30,086	649,188		649,188	811,489	781,670		268	19,843	20,111
TOTAL		30,447		19,482	361	30,086	649,188		649,188	811,489	781,670		268	19,843	20,111
EMBANKMENT FOR UNDERCUT							19,482		19,482	24,353	24,353				
MATERIAL FOR SHOULDER CONSTRUCTION							11,000		11,000	13,750	13,750				
LOSS DUE TO CLEARING & GRUBBING															
GRADE POINT UNDERCUT				1,400			1,400		1,400	1,750	1,750			1,400	1,400
UNDERCUT FOR EMBANK. STABILIZATION				830			830		830	1,038	1,038			830	830
ADDITIONAL UNDERCUT				2,300			2,300		2,300	2,875	2,875			2,300	2,300
SELECT MATERIAL, CLASS III							-54,480		-54,480	-68,100	-68,100				
WASTE IN LIEU OF BORROW											-268		-268		-268
PROJECT TOTAL		30,447		**24,012**	**361**	**30,086**	**629,720**		**629,720**	**787,155**	757,068			24,373	24,373
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT											37,853				
GRAND TOTAL		30,447		**24,012**	**361**	**30,086**	**629,720**		**629,720**	**787,155**	794,921			24,373	24,373
SAY		**30,500**		**24,100**							**795,000**				
Fabric for Soil Stabilization		65,300	SQ YD												
Class IV Subgrade Stabilization		1,450	TONS												
Drainage Ditch Excavation		5,500	CU YD												
Stabilizer Aggregate		8,700	TONS												
Pavement Structure Volume		5,980	CU YD												
SHALLOW UNDERCUT		500	CU YD												

NOTE: EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT.

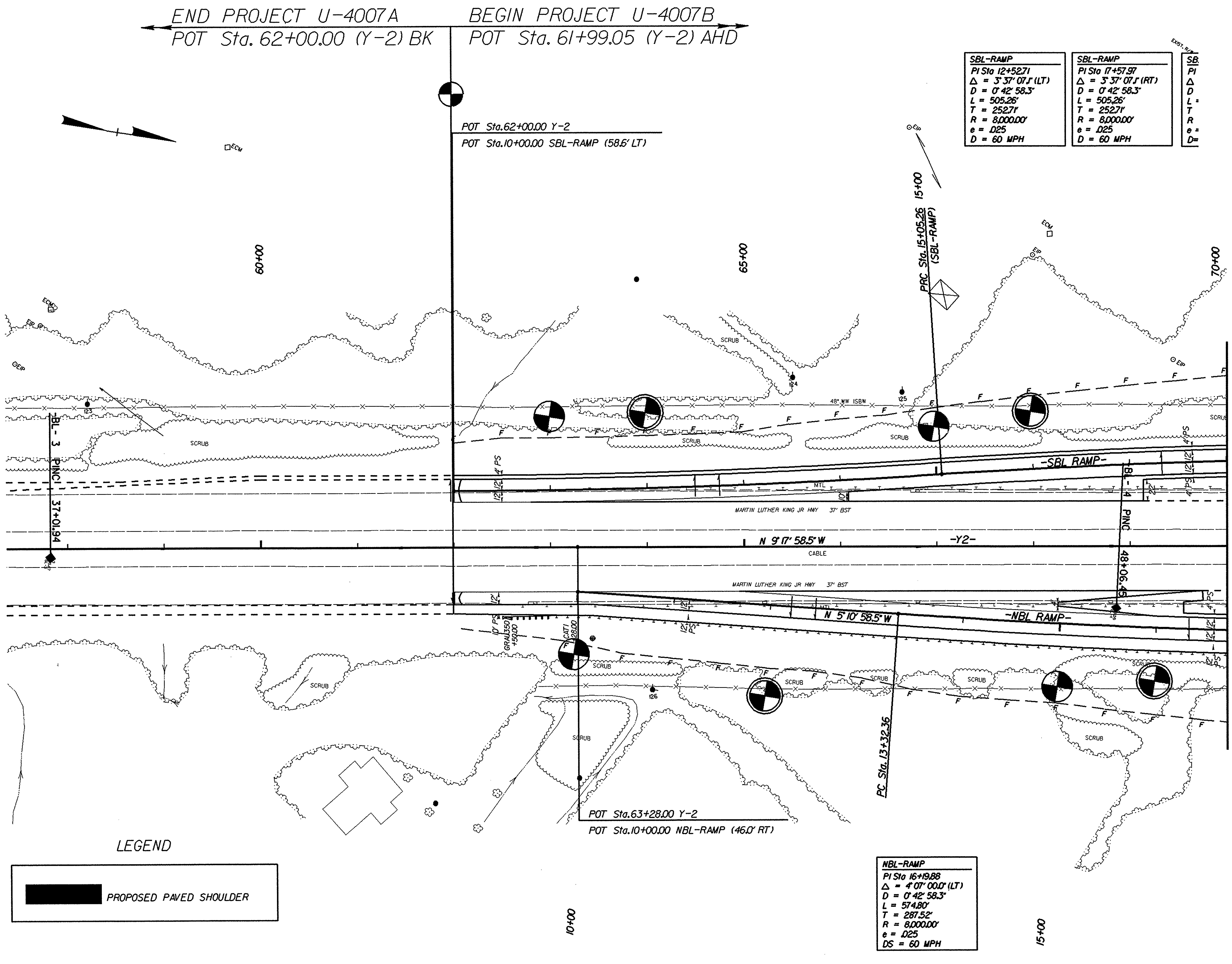
* EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT.

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Stantec
Stantec Consulting Services Inc.
Suite 300, 801 Jones Franklin Road
Raleigh, NC
27606



SBL-RAMP
PI Sta 12+52.71
Δ = 3°37' 07.5" (LT)
D = 0°42' 58.3"
L = 505.26'
T = 252.71'
R = 8,000.00'
e = .025
D = 60 MPH

SBL-RAMP
PI Sta 17+57.97
Δ = 3°37' 07.5" (RT)
D = 0°42' 58.3"
L = 505.26'
T = 252.71'
R = 8,000.00'
e = .025
D = 60 MPH

NBL-RAMP
PI Sta 16+19.88
Δ = 4°07' 00.0" (LT)
D = 0°42' 58.3"
L = 574.80'
T = 287.52'
R = 8,000.00'
e = .025
DS = 60 MPH

8/17/99

17-JUN-2009 09:07

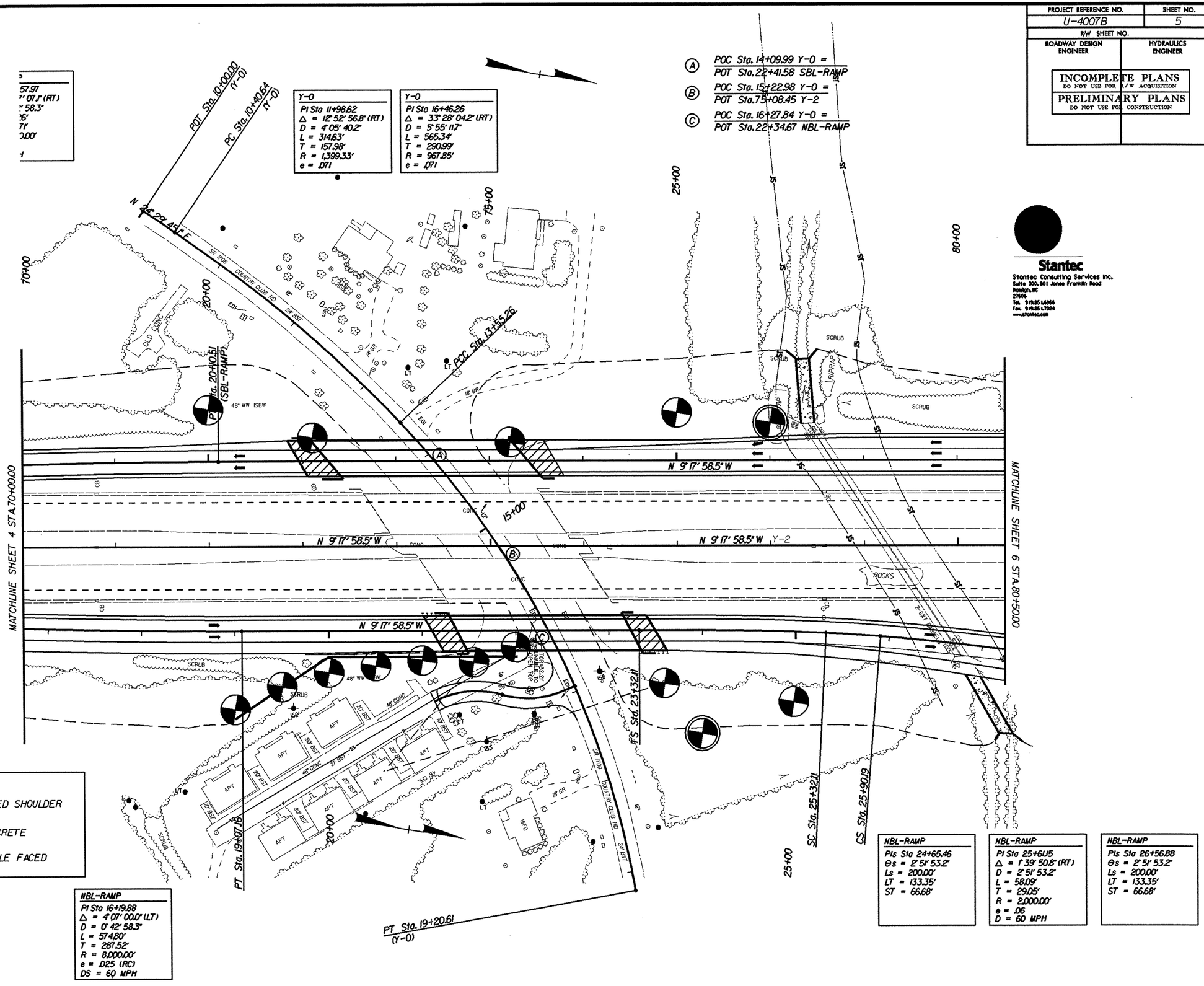
PROJECT REFERENCE NO.	SHEET NO.
U-4007B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

8/17/99

REVISIONS



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fax. 919.85 1.7024
www.stantec.com

LEGEND

- PROPOSED PAVED SHOULDER
- PROPOSED CONCRETE
- PROPOSED SINGLE FACED CONC. BARRIER

NBL-RAMP
PI Sta 16+19.88
Δ = 4° 07' 00.0" (LT)
D = 0° 42' 58.3"
L = 574.80'
T = 287.52'
R = 8,000.00'
e = .025 (RC)
DS = 60 MPH

NBL-RAMP
PIs Sta 24+65.46
θs = 2° 51' 53.2"
Ls = 200.00'
LT = 133.35'
ST = 66.68'

NBL-RAMP
PI Sta 25+61.15
Δ = 1° 39' 50.8" (RT)
D = 2° 51' 53.2"
L = 58.09'
T = 29.05'
R = 2,000.00'
e = .06
D = 60 MPH

NBL-RAMP
PIs Sta 26+56.88
θs = 2° 51' 53.2"
Ls = 200.00'
LT = 133.35'
ST = 66.68'

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PROJECT REFERENCE NO. U-4007B | SHEET NO. 6

R/W SHEET NO.

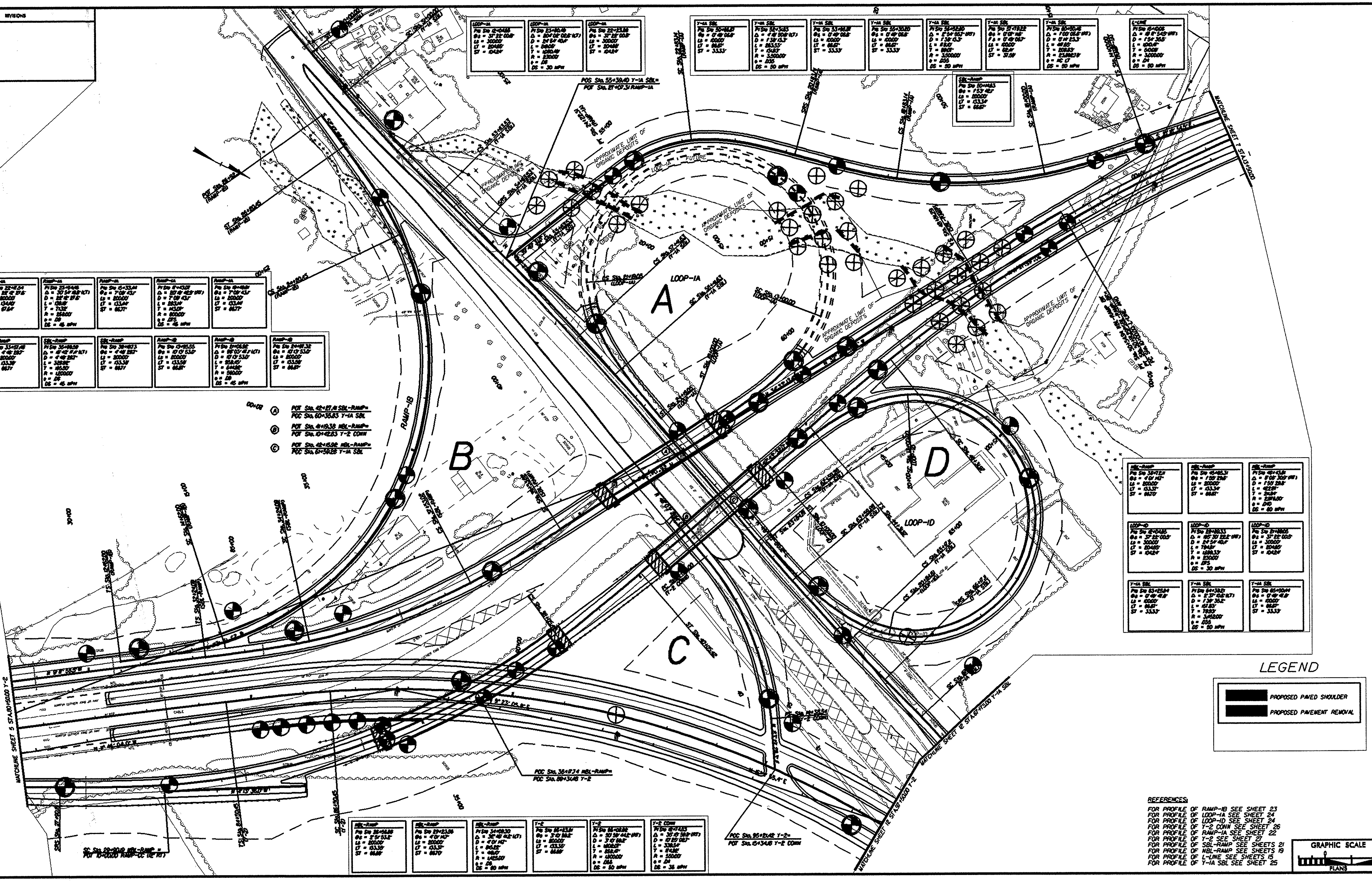
ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Stantec

REVISIONS



LEGEND

PROPOSED PAVED SHOULDER

PROPOSED PAVEMENT REMOVAL

REFERENCES:

FOR PROFILE OF RAMP-1B SEE SHEET 23
FOR PROFILE OF LOOP-1A SEE SHEET 24
FOR PROFILE OF LOOP-1D SEE SHEET 24
FOR PROFILE OF Y-2 CONN SEE SHEET 26
FOR PROFILE OF RAMP-1A SEE SHEET 22
FOR PROFILE OF Y-2 SEE SHEET 27
FOR PROFILE OF SBL-RAMP SEE SHEETS 21
FOR PROFILE OF NBL-RAMP SEE SHEETS 19
FOR PROFILE OF L-LINE SEE SHEETS 15
FOR PROFILE OF Y-1A SBL SEE SHEET 25

GRAPHIC SCALE
PLANS

LOCATION:

TIP NO.: | COUNTY:

DESIGNED BY:

CHECKED BY: | DATE:

27-AUG-2009 14:48
u-4007b_geo_psh_06.dgn

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	7
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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L-LINE
PI Sta 15+10.06
Δ = 19° 11' 54.5" (RT)
D = 1° 54' 35.5"
L = 1,010.41'
T = 510.06'
R = 3,000.00'
e = .04
DS = 50 MPH

L-LINE
PIs Sta 20+77.14
Θs = 1° 54' 35.5"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

L-LINE
PIs Sta 23+43.80
Θs = 1° 38' 13.3"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

L-LINE
PI Sta 31+70.59
Δ = 24° 30' 22.3" (LT)
D = 1° 38' 13.3"
L = 1,497.00'
T = 760.12'
R = 3,500.00'
e = .035
DS = 50 MPH

15+00

20+00

25+00

POT Sta. 10+00.00 (RAMP-1A)

APPROXIMATE LIMIT OF ORGANIC DEPOSITS

MATCHLINE SHEET 6 STA.13+50.00

280' AUX LANE

300' TAPER

L-LINE

POC Sta. 14+59.48 L-LINE=
POT Sta. 10+00.00 Y-4

N 39° 13' 50.2" W

150' TAPER

MATCHLINE SHEET 8 STA.26+50.00

CS Sta. 20+10.47 (L-LINE)

SRS Sta. 22+10.47 (L-LINE)

SC Sta. 24+10.47 (L-LINE)

N 66° 07' 09.8" W

NO DTM COVERAGE

Y-4

MATCHLINE SHEET 13 STA.16+75.00

LEGEND

PROPOSED PAVED SHOULDER

REVISIONS

8/17/09

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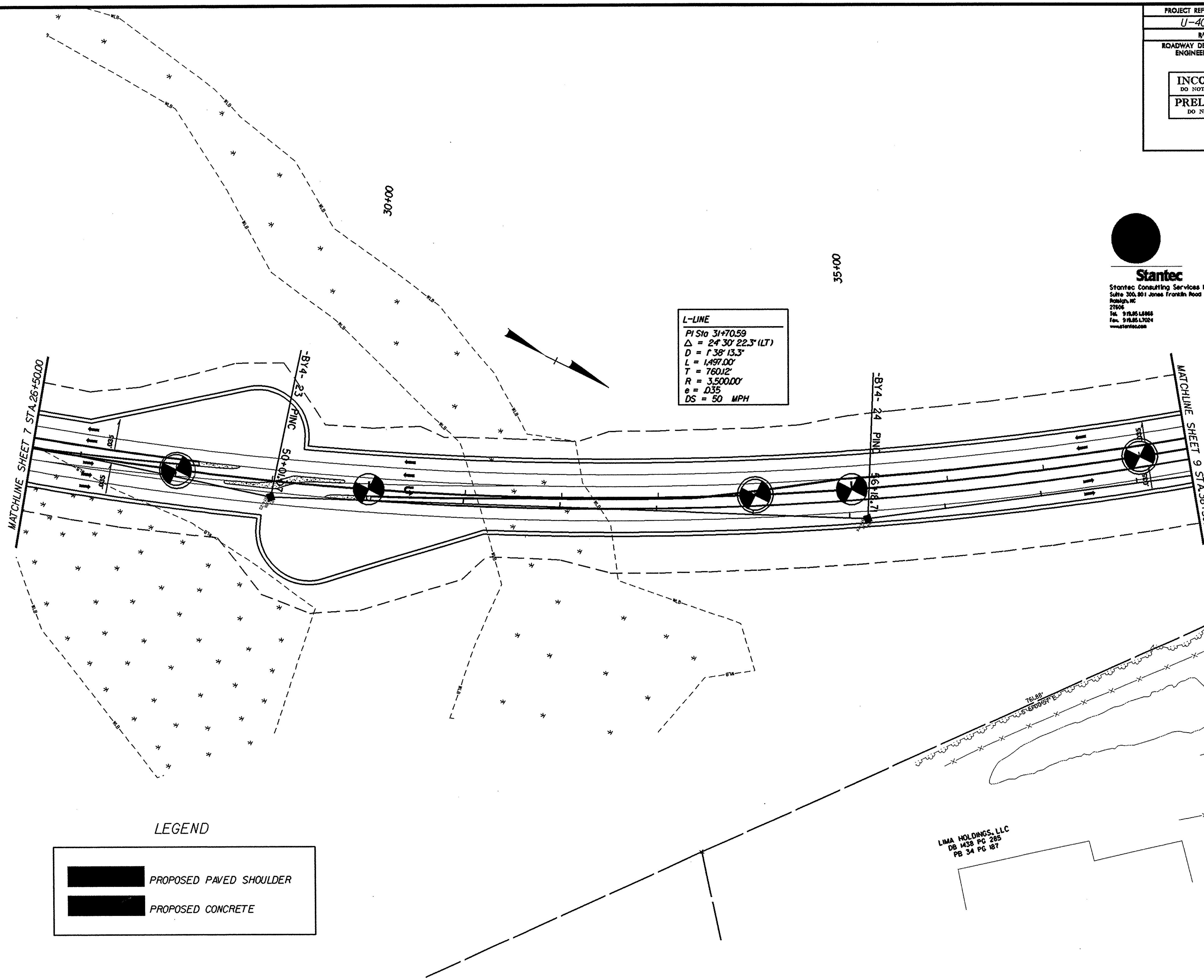
PROJECT REFERENCE NO.	SHEET NO.
U-4007B	8
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION



LEGEND

■	PROPOSED PAVED SHOULDER
■	PROPOSED CONCRETE

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	9
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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REVISIONS
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L-LINE
PI Sta 31+70.59
Δ = 24° 30' 22.3" (LT)
D = 1° 38' 13.3"
L = 1,497.00'
T = 760.12'
R = 3,500.00'
DS = 50 MPH

L-LINE
PIs Sta 39+74.14
θs = 1° 38' 13.3"
Ls = 200.00'
LT = 133.34'
ST = 66.67'

POS Sta. 40+12.77 L-LINE=
POT Sta. 10+00.00 Y-5

40+00

45+00

50+00

MATCHLINE SHEET 8 STA.38+50.00

MATCHLINE SHEET 10 STA.51+00.00

MATCHLINE SHEET 14 STA.12+50.00

CS Sta. 39+07.46 (L-LINE)

ST Sta. 41+07.46 (L-LINE)

N 39°13'50.2" W

ISBK

ISFD

WD DECK

CONC PAD

48" CMP

60" CMP

24" CMP

18" CMP

WE 39.2

WE 50.1

24' C&G

26' BST

CONC

ISBLK BUS

LEGEND

PROPOSED PAVED SHOULDER

PROPOSED CONCRETE

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	10
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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REVISIONS

55+00

60+00

MATCHLINE SHEET 9 STA.51+00.00

N 39°13'50.2"W

55+00

L-LINE

N 38° 01' 49.3"W

JS

ST

TS Sta. 58+11.60
(L-LINE)

SC Sta. 61+11.60
(L-LINE)

MATCHLINE SHEET 11 STA.64+50.00

N 10° 11' N

50' BST

34' BST

L-LINE
PIs Sta 60+12.01
θs = 11° 18' 30.2"
Ls = 300.00'
LT = 200.41'
ST = 100.37'

L-LINE
PI Sta 65+67.62
Δ = 61° 55' 48.1" (RT)
D = 7° 32' 20.1"
L = 821.47'
T = 456.02'
R = 760.00'
e = .06
DS = 50 MPH

LEGEND

PROPOSED PAVED SHOULDER

PROPOSED CONCRETE

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	11
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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65+00

70+00

L-LINE
PI Sta 65+67.62
Δ = 6° 55' 48.5" (RT)
D = 7° 32' 20.5"
L = 821.47'
T = 456.02'
R = 760.00'
e = .06
DS = 50 MPH

L-LINE
Pls Sta 70+33.44
θs = 1° 18' 30.2"
Ls = 300.00'
LT = 200.41'
ST = 100.37'

SCRUB

18" CMP

48" CONC

36" BST

24" CMP

24" RCP

L-LINE

N 45° 18' 58.2" E

CS Sta. 69+33.07 (L-LINE)

ST Sta. 72+33.07 (L-LINE)

POT Sta. 77+04.87 (L-LINE)

MATCHLINE SHEET 10 STA. 64+50.00

LEGEND

PROPOSED PAVED SHOULDER

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	12
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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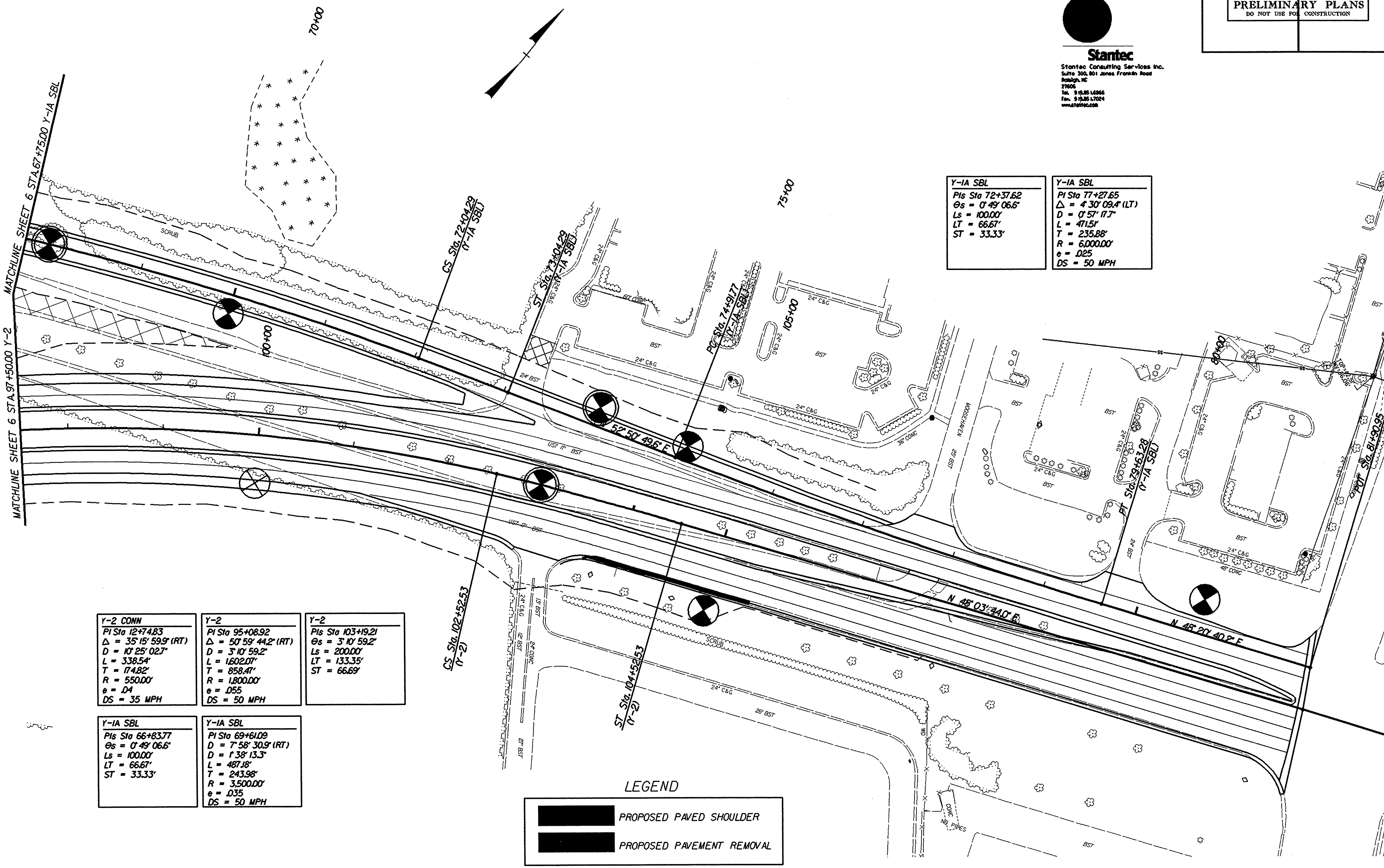

Y-2 CONN
PI Sta 12+74.83
Δ = 35° 15' 59.9" (RT)
D = 10° 25' 02.7"
L = 338.54'
T = 174.82'
R = 550.00'
e = .04
DS = 35 MPH

Y-2
PI Sta 95+08.92
Δ = 50° 59' 44.2" (RT)
D = 3° 10' 59.2"
L = 1,602.07'
T = 858.47'
R = 1,800.00'
e = .055
DS = 50 MPH

Y-2
PIs Sta 103+19.21
θs = 3° 10' 59.2"
Ls = 200.00'
LT = 133.35'
ST = 66.69'

Y-1A SBL
PIs Sta 66+83.77
θs = 0° 49' 06.6"
Ls = 100.00'
LT = 66.67'
ST = 33.33'

Y-1A SBL
PI Sta 69+61.09
D = 7° 58' 30.9" (RT)
D = 1° 38' 13.3"
L = 487.18'
T = 243.98'
R = 3,500.00'
e = .035
DS = 50 MPH

Y-1A SBL
PIs Sta 72+37.62
θs = 0° 49' 06.6"
Ls = 100.00'
LT = 66.67'
ST = 33.33'

Y-1A SBL
PI Sta 77+27.65
Δ = 4° 30' 09.4" (LT)
D = 0° 57' 17.7"
L = 471.51'
T = 235.88'
R = 6,000.00'
e = .025
DS = 50 MPH

LEGEND

PROPOSED PAVED SHOULDER

PROPOSED PAVEMENT REMOVAL

REVISIONS

8/17/99

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	13
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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MATCHLINE SHEET 7 STA.16+75.00

PC Sta. 17+09.21
(Y-4)

Y-4
PI Sta 18+69.42
Δ = 18° 12' 13.1" (LT)
D = 5° 43' 46.5"
L = 317.71'
T = 160.21'
R = 1,000.00'
e = .06
DS = 45 MPH

PT Sta. 20+26.93
(Y-4)

20+00

N 41° 47' 04" E

RUINS

ISMTL BUS

ST

25+00

36" RCP

8" PVC

24" C&G

30" RCP

30" BST

SR 1470 WESTERN BLVD

48" CONC

ISBK BUS

ISF BUS

2' CURB

48" BST

32" BST

15" RCP

WE 393

72" CML

END CONSTRUCTION
POS Sta. 30+00.00 (Y-4)

POT Sta. 30+50.50

30+00

200.00'

LEGEND

PROPOSED PAVED SHOULDER

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	14
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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Fax. 919.851.7024
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REVISIONS
8/17/99

MATCHLINE SHEET 9 STA.12+50.00

18" CMP
EIP
48" RCP
N 50°52' 45.3" E
30" CMP
24" C&G
60" CONC
ISF BUS
BST
8" RCP
16" RCP
ITS
36" BST
N 50° 57' 05.3" E
SR 1
WE 441
30" RCP
24" CHL
6" CURB
CURB
ISF CONC
48" BST
T&TFO
8" PVC
RIPRAP
WE 415
EOI
36" RCP
48" CPL
408
NC 50
RIP RAP

PC Sta. 17+64.88 (Y-5)
PRC Sta. 19+40.51 (Y-5)
PT Sta. 21+14.88 (Y-5)
POT Sta. 22+99.88 (Y-5)
15+00
20+00

Y-5
PI Sta 18+52.92
Δ = 10° 03' 45.5" (RT)
D = 5° 43' 46.5'
L = 175.63'
T = 88.04'
R = 1,000.00'
e = .025
DS = 45 MPH

Y-5
PI Sta 20+27.91
Δ = 9° 59' 25.5" (LT)
D = 5° 43' 46.5'
L = 174.37'
T = 87.40'
R = 1,000.00'
e = .025
DS = 45 MPH

LEGEND

PROPOSED PAVED SHOULDER

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	15

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

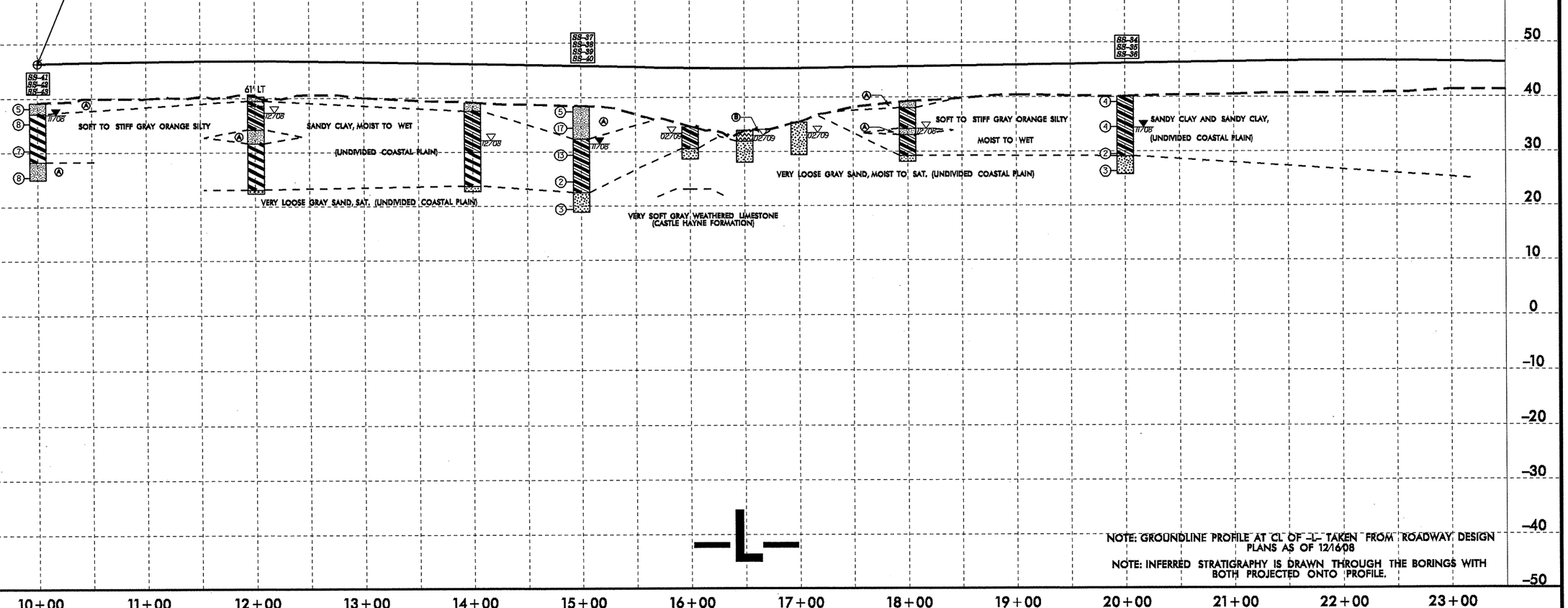
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-41	CL	10+00	1.0-1.5	A-4(0)	19	4	6.1	42.0	31.8	20.2	100	98	59	19.4	-
SS-42	CL	10+00	2.8-4.3	A-7-6(20)	49	30	3.6	32.1	21.9	42.4	100	99	70	-	-
SS-43	CL	10+00	12.8-14.3	A-4(4)	27	10	5.9	49.4	18.5	26.2	100	98	62	-	-
SS-37	CL	15+00	1.0-1.5	A-4(0)	16	NP	6.9	46.4	28.6	18.2	100	98	53	-	-
SS-38	CL	15+00	8.0-9.5	A-6(8)	32	15	0.4	49.0	18.3	32.3	100	100	66	-	-
SS-39	CL	15+00	13.0-14.5	A-6(5)	28	12	4.8	48.4	18.5	28.3	100	98	64	-	-
SS-40	CL	15+00	18.0-19.5	A-2-4(0)	21	NP	22.9	62.4	3.6	11.1	96	86	15	-	-
SS-34	CL	20+00	1.0-1.5	A-6(6)	30	12	4.4	33.9	31.4	30.3	100	99	67	28.9	-
SS-35	CL	20+00	9.6-11.1	A-6(2)	27	11	18.6	45.4	15.8	20.2	100	93	44	-	-
SS-36	CL	20+00	12.9-14.4	A-2-4(0)	21	4	29.6	48.5	7.8	14.1	92	77	21	-	-

Ⓐ MEDIUM STIFF TO VERY STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓑ SOFT BROWN MUCK, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	16
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

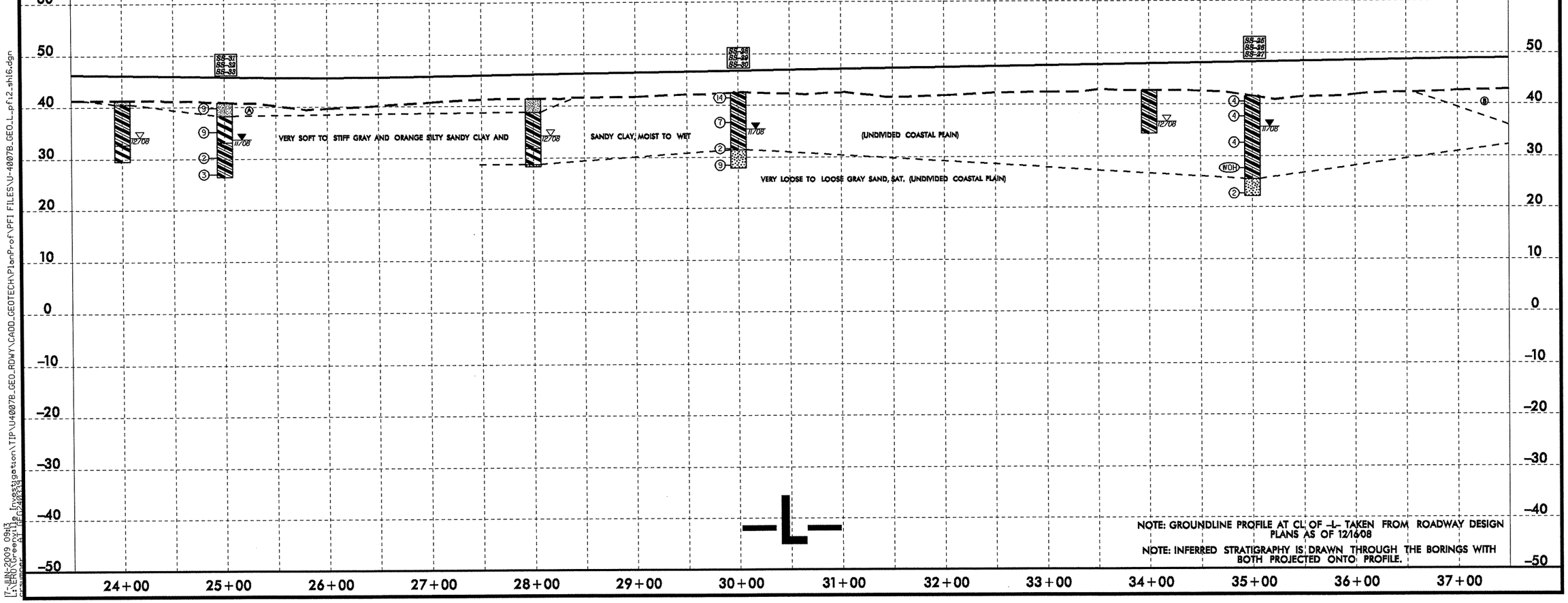
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-31	CL	25+00	1.0- 1.5	A-4(6)	28	10	3.8	27.2	36.6	32.3	100	99	76	21.4	-
SS-32	CL	25+00	4.5- 6.0	A-7-6(19)	46	29	3.4	39.0	19.3	38.3	100	98	70	-	-
SS-33	CL	25+00	9.5- 11.0	A-6(2)	26	12	15.9	44.2	19.7	20.2	100	94	48	-	-
SS-28	CL	30+00	1.0- 1.5	A-6(6)	28	11	4.6	28.3	36.8	30.3	100	99	72	-	-
SS-29	CL	30+00	9.7- 11.2	A-6(5)	27	11	2.2	50.1	19.5	28.3	100	99	67	-	-
SS-30	CL	30+00	13.0- 14.5	A-2-4(0)	18	NP	46.4	42.6	4.9	6.1	100	74	12	-	-
SS-25	CL	35+00	1.0- 1.5	A-6(3)	25	11	2.6	41.4	25.7	30.3	100	100	59	21.2	-
SS-26	CL	35+00	7.8- 9.3	A-6(1)	24	11	34.5	28.3	13.0	24.2	100	86	40	-	-
SS-27	CL	35+00	17.8- 19.3	A-2-4(0)	21	2	27.2	53.3	11.4	8.1	95	84	20	-	-

Ⓐ STIFF TAN ORANGE SANDY CLAYEY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓑ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	17
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

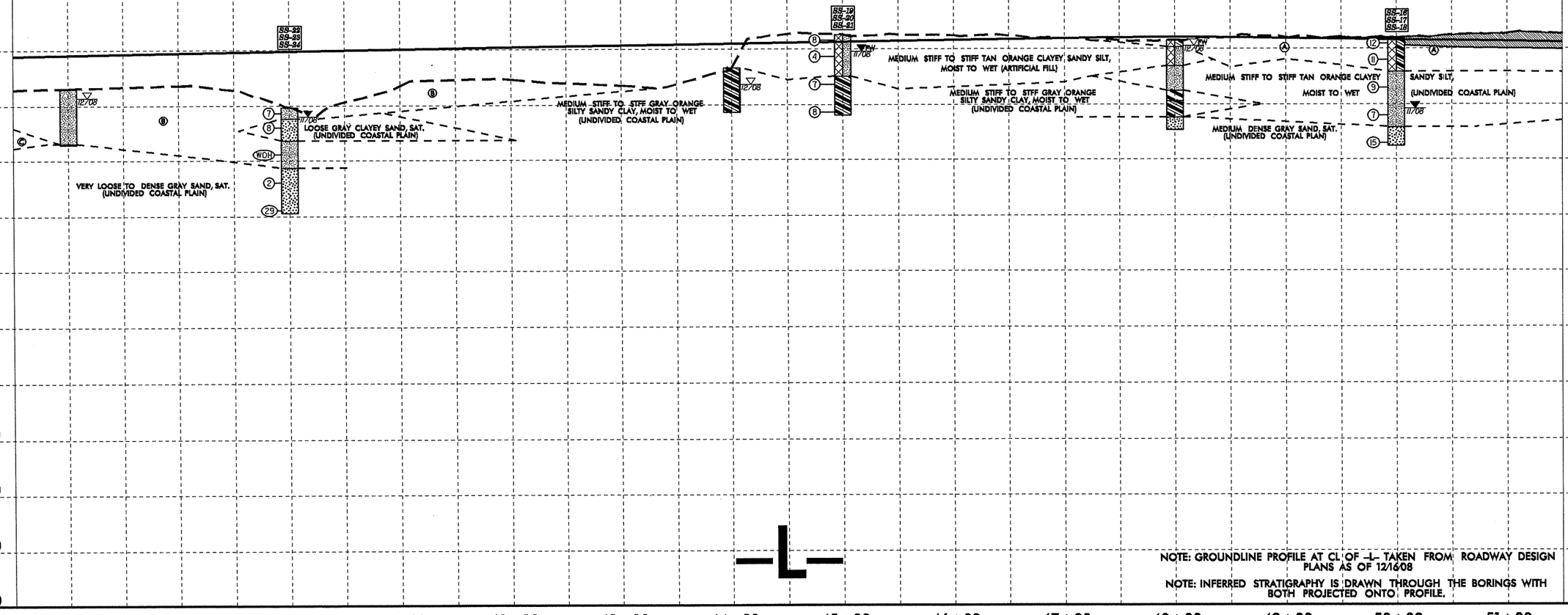
SOIL TEST RESULTS

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-22	CL	40+00	2.6-4.1	A-2-4(0)	23	6	4.6	67.6	7.6	20.2	100	100	29	-	-
SS-23	CL	40+00	7.6-9.1	A-4(0)	22	6	14.1	51.7	14.0	20.2	100	95	46	-	-
SS-24	CL	40+00	12.6-14.1	A-2-4(0)	21	NP	26.4	59.9	5.5	8.1	100	89	15	-	-
SS-19	CL	45+00	1.0-1.5	A-4(2)	24	9	4.6	44.0	23.1	28.3	100	99	53	-	-
SS-20	CL	45+00	2.9-4.4	A-4(0)	21	5	12.1	35.1	28.6	24.2	100	98	55	-	-
SS-21	CL	45+00	12.9-14.4	A-6(12)	40	21	2.8	31.5	21.3	44.4	100	100	67	-	-
SS-16	CL	50+00	1.0-1.5	A-6(12)	36	19	5.7	25.4	26.5	42.4	100	98	71	21.5	-
SS-17	CL	50+00	7.9-9.4	A-4(0)	24	4	8.3	30.9	36.6	24.2	100	98	63	-	-
SS-18	CL	50+00	17.9-19.4	A-2-4(0)	17	NP	27.4	51.7	12.8	8.1	100	85	30	-	-

(A) STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (ARTIFICIAL FILL)

(B) VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

(C) VERY SOFT TO STIFF GRAY ORANGE SANDY SILTY CLAY, WET (UNDIVIDED COASTAL PLAIN)



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/1608

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

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drainer

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	18
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

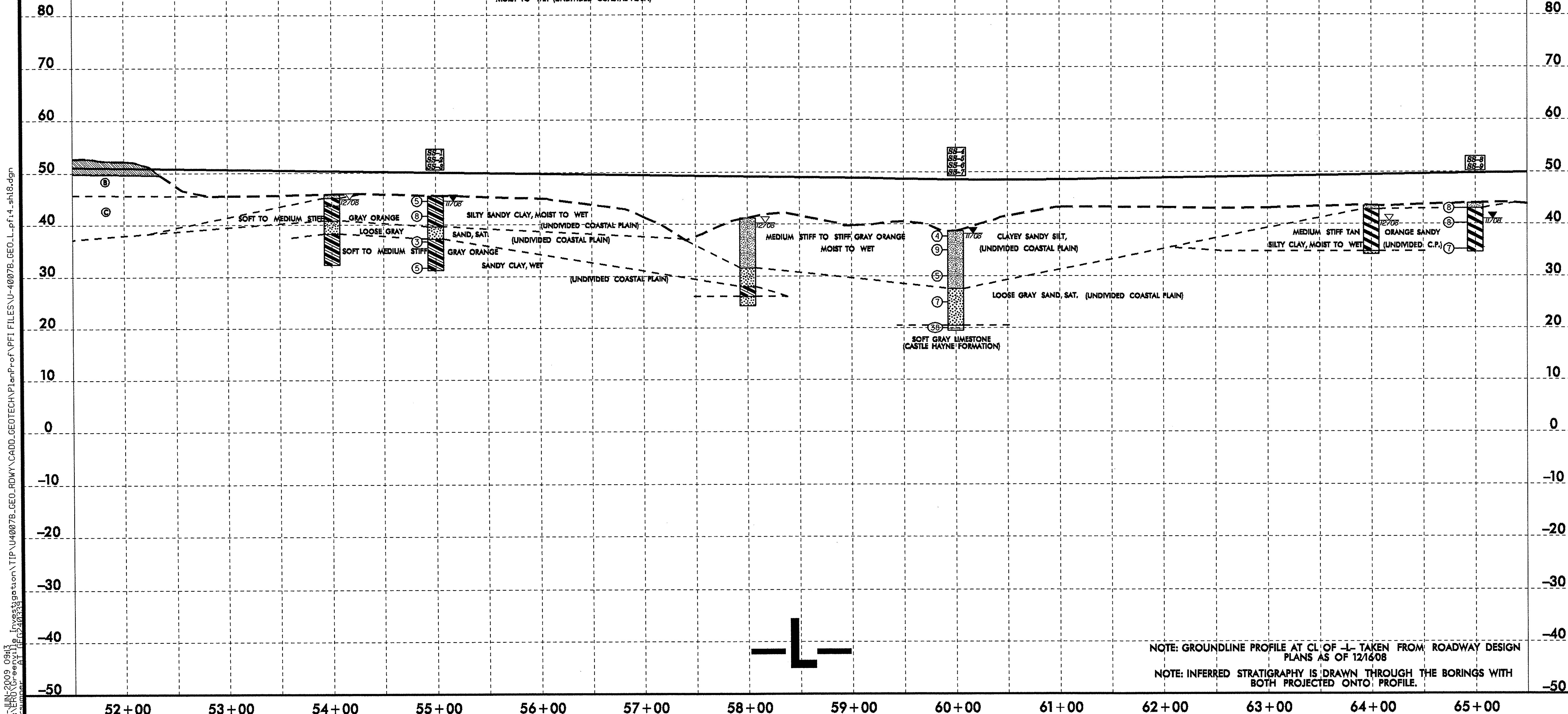
SOIL TEST RESULTS

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	CL	55+00	1.0-1.5	A-6(5)	27	12	7.7	27.4	28.6	36.3	100	99	66	20.6	-
SS-2	CL	55+00	2.9-4.4	A-6(10)	33	18	6.5	25.4	29.8	38.3	100	99	69	-	-
SS-3	CL	55+00	12.9-14.4	A-6(9)	33	17	1.6	47.4	18.7	32.3	100	100	68	-	-
SS-4	CL	60+00	1.0-1.5	A-4(2)	22	9	18.8	29.1	25.9	26.2	100	94	53	-	-
SS-5	CL	60+00	7.6-9.1	A-4(0)	21	7	3.6	58.6	17.7	20.1	100	100	44	-	-
SS-6	CL	60+00	12.6-14.1	A-2-4(0)	19	NP	17.2	63.2	7.6	12.1	100	96	22	-	-
SS-7	CL	60+00	18.1-19.1	A-1-b(0)	17	NP	51.7	28.1	10.2	10.1	50	31	11	-	-
SS-8	CL	65+00	1.0-1.5	A-4(3)	23	9	9.7	30.1	32.0	28.3	100	98	62	17	-
SS-9	CL	65+00	2.9-4.4	A-7-6(21)	48	28	6.7	18.0	29.0	46.4	100	99	76	-	-

Ⓐ STIFF GRAY ORANGE SANDY SILTY CLAY, MOIST TO WET (ARTIFICIAL FILL)

Ⓑ STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST (ARTIFICIAL FILL)

Ⓒ MEDIUM STIFF TO STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



-L-

NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/1608

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

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5/14/99

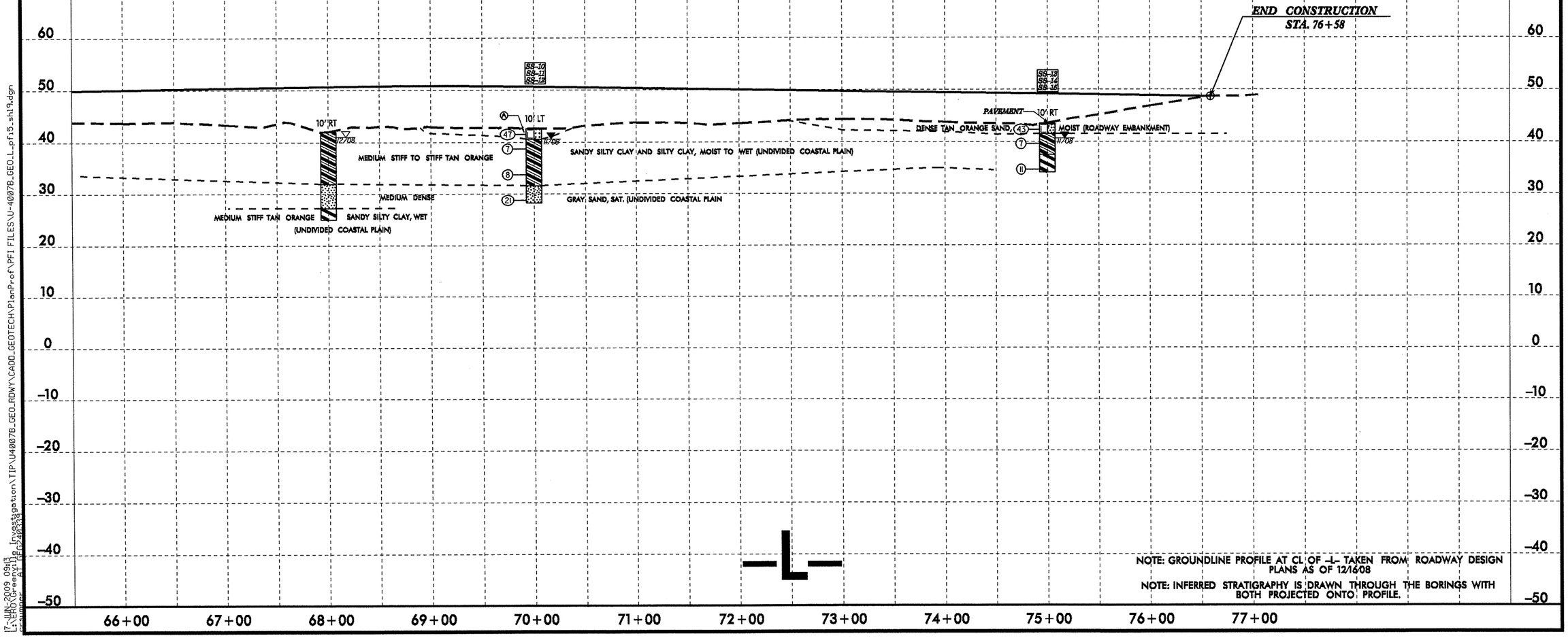
PROJECT REFERENCE NO.	SHEET NO.
U-4007B	19
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

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-10	10' LT	70+00	1.0-1.5	A-3(0)	23	NP	13.9	78.5	3.5	4.0	100	98	9	-	-
SS-11	10' LT	70+00	2.9-4.4	A-6(6)	28	15	16.1	24.2	29.4	30.3	99	97	60	-	-
SS-12	10' LT	70+00	12.9-14.4	A-2-4(0)	19	NP	22.6	61.2	6.2	10.1	92	86	17	-	-
SS-13	10' RT	75+00	1.0-1.5	A-2-4(0)	22	NP	20.4	70.4	5.1	4.0	100	98	11	-	-
SS-14	10' RT	75+00	2.9-4.4	A-6(9)	32	19	23.6	12.9	25.1	38.3	100	94	64	-	-
SS-15	10' RT	75+00	7.9-9.4	A-7-6(30)	51	29	1.0	9.1	31.4	58.5	100	100	93	-	-

Ⓐ DENSE TAN SAND, MOIST (ROADWAY EMBANKMENT)



NOTE: GROUNDLINE PROFILE AT CL OF -L- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/1608

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	20
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-71	6 RT	10+30	1.0- 1.5	A-2-4(0)	25	NP	17.4	58.1	14.4	10.1	100	95	28	-	-
SS-72	6 RT	10+30	7.6- 9.1	A-2-4(0)	21	7	27.9	43.4	9.6	19.2	100	89	35	-	-
SS-73	6 RT	10+30	12.6- 14.1	A-7-6(21)	51	31	5.9	17.2	30.6	46.4	90	88	71	99.3	-
SS-74	6 RT	10+30	22.6- 24.1	A-3(0)	23	NP	12.4	80.9	2.6	4.0	100	99	7	-	-
SS-75	6 RT	10+30	32.6- 34.1	A-2-4(0)	16	NP	13.5	63.2	9.2	14.1	97	91	24	-	-
SS-76	6 RT	10+30	37.6- 39.1	A-3(0)	22	NP	4.1	87.5	4.3	4.0	98	97	9	-	-
SS-77	6 RT	10+30	47.6- 49.1	A-2-4(0)	21	NP	0.2	81.6	7.1	11.1	100	100	21	-	-
SS-78	6 RT	10+30	57.6- 59.1	A-2-4(0)	22	NP	0.4	81.7	7.8	10.1	100	100	23	-	-
SS-225	CL	15+50	1.0- 1.3	A-2-4(0)	19	NP	16.3	66.3	9.3	8.1	100	94	20	-	-
SS-226	CL	15+50	8.1- 9.6	A-4(3)	27	9	4.2	51.6	17.9	26.2	100	99	62	28.8	-
SS-227	CL	15+50	13.1- 14.6	A-2-4(0)	20	NP	17.3	65.3	5.2	12.1	100	94	19	-	-
SS-228	30RT	19+21	1.0- 1.5	A-2-4(0)	23	NP	9.3	72.2	8.5	10.1	100	99	21	-	-
SS-229	30RT	19+21	8.1- 9.6	A-4(4)	27	10	0.2	53.6	20.0	26.2	100	100	66	27.9	-
SS-230	30RT	19+21	13.1- 14.6	A-3(0)	20	NP	26.9	65.0	4.0	4.0	100	90	10	-	-

Ⓐ VERY LOOSE TAN ORANGE SAND, MOIST TO SAT.

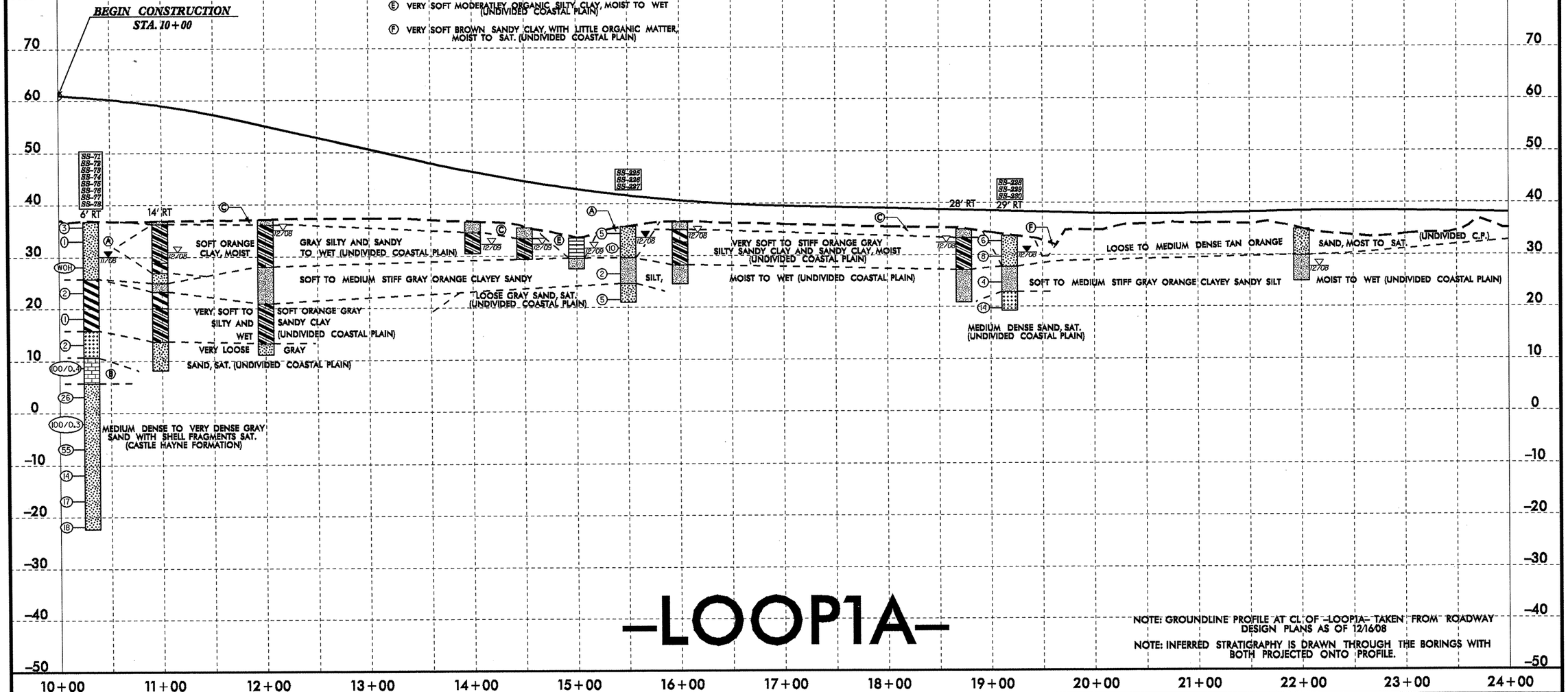
Ⓑ VERY HARD GRAY LIMESTONE, (CASTLE HAYNE FORMATION)

Ⓒ MEDIUM STIFF TO VERY STIFF ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN

Ⓓ SOFT ORANGE GRAY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓔ VERY SOFT MODERATLEY ORGANIC SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓕ VERY SOFT BROWN SANDY CLAY, WITH LITTLE ORGANIC MATTER, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)



-LOOP1A-

NOTE: GROUNDLINE PROFILE AT CL OF -LOOP1A- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	21
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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

120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50

END CONSTRUCTION
STA. 24+19

LOOSE TO MEDIUM DENSE TAN ORANGE SAND, MOST TO SAT. (UNDIVIDED C.P.)

SOFT TO MEDIUM STIFF GRAY ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

24+00

-LOOP1A-

NOTE: GROUNDLINE PROFILE AT CL OF -LOOP1A- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

5/14/93

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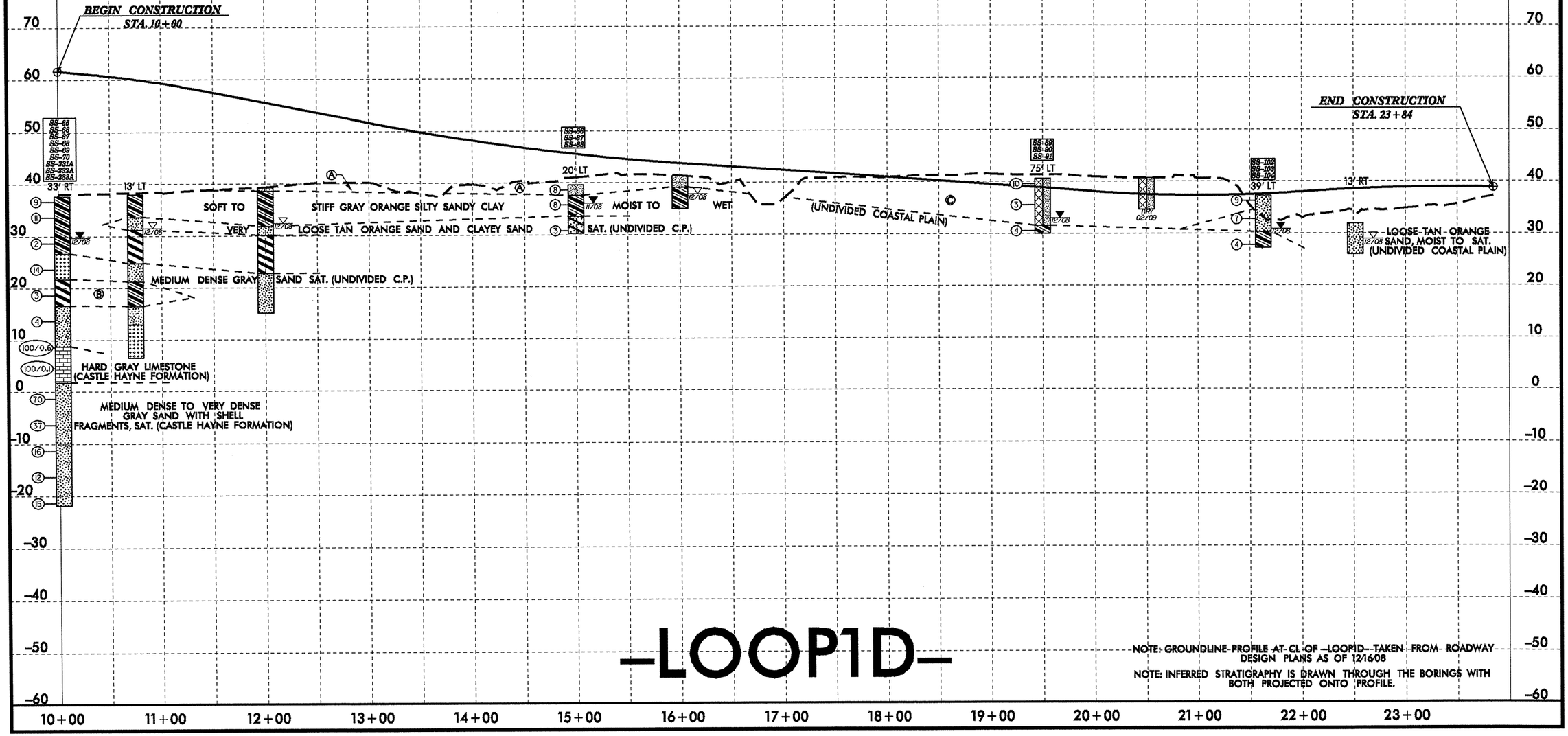
PROJECT REFERENCE NO.	SHEET NO.
U-4007B	22
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

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-65	33RT	10+04	1.0- 1.5	A-6(3)	25	12	12.3	41.6	19.9	26.2	100	96	52	-	-
SS-66	33RT	10+04	8.0- 9.5	A-6(8)	31	14	3.0	42.6	20.1	34.3	100	99	70	-	-
SS-67	33RT	10+04	13.0- 14.5	A-3(0)	21	NP	24.4	66.6	4.9	4.0	100	87	10	-	-
SS-68	33RT	10+04	18.0- 19.5	A-7-6(19)	50	30	8.3	24.2	15.0	52.5	100	98	69	-	-
SS-69	33RT	10+04	23.0- 24.5	A-2-4(0)	24	NP	40.5	47.5	2.9	9.1	99	87	13	-	-
SS-70	33RT	10+04	28.0- 29.0	A-2-4(0)	19	NP	38.1	40.4	17.5	4.0	99	85	25	-	-
SS-231A	33RT	10+04	38.0- 39.5	A-2-4(0)	18	NP	7.3	78.3	4.3	10.1	100	99	15	-	-
SS-232A	33RT	10+04	48.0- 49.5	A-2-4(0)	22	NP	0.3	82.9	4.7	12.1	100	100	20	-	-
SS-233A	33RT	10+04	58.0- 59.5	A-2-4(0)	22	NP	0.4	77.0	8.6	14.1	100	100	29	-	-
SS-86	20 LT	15+00	1.0- 1.5	A-4(2)	23	8	8.5	40.0	23.3	28.3	100	98	57	-	-
SS-87	20 LT	15+00	2.8- 4.3	A-6(9)	36	20	7.9	36.9	20.9	34.3	100	99	60	21.5	-
SS-88	20 LT	15+00	7.8- 9.3	A-2-6(1)	27	13	49.6	17.9	9.3	23.2	100	83	34	-	-
SS-89	75 LT	19+50	1.0- 1.5	A-4(0)	19	5	14.5	46.3	19.1	20.1	93	88	40	-	-
SS-90	75 LT	19+50	4.0- 5.5	A-4(0)	23	8	10.9	52.7	14.3	22.1	95	91	37	-	-
SS-91	75 LT	19+50	9.5- 10.5	A-6(10)	36	18	14.5	26.2	21.0	38.3	100	94	66	34.2	-
SS-102	39 LT	21+62	1.0- 1.5	A-2-4(0)	22	6	22.1	47.1	13.7	17.1	96	88	34	-	-
SS-103	39 LT	21+62	3.5- 5.0	A-2-4(0)	18	NP	14.2	67.5	4.1	14.1	100	95	20	-	-
SS-104	39 LT	21+62	8.5- 10.0	A-6(2)	24	11	34.3	19.4	18.1	28.2	100	88	50	-	-

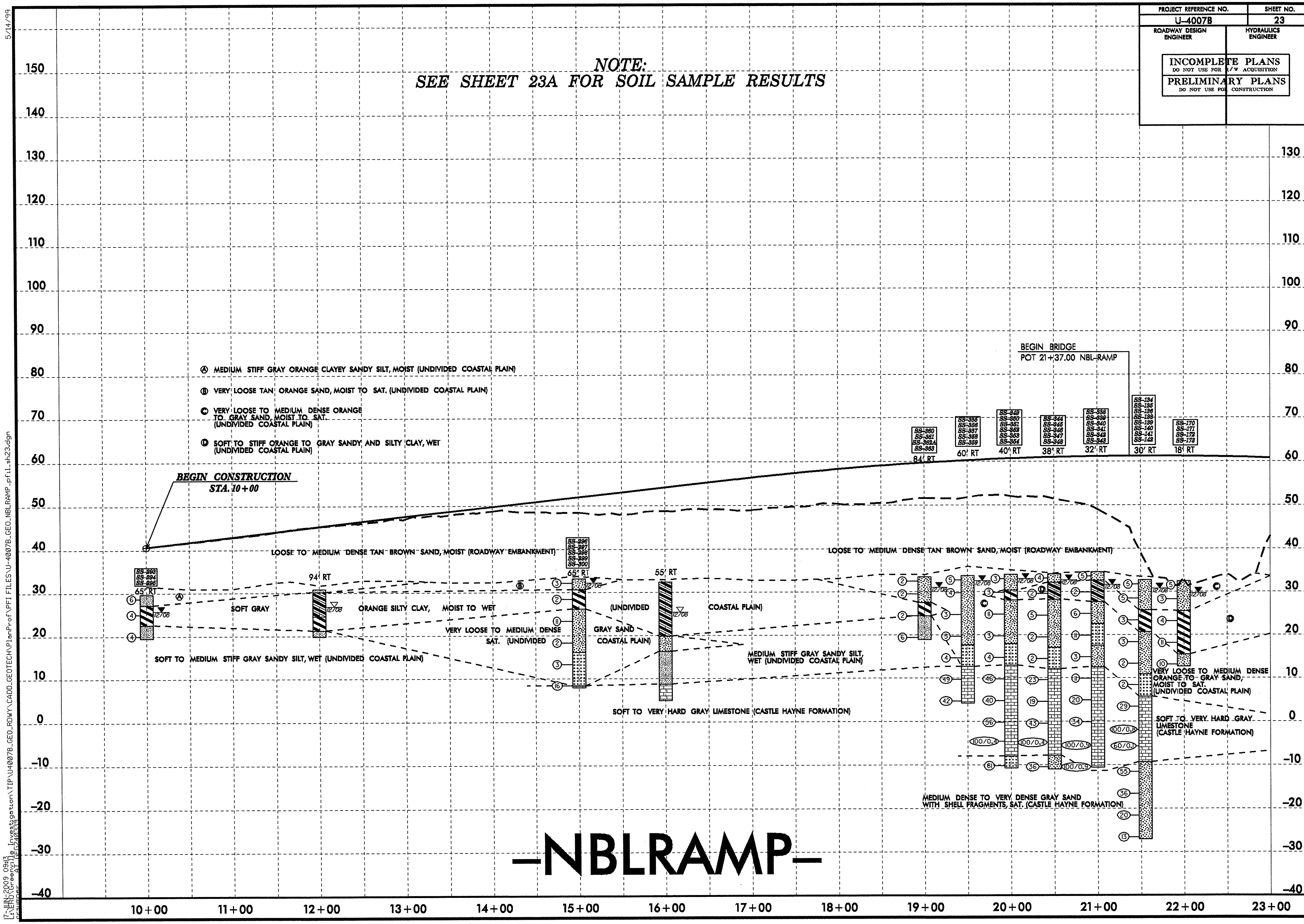
Ⓐ SOFT TO STIFF ORANGE GRAY CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
Ⓑ SOFT GRAY SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)
Ⓒ SOFT TO STIFF ORANGE CLAYEY SANDY SILT, MOIST TO WET (ARTIFICIAL FILL)



-LOOP1D-

NOTE: GROUNDLINE PROFILE AT CL OF -LOOP1D- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.



PROJECT REFERENCE NO. U-4007B
SHEET NO. 23
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
NOTE:
SEE SHEET 23A FOR SOIL SAMPLE RESULTS
Ⓐ MEDIUM STIFF GRAY ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)
Ⓑ VERY LOOSE TAN ORANGE SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)
Ⓒ VERY LOOSE TO MEDIUM DENSE ORANGE TO GRAY SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)
Ⓓ SOFT TO STIFF ORANGE TO GRAY SANDY AND SILTY CLAY, WET (UNDIVIDED COASTAL PLAIN)
BEGIN BRIDGE
POT 21+37.00 NBL-RAMP
BEGIN CONSTRUCTION
STA. 10+00
LOOSE TO MEDIUM DENSE TAN BROWN SAND, MOIST (ROADWAY EMBANKMENT)
SOFT GRAY
ORANGE SILTY CLAY, MOIST TO WET
(UNDIVIDED COASTAL PLAIN)
VERY LOOSE TO MEDIUM DENSE GRAY SAND SAT. (UNDIVIDED COASTAL PLAIN)
SOFT TO MEDIUM STIFF GRAY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)
MEDIUM STIFF GRAY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)
SOFT TO VERY HARD GRAY LIMESTONE (CASTLE HAYNE FORMATION)
VERY LOOSE TO MEDIUM DENSE ORANGE TO GRAY SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)
SOFT TO VERY HARD GRAY LIMESTONE (CASTLE HAYNE FORMATION)
MEDIUM DENSE TO VERY DENSE GRAY SAND WITH SHELL FRAGMENTS, SAT. (CASTLE HAYNE FORMATION)
65' RT
94' RT
65' RT
55' RT
84' RT
60' RT
40' RT
38' RT
32' RT
30' RT
18' RT
12/08
-NBLRAMP-
10+00
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00
23+00
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	23A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-293	65 RT	10+00	1.0-1.5	A-4(0)	21	4	4.8	56.6	16.5	22.1	100	100	42	-	-
SS-294	65 RT	10+00	3.6-5.1	A-7-6(45)	66	41	0.4	5.0	26.3	68.3	100	100	96	43.4	-
SS-295	65 RT	10+00	8.6-10.1	A-4(0)	18	2	5.0	54.6	24.3	16.1	100	99	49	-	-
SS-296	65 RT	15+00	1.0-1.5	A-2-4(0)	27	4	8.6	59.6	13.7	18.1	100	99	34	-	-
SS-297	65 RT	15+00	3.8-5.3	A-7-6(50)	70	45	0.2	5.4	20.1	74.3	100	100	96	59.7	-
SS-298	65 RT	15+00	8.8-10.3	A-2-4(0)	18	NP	27.4	58.5	4.0	10.0	100	86	18	-	-
SS-299	65 RT	15+00	13.8-15.3	A-2-4(0)	26	8	35.8	40.6	5.5	18.1	94	79	23	34.1	-
SS-300	65 RT	15+00	23.8-25.3	A-3(0)	23	NP	6.7	85.8	4.4	3.0	100	98	9	-	-
SS-360	84 RT	19+00	1.0-1.5	A-2-4(0)	19	NP	8.0	72.4	7.4	12.1	95	94	20	-	-
SS-361	84 RT	19+00	3.0-4.5	A-2-4(0)	21	4	9.2	65.2	3.5	22.1	100	99	27	-	-
SS-362A	84 RT	19+00	8.0-9.0	A-7-6(38)	63	37	1.4	9.7	20.5	68.4	100	100	90	74.5	-
SS-363	84 RT	19+00	13.0-14.5	A-4(0)	17	NP	5.6	60.8	16.5	17.1	100	99	41	-	-
SS-355	60 RT	19+50	1.0-1.5	A-2-4(0)	22	NP	11.2	73.9	7.8	7.0	100	99	16	-	-
SS-356	60 RT	19+50	3.0-4.5	A-2-4(0)	21	5	9.0	65.4	2.5	23.1	98	97	26	-	-
SS-357	60 RT	19+50	8.0-9.5	A-2-4(0)	20	NP	16.5	57.9	13.5	12.1	100	93	34	-	-
SS-358	60 RT	19+50	13.0-14.6	A-2-4(0)	19	NP	40.8	43.4	2.7	13.1	92	73	15	-	-
SS-359	60 RT	19+50	18.0-19.5	A-3(0)	18	NP	11.6	81.3	2.1	5.0	100	97	8	-	-
SS-349	40 RT	20+00	1.0-1.5	A-2-4(0)	21	NP	10.7	73.2	6.0	10.1	100	99	20	-	-
SS-350	40 RT	20+00	3.7-4.7	A-7-6(15)	41	23	2.4	30.4	18.9	48.3	100	100	71	-	-
SS-351	40 RT	20+00	8.2-9.7	A-2-4(0)	18	NP	18.9	57.8	8.1	15.1	100	92	28	-	-
SS-352	40 RT	20+00	13.2-14.7	A-2-4(0)	19	NP	53.9	32.4	1.6	12.1	90	64	13	-	-
SS-353	40 RT	20+00	18.2-19.7	A-3(0)	18	NP	10.0	82.6	1.4	6.0	98	96	9	-	-
SS-354	40 RT	20+00	43.2-44.7	A-3(0)	24	NP	4.8	86.7	2.4	6.0	95	94	9	-	-
SS-344	38 RT	20+50	1.0-1.5	A-2-4(0)	20	NP	9.3	71.4	5.2	14.1	100	99	21	-	-
SS-345	38 RT	20+50	3.6-5.1	A-6(12)	39	23	3.6	35.0	17.1	44.3	100	99	65	39.4	-
SS-346	38 RT	20+50	8.6-10.1	A-2-4(0)	19	2	16.4	58.0	7.4	18.1	100	93	30	-	-
SS-347	38 RT	20+50	18.6-20.1	A-3(0)	23	NP	8.8	83.3	2.9	5.0	100	98	9	-	-
SS-348	38 RT	20+50	43.6-45.1	A-2-4(0)	15	NP	4.0	82.3	3.6	10.1	100	99	15	-	-
SS-338	32 RT	21+00	1.0-1.5	A-2-4(0)	17	NP	15.3	72.6	4.0	8.0	100	98	14	-	-
SS-339	32 RT	21+00	3.7-5.2	A-6(1)	24	11	7.8	52.1	9.9	30.2	100	99	44	23.2	-
SS-340	32 RT	21+00	8.7-10.2	A-2-4(0)	18	NP	11.5	60.8	15.7	12.1	100	97	34	-	2.9
SS-341	32 RT	21+00	13.7-15.2	A-3(0)	14	NP	56.8	34.6	2.5	6.0	94	65	10	-	-
SS-342	32 RT	21+00	23.7-25.2	A-2-4(0)	21	NP	47.3	24.1	18.5	10.1	93	65	30	-	-
SS-343	32 RT	21+00	43.7-45.1	A-2-4(0)	17	NP	6.1	83.9	2.9	7.0	98	97	11	-	-
SS-134	30 RT	21+50	1.0-1.5	A-2-4(0)	22	NP	12.8	68.9	8.2	10.0	98	97	20	-	-
SS-135	30 RT	21+50	3.3-4.8	A-2-4(0)	17	NP	7.8	70.3	5.8	16.0	100	100	24	22.1	-
SS-136	30 RT	21+50	8.3-9.3	A-7-6(19)	44	24	1.4	22.2	18.2	58.1	100	100	80	51.2	-
SS-138	30 RT	21+50	13.3-14.8	A-2-4(0)	21	NP	10.2	67.9	9.8	12.0	100	97	28	-	-
SS-139	30 RT	21+50	23.3-24.8	A-3(0)	19	NP	25.6	65.0	3.4	6.0	97	89	10	-	-
SS-140	30 RT	21+50	28.3-29.8	A-1-b(0)	21	NP	63.5	19.4	12.0	5.0	77	38	15	-	-
SS-141	30 RT	21+50	43.3-44.8	A-2-4(0)	16	NP	6.5	79.7	5.8	8.0	100	99	15	-	-
SS-142	30 RT	21+50	53.3-54.8	A-2-4(0)	21	NP	0.2	81.5	7.3	11.0	100	100	21	-	-
SS-170	18 RT	22+00	1.0-1.5	A-2-4(0)	25	NP	15.6	66.1	6.2	12.0	90	85	19	-	-
SS-171	18 RT	22+00	3.3-4.8	A-2-4(0)	19	2	7.3	68.8	1.8	22.2	100	99	26	24	-
SS-172	18 RT	22+00	8.3-9.8	A-7-6(31)	56	33	2.4	12.1	21.0	64.5	100	99	87	-	-
SS-173	18 RT	22+00	18.3-19.8	A-2-4(0)	19	NP	20.0	65.7	2.2	12.1	99	96	15	-	-

—NBLRAMP—

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/14/99

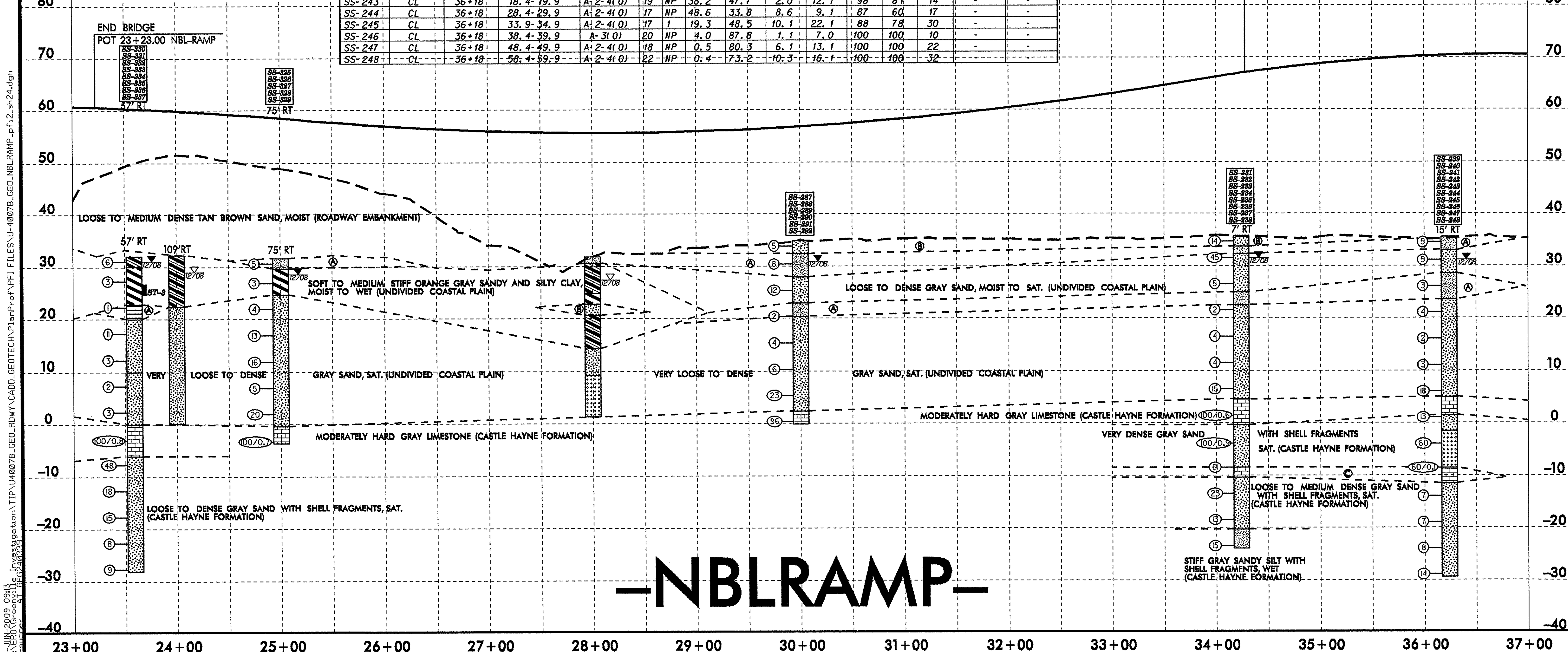
SOIL TEST RESULTS

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-330	57 RT	23+59	1.0-1.5	A-6(6)	34	19	5.4	44.0	10.4	40.2	100	100	52	-	-
SS-331	57 RT	23+59	3.7-5.2	A-7-6(47)	72	44	0.4	4.0	29.3	66.3	95	95	92	-	-
SS-332	57 RT	23+59	9.2-10.2	A-4(0)	31	NP	8.5	57.3	18.1	16.1	100	97	40	67.7	11.1
SS-333	57 RT	23+59	13.7-15.2	A-2-4(0)	17	NP	22.8	64.8	5.3	7.0	90	83	14	-	-
SS-334	57 RT	23+59	18.7-20.2	A-2-4(0)	22	NP	37.8	43.6	4.5	14.1	100	81	20	-	-
SS-335	57 RT	23+59	23.7-25.2	A-2-4(0)	16	NP	17.9	72.4	1.6	8.0	100	95	11	-	-
SS-336	57 RT	23+59	38.7-40.2	A-3(0)	17	NP	2.9	88.7	2.3	6.0	100	99	10	-	-
SS-337	57 RT	23+59	48.7-50.2	A-2-4(0)	19	NP	0.3	86.7	2.9	10.1	100	100	15	-	-
SS-325	75 RT	25+00	1.0-1.5	A-4(1)	24	10	6.4	53.8	11.6	28.1	100	99	42	24.3	-
SS-326	75 RT	25+00	3.7-5.2	A-7-6(40)	62	39	0.8	8.4	28.5	62.2	100	100	92	45.3	-
SS-327	75 RT	25+00	8.7-10.2	A-2-4(0)	19	NP	13.6	64.8	12.7	9.0	100	96	26	-	-
SS-328	75 RT	25+00	18.7-20.2	A-1-b(0)	20	NP	59.7	18.3	17.0	5.0	81	44	20	-	-
SS-329	75 RT	25+00	28.7-30.2	A-2-4(0)	14	NP	54.2	32.7	10.0	3.0	82	53	12	-	-
SS-287	CL	30+00	1.0-1.5	A-2-4(0)	18	3	10.4	57.8	11.6	20.1	100	98	35	-	-
SS-288	CL	30+00	3.5-5.0	A-4(0)	22	9	12.9	51.6	11.4	24.1	100	98	39	-	-
SS-289	CL	30+00	8.5-10.0	A-2-4(0)	17	NP	13.5	72.8	3.7	10.0	100	96	16	-	-
SS-290	CL	30+00	13.5-14.5	A-4(1)	24	8	2.0	54.2	17.7	26.1	100	100	51	33.7	4.1
SS-291	CL	30+00	18.5-20.0	A-2-4(0)	23	6	35.9	46.7	2.3	15.1	98	83	18	-	-
SS-292	CL	30+00	23.5-25.0	A-2-4(0)	22	NP	30.7	53.3	7.9	8.0	100	87	17	-	-
SS-231	CL	34+40	1.0-1.5	A-2-4(0)	19	NP	15.5	62.5	5.8	16.1	100	94	24	-	-
SS-232	CL	34+40	13.1-14.6	A-2-4(0)	23	6	18.1	55.9	5.7	20.2	100	95	29	-	-
SS-233	CL	34+40	18.1-19.6	A-2-4(0)	28	9	41.3	38.3	1.2	19.2	95	76	20	-	-
SS-234	CL	34+40	23.1-24.6	A-2-4(0)	15	NP	28.8	40.7	24.4	6.0	100	89	32	-	-
SS-235	CL	34+40	28.1-21.6	A-2-4(0)	19	NP	43.3	43.8	8.9	4.0	98	73	14	-	-
SS-236	CL	34+40	38.1-39.5	A-2-4(0)	19	NP	10.3	76.4	7.3	6.0	100	97	15	-	-
SS-237	CL	34+40	48.1-49.6	A-2-4(0)	20	NP	0.4	86.3	5.2	8.1	100	100	15	-	-
SS-238	CL	34+40	58.1-59.6	A-4(0)	23	NP	0.4	70.2	15.3	14.1	100	100	38	-	-
SS-239	CL	36+18	1.0-1.5	A-4(0)	25	7	8.0	53.5	14.3	24.1	100	99	40	-	-
SS-240	CL	36+18	3.4-4.9	A-2-4(0)	18	1	13.7	62.6	5.6	18.1	100	97	25	-	-
SS-241	CL	36+18	8.4-9.9	A-4(3)	27	10	15.5	41.4	14.9	28.2	100	92	56	34.8	-
SS-242	CL	36+18	13.4-14.9	A-2-4(0)	18	NP	39.7	39.4	5.7	15.1	100	81	26	-	-
SS-243	CL	36+18	18.4-19.9	A-2-4(0)	19	NP	38.2	47.7	2.0	12.1	98	81	14	-	-
SS-244	CL	36+18	28.4-29.9	A-2-4(0)	17	NP	48.6	33.8	8.6	9.1	87	60	17	-	-
SS-245	CL	36+18	33.9-34.9	A-2-4(0)	17	1	19.3	48.5	10.1	22.1	88	78	30	-	-
SS-246	CL	36+18	38.4-39.9	A-3(0)	20	NP	4.0	87.8	1.1	7.0	100	100	10	-	-
SS-247	CL	36+18	48.4-49.9	A-2-4(0)	18	NP	0.5	80.3	6.1	13.1	100	100	22	-	-
SS-248	CL	36+18	58.4-59.9	A-2-4(0)	22	NP	0.4	73.2	10.3	16.1	100	100	32	-	-

Ⓐ VERY SOFT TO MEDIUM STIFF BROWN CLAYEY SANDY SILT WITH LITTLE ORGANIC MATTER, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓑ LOOSE TO MEDIUM DENSE GRAY SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

Ⓒ MODERATELY HARD TO VERY HARD GRAY LIMESTONE (CASTLE HAYNE FORMATION)



-NBLRAMP-

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-249	15 RT	37+94	1.0-1.5	A-2-4(0)	19	NP	13.5	65.2	7.2	14.1	100	97	24	-	-
SS-250	15 RT	37+94	3.7-5.2	A-2-4(0)	19	1	11.4	65.4	4.1	19.1	100	97	25	-	-
SS-251	15 RT	37+94	8.7-10.2	A-2-4(0)	19	4	49.0	25.5	7.4	18.1	100	81	31	-	-
SS-252	15 RT	37+94	18.7-20.2	A-2-4(0)	26	8	33.2	42.2	2.5	22.1	93	78	24	-	-
SS-253	15 RT	37+94	23.7-25.2	A-2-4(0)	15	NP	25.4	63.2	5.4	6.0	100	93	12	-	-
SS-254	15 RT	37+94	28.7-30.2	A-2-4(0)	16	NP	38.2	44.9	2.8	14.1	100	79	18	-	-
SS-255	15 RT	37+94	33.7-35.2	A-2-4(0)	15	NP	33.8	46.9	5.2	14.1	72	54	15	-	-
SS-256	15 RT	37+94	38.7-40.2	A-3(0)	19	NP	4.9	86.7	2.3	6.0	97	96	9	-	-
SS-257	15 RT	37+94	48.7-50.2	A-2-4(0)	18	NP	0.4	81.0	5.5	13.1	100	100	22	-	-
SS-258	15 RT	37+94	63.7-65.2	A-2-4(0)	22	NP	0.8	82.1	6.0	11.1	100	100	21	-	-
SS-259	15 RT	37+94	78.7-80.2	A-2-4(0)	19	NP	0.7	69.6	12.6	17.1	100	100	34	-	-
SS-176	45 RT	40+62	12.9-14.4	A-2-4(0)	21	NP	20.6	59.6	7.8	12.1	100	93	22	-	-
SS-177	45 RT	40+62	17.9-19.4	A-7-5(42)	75	32	0.4	2.2	26.8	70.6	100	100	98	126.8	-
SS-178	45 RT	40+62	27.9-29.4	A-2-4(0)	18	NP	25.6	60.8	4.5	9.1	100	93	14	-	-
SS-179	45 RT	40+62	37.9-39.1	A-2-4(0)	16	NP	20.1	62.6	7.3	10.1	95	86	18	-	-
SS-180	45 RT	40+62	47.9-49.4	A-2-4(0)	20	NP	0.4	85.4	4.1	10.1	100	100	17	-	-
SS-181	45 RT	40+62	57.9-59.4	A-2-4(0)	22	NP	0.4	74.3	10.2	15.1	100	100	33	-	-
SS-65	45 RT	43+29	1.0-1.5	A-6(3)	25	12	12.3	41.6	19.9	26.2	100	96	52	-	-
SS-66	45 RT	43+29	8.0-9.5	A-6(8)	31	14	3.0	42.6	20.1	34.3	100	99	70	-	-
SS-67	45 RT	43+29	13.0-14.5	A-3(0)	21	NP	24.4	66.6	4.9	4.0	100	87	10	-	-
SS-68	45 RT	43+29	18.0-19.5	A-7-6(19)	50	30	8.3	24.2	15.0	52.5	100	98	69	-	-
SS-69	45 RT	43+29	23.0-24.5	A-2-4(0)	24	NP	40.5	47.5	2.9	9.1	99	87	13	-	-
SS-70	45 RT	43+29	28.0-29.0	A-2-4(0)	19	NP	38.1	40.4	17.5	4.0	99	85	25	-	-
SS-231A	45 RT	43+29	38.0-39.5	A-2-4(0)	18	NP	7.3	78.3	4.3	10.1	100	99	15	-	-
SS-232A	45 RT	43+29	48.0-49.5	A-2-4(0)	22	NP	0.3	82.9	4.7	12.1	100	100	20	-	-
SS-233A	45 RT	43+29	58.0-59.5	A-2-4(0)	22	NP	0.4	77.0	8.6	14.1	100	100	29	-	-
SS-55	CL	45+00	1.0-1.5	A-4(0)	18	2	9.3	49.0	23.5	18.2	100	97	48	-	-
SS-56	CL	45+00	3.0-4.5	A-4(0)	20	5	12.3	46.2	19.3	22.2	100	96	47	14.1	-
SS-57	CL	45+00	8.0-9.5	A-6(5)	27	12	4.2	46.4	19.1	30.3	100	98	64	-	-
SS-58	CL	45+00	18.0-19.5	A-2-4(0)	21	NP	17.0	66.2	4.7	12.1	100	94	18	-	-
SS-59	CL	45+00	23.0-24.5	A-3(0)	21	NP	46.4	44.0	2.5	7.1	100	83	10	-	-
SS-60	CL	45+00	28.0-29.5	A-3(0)	23	NP	13.8	78.0	3.1	5.0	99	95	9	-	-
SS-79	CL	50+00	1.0-1.5	A-4(1)	20	7	5.7	38.3	31.8	24.2	100	98	63	-	-
SS-80	CL	50+00	2.9-4.4	A-6(11)	39	20	4.8	33.7	23.1	38.3	100	99	66	25.2	-
SS-81	CL	50+00	7.9-9.4	A-6(7)	33	15	2.2	47.4	20.1	30.3	100	99	65	-	-
SS-41	23 LT	50+54	1.0-1.5	A-4(0)	19	4	6.1	42.0	31.8	20.2	100	98	59	19.4	-
SS-42	23 LT	50+54	2.8-4.3	A-7-6(20)	49	30	3.6	32.1	21.9	42.4	100	99	70	-	-
SS-43	23 LT	50+54	12.8-14.3	A-4(4)	27	10	5.9	49.4	18.5	26.2	100	98	62	-	-

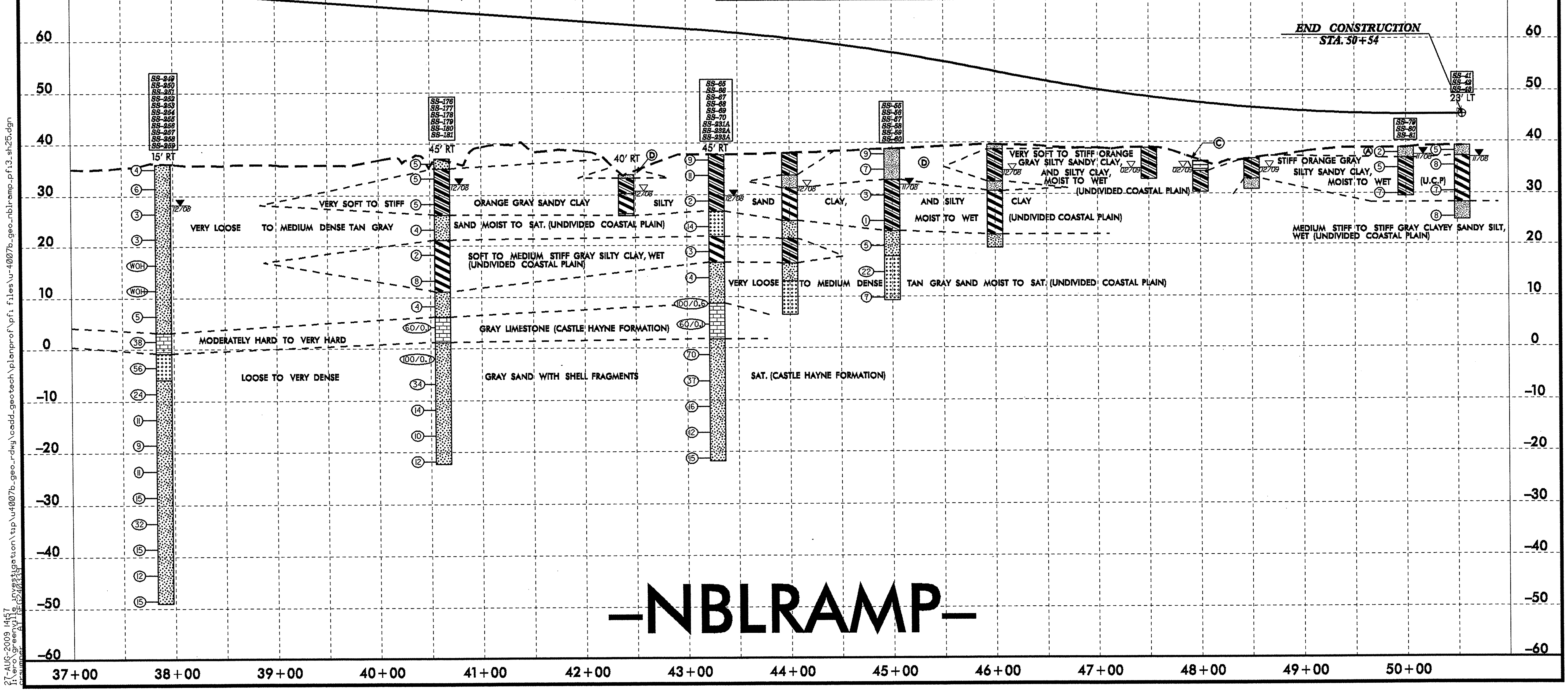
END BRIDGE
POC 37+94.00 NBL-RAMP

(A) SOFT TO STIFF ORANGE GRAY SANDY AND CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

(B) VERY LOOSE GRAY CLAYEY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

(C) VERY SOFT BROWN MODERATLEY ORGANIC SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

(D) TAN MEDIUM STIFF TO STIFF ORANGE SANDY CLEYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



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5/14/99

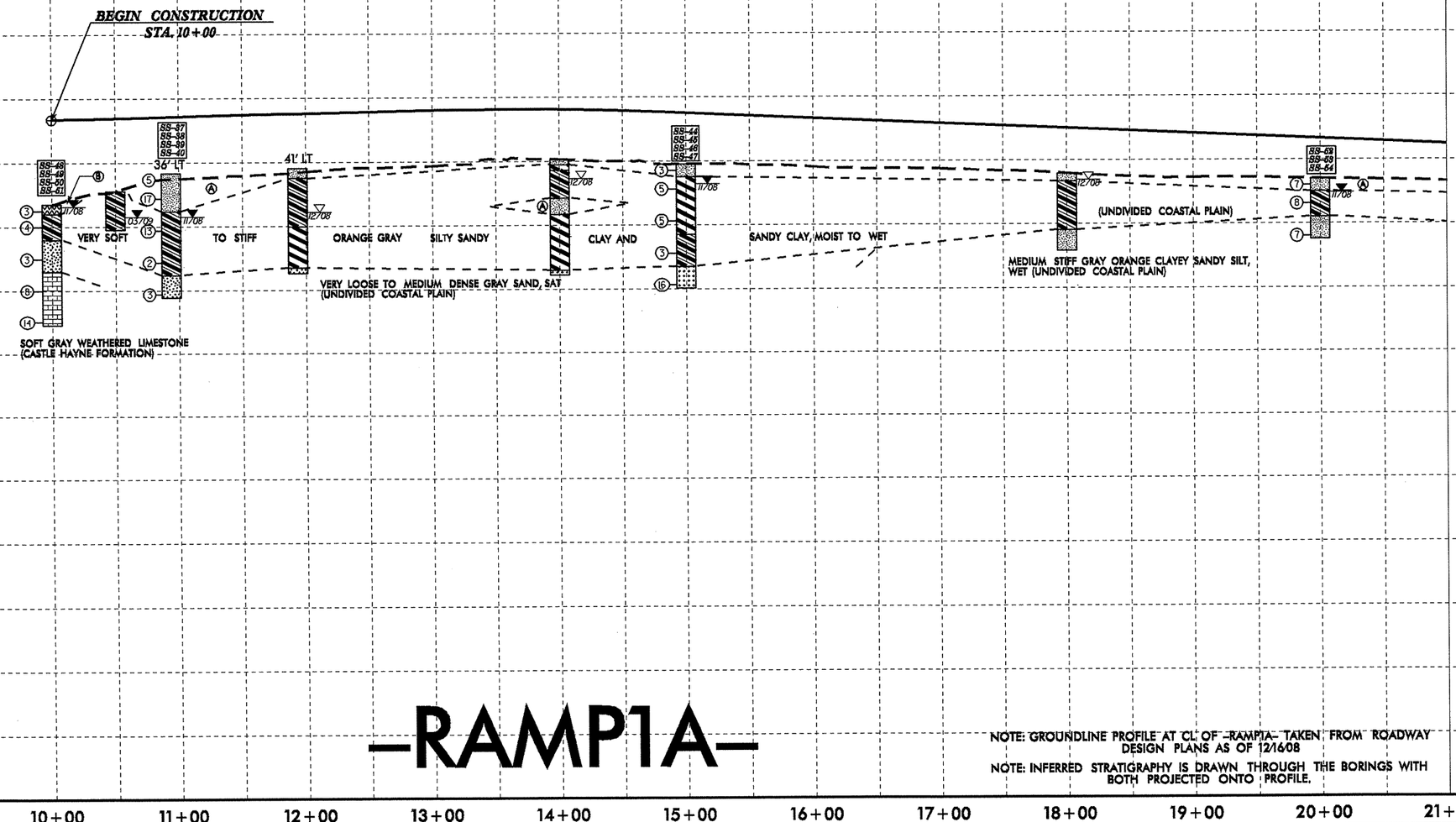
PROJECT REFERENCE NO.	SHEET NO.
U-4007B	26
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

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	CL	10+00	1.0-1.5	A-7-5(20)	76	19	13.5	12.9	43.3	30.3	97	89	74	110.5	23.3
SS-49	CL	10+00	2.5-4.0	A-6(6)	25	12	3.8	30.5	31.4	34.3	100	99	74	-	-
SS-50	CL	10+00	7.5-9.0	A-2-4(0)	20	NP	46.4	43.7	4.8	5.0	91	68	11	-	-
SS-51	CL	10+00	12.5-14.0	A-4(0)	19	NP	45.2	20.4	26.3	8.1	100	69	36	-	-
SS-37	36 LT	10+93	1.0-1.5	A-4(0)	16	NP	6.9	46.4	28.6	18.2	100	98	53	-	-
SS-38	36 LT	10+93	8.0-9.5	A-6(8)	32	15	0.4	49.0	18.3	32.3	100	100	66	-	-
SS-39	36 LT	10+93	13.0-14.5	A-6(5)	28	12	4.8	48.4	18.5	28.3	100	98	64	-	-
SS-40	36 LT	10+93	18.0-19.5	A-2-4(0)	21	NP	22.9	62.4	3.6	11.1	96	86	15	-	-
SS-44	CL	15+00	1.0-1.5	A-4(0)	19	4	5.4	44.4	28.0	22.2	100	99	57	-	-
SS-45	CL	15+00	2.9-4.4	A-7-6(20)	48	28	3.0	28.9	21.7	46.4	100	100	73	-	-
SS-46	CL	15+00	12.9-14.4	A-6(7)	30	13	0.6	49.6	19.5	30.3	100	100	70	-	-
SS-47	CL	15+00	17.9-19.4	A-3(0)	21	NP	27.7	63.3	2.9	6.1	100	85	10	-	-
SS-52	CL	20+00	1.0-1.5	A-4(0)	19	5	13.9	48.8	13.0	24.2	100	93	41	23.8	-
SS-53	CL	20+00	2.9-4.4	A-6(5)	31	17	9.7	43.8	14.2	32.3	100	96	52	-	-
SS-54	CL	20+00	7.9-9.4	A-4(1)	25	7	13.5	51.5	14.8	20.2	100	95	48	-	-

Ⓐ MEDIUM STIFF TO VERY STIFF GRAY ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)
Ⓑ SOFT BROWN MUCK, SAT. (ALLUVIAL)



-RAMP1A-

NOTE: GROUNDLINE PROFILE AT CL OF -RAMP1A- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

5/14/99

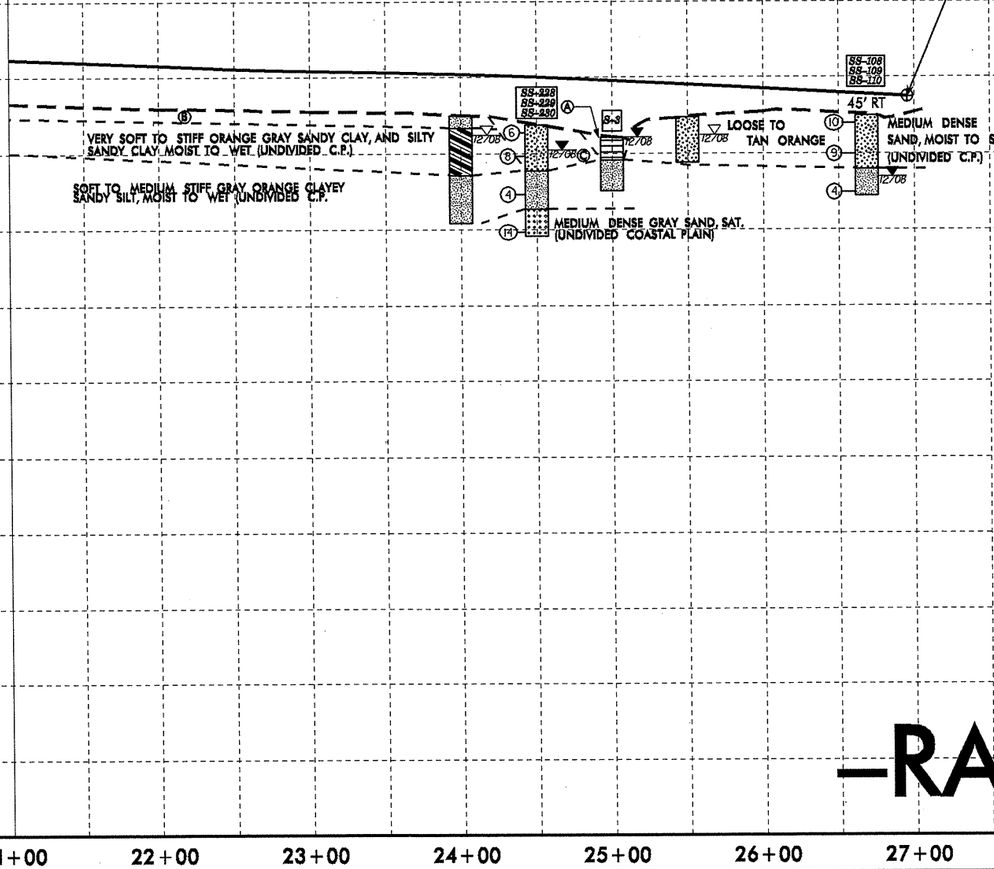
PROJECT REFERENCE NO.	SHEET NO.
U-4007B	27
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

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

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-228	CL	24+50	1.0- 1.5	A-2-4(0)	23	NP	9.3	72.2	8.5	10.1	100	99	21	-	-
SS-229	CL	24+50	8.1- 9.6	A-4(4)	27	10	0.2	53.6	20.0	26.2	100	100	66	27.9	-
SS-230	CL	24+50	13.1- 14.6	A-3(0)	20	NP	26.9	65.0	4.0	4.0	100	90	10	-	-
S-3	CL	25+00	1.0- 3.0	A-6(5)	37	26	10.3	53.8	21.4	14.5	100	96	39	18.5	8.8
SS-108	45' RT	26+68	1.0- 1.5	A-2-4(0)	22	6	7.7	61.5	8.7	22.2	100	99	33	19	-
SS-109	45' RT	26+68	4.0- 5.5	A-2-4(0)	19	NP	10.3	71.3	4.3	14.1	100	98	23	-	-
SS-110	45' RT	26+68	9.0- 10.5	A-4(0)	21	4	17.4	52.5	10.9	19.2	100	93	40	-	-

Ⓐ VERY SOFT BROWN SANDY CLAY WITH LITTLE ORGANIC MATTER, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)
Ⓑ MEDIUM STIFF TO VERY STIFF GRAY ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)
Ⓒ LOOSE TAN BROWN SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)



-RAMP1A-

NOTE: GROUNDLINE PROFILE AT CL OF -RAMP1A- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	28

ROADWAY DESIGN ENGINEER

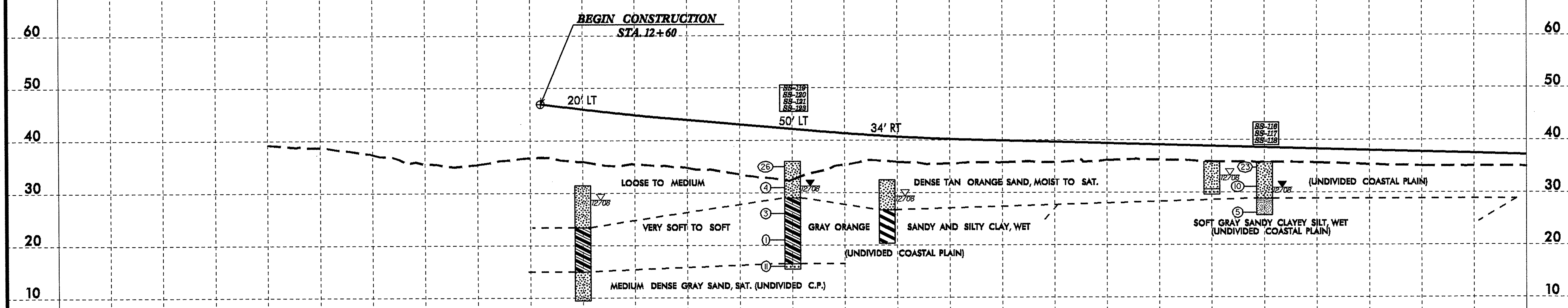
HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-119	50 LT	15+00	1.0-1.5	A-2-4(0)	18	2	15.4	59.3	11.2	14.1	98	92	27	-	-
SS-120	50 LT	15+00	4.0-5.5	A-2-4(0)	20	4	9.2	65.5	5.1	20.2	100	99	27	-	-
SS-121	50 LT	15+00	9.0-10.5	A-6(7)	34	20	10.8	39.6	13.3	36.3	100	94	52	26.3	-
SS-123	50 LT	15+00	19.5-20.5	A-3(0)	18	NP	27.6	65.5	1.9	5.0	100	88	8	-	-
SS-116	CL	19+50	1.0-1.5	A-2-4(0)	18	3	22.6	48.2	12.1	17.1	87	78	28	-	-
SS-117	CL	19+50	3.7-5.2	A-2-4(0)	18	NP	9.2	69.6	4.1	17.1	100	99	23	-	-
SS-118	CL	19+50	8.7-10.2	A-4(2)	25	10	2.4	55.4	15.9	26.2	100	100	47	-	-



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10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00

-RAMP1B-

NOTE: GROUNDLINE PROFILE AT CL OF -RAMP1B- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

5/14/99

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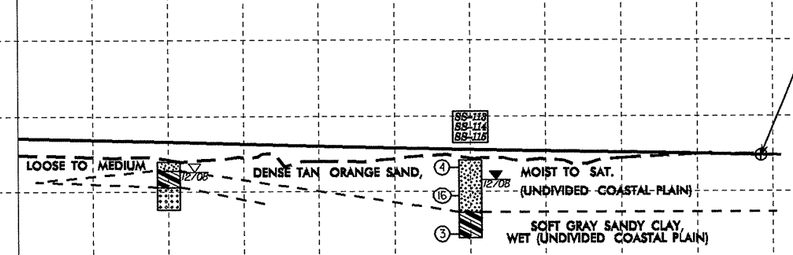
PROJECT REFERENCE NO.	SHEET NO.
U-4007B	29
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-113	CL	25+00	1.0-1.5	A-2-4(0)	22	NP	8.3	78.5	8.2	5.0	99	97	15	-	-
SS-114	CL	25+00	3.8-5.3	A-2-4(0)	21	NP	15.9	74.0	3.0	7.1	100	95	11	-	-
SS-115	CL	25+00	8.8-10.3	A-6(14)	40	23	2.0	30.4	15.1	52.4	100	100	69	41.7	-



-RAMP1B-

NOTE: GROUNDLINE PROFILE AT CL OF -RAMP1B- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/1608

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

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22+00 23+00 24+00 25+00 26+00

5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	30
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL TEST RESULTS

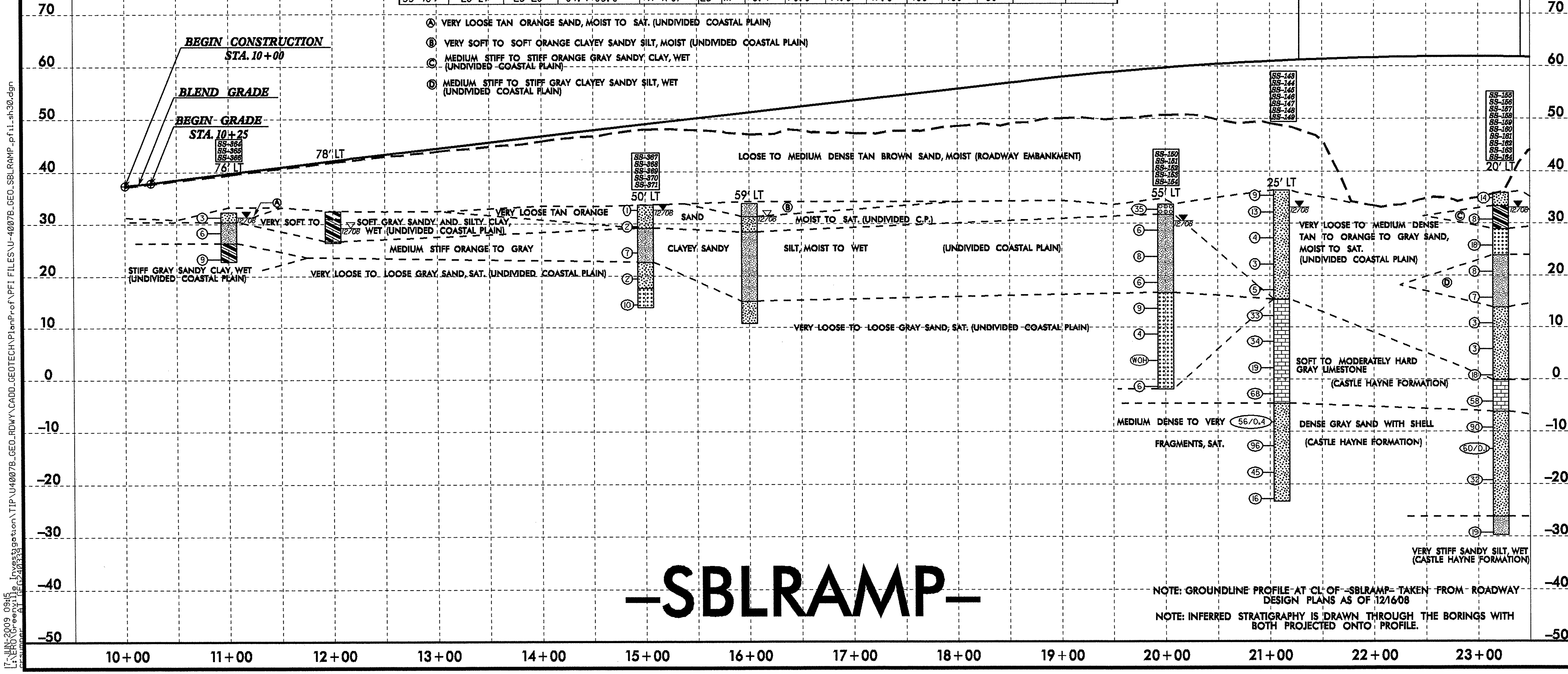
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-364	76 LT	11+00	1.0-1.5	A-2-4(0)	20	2	4.2	66.9	10.8	18.1	100	99	32	-	-
SS-365	76 LT	11+00	3.0-4.5	A-4(0)	25	8	3.9	62.3	9.7	24.1	100	99	37	-	-
SS-366	76 LT	11+00	8.0-9.5	A-6(9)	36	17	1.8	49.1	14.9	34.2	100	99	66	-	-
SS-367	50 LT	15+00	1.0-1.5	A-2-4(0)	19	NP	7.5	73.1	9.3	10.1	100	99	23	-	-
SS-368	50 LT	15+00	3.2-4.5	A-2-4(0)	18	2	8.1	65.9	7.9	18.2	100	99	29	-	-
SS-369	50 LT	15+00	8.2-9.7	A-4(0)	21	3	8.1	62.2	9.5	20.2	100	98	39	-	-
SS-370	50 LT	15+00	13.7-14.7	A-2-4(0)	18	NP	42.3	42.5	1.0	14.1	95	76	15	-	-
SS-371	50 LT	15+00	18.2-19.7	A-3(0)	15	NP	18.8	75.2	1.0	5.1	99	93	7	-	-
SS-150	55 LT	20+00	1.0-1.5	A-1-b(0)	16	NP	50.1	29.7	4.2	16.0	54	38	12	-	-
SS-151	55 LT	20+00	4.1-5.6	A-4(2)	21	9	3.2	45.7	19.0	32.1	100	100	57	18.3	-
SS-152	55 LT	20+00	14.1-15.6	A-4(0)	25	NP	7.0	53.9	13.0	26.1	100	98	48	-	-
SS-153	55 LT	20+00	19.1-20.6	A-3(0)	21	NP	31.3	61.2	1.5	6.0	99	88	9	-	-
SS-154	55 LT	20+00	29.1-30.6	A-3(0)	24	NP	6.5	84.5	4.0	5.0	100	99	10	-	-
SS-143	25 LT	21+11	1.0-1.5	A-3(0)	23	NP	16.2	76.4	3.4	4.0	100	98	9	-	-
SS-144	25 LT	21+11	3.2-4.7	A-2-4(0)	20	NP	3.8	75.8	2.4	18.0	100	100	22	23.2	-
SS-145	25 LT	21+11	13.2-14.7	A-2-4(0)	20	NP	31.1	56.2	1.7	11.0	97	82	13	-	-
SS-146	25 LT	21+11	23.2-24.7	A-1-b(0)	20	NP	56.5	19.8	14.6	9.0	70	39	19	-	-
SS-147	25 LT	21+11	33.2-34.7	A-2-4(0)	22	NP	47.3	35.4	10.3	7.0	86	61	17	-	-
SS-148	25 LT	21+11	43.2-44.7	A-2-4(0)	23	NP	4.0	85.9	4.1	6.0	100	99	12	-	-
SS-149	25 LT	21+11	53.2-54.7	A-2-4(0)	19	NP	0.3	85.9	4.8	9.0	100	100	16	-	-
SS-155	20 LT	23+20	1.0-1.5	A-2-4(0)	22	NP	16.8	69.7	5.4	8.0	78	73	12	-	-
SS-156	20 LT	23+20	4.1-5.6	A-6(8)	35	18	2.6	42.1	17.2	38.1	100	100	60	24.8	-
SS-157	20 LT	23+20	9.1-10.6	A-3(0)	22	NP	4.5	87.2	2.3	6.0	100	99	9	-	-
SS-158	20 LT	23+20	14.1-15.6	A-4(0)	23	3	8.2	58.9	12.8	20.0	100	97	46	22.4	-
SS-159	20 LT	23+20	24.1-25.6	A-2-4(0)	19	NP	44.1	39.4	2.5	14.0	93	73	16	-	-
SS-160	20 LT	23+20	34.1-35.6	A-2-4(0)	17	NP	18.4	50.3	13.2	18.0	98	90	32	-	-
SS-161	20 LT	23+20	39.1-40.6	A-1-b(0)	16	NP	38.3	35.7	10.0	16.0	49	36	14	-	-
SS-162	20 LT	23+20	44.1-45.6	A-2-4(0)	23	NP	3.8	85.9	3.3	7.0	100	100	12	-	-
SS-163	20 LT	23+20	54.1-55.6	A-2-4(0)	21	NP	0.4	84.8	2.8	12.0	100	100	17	-	-
SS-164	20 LT	23+20	64.1-65.6	A-4(0)	23	NP	0.4	70.9	11.6	17.0	100	100	36	-	-

(A) VERY LOOSE TAN ORANGE SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

(B) VERY SOFT TO SOFT ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

(C) MEDIUM STIFF TO STIFF ORANGE GRAY SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

(D) MEDIUM STIFF TO STIFF GRAY CLAYEY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)



-SBLRAMP-

NOTE: GROUNDLINE PROFILE AT CL OF -SBLRAMP- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	31

ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

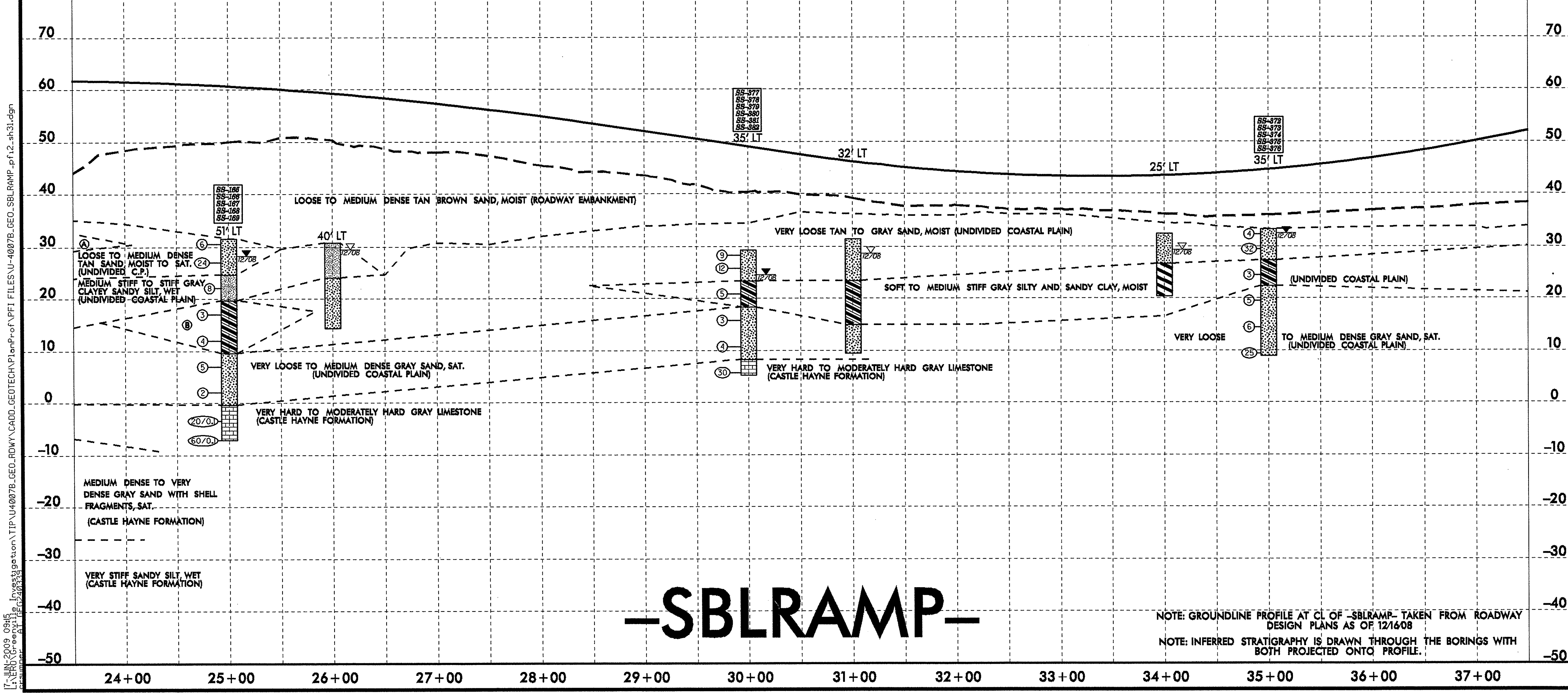
5/14/99

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-165	51 LT	25+00	1.0-1.5	A-2-4(0)	17	NP	5.8	64.4	9.7	20.0	100	99	32	-	-
SS-166	51 LT	25+00	8.6-10.1	A-4(0)	23	4	9.3	51.1	14.5	25.1	100	97	50	-	-
SS-167	51 LT	25+00	13.6-15.1	A-6(5)	31	12	0.2	50.7	19.0	30.1	100	100	64	-	-
SS-168	51 LT	25+00	23.6-25.1	A-2-4(0)	17	NP	51.6	32.1	4.3	12.0	100	75	20	-	-
SS-169	51 LT	25+00	33.6-34.7	A-1-a(0)	20	NP	56.5	24.0	5.4	14.0	32	17	7	-	-
SS-377	35 LT	30+00	1.0-1.5	A-2-4(0)	19	NP	8.9	76.4	4.6	10.1	99	97	17	-	-
SS-378	35 LT	30+00	2.5-4.0	A-2-4(0)	18	NP	54.3	30.3	1.2	14.1	100	99	16	-	-
SS-379	35 LT	30+00	7.5-9.0	A-6(12)	37	21	0.4	46.1	15.2	38.4	100	100	69	26.2	-
SS-380	35 LT	30+00	12.5-14.0	A-2-4(0)	22	6	31.1	42.2	6.5	20.2	100	86	32	-	-
SS-381	35 LT	30+00	17.5-19.0	A-2-4(0)	22	4	37.3	45.4	2.2	15.2	96	84	17	-	-
SS-382	35 LT	30+00	22.5-24.0	A-2-4(0)	16	NP	56.8	26.3	8.9	8.1	84	52	17	-	-
SS-372	35 LT	35+00	1.0-1.5	A-2-4(0)	20	3	11.3	62.6	3.8	22.2	100	98	27	-	-
SS-373	35 LT	35+00	2.9-4.4	A-2-4(0)	23	NP	11.6	80.0	2.3	6.1	100	98	11	-	-
SS-374	35 LT	35+00	7.9-9.4	A-6(5)	29	16	3.2	46.5	17.0	34.3	100	99	55	22.3	-
SS-375	35 LT	35+00	12.9-14.4	A-2-4(0)	19	NP	12.4	62.9	9.5	15.2	100	96	30	-	2.7
SS-376	35 LT	35+00	22.9-24.4	A-2-4(0)	20	NP	31.0	55.2	7.8	6.1	100	88	15	-	-

(A) MEDIUM STIFF TO STIFF ORANGE GRAY SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

(B) SOFT GRAY SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)



-SBLRAMP-

NOTE: GROUNDLINE PROFILE AT CL OF -SBLRAMP- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	32
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

Ⓐ VERY LOOSE TAN TO GRAY SAND, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓑ MEDIUM STIFF ORANGE CLAYEY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)

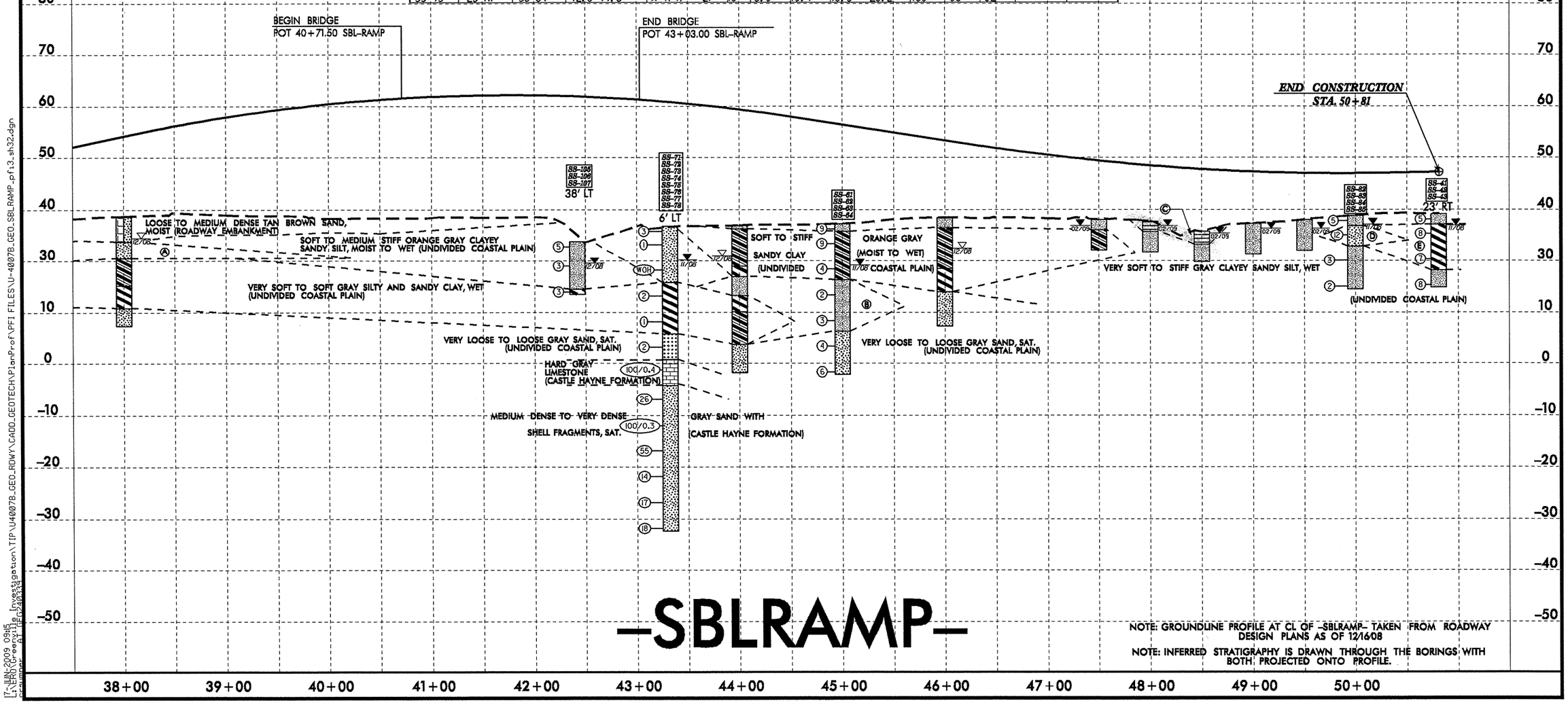
Ⓒ SOFT BROWN MODERATLEY ORGANIC SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓓ MEDIUM DENSE TAN GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

Ⓔ SOFT TO STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

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-105	38 LT	42+41	1.0- 1.5	A-4(0)	22	7	15.0	52.3	10.5	22.2	97	92	38	-	-
SS-106	38 LT	42+41	3.8- 5.3	A-4(3)	27	10	6.0	51.4	16.3	26.2	100	98	58	26.5	-
SS-107	38 LT	42+41	9.3- 10.3	A-7-6(13)	41	21	8.1	24.2	19.4	48.4	100	98	69	-	-
SS-71	6LT	43+32	1.0- 1.5	A-2-4(0)	25	NP	17.4	58.1	14.4	10.1	100	95	28	-	-
SS-72	6LT	43+32	7.6- 9.1	A-2-4(0)	21	7	27.9	43.4	9.6	19.2	100	89	35	-	-
SS-73	6LT	43+32	12.6- 14.1	A-7-6(21)	51	31	5.9	17.2	30.6	46.4	90	88	71	99.3	-
SS-74	6LT	43+32	22.6- 24.1	A-3(0)	23	NP	12.4	80.9	2.6	4.0	100	99	7	-	-
SS-75	6LT	43+32	32.6- 34.1	A-2-4(0)	16	NP	13.5	63.2	9.2	14.1	97	91	24	-	-
SS-76	6LT	43+32	37.6- 39.1	A-3(0)	22	NP	4.1	87.5	4.3	4.0	98	97	9	-	-
SS-77	6LT	43+32	47.6- 49.1	A-2-4(0)	21	NP	0.2	81.6	7.1	11.1	100	100	21	-	-
SS-78	6LT	43+32	57.6- 59.1	A-2-4(0)	22	NP	0.4	81.7	7.8	10.1	100	100	23	-	-
SS-61	CL	45+00	1.0- 1.5	A-4(0)	17	NP	15.1	45.6	19.1	20.2	100	95	44	-	-
SS-62	CL	45+00	2.9- 4.4	A-6(6)	34	18	13.9	36.7	15.0	34.3	100	96	53	-	-
SS-63	CL	45+00	12.9- 14.4	A-4(0)	20	4	24.4	45.0	12.4	18.2	100	91	37	-	-
SS-64	CL	45+00	22.9- 24.4	A-2-4(0)	25	8	53.0	30.9	3.0	13.1	98	73	17	-	-
SS-82	CL	50+00	1.0- 1.5	A-4(1)	23	7	6.3	41.2	26.3	26.2	100	98	59	-	-
SS-83	CL	50+00	2.8- 4.3	A-2-4(0)	27	6	9.1	62.9	4.8	23.2	100	99	29	-	-
SS-84	CL	50+00	7.8- 9.3	A-4(4)	29	10	0.0	51.9	15.8	32.3	100	100	62	28.9	-
SS-85	CL	50+00	12.8- 14.3	A-4(1)	26	7	9.1	50.7	16.0	24.2	100	97	55	-	-
SS-41	23 RT	50+81	1.0- 1.5	A-4(0)	19	4	6.1	42.0	31.8	20.2	100	98	59	19.4	-
SS-42	23 RT	50+81	2.8- 4.3	A-7-6(20)	49	30	3.6	32.1	21.9	42.4	100	99	70	-	-
SS-43	23 RT	50+81	12.8- 14.3	A-4(4)	27	10	5.9	49.4	18.5	26.2	100	98	62	-	-



-SBLRAMP-

NOTE: GROUNDLINE PROFILE AT CL OF -SBLRAMP- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/1608

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	33
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

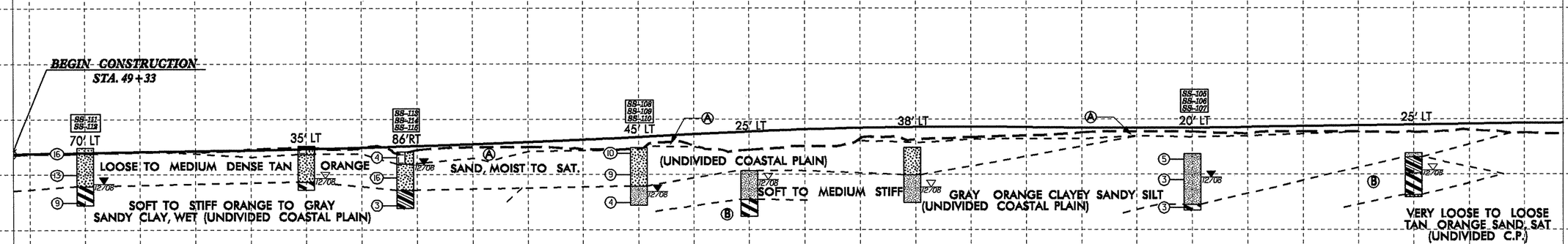
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-111	70 LT	10+00	1.0- 1.5	A-2-4(0)	22	NP	4.7	84.3	7.0	4.0	100	99	14	-	-
SS-112	70 LT	10+00	9.0- 10.5	A-7-6(16)	44	28	1.6	42.1	17.9	38.3	100	100	65	26.2	-
SS-113	86 RT	52+86	1.0- 1.5	A-2-4(0)	22	NP	8.3	78.5	8.2	5.0	99	97	15	-	-
SS-114	86 RT	52+86	3.8- 5.3	A-2-4(0)	21	NP	15.9	74.0	3.0	7.1	100	95	11	-	-
SS-115	86 RT	52+86	8.8- 10.3	A-6(14)	40	23	2.0	30.4	15.1	52.4	100	100	69	41.7	-
SS-108	45 LT	55+00	1.0- 1.5	A-2-4(0)	22	6	7.7	61.5	8.7	22.2	100	99	33	19	-
SS-109	45 LT	55+00	4.0- 5.5	A-2-4(0)	19	NP	10.3	71.3	4.3	14.1	100	98	23	-	-
SS-110	45 LT	55+00	9.0- 10.5	A-4(0)	21	4	17.4	52.5	10.9	19.2	100	93	40	-	-
SS-105	20 LT	60+00	1.0- 1.5	A-4(0)	22	7	15.0	52.3	10.5	22.2	97	92	38	-	-
SS-106	20 LT	60+00	3.8- 5.3	A-4(3)	27	10	6.0	51.4	16.3	26.2	100	98	58	-	-
SS-107	20 LT	60+00	9.3- 10.3	A-7-6(13)	41	21	8.1	24.2	19.4	48.4	100	98	69	-	-

Ⓐ LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)

Ⓑ SOFT ORANGE TO GRAY SANDY CLAY, WET (UNDIVIDED C.P.)



–Y1ASBL–

NOTE: GROUNDLINE PROFILE AT CL OF –Y1ASBL– TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

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

50+00 51+00 52+00 53+00 54+00 55+00 56+00 57+00 58+00 59+00 60+00 61+00 62+00 63+00

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	34
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

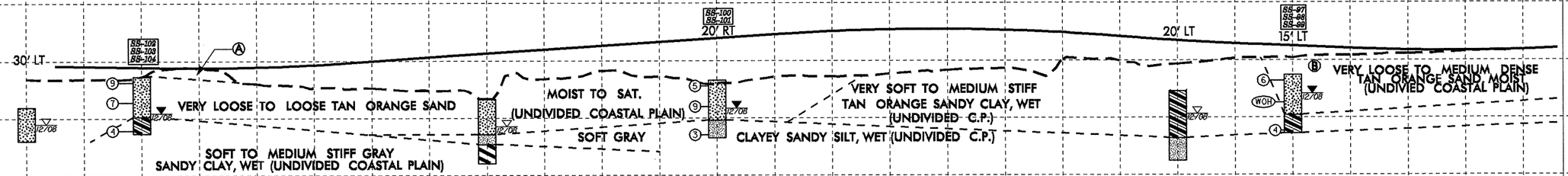
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-102	CL	65+00	1.0-1.5	A-2-4(0)	22	6	22.1	47.1	13.7	17.1	96	88	34	-	-
SS-103	CL	65+00	3.5-5.0	A-2-4(0)	18	NP	14.2	67.5	4.1	14.1	100	95	20	-	-
SS-104	CL	65+00	8.5-10.0	A-6(2)	24	11	34.3	19.4	18.1	28.2	100	88	50	-	-
SS-100	20 RT	70+00	1.0-1.5	A-2-4(0)	21	3	22.2	53.8	9.9	14.1	100	92	27	-	-
SS-101	20 RT	70+00	8.6-10.1	A-4(1)	24	9	11.9	51.4	14.5	22.2	100	95	50	31.2	-
SS-97	15 LT	75+00	1.0-1.5	A-2-4(0)	18	NP	20.3	63.0	6.7	10.1	97	90	19	-	-
SS-98	15 LT	75+00	3.8-5.3	A-2-4(0)	19	2	6.9	67.5	6.5	19.2	100	98	28	-	-
SS-99	15 LT	75+00	8.8-10.3	A-6(10)	35	22	17.5	25.2	19.0	38.3	100	97	62	28.7	-

Ⓐ LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)



UNDERCUT EXCAVATION

-Y1ASBL-

NOTE: GROUNDLINE PROFILE AT CL OF -Y1ASBL- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

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

64+00 65+00 66+00 67+00 68+00 69+00 70+00 71+00 72+00 73+00 74+00 75+00 76+00 77+00

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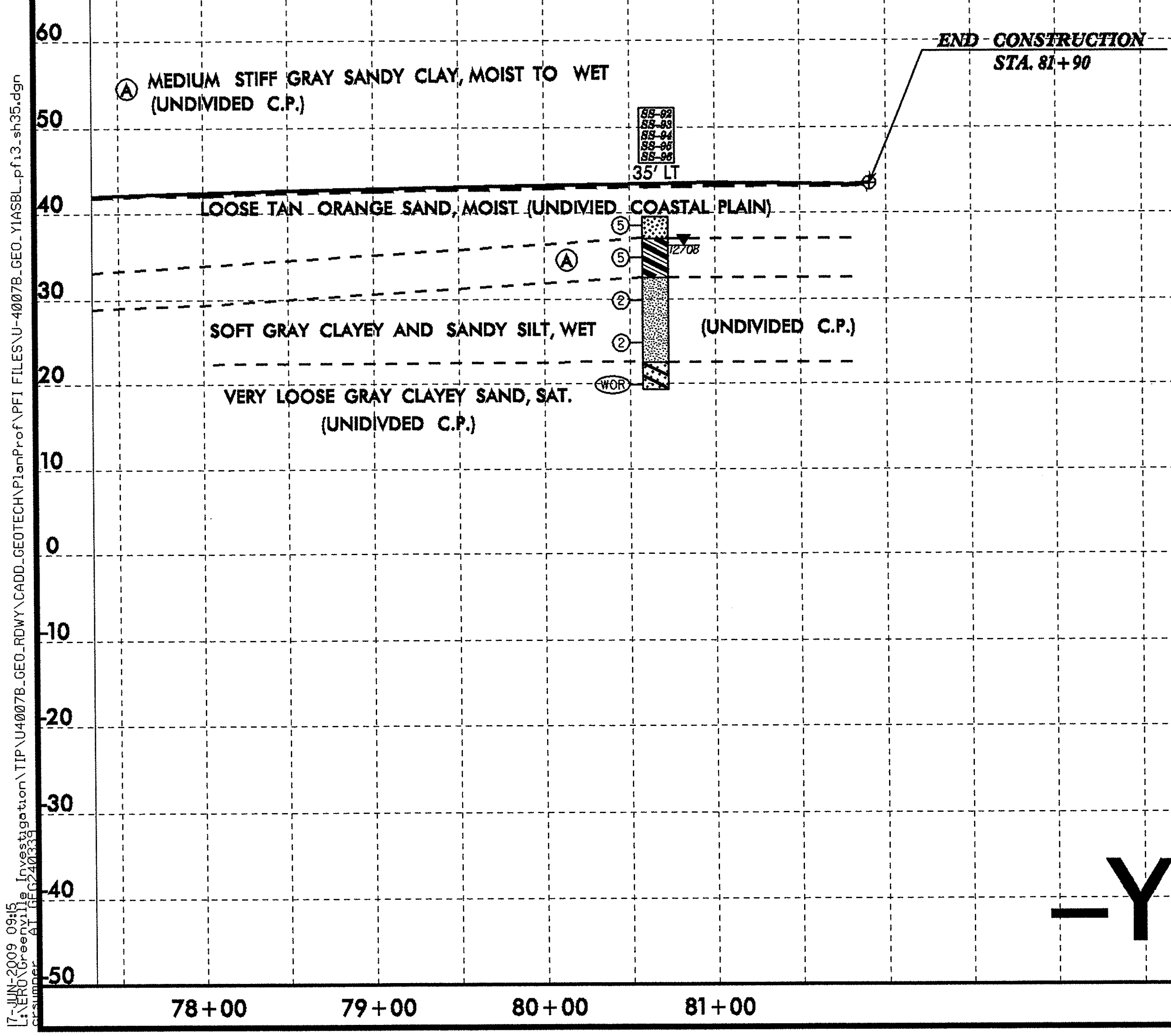
PROJECT REFERENCE NO.	SHEET NO.
U-4007B	35
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-92	35 LT	80+65	1.0-1.5	A-2-4(0)	18	NP	17.3	62.5	8.1	12.1	97	91	23	-	-
SS-93	35 LT	80+65	3.7-5.2	A-6(2)	28	12	3.8	52.2	15.7	28.2	100	100	48	29.9	-
SS-94	35 LT	80+65	8.7-10.2	A-4(3)	26	8	0.2	56.0	19.6	24.2	100	100	62	-	-
SS-95	35 LT	80+65	13.7-15.2	A-4(0)	23	6	9.1	56.3	16.5	18.1	100	97	50	-	-
SS-96	35 LT	80+65	18.7-20.2	A-2-6(1)	33	18	55.0	17.5	7.3	20.2	86	57	24	-	-



-Y1ASBL-

NOTE: GROUNDLINE PROFILE AT CL OF -Y1ASBL- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

5/14/99

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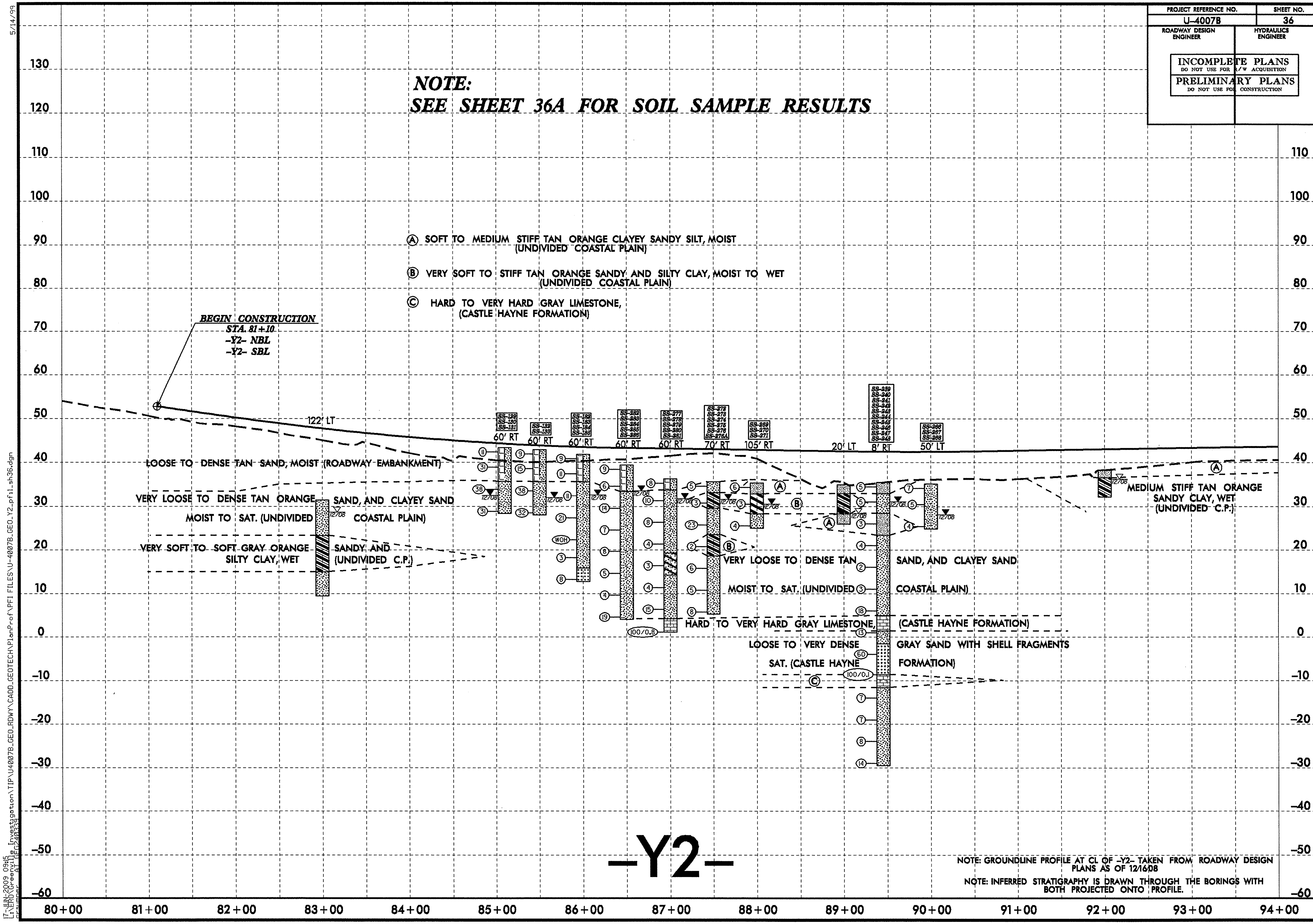

PROJECT REFERENCE NO. U-4007B
SHEET NO. 36
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS DO NOT USE FOR CONSTRUCTION
NOTE:
SEE SHEET 36A FOR SOIL SAMPLE RESULTS
Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)
Ⓑ VERY SOFT TO STIFF TAN ORANGE SANDY AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
Ⓒ HARD TO VERY HARD GRAY LIMESTONE, (CASTLE HAYNE FORMATION)
BEGIN CONSTRUCTION
STA. 81+10
-Y2- NBL
-Y2- SBL
122' LT
60' RT
60' RT
60' RT
60' RT
60' RT
70' RT
105' RT
20' LT
8' RT
50' LT
LOOSE TO DENSE TAN SAND, MOIST (ROADWAY EMBANKMENT)
VERY LOOSE TO DENSE TAN ORANGE SAND, AND CLAYEY SAND MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)
VERY SOFT TO SOFT GRAY ORANGE SANDY AND SILTY CLAY, WET (UNDIVIDED C.P.)
MEDIUM STIFF TAN ORANGE SANDY CLAY, WET (UNDIVIDED C.P.)
VERY LOOSE TO DENSE TAN SAND, AND CLAYEY SAND MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)
HARD TO VERY HARD GRAY LIMESTONE, (CASTLE HAYNE FORMATION)
LOOSE TO VERY DENSE GRAY SAND WITH SHELL FRAGMENTS SAT. (CASTLE HAYNE FORMATION)
12/08
WOH
100/0.8
100/0.1
-Y2-
NOTE: GROUNDLINE PROFILE AT CL OF -Y2- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08
NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.
130
120
110
100
90
80
70
60
50
40
30
20
10
0
-10
-20
-30
-40
-50
-60
80+00
81+00
82+00
83+00
84+00
85+00
86+00
87+00
88+00
89+00
90+00
91+00
92+00
93+00
94+00

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	36A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL SAMPLE RESULTS FOR -Y2- SHEET 36

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-129	60 RT	85+10	1.0-1.5	A-2-4(0)	20	NP	54.9	32.6	5.4	7.1	96	71	16	-	-
SS-130	60 RT	85+10	3.5-5.0	A-2-4(0)	19	NP	40.4	43.9	6.7	9.1	96	74	21	-	-
SS-131	60 RT	85+10	13.5-15.0	A-2-4(0)	18	NP	10.7	80.7	4.5	4.0	100	99	11	-	-
SS-132	60 RT	85+50	1.0-1.5	A-2-4(0)	22	NP	35.6	47.0	9.4	8.1	96	86	22	-	-
SS-133	60 RT	85+50	8.4-9.9	A-2-4(0)	19	NP	49.7	38.4	4.8	7.1	94	76	13	-	-
SS-182	60 RT	86+00	1.0-1.5	A-2-4(0)	22	NP	28.6	50.8	6.5	14.1	94	82	24	-	-
SS-183	60 RT	86+00	8.5-10.0	A-2-4(0)	16	NP	48.3	39.3	3.3	9.1	94	77	13	-	-
SS-184	60 RT	86+00	22.7-24.2	A-2-4(0)	29	NP	11.9	75.3	5.7	7.1	100	97	17	-	-
SS-185	60 RT	86+00	27.6-29.1	A-3(0)	20	NP	25.0	64.4	0.5	10.1	93	83	10	-	-
SS-282	60 RT	86+50	0.5-1.5	A-2-4(0)	20	NP	30.8	51.0	6.1	12.0	96	82	22	-	-
SS-283	60 RT	86+50	8.8-10.3	A-2-4(0)	20	NP	31.4	56.8	2.7	9.0	99	82	13	-	-
SS-284	60 RT	86+50	18.8-20.3	A-2-4(0)	20	NP	20.3	61.5	4.1	14.1	99	91	20	-	-
SS-285	60 RT	86+50	24.3-25.3	A-2-4(0)	19	NP	34.2	53.0	0.7	12.0	98	86	14	-	-
SS-286	60 RT	86+50	28.8-30.3	A-2-4(0)	16	NP	33.5	47.6	9.8	9.0	100	86	20	-	-
SS-277	60 RT	87+00	0.5-1.5	A-2-4(0)	19	NP	35.4	47.4	7.1	10.0	97	83	19	-	-
SS-278	60 RT	87+00	3.9-5.4	A-2-4(0)	16	NP	15.0	69.2	4.8	11.0	100	96	18	-	-
SS-279	60 RT	87+00	13.9-15.4	A-2-4(0)	19	4	26.3	47.3	9.3	17.1	100	89	32	-	-
SS-280	60 RT	87+00	18.9-20.4	A-2-6(0)	30	16	40.0	36.7	2.2	21.1	95	76	23	-	-
SS-281	60 RT	87+00	23.9-25.4	A-2-4(0)	17	NP	26.4	48.3	17.3	8.0	100	89	26	-	-
SS-272	70 RT	87+50	0.5-1.5	A-2-4(0)	17	NP	12.6	63.6	9.8	14.1	100	96	27	-	-
SS-273	70 RT	87+50	3.8-5.3	A-6(11)	26	11	11.6	50.8	11.4	26.1	100	98	41	-	-
SS-274	70 RT	87+50	8.8-10.3	A-2-4(0)	15	NP	10.3	80.2	4.4	5.0	100	98	12	-	-
SS-275	70 RT	87+50	13.8-15.3	A-6(5)	28	11	3.8	38.0	28.1	30.1	100	98	65	-	-
SS-276	70 RT	87+50	18.8-20.3	A-2-4(0)	18	NP	22.3	64.8	2.9	10.0	99	89	14	24.6	-
SS-276A	70 RT	87+50	28.8-30.3	A-2-4(0)	15	NP	35.5	49.4	8.0	7.0	100	84	16	-	-
SS-269	105 RT	88+00	0.5-1.5	A-4(0)	24	8	8.6	52.6	10.6	28.1	100	98	42	17.6	-
SS-270	105 RT	88+00	3.8-5.3	A-7-6(23)	47	30	3.0	24.7	24.1	48.2	100	100	78	26.5	-
SS-271	105 RT	88+00	8.8-10.3	A-2-4(0)	17	NP	24.4	65.2	2.4	8.0	100	88	12	-	-
SS-239	8 RT	89+45	0.5-1.5	A-4(0)	25	7	8.0	53.5	14.3	24.1	100	99	40	-	-
SS-240	8 RT	89+45	3.4-4.9	A-2-4(0)	18	1	13.7	62.6	5.6	18.1	100	97	25	-	-
SS-241	8 RT	89+45	8.4-9.9	A-4(3)	27	10	15.5	41.4	14.9	28.2	100	92	56	34.8	-
SS-242	8 RT	89+45	13.4-14.9	A-2-4(0)	18	NP	39.7	39.4	5.7	15.1	100	81	26	-	-
SS-243	8 RT	89+45	18.4-19.9	A-2-4(0)	19	NP	38.2	47.7	2.0	12.1	98	81	14	-	-
SS-244	8 RT	89+45	28.4-29.9	A-2-4(0)	17	NP	48.6	33.8	8.6	9.1	87	60	17	-	-
SS-245	8 RT	89+45	33.9-34.9	A-2-4(0)	17	1	19.3	48.5	10.1	22.1	88	78	30	-	-
SS-246	8 RT	89+45	38.4-39.9	A-3(0)	20	NP	4.0	87.8	1.1	7.0	100	100	10	-	-
SS-247	8 RT	89+45	48.4-49.9	A-2-4(0)	18	NP	0.5	80.3	6.1	13.1	100	100	22	-	-
SS-248	8 RT	89+45	58.4-59.9	A-2-4(0)	22	NP	0.4	73.2	10.3	16.1	100	100	32	-	-
SS-266	50 LT	90+00	0.5-1.5	A-2-4(0)	21	NP	11.5	71.4	7.0	10.0	100	98	19	17.6	-
SS-267	50 LT	90+00	3.7-5.2	A-2-4(0)	18	NP	10.7	70.6	4.6	14.1	100	97	20	26.5	-
SS-268	50 LT	90+00	9.2-10.2	A-2-4(0)	19	2	21.8	57.0	6.1	15.1	100	96	25	-	-

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ROADWAY DESIGN ENGINEER | HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/14/99

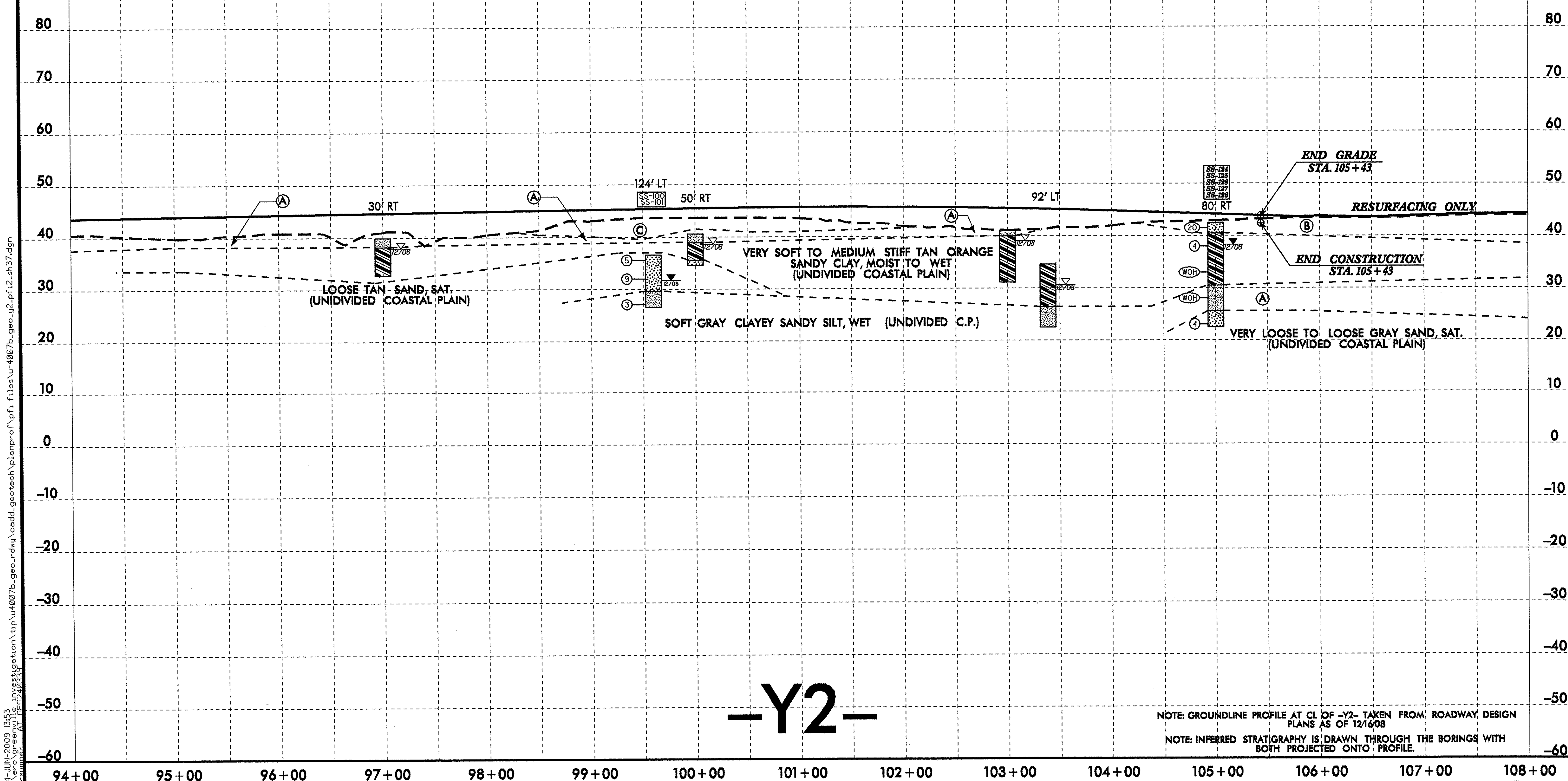
SOIL TEST RESULTS

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-100	124' LT	99+59	0.5-1.5	A-2-4(0)	21	3	22.2	53.8	9.9	14.1	100	92	27	-	-
SS-101	124' LT	99+59	8.6-10.1	A-4(1)	24	9	11.9	51.4	14.5	22.2	100	95	50	31.2	-
SS-124	80 RT	105+00	1.0-1.5	A-2-4(0)	18	NP	20.1	68.8	4.1	7.1	98	92	13	-	-
SS-125	80 RT	105+00	3.5-5.0	A-6(2)	24	11	10.7	46.8	18.3	24.2	99	95	45	25.7	-
SS-126	80 RT	105+00	8.5-10.0	A-6(1)	27	11	3.0	61.5	7.3	28.2	100	99	38	-	-
SS-127	80 RT	105+00	13.5-15.0	A-4(4)	29	10	0.8	51.4	19.6	28.2	100	100	66	33.6	-
SS-128	80 RT	105+00	18.5-20.0	A-2-4(0)	20	NP	35.8	48.2	2.9	13.1	99	81	17	-	-

Ⓐ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓑ VERY LOOSE TO MEDIUM DENSE TAN ORANGE SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

Ⓒ LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)



-Y2-

NOTE: GROUNDLINE PROFILE AT CL OF -Y2- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	38
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-92	80 LT	110+00	1.0-1.5	A-2-4(0)	18	NP	17.3	62.5	8.1	12.1	97	91	23	-	-
SS-93	80 LT	110+00	3.7-5.2	A-6(2)	28	12	3.8	52.2	15.7	28.2	100	100	48	-	-
SS-94	80 LT	110+00	8.7-10.2	A-4(3)	26	8	0.2	56.0	19.6	24.2	100	100	62	-	-
SS-95	80 LT	110+00	13.7-15.2	A-4(0)	23	6	9.1	56.3	16.5	18.1	100	97	50	-	-
SS-96	80 LT	110+00	18.7-20.2	A-2-6(1)	33	18	55.0	17.5	7.3	20.2	86	57	24	-	-

Ⓐ MEDIUM STIFF TAN ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

END CONSTRUCTION
STA. 111+30 NBL -Y2-
STA. 81+90 SBL -Y1A-

SS-92
SS-93
SS-94
SS-95
SS-96
80' LT

RESURFACING ONLY

LOOSE TAN ORANGE SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

12/08

SOFT GRAY AND CLAYEY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)

WOR

VERY LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

-Y2-

NOTE: GROUNDLINE PROFILE AT CL OF -Y2- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

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

108+00 109+00 110+00 111+00 112+00 113+00 114+00 115+00 116+00 117+00 118+00 119+00 120+00 121+00 122+00

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	38A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

SOIL SAMPLE RESULTS FOR -Y2- SHEET 36

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-129	60 RT	85+10	1.0-1.5	A-2-4(0)	20	NP	54.9	32.6	5.4	7.1	96	71	16	-	-
SS-130	60 RT	85+10	3.5-5.0	A-2-4(0)	19	NP	40.4	43.9	6.7	9.1	96	74	21	-	-
SS-131	60 RT	85+10	13.5-15.0	A-2-4(0)	18	NP	10.7	80.7	4.5	4.0	100	99	11	-	-
SS-132	60 RT	85+50	1.0-1.5	A-2-4(0)	22	NP	35.6	47.0	9.4	8.1	96	86	22	-	-
SS-133	60 RT	85+50	8.4-9.9	A-2-4(0)	19	NP	49.7	38.4	4.8	7.1	94	76	13	-	-
SS-182	60 RT	86+00	1.0-1.5	A-2-4(0)	22	NP	28.6	50.8	6.5	14.1	94	82	24	-	-
SS-183	60 RT	86+00	8.5-10.0	A-2-4(0)	16	NP	48.3	39.3	3.3	9.1	94	77	13	-	-
SS-184	60 RT	86+00	22.7-24.2	A-2-4(0)	29	NP	11.9	75.3	5.7	7.1	100	97	17	-	-
SS-185	60 RT	86+00	27.6-29.1	A-3(0)	20	NP	25.0	64.4	0.5	10.1	93	83	10	-	-
SS-282	60 RT	86+50	1.0-1.5	A-2-4(0)	20	NP	30.8	51.0	6.1	12.0	96	82	22	-	-
SS-283	60 RT	86+50	8.8-10.3	A-2-4(0)	20	NP	31.4	56.8	2.7	9.0	99	82	13	-	-
SS-284	60 RT	86+50	18.8-20.3	A-2-4(0)	20	NP	20.3	61.5	4.1	14.1	99	91	20	-	-
SS-285	60 RT	86+50	24.3-25.3	A-2-4(0)	19	NP	34.2	53.0	0.7	12.0	98	86	14	-	-
SS-286	60 RT	86+50	28.8-30.3	A-2-4(0)	16	NP	33.5	47.6	9.8	9.0	100	86	20	-	-
SS-277	60 RT	87+00	1.0-1.5	A-2-4(0)	19	NP	35.4	47.4	7.1	10.0	97	83	19	-	-
SS-278	60 RT	87+00	3.9-5.4	A-2-4(0)	16	NP	15.0	69.2	4.8	11.0	100	96	18	-	-
SS-279	60 RT	87+00	13.9-15.4	A-2-4(0)	19	4	26.3	47.3	9.3	17.1	100	89	32	-	-
SS-280	60 RT	87+00	18.9-20.4	A-2-6(0)	30	16	40.0	36.7	2.2	21.1	95	76	23	-	-
SS-281	60 RT	87+00	23.9-25.4	A-2-4(0)	17	NP	26.4	48.3	17.3	8.0	100	89	26	-	-
SS-272	70 RT	87+50	1.0-1.5	A-2-4(0)	17	NP	12.6	63.6	9.8	14.1	100	96	27	-	-
SS-273	70 RT	87+50	3.8-5.3	A-6(1)	26	11	11.6	50.8	11.4	26.1	100	98	41	-	-
SS-274	70 RT	87+50	8.8-10.3	A-2-4(0)	15	NP	10.3	80.2	4.4	5.0	100	98	12	-	-
SS-275	70 RT	87+50	13.8-15.3	A-6(5)	28	11	3.8	38.0	28.1	30.1	100	98	65	-	-
SS-276	70 RT	87+50	18.8-20.3	A-2-4(0)	18	NP	22.3	64.8	2.9	10.0	99	89	14	24.6	-
SS-276a	70 RT	87+50	28.8-30.3	A-2-4(0)	15	NP	35.5	49.4	8.0	7.0	100	84	16	-	-
SS-269	107 RT	88+00	1.0-1.5	A-4(0)	24	8	8.6	52.6	10.6	28.1	100	98	42	17.6	-
SS-270	107 RT	88+00	3.8-5.3	A-7-6(23)	47	30	3.0	24.7	24.1	48.2	100	100	78	26.5	-
SS-271	107 RT	88+00	8.8-10.3	A-2-4(0)	17	NP	24.4	65.2	2.4	8.0	100	88	12	-	-
SS-239	8 RT	89+45	1.0-1.5	A-4(0)	25	7	8.0	53.5	14.3	24.1	100	99	40	-	-
SS-240	8 RT	89+45	3.4-4.9	A-2-4(0)	18	1	13.7	62.6	5.6	18.1	100	97	25	-	-
SS-241	8 RT	89+45	8.4-9.9	A-4(3)	27	10	15.5	41.4	14.9	28.2	100	92	56	34.8	-
SS-242	8 RT	89+45	13.4-14.9	A-2-4(0)	18	NP	39.7	39.4	5.7	15.1	100	81	26	-	-
SS-243	8 RT	89+45	18.4-19.9	A-2-4(0)	19	NP	38.2	47.7	2.0	12.1	98	81	14	-	-
SS-244	8 RT	89+45	28.4-29.9	A-2-4(0)	17	NP	48.6	33.8	8.6	9.1	87	60	17	-	-
SS-245	8 RT	89+45	33.9-34.9	A-2-4(0)	17	1	19.3	48.5	10.1	22.1	88	78	30	-	-
SS-246	8 RT	89+45	38.4-39.9	A-3(0)	20	NP	4.0	87.8	1.1	7.0	100	100	10	-	-
SS-247	8 RT	89+45	48.4-49.9	A-2-4(0)	18	NP	0.5	80.3	6.1	13.1	100	100	22	-	-
SS-248	8 RT	89+45	58.4-59.9	A-2-4(0)	22	NP	0.4	73.2	10.3	16.1	100	100	32	-	-
SS-266	50 LT	90+00	1.0-1.5	A-2-4(0)	21	NP	11.5	71.4	7.0	10.0	100	98	19	17.6	-
SS-267	50 LT	95+00	3.7-5.2	A-2-4(0)	18	NP	10.7	70.6	4.6	14.1	100	97	20	26.5	-
SS-268	50 LT	90+00	9.2-10.2	A-2-4(0)	19	2	21.8	57.0	6.1	15.1	100	96	25	-	-
SS-174	45 RT	40+62	1.0-1.5	A-2-4(0)	20	1	16.3	55.4	12.1	16.1	90	83	30	-	-
SS-175	45 RT	40+62	2.9-4.4	A-6(7)	34	18	16.9	31.9	12.9	38.3	100	92	55	22.7	-
SS-176	45 RT	40+62	12.9-14.4	A-2-4(0)	21	NP	20.6	59.6	7.8	12.1	100	93	22	-	-
SS-177	45 RT	40+62	17.9-19.4	A-7-5(42)	75	32	0.4	2.2	26.8	70.6	100	100	98	126.8	-
SS-178	45 RT	40+62	27.9-29.4	A-2-4(0)	18	NP	25.6	60.8	4.5	9.1	100	93	14	-	-
SS-179	45 RT	40+62	37.9-39.1	A-2-4(0)	16	NP	20.1	62.6	7.3	10.1	95	86	18	-	-
SS-180	45 RT	40+62	47.9-49.4	A-2-4(0)	20	NP	0.4	85.4	4.1	10.1	100	100	17	-	-
SS-181	45 RT	40+62	57.9-59.4	A-2-4(0)	22	NP	0.4	74.3	10.2	15.1	100	100	33	-	-

5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	39
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/14/99

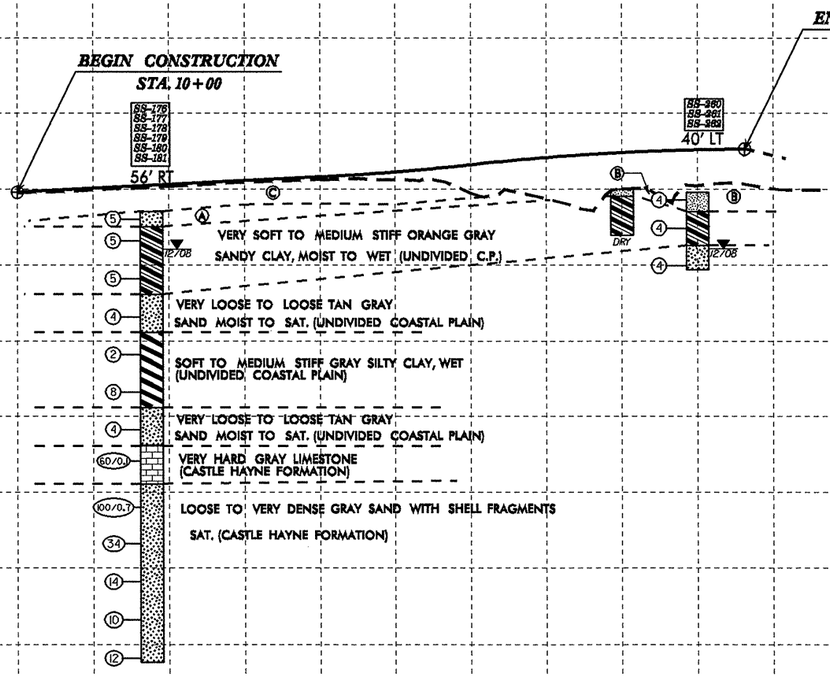
SOIL TEST RESULTS

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-176	56 RT	10+88	12.9-14.4	A-2-4(0)	21	NP	20.6	59.6	7.8	12.1	100	93	22	-	-
SS-177	56 RT	10+88	17.9-19.4	A-7-5(42)	75	32	0.4	2.2	26.8	70.6	100	100	98	126.8	-
SS-178	56 RT	10+88	27.9-29.4	A-2-4(0)	18	NP	25.6	60.8	4.5	9.1	100	93	14	-	-
SS-179	56 RT	10+88	37.9-39.1	A-2-4(0)	16	NP	20.1	62.6	7.3	10.1	95	86	18	-	-
SS-180	56 RT	10+88	47.9-49.4	A-2-4(0)	20	NP	0.4	85.4	4.1	10.1	100	100	17	-	-
SS-181	56 RT	10+88	57.9-59.4	A-2-4(0)	22	NP	0.4	74.3	10.2	15.1	100	100	33	-	-
SS-260	40 LT	14+50	1.0-1.5	A-4(2)	23	8	6.2	42.1	21.5	30.2	100	99	56	-	-
SS-261	40 LT	14+50	3.7-5.2	A-6(3)	28	14	7.4	49.0	11.4	32.2	100	99	46	23.2	-
SS-262	40 LT	14+50	8.7-10.2	A-2-4(0)	20	4	15.6	53.4	9.9	21.1	100	96	35	-	-

Ⓐ LOOSE TAN ORANGE SAND, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓑ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓒ LOOSE TO DENSE TAN ORANGE SAND, MOIST (ROADWAY EMBANKMENT)



-Y2CON-

NOTE: GROUNDLINE PROFILE AT CL OF -Y2CON- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/1608

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	40
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

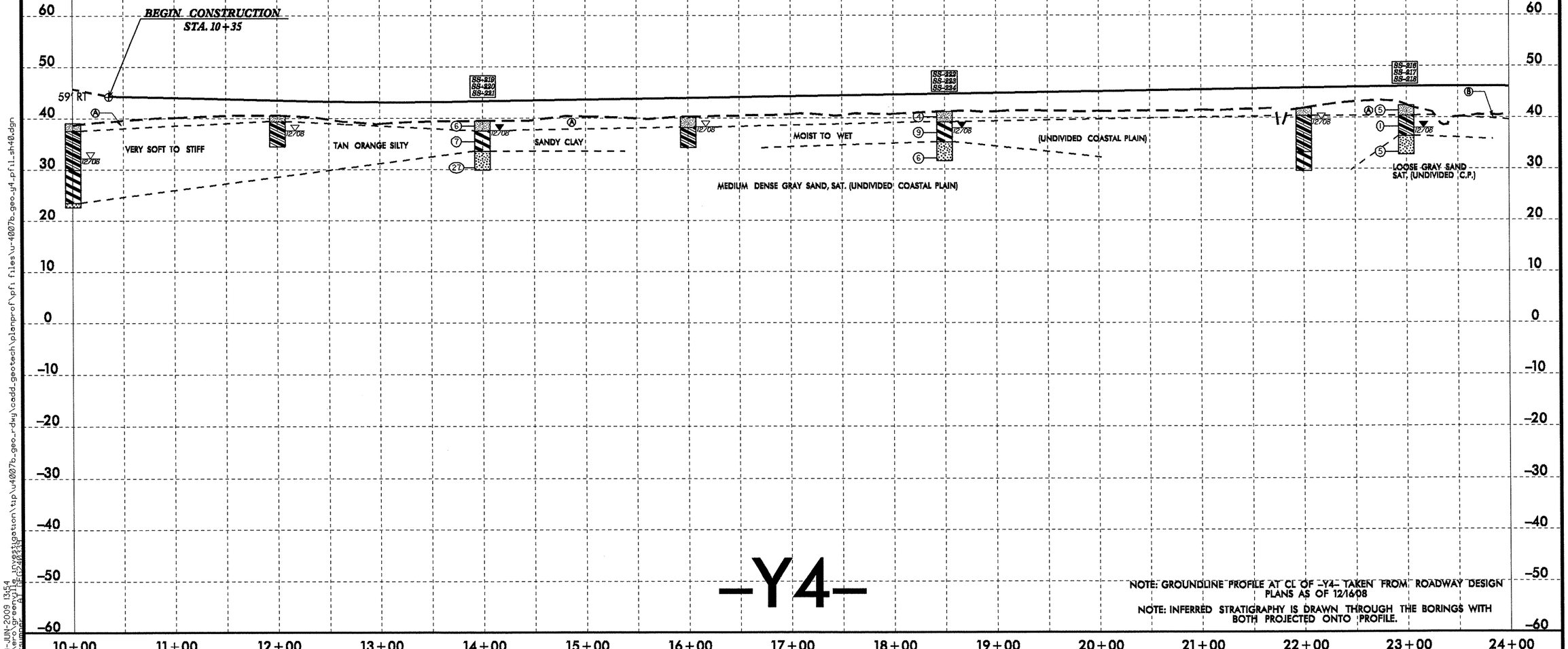
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-219	CL	14+00	1.0-1.5	A-4(3)	25	10	5.8	38.3	27.6	28.2	100	99	61	-	-
SS-220	CL	14+00	3.1-4.6	A-7-6(18)	44	26	3.8	26.6	25.2	44.4	100	99	74	29.3	-
SS-221	CL	14+00	8.1-9.6	A-2-4(0)	19	NP	13.9	74.1	5.9	6.0	100	96	14	-	-
SS-222	CL	18+50	1.0-1.5	A-4(3)	24	9	8.7	37.9	29.2	24.2	100	98	60	-	-
SS-223	CL	18+50	3.1-4.6	A-7-6(14)	41	23	6.5	30.4	24.8	38.3	100	98	69	24.4	-
SS-224	CL	18+50	8.1-9.6	A-2-4(0)	16	NP	36.2	44.9	6.9	12.1	100	87	22	-	-
SS-216	CL	23+00	1.0-1.5	A-4(0)	21	3	12.7	54.6	18.5	14.1	100	96	38	-	-
SS-217	CL	23+00	3.1-4.6	A-6(5)	27	12	3.8	37.9	24.0	34.3	100	99	64	29.1	-
SS-218	CL	23+00	8.1-9.6	A-2-4(0)	22	7	18.4	51.5	8.9	21.2	100	95	32	-	-

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓑ LOOSE TAN SAND, MOIST (UNDIVIDED COASTAL PLAIN)



NOTE: GROUNDLINE PROFILE AT CL OF -Y4- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

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5/14/99

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	41
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

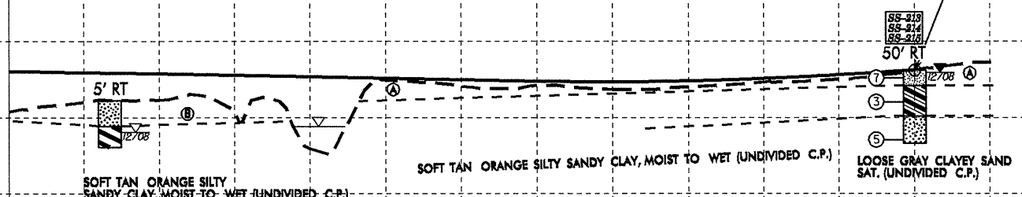
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-213	50RT	30+00	1.0-1.5	A-4(1)	22	8	8.7	46.2	21.0	24.2	100	97	50	-	-
SS-214	50RT	30+00	3.1-4.6	A-6(14)	37	20	2.4	26.0	29.2	42.3	100	100	77	13.5	-
SS-215	50RT	30+00	8.1-9.6	A-2-4(0)	25	8	17.1	54.2	6.5	22.2	100	96	30	-	-

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓑ LOOSE TAN SAND, MOIST (UNDIVIDED COASTAL PLAIN)



-Y4-

NOTE: GROUNDLINE PROFILE AT CL OF -Y4- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

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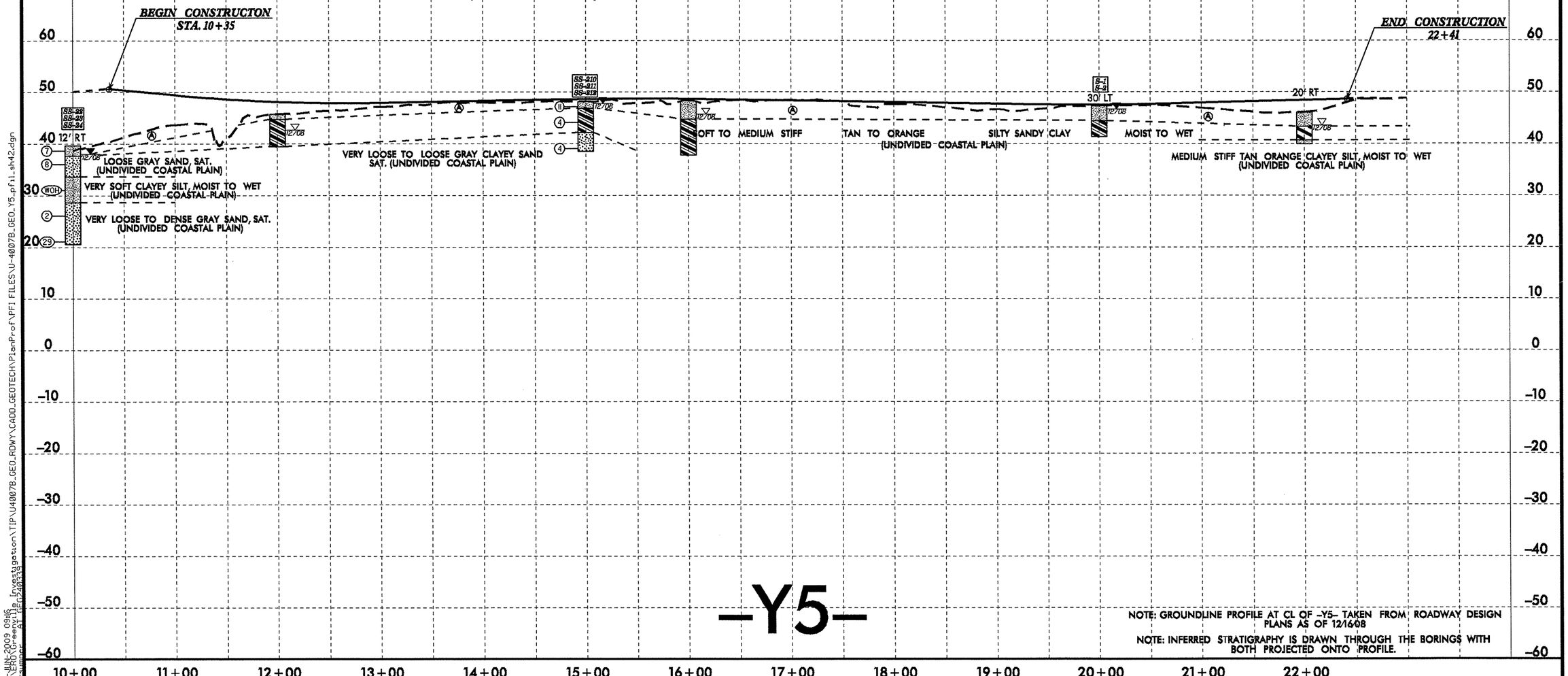
PROJECT REFERENCE NO.	SHEET NO.
U-4007B	42
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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-22	12RT	10+00	2.6-4.1	A-2-4(0)	23	6	4.6	67.6	7.6	20.2	100	100	29	-	-
SS-23	12RT	10+00	7.6-9.1	A-4(0)	22	5	14.1	51.7	14.0	20.2	100	95	46	-	-
SS-24	12RT	10+00	12.6-14.1	A-2-4(0)	21	NP	26.4	59.9	5.5	8.1	100	89	15	-	-
SS-210	CL	15+00	1.0-1.3	A-4(0)	21	5	13.9	51.0	12.9	22.2	98	93	37	-	-
SS-211	CL	15+00	3.1-4.6	A-6(2)	23	11	8.1	44.8	21.0	26.2	100	98	50	21.2	-
SS-212	CL	15+00	8.1-9.6	A-2-4(0)	26	8	3.2	64.1	10.5	22.2	100	99	35	-	-
S-1	30LT	20+00	1.0-3.00	A-4(1)	22	8	10.3	46.7	16.3	26.2	100	97	45	-	-
S-2	30LT	20+00	3.00-6.00	A-6(8)	33	16	3.8	34.4	21.5	40.3	100	99	63	-	-



-Y5-

NOTE: GROUNDLINE PROFILE AT CL OF -Y5- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/1608

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

Ⓐ SOFT BROWN MUCK, MOIST TO SAT. (ALLUVIAL)

VERY LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

16+50.00

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-48	35' LT	15+93	1.0- 1.5	A-7-5(20)	76	19	13.5	12.9	43.3	30.3	97	89	74	110.5	23.3
SS-49	35' LT	15+93	2.5- 4.0	A-6(6)	25	12	3.8	30.5	31.4	34.3	100	99	74	-	-
SS-50	35' LT	15+93	7.5- 9.0	A-2-4(0)	20	NP	46.4	43.7	4.8	5.0	91	68	11	-	-
SS-51	35' LT	15+93	12.5- 14.0	A-4(0)	19	NP	45.2	20.4	26.3	8.1	100	69	36	-	-

BEGIN RAMP-1A Ⓐ SOFT BROWN MUCK, MOIST TO SAT. (ALLUVIAL)
STA. 10+00.00

SS-48
SS-49
SS-50
SS-51

15+93

SOFT TO STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

VERY LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

VERY SOFT GRAY WEATHERED LIMESTONE (CASTLE HAYNE FORMATION)

16+00.00

Ⓐ MEDIUM STIFF TO VERY STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
Ⓑ SOFT BROWN MUCK, MOIST TO SAT. (ALLUVIAL)

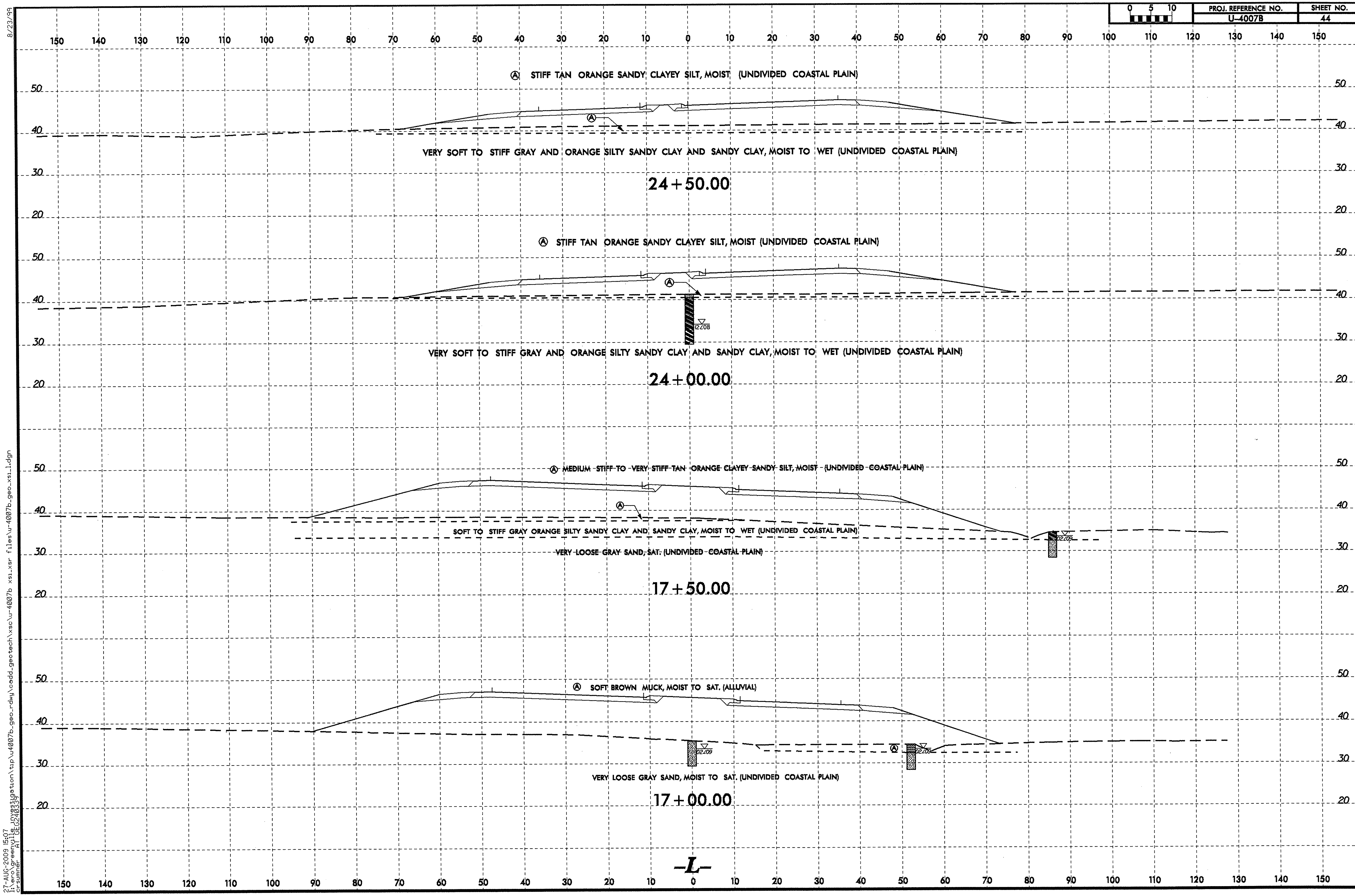
15+44

SOFT TO STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

VERY LOOSE GRAY SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

15+50.00

-L-


PROJ. REFERENCE NO.
U-4007B
SHEET NO.
44
8/23/99
Ⓐ STIFF TAN ORANGE SANDY CLAYEY SILT, MOIST (UNDIVIDED COASTAL PLAIN)
VERY SOFT TO STIFF GRAY AND ORANGE SILTY SANDY CLAY AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
24+50.00
Ⓐ STIFF TAN ORANGE SANDY CLAYEY SILT, MOIST (UNDIVIDED COASTAL PLAIN)
VERY SOFT TO STIFF GRAY AND ORANGE SILTY SANDY CLAY AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
24+00.00
Ⓐ MEDIUM STIFF TO VERY STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)
SOFT TO STIFF GRAY ORANGE SILTY SANDY CLAY AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
VERY LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)
17+50.00
Ⓐ SOFT BROWN MUCK, MOIST TO SAT. (ALLUVIAL)
VERY LOOSE GRAY SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)
17+00.00
-L-
27-AUG-2009 15:07

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

50 40 30 20

Ⓐ STIFF TAN ORANGE SANDY CLAYEY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF GRAY AND ORANGE SILTY SANDY CLAY AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

26+50.00

Ⓐ STIFF TAN ORANGE SANDY CLAYEY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF GRAY AND ORANGE SILTY SANDY CLAY AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

26+00.00

Ⓐ STIFF TAN ORANGE SANDY CLAYEY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF GRAY AND ORANGE SILTY SANDY CLAY AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

25+50.00

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-31	CL	25+00	1.0- 1.5	A-4(6)	28	10	3.8	27.2	36.6	32.3	100	99	76	21.4	-
SS-32	CL	25+00	4.5- 6.0	A-7-6(19)	46	29	3.4	39.0	19.3	38.3	100	98	70	-	-
SS-33	CL	25+00	9.5- 11.0	A-6(2)	26	12	15.9	44.2	19.7	20.2	100	94	48	-	-

Ⓐ STIFF TAN ORANGE SANDY CLAYEY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

SS-31
SS-32
SS-33

9
9
2
3

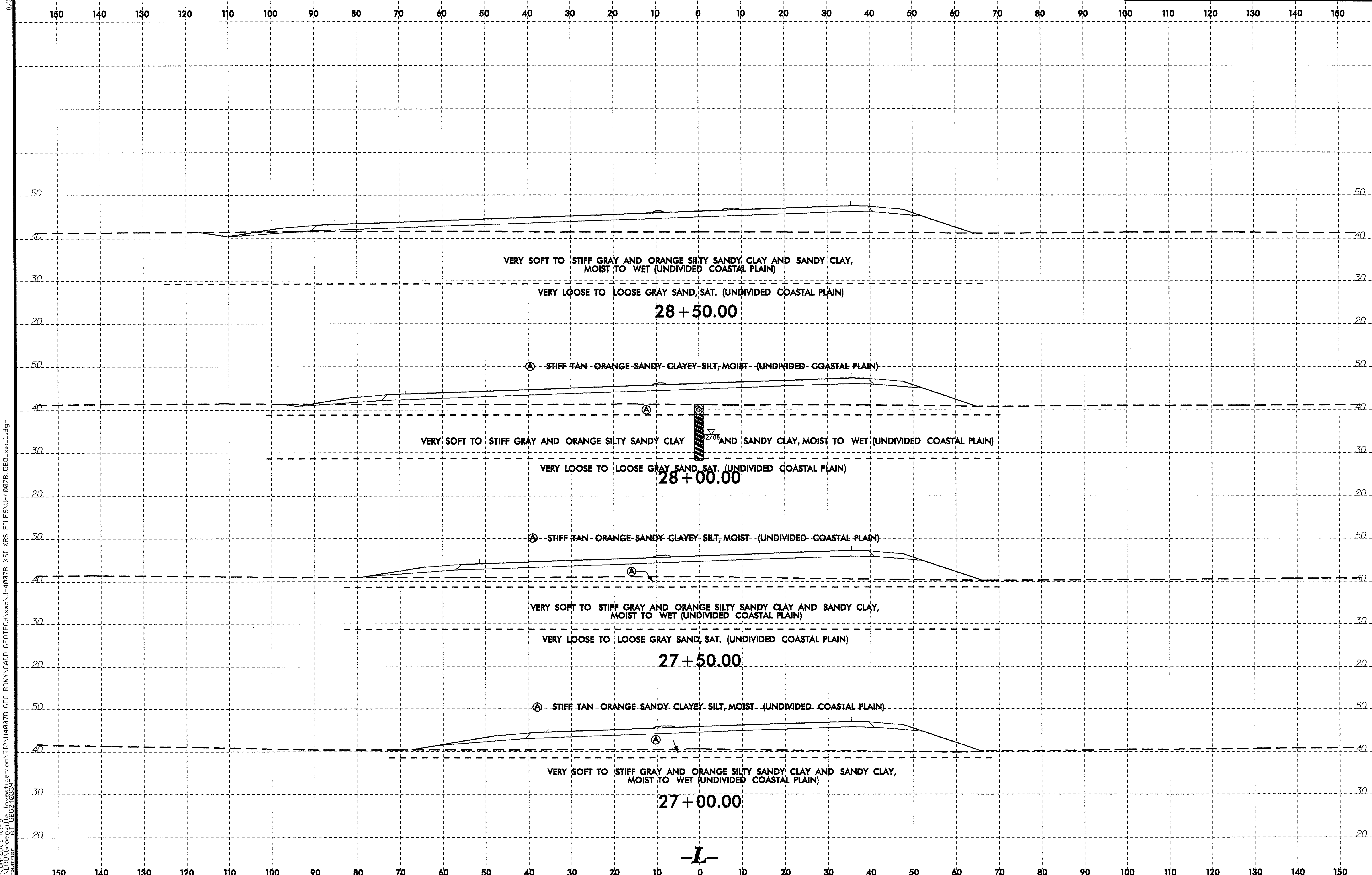
8/08

VERY SOFT TO STIFF GRAY AND ORANGE SILTY SANDY CLAY AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

25+00.00

-L-

PROJ. REFERENCE NO.	SHEET NO.
U-4007B	46



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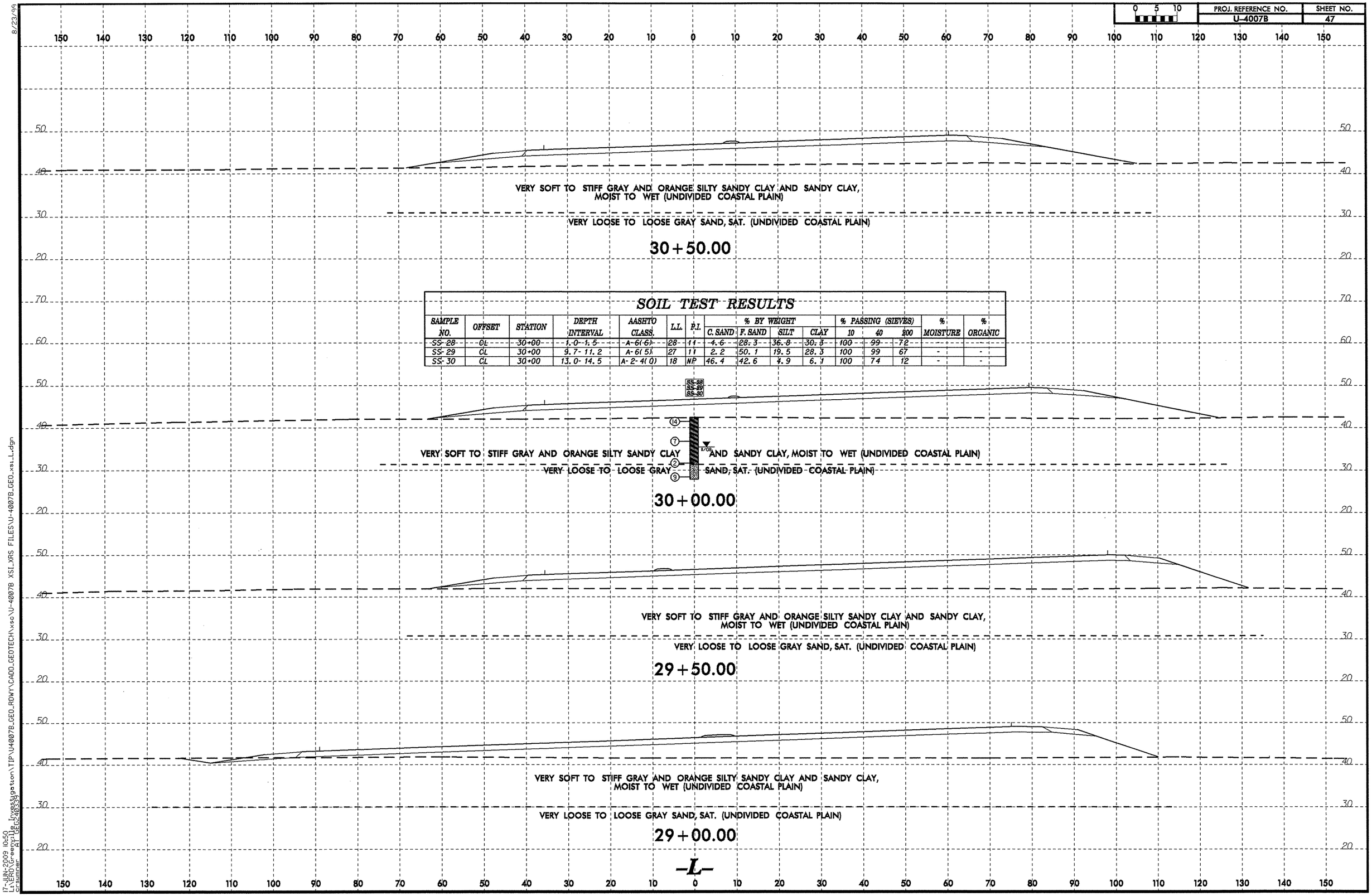

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-28	CL	30+00	1.0-1.5	A-6(6)	28	11	4.6	28.3	36.8	30.3	100	99	72	-	-
SS-29	CL	30+00	9.7-11.2	A-6(5)	27	11	2.2	50.1	19.5	28.3	100	99	67	-	-
SS-30	CL	30+00	13.0-14.5	A-2-4(0)	18	NP	46.4	42.6	4.9	6.1	100	74	12	-	-

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	48

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

50 40 30 20 70 60 50 40 30 20 10 50 40 30 20

VERY SOFT TO STIFF GRAY AND ORANGE SILTY SANDY CLAY AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

VERY LOOSE TO LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

35+50.00

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-25	CL	35+00	1.0-1.5	A-6(3)	25	11	2.6	41.4	25.7	30.3	100	100	59	21.2	-
SS-26	CL	35+00	7.8-9.3	A-6(1)	24	11	34.5	28.3	13.0	24.2	100	86	40	-	-
SS-27	CL	35+00	17.8-19.3	A-2-4(0)	21	2	27.2	53.3	11.4	8.1	95	84	20	-	-

SS-25
SS-26
SS-27

4
4
4
WOH
2

1/08

VERY SOFT TO STIFF GRAY AND ORANGE SILTY SANDY CLAY AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

VERY LOOSE TO LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

35+00.00

VERY SOFT TO STIFF GRAY AND ORANGE SILTY SANDY CLAY AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

VERY LOOSE TO LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

31+00.00

-L-

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	49

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

60 50 40 30 20

Ⓐ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓐ

VERY SOFT TO STIFF GRAY AND ORANGE SILTY SANDY CLAY AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

VERY LOOSE TO LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

37+00.00

50 40 30 20

VERY SOFT TO STIFF GRAY AND ORANGE SILTY SANDY CLAY AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

VERY LOOSE TO LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

36+50.00

50 40 30 20

VERY SOFT TO STIFF GRAY AND ORANGE SILTY SANDY CLAY AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

VERY LOOSE TO LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

36+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

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cmummert (Bentley)

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	50

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

80 70 60 50 40 30 20

12'08

MEDIUM STIFF TO STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

44+00.00

MEDIUM STIFF TO STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

43+50.00

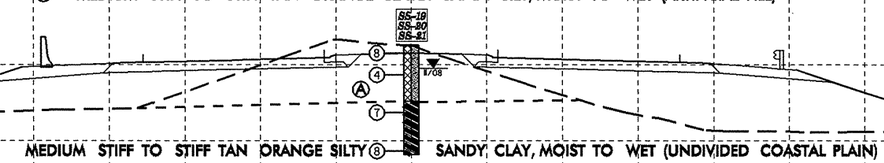
–L–

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

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-19	CL	45+00	1.0-1.5	A-4(2)	24	9	4.6	44.0	23.1	28.3	100	99	53	-	-
SS-20	CL	45+00	2.9-4.4	A-4(0)	21	5	12.1	35.1	28.6	24.2	100	98	55	-	-
SS-21	CL	45+00	12.9-14.4	A-6(12)	40	21	2.8	31.5	21.3	44.4	100	100	67	-	-

Ⓐ MEDIUM STIFF TO STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (ARTIFICIAL FILL)



MEDIUM STIFF TO STIFF TAN ORANGE SILTY Ⓐ SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

45+00.00

MEDIUM STIFF TO STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (ARTIFICIAL FILL)

MEDIUM STIFF TO STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

44+50.00

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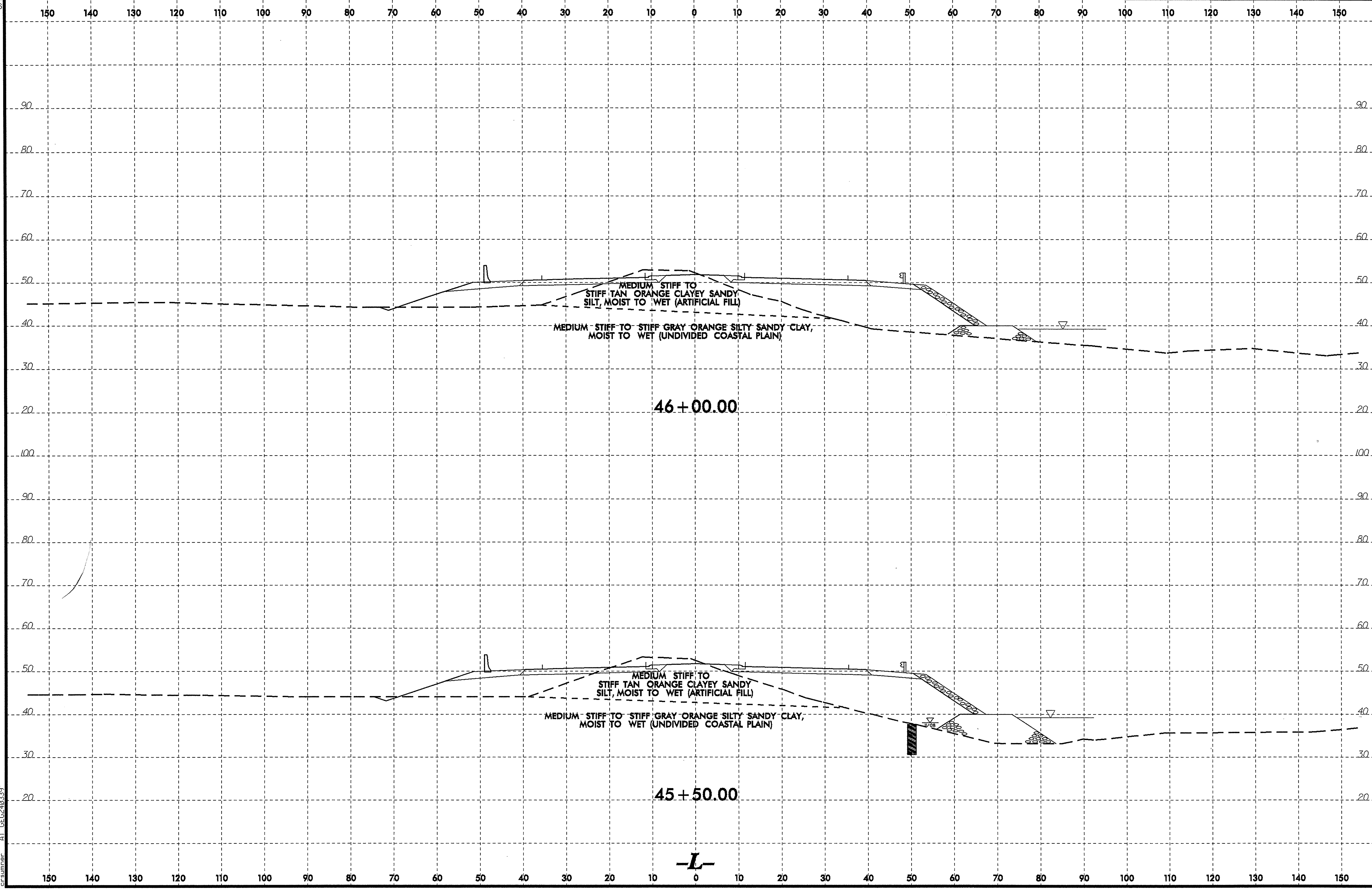
PROJ. REFERENCE NO.	SHEET NO.
U-4007B	52



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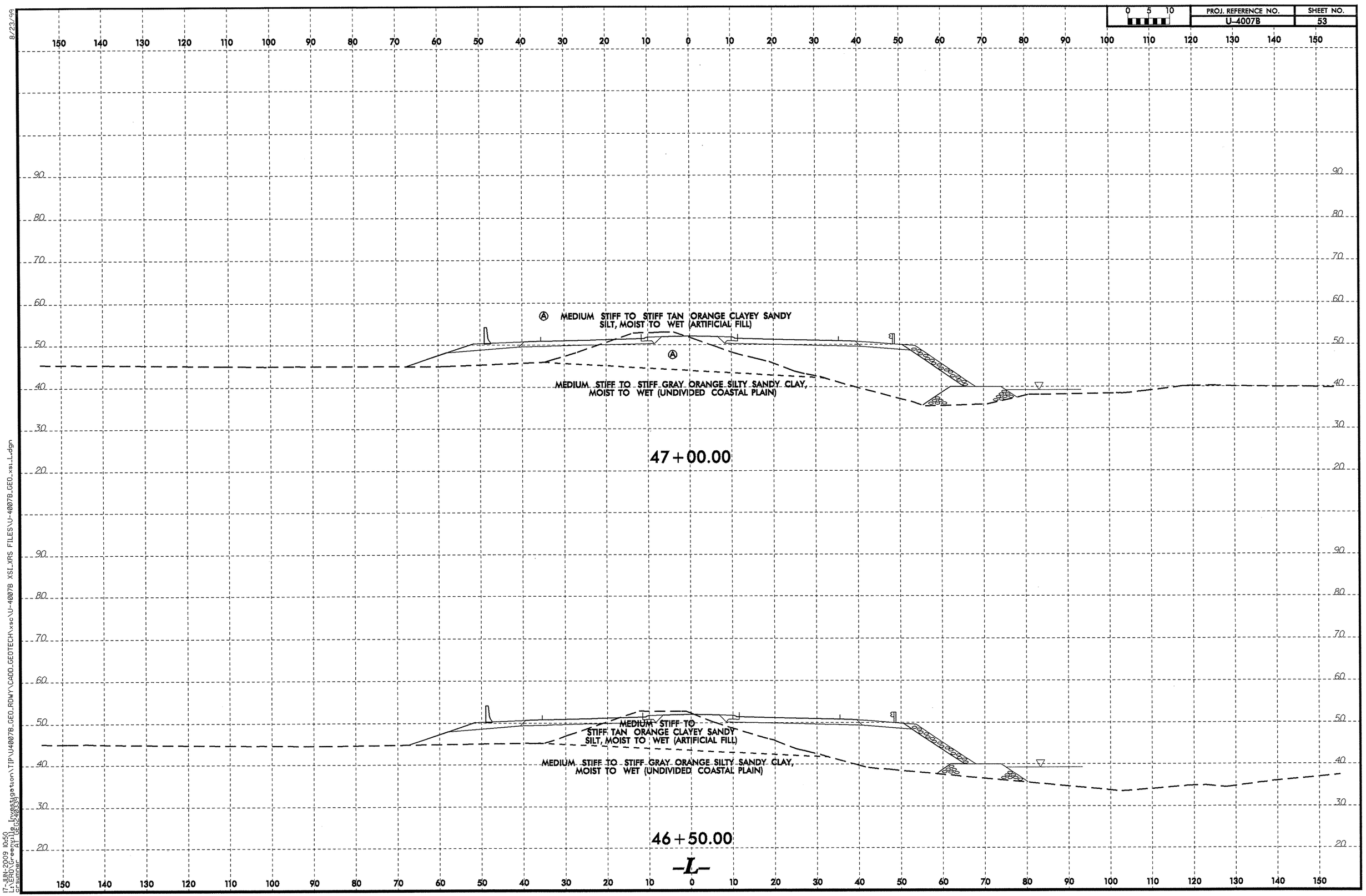
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	53



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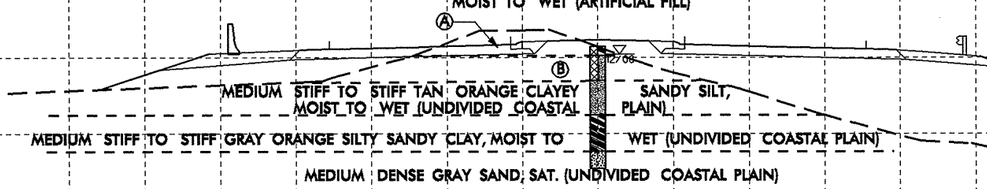
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	54

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

90 80 70 60 50 40 30 20

Ⓐ STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (ARTIFICIAL FILL)

Ⓑ MEDIUM STIFF TO STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (ARTIFICIAL FILL)

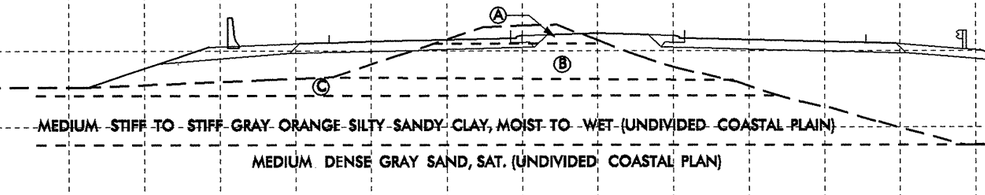


48+00.00

Ⓐ STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (ARTIFICIAL FILL)

Ⓑ MEDIUM STIFF TO STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (ARTIFICIAL FILL)

Ⓒ MEDIUM STIFF TO STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



47+50.00

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90 80 70 60 50 40 30 20

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

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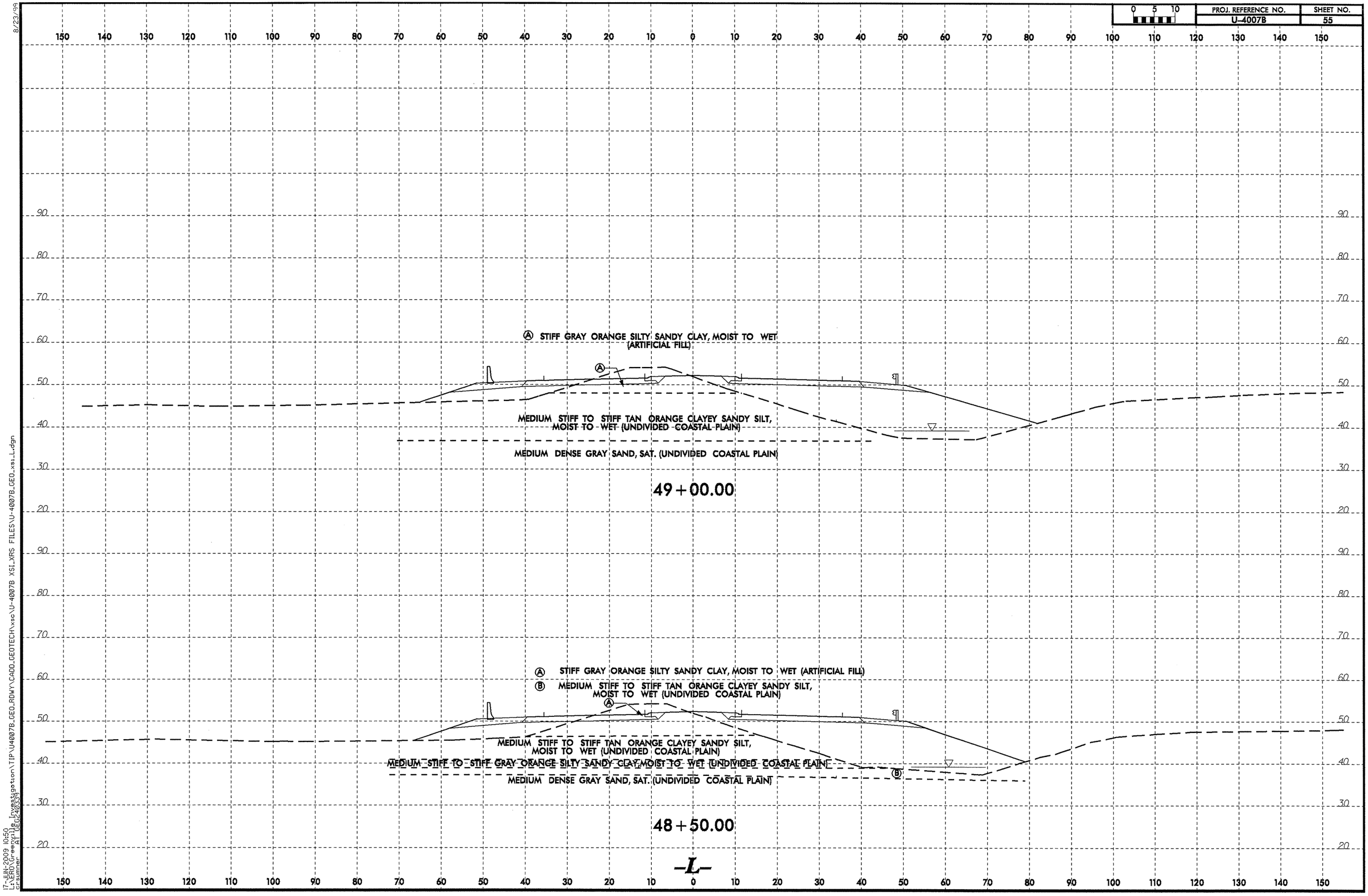
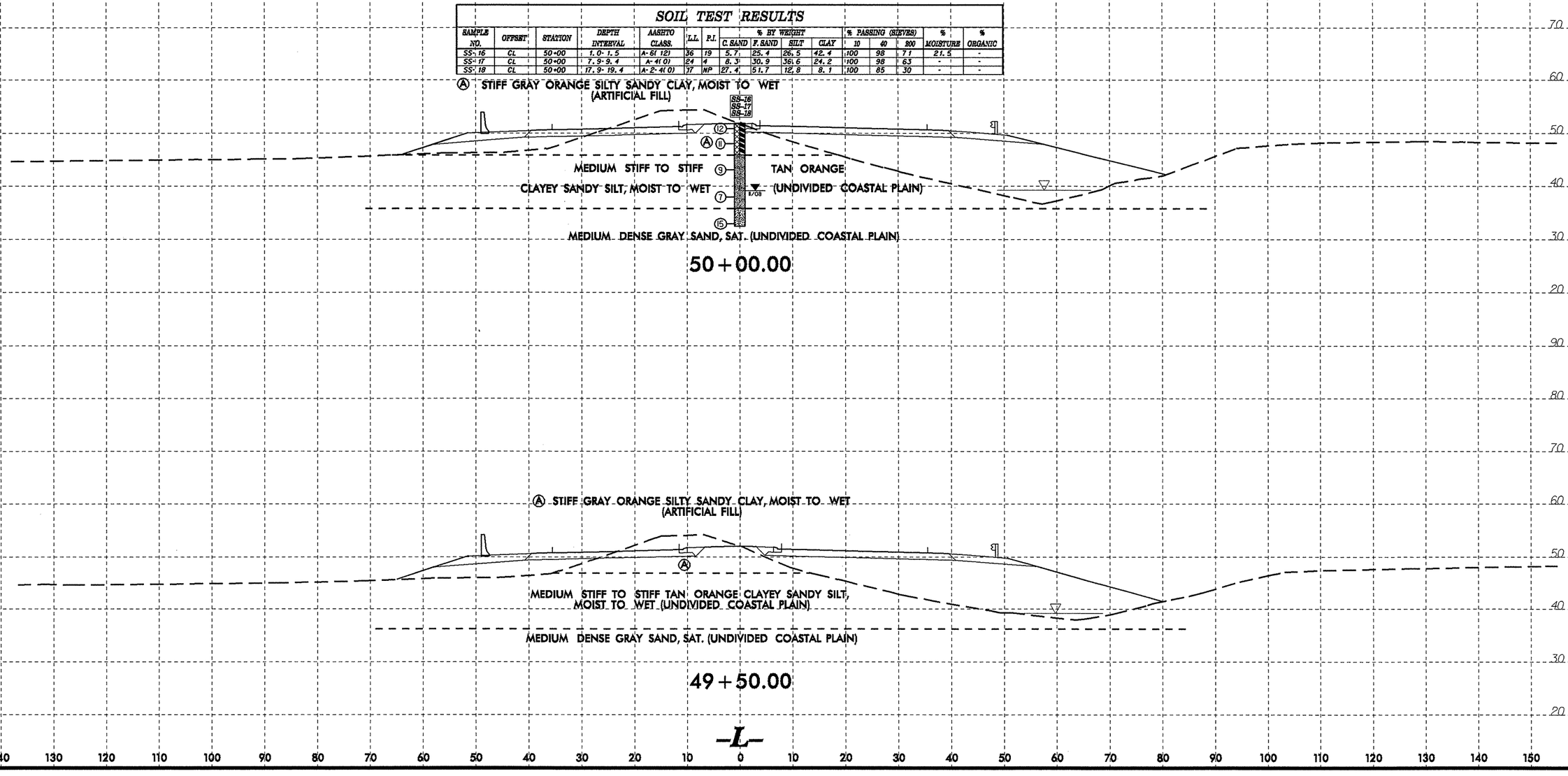
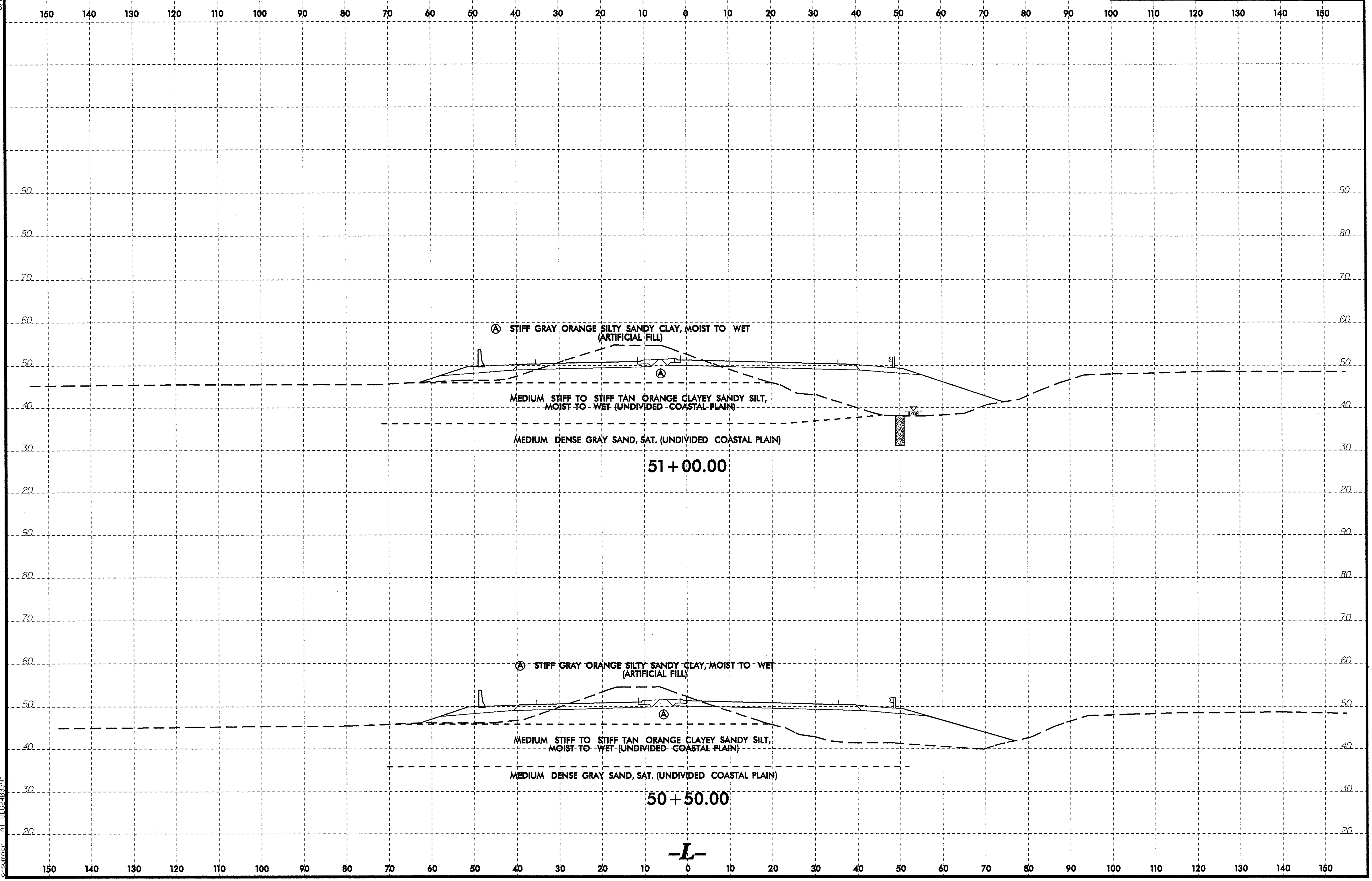


SOIL TEST RESULTS

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-16	CL	50+00	1.0-1.5	A-6(12)	36	19	5.7	25.4	26.5	42.4	100	98	71	21.5	-
SS-17	CL	50+00	7.9-9.4	A-4(10)	24	4	8.3	30.9	36.6	24.2	100	98	63	-	-
SS-18	CL	50+00	17.9-19.4	A-2-4(10)	17	NP	27.4	51.7	12.8	8.1	100	85	30	-	-





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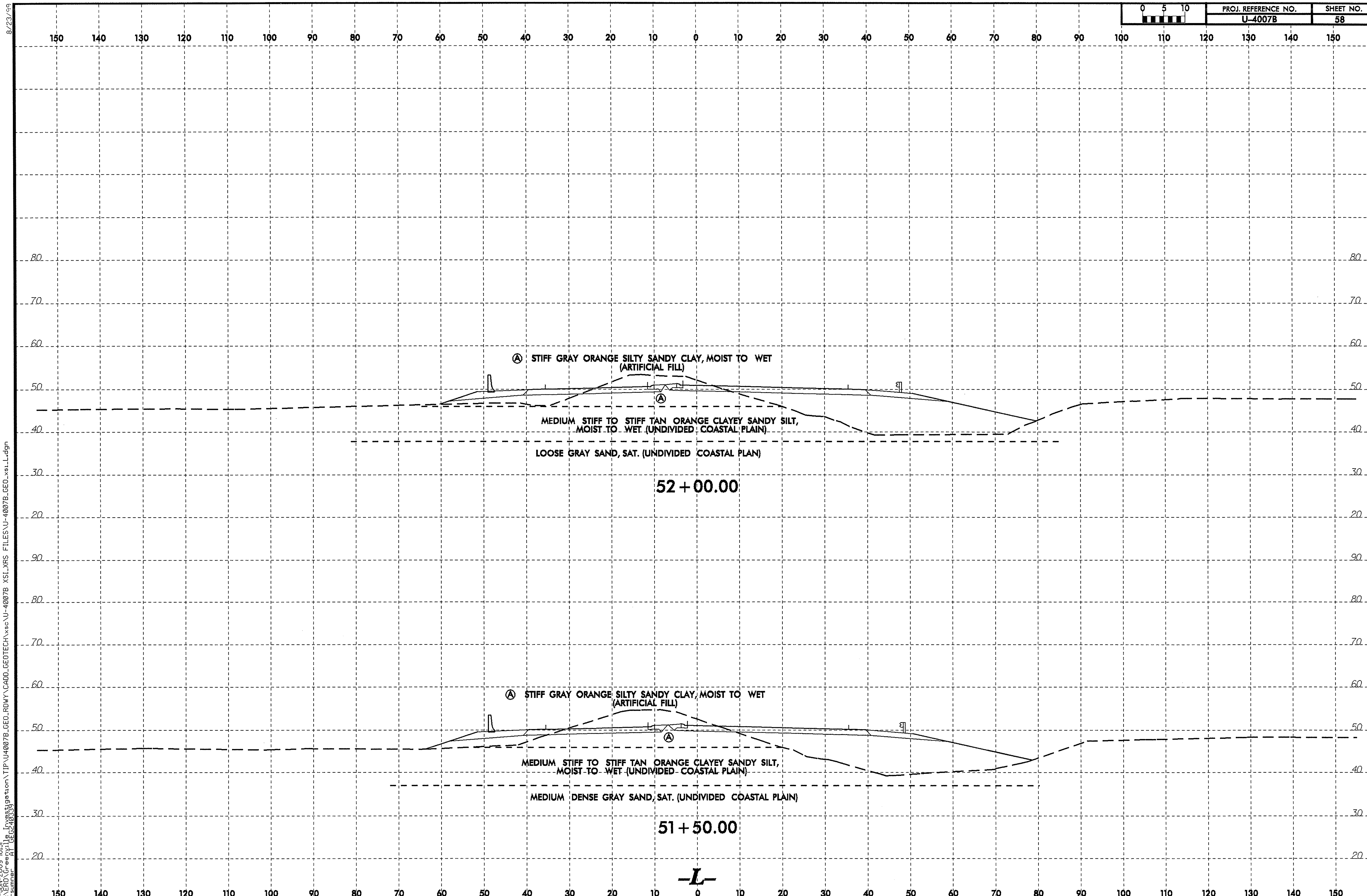
PROJ. REFERENCE NO.	SHEET NO.
U-4007B	58



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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

Ⓐ MEDIUM STIFF TO STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

SOFT TO MEDIUM STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

SOFT TO MEDIUM STIFF GRAY ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

12/08

54+00.00

MEDIUM STIFF TO STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

SOFT TO MEDIUM STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAN)

53+50.00

MEDIUM STIFF TO STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

SOFT TO MEDIUM STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAN)

53+00.00

Ⓐ STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (ARTIFICIAL FILL)

Ⓑ SOFT TO MEDIUM STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TO STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAN)

52+50.00

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50 40 30 60

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	60

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

50 40 30

SOFT TO MEDIUM STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)
SOFT TO MEDIUM STIFF GRAY ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

56+00.00

50 40 30

SOFT TO MEDIUM STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)
SOFT TO MEDIUM STIFF GRAY ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

55+50.00

70 60 50 40 30

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-1	CL	55+00	1.0- 1.5	A-6(5)	27	12	7.7	27.4	28.6	36.3	100	99	66	20.6	-
SS-2	CL	55+00	2.9- 4.4	A-6(10)	33	18	6.5	25.4	29.8	38.3	100	99	69	-	-
SS-3	CL	55+00	12.9- 14.4	A-6(9)	33	17	1.6	47.4	18.7	32.3	100	100	68	-	-

SS-1
SS-2
SS-3

5 8 3 5 — 1/08

SOFT TO MEDIUM STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)
SOFT TO MEDIUM STIFF GRAY ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

55+00.00

50 40 30

SOFT TO MEDIUM STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)
SOFT TO MEDIUM STIFF GRAY ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

54+50.00

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Consumer API (GEOPAK)

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	61

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

50 40 30 20

MEDIUM STIFF TO STIFF GRAY ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SANDY, SAT. (UNDIVIDED COASTAL PLAIN)

61+50.00

60 50 40 30 20

MEDIUM STIFF TO STIFF GRAY ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SANDY, SAT. (UNDIVIDED COASTAL PLAIN)

61+00.00

50 40 30 20

SOFT TO MEDIUM STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

SOFT TO MEDIUM STIFF GRAY ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

57+00.00

50 40 30 20

SOFT TO MEDIUM STIFF GRAY ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

SOFT TO MEDIUM STIFF GRAY ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

56+50.00

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Consumer Plot Service

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	62

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

60 50 40 30 20

Ⓐ MEDIUM STIFF TO STIFF GRAY ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓐ

MEDIUM STIFF TAN ORANGE SANDY SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

63+50.00

60 50 40 30 20

Ⓐ MEDIUM STIFF TO STIFF GRAY ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓐ

MEDIUM STIFF TAN ORANGE SANDY SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

63+00.00

60 50 40 30 20

Ⓑ MEDIUM STIFF TAN ORANGE SANDY SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TO STIFF GRAY ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓑ

LOOSE GRAY SANDY, SAT. (UNDIVIDED COASTAL PLAIN)

62+50.00

60 50 40 30 20

MEDIUM STIFF TO STIFF GRAY ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SANDY, SAT. (UNDIVIDED COASTAL PLAIN)

62+00.00

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SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-8	CL	65+00	1.0-1.5	A-4(3)	23	9	9.7	30.1	32.0	28.3	100	98	62	17	-
SS-9	CL	65+00	2.9-4.4	A-7-6(21)	48	28	6.7	18.0	29.0	46.4	100	99	76	-	-

Ⓐ MEDIUM STIFF TO STIFF GRAY ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

SS-8
SS-9

Ⓐ

⑧ SS-8

⑧

LL/08

⑦

MEDIUM STIFF TAN ORANGE SANDY SILTY CLAY, MOIST TO WET(UNDIVIDED COASTAL PLAIN)

65+00.00

Ⓐ MEDIUM STIFF TO STIFF GRAY ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓐ

MEDIUM STIFF TAN ORANGE SANDY SILTY CLAY, MOIST TO WET(UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

64+50.00

Ⓐ MEDIUM STIFF TO STIFF GRAY ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓐ

12/08

MEDIUM STIFF TAN ORANGE SANDY SILTY CLAY, MOIST TO WET(UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

64+00.00

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	U-4007B	64

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

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MEDIUM STIFF TO STIFF TAN ORANGE SANDY SILTY CLAY AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

67+00.00

MEDIUM STIFF TO STIFF TAN ORANGE SANDY SILTY CLAY AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

66+50.00

MEDIUM STIFF TO STIFF TAN ORANGE SANDY SILTY CLAY AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

66+00.00

MEDIUM STIFF TAN ORANGE SANDY SILTY CLAY, MOIST TO WET(UNDIVIDED COASTAL PLAIN)

65+50.00

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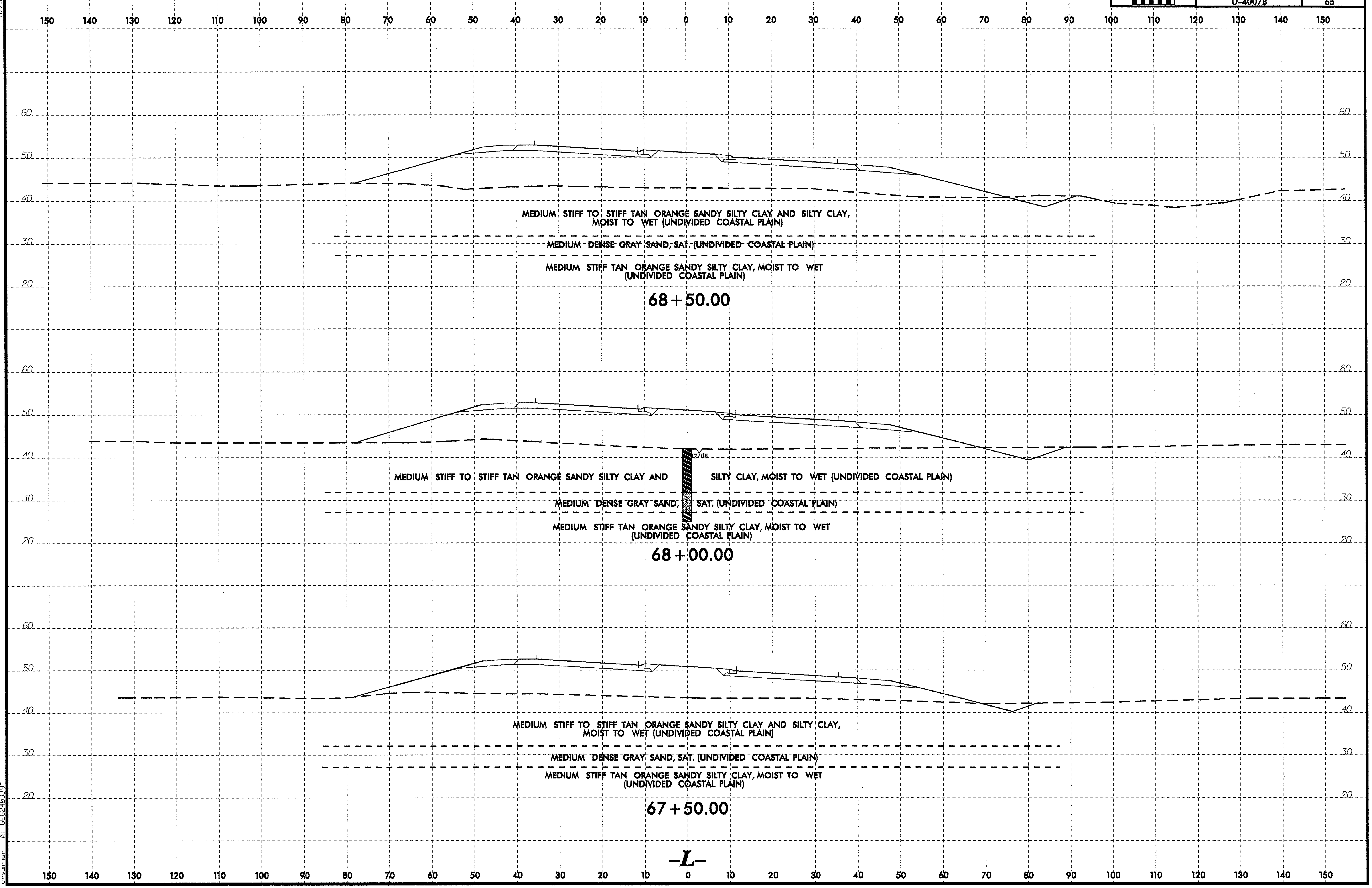
crsumner
AT GEO240334

PROJ. REFERENCE NO.	SHEET NO.
U-4007B	65



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crsumner AT GEO240339

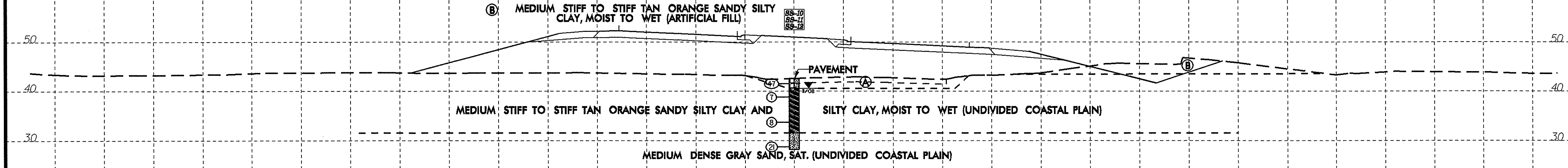
8/23/99

SOIL TEST RESULTS

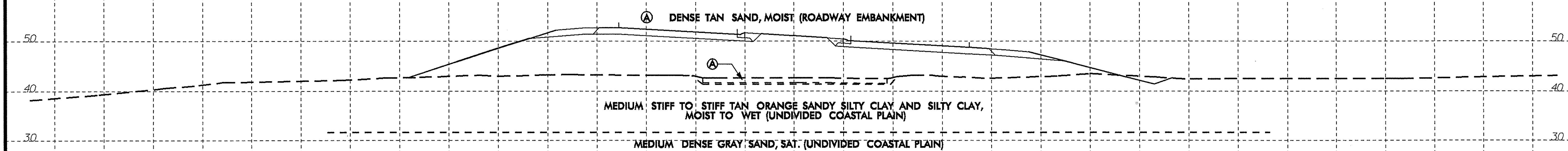
SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT C. SAND	% BY WEIGHT F. SAND	% BY WEIGHT SILT	% BY WEIGHT CLAY	% PASSING (SIEVES) 10	% PASSING (SIEVES) 40	% PASSING (SIEVES) 200	% MOISTURE	% ORGANIC
SS-10	CL	70+00	1.0-1.5	A-3(0)	23	NP	13.9	78.5	3.5	4.0	100	98	9	-	-
SS-11	CL	70+00	2.9-4.4	A-6(6)	28	15	16.1	24.2	29.4	30.3	99	97	60	-	-
SS-12	CL	70+00	12.9-14.4	A-2-4(0)	19	NP	22.8	61.2	6.2	10.1	92	86	17	-	-

(A) DENSE TAN SAND, MOIST (ROADWAY EMBANKMENT)

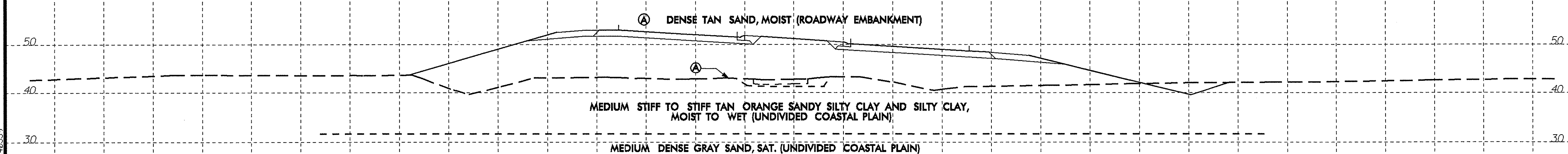
(B) MEDIUM STIFF TO STIFF TAN ORANGE SANDY SILTY CLAY, MOIST TO WET (ARTIFICIAL FILL)



70+00.00



69+50.00



69+00.00

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	67

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

60 50 40 30 20

Ⓐ DENSE TAN SAND, MOIST (ROADWAY EMBANKMENT)

MEDIUM STIFF TO STIFF TAN ORANGE SANDY SILTY CLAY AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

71+50.00

60 50 40 30 20

Ⓐ DENSE TAN SAND, MOIST (ROADWAY EMBANKMENT)

Ⓑ MEDIUM STIFF TO STIFF TAN ORANGE SANDY SILTY CLAY, MOIST TO WET (ARTIFICIAL FILL)

MEDIUM STIFF TO STIFF TAN ORANGE SANDY SILTY CLAY AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND; SAT. (UNDIVIDED COASTAL PLAIN)

71+00.00

70 60 50 40 30 20

Ⓐ DENSE TAN SAND, MOIST (ROADWAY EMBANKMENT)

Ⓑ MEDIUM STIFF TO STIFF TAN ORANGE SANDY SILTY CLAY, MOIST TO WET (ARTIFICIAL FILL)

MEDIUM STIFF TO STIFF TAN ORANGE SANDY SILTY CLAY AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

70+50.00

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80 70 60 50 40 30

Ⓐ DENSE TAN ORANGE SAND, MOIST (ROADWAY EMBANKMENT)

Ⓐ

12/08

MEDIUM STIFF TO STIFF TAN ORANGE SANDY SILTY CLAY AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

74+00.00

70 60 50 40 30 20

Ⓐ DENSE TAN ORANGE SAND, MOIST (ROADWAY EMBANKMENT)

Ⓐ

MEDIUM STIFF TO STIFF TAN ORANGE SANDY SILTY CLAY AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

73+50.00

50 40 30 20

Ⓐ DENSE TAN ORANGE SAND, MOIST (ROADWAY EMBANKMENT)

Ⓐ

MEDIUM STIFF TO STIFF TAN ORANGE SANDY SILTY CLAY AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

73+00.00

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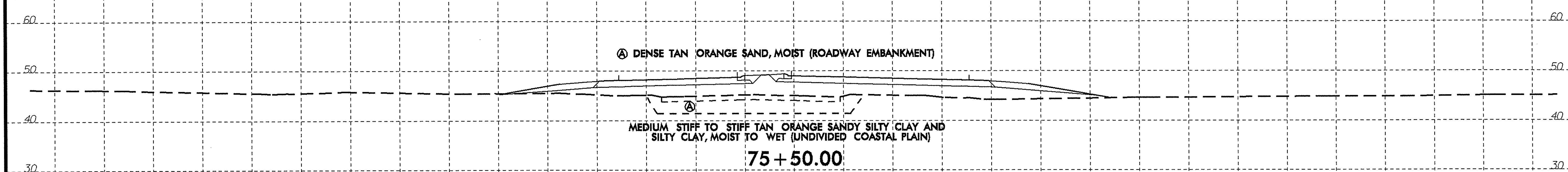
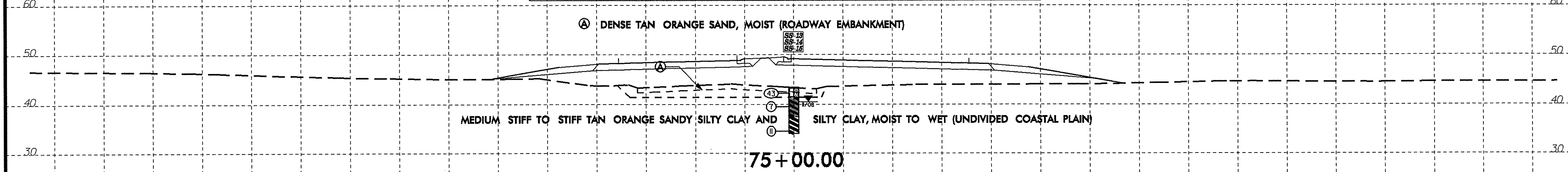
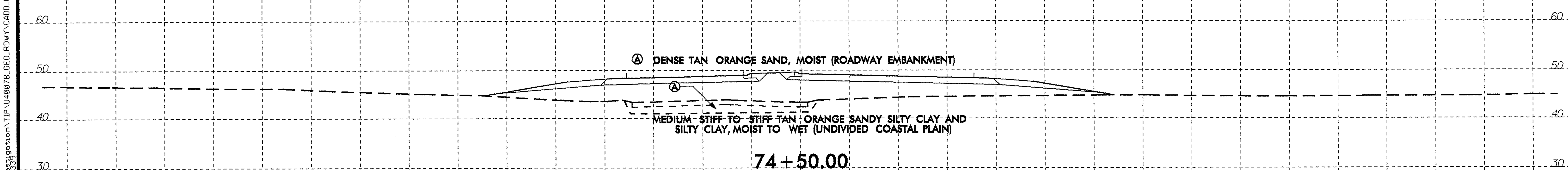
PROJ. REFERENCE NO.	SHEET NO.
U-4007B	69



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-13	CL	75+00	1.0-1.5	A-2-4(0)	22	NP	20.4	70.4	5.1	4.0	100	98	11	-	-
SS-14	CL	75+00	2.9-4.4	A-6(9)	32	19	23.6	12.9	25.1	38.3	100	94	64	-	-
SS-15	CL	75+00	7.9-9.4	A-7-6(30)	51	29	1.0	9.1	31.4	58.5	100	100	93	-	-





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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	70

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Ⓐ MEDIUM STIFF TO VERY STIFF GRAY ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT MODERATELY ORGANIC SILTY CLAY, MOIST TO WET (ALLUVIAL)

Ⓐ SOFT ORANGE GRAY SILTY AND SANDY CLAY MOIST TO WET (UNDIVIDED C.P.)

SOFT TO MEDIUM STIFF GRAY ORANGE CLAYEY SANDY SILT MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

15+00.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL.	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-20	50' RT	14+00	1.0-6.0	A-7-5(14)	59	13	6.5	20.2	42.7	30.6	100	97	77	85.6	15.9

Ⓐ MEDIUM STIFF TO VERY STIFF ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓐ SOFT ORANGE GRAY SILTY AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

S-20 VERY SOFT MODERATELY ORGANIC SILTY CLAY, MOIST TO WET (ALLUVIAL)

SOFT TO MEDIUM STIFF GRAY ORANGE CLAYEY SANDY SILT MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

14+50.00

MEDIUM STIFF TO VERY STIFF ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

SOFT ORANGE GRAY SILTY AND SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

SOFT TO MEDIUM STIFF GRAY ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

14+00.00

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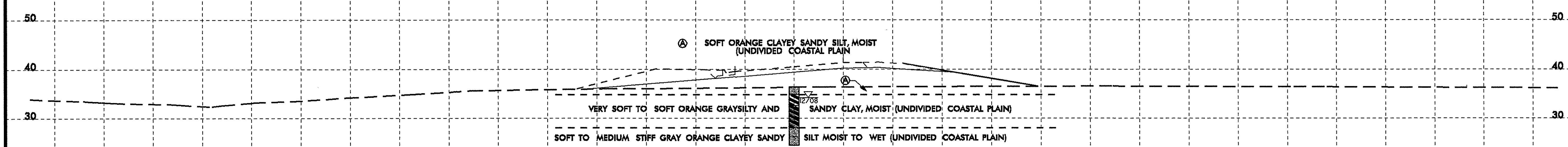
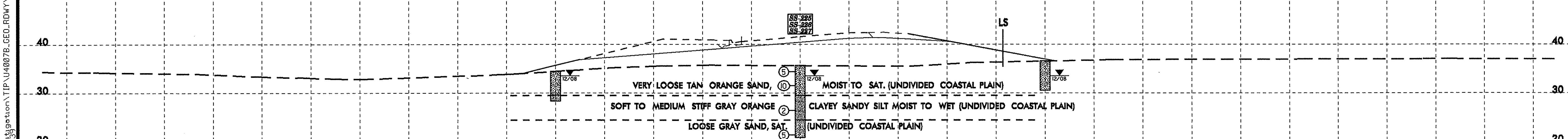
PROJ. REFERENCE NO.	SHEET NO.
U-4007B	71



16 + 00.00

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-225	CL	15+50	1.0-1.3	A-2-4(0)	19	NP	16.3	66.3	9.3	8.1	100	94	20	-	-
SS-226	CL	15+50	8.1-9.6	A-4(3)	27	9	4.2	51.6	17.9	26.2	100	99	62	28.8	-
SS-227	CL	15+50	13.1-14.6	A-2-4(0)	20	NP	17.3	65.3	5.2	12.1	100	94	19	-	-



15 + 50.00

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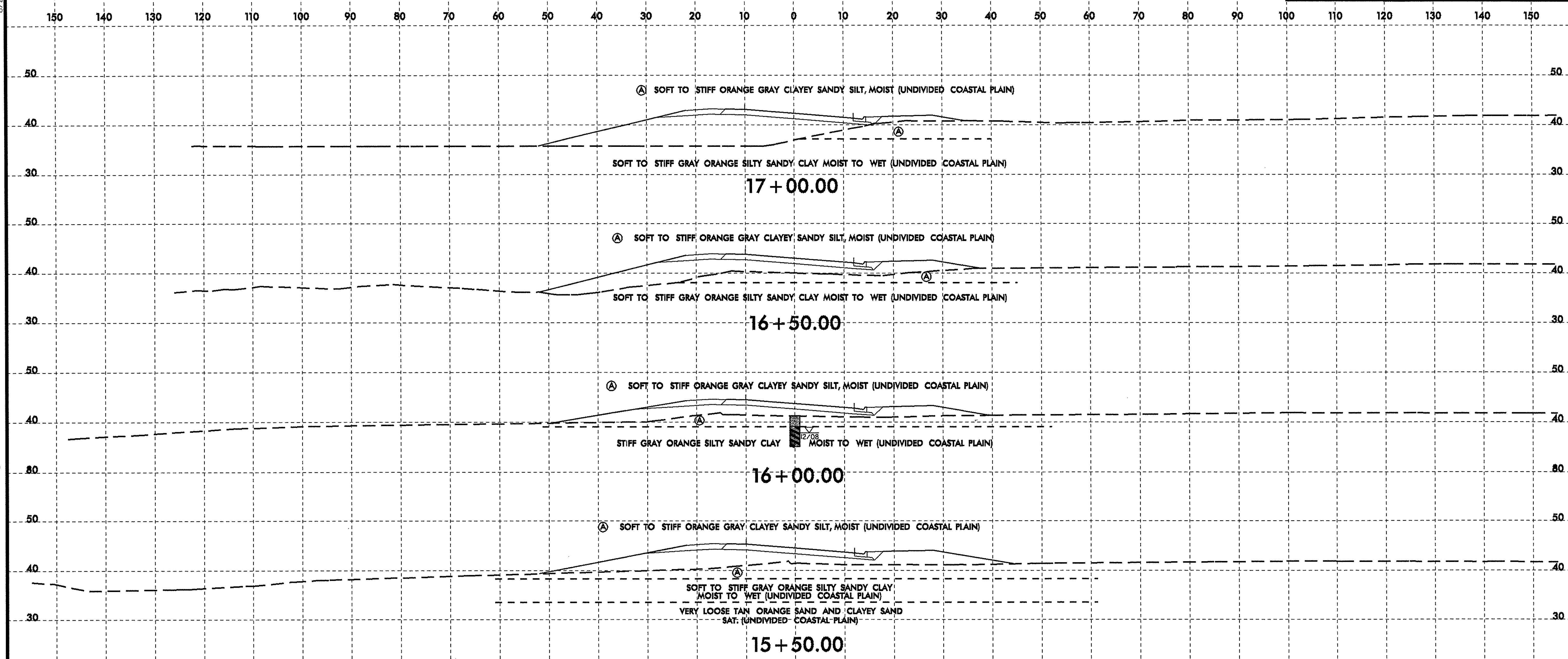
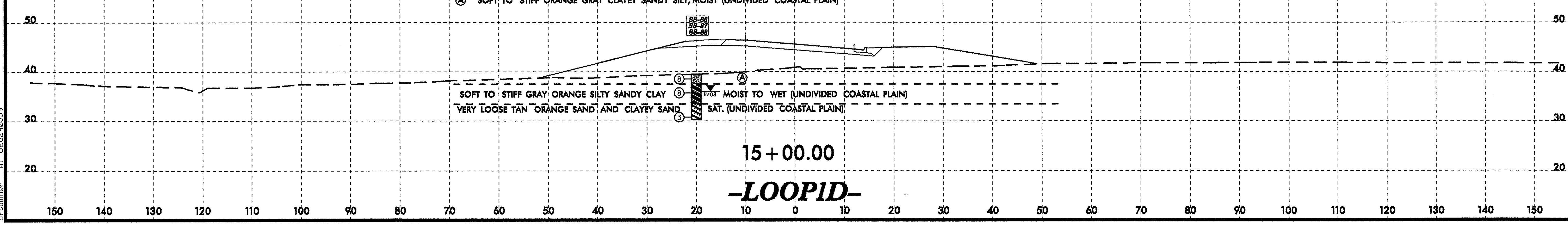
PROJ. REFERENCE NO.	SHEET NO.
-U-4007B-	72



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-86	20 LT	15+00	1.0-1.5	A-4(2)	23	8	8.5	40.0	23.3	28.3	100	98	57	-	-
SS-87	20 LT	15+00	2.8-4.3	A-6(9)	36	20	7.9	36.9	20.9	34.3	100	99	60	21.5	-
SS-88	20 LT	15+00	7.8-9.3	A-2-6(1)	27	13	49.6	17.9	9.3	23.2	100	83	34	-	-

Ⓐ SOFT TO STIFF ORANGE GRAY CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)



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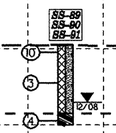
SOFT TO STIFF ORANGE CLAYEY SANDY SILT, MOIST TO WET (ARTIFICIAL FILL)

STIFF GRAY ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

20+00.00

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-89	75 LT	19+50	1.0- 1.5	A-4(0)	19	5	14.5	46.3	19.1	20.1	93	88	40	-	-
SS-90	75 LT	19+50	4.0- 5.5	A-4(0)	23	8	10.9	52.7	14.3	22.1	96	91	37	-	-
SS-91	75 LT	19+50	9.5- 10.5	A-6(10)	36	18	14.5	26.2	21.0	38.3	100	94	66	34.2	-



SOFT TO STIFF ORANGE CLAYEY SANDY SILT, MOIST TO WET (ARTIFICIAL FILL)

STIFF GRAY ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

19+50.00

SOFT TO STIFF ORANGE CLAYEY SANDY SILT, MOIST TO WET (ARTIFICIAL FILL)

STIFF GRAY ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

19+00.00

SOFT TO STIFF ORANGE CLAYEY SANDY SILT, MOIST TO WET (ARTIFICIAL FILL)

STIFF GRAY ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

18+50.00

SOFT TO STIFF ORANGE CLAYEY SANDY SILT, MOIST TO WET (ARTIFICIAL FILL)

STIFF GRAY ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

18+00.00

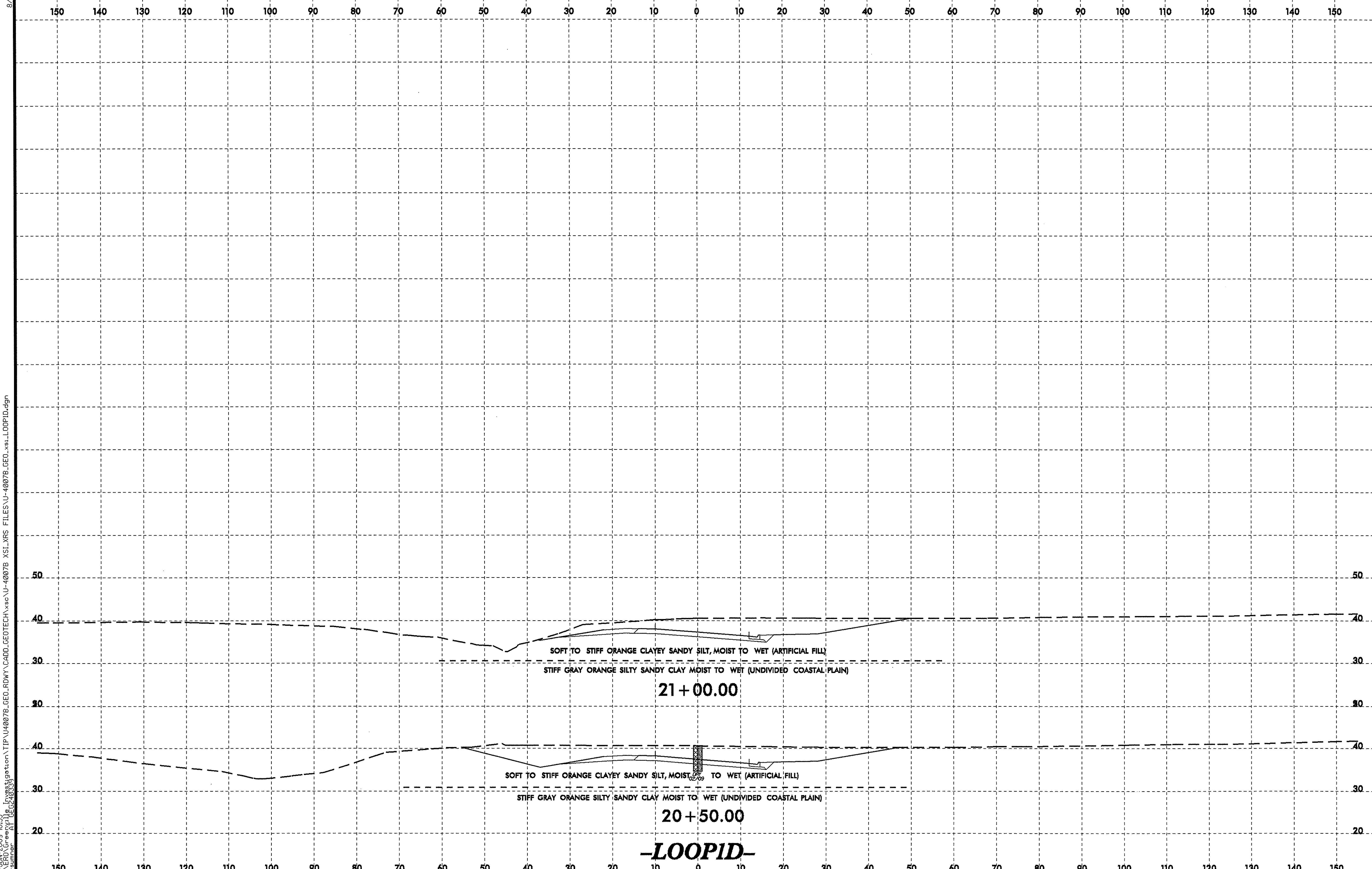
SOFT TO STIFF ORANGE CLAYEY SANDY SILT, MOIST TO WET (ARTIFICIAL FILL)

STIFF GRAY ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

17+50.00

-LOOP1D-

PROJ. REFERENCE NO.	SHEET NO.
-U-4007B-	74



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PROJ. REFERENCE NO.	SHEET NO.
-U-4007B-	75

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60 50 40 30 20

VERY SOFT TO STIFF ORANGE GRAY SILTY SANDY CLAY, AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TO STIFF GRAY CLAYEY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)

48+50.00

Ⓐ VERY SOFT BROWN MODERATELY ORGANIC SANDY SILT, MOIST TO WET (UNDIVIDED C.P.)

VERY SOFT TO STIFF ORANGE GRAY SILTY SANDY CLAY, AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TO STIFF GRAY CLAYEY SILT, WET (UNDIVIDED COASTAL PLAIN)

48+00.00

VERY SOFT TO STIFF ORANGE GRAY SILTY SANDY CLAY, AND SILTY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

47+50.00

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	-U-4007B-	76

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60 50 40 30 20 10

LOOP-1A

Ⓐ MEDIUM STIFF TO VERY STIFF GRAY ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF ORANGE GRAY SANDY CLAY, AND SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF GRAY ORANGE CLAYEY SANDY SILT, WET (UNDIVIDED C.P.)

21+50.00

LOOP-1A

Ⓐ MEDIUM STIFF TO VERY STIFF GRAY ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF ORANGE GRAY SANDY CLAY, AND SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF GRAY ORANGE CLAYEY SANDY SILT, WET (UNDIVIDED C.P.)

21+00.00

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-225	70 LT	20+50	0.5-1.3	A-2-4(0)	19	NP	16.3	66.3	9.3	8.1	100	94	20	-	-
SS-226	70 LT	20+50	8.1-9.6	A-4(3)	27	9	4.2	51.6	17.9	26.2	100	99	62	-	-
SS-227	70 LT	20+50	13.1-14.6	A-2-4(0)	20	NP	17.3	65.3	5.2	12.1	100	94	19	-	-

LOOP-1A

Ⓐ MEDIUM STIFF TO VERY STIFF GRAY ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY LOOSE GRAY SAND SAT. (UNDIVIDED COASTAL PLAIN)

5 10 12/08 2 5

VERY SOFT TO STIFF ORANGE GRAY SANDY CLAY, AND SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF GRAY ORANGE CLAYEY SANDY SILT, WET (UNDIVIDED C.P.)

VERY LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

20+50.00

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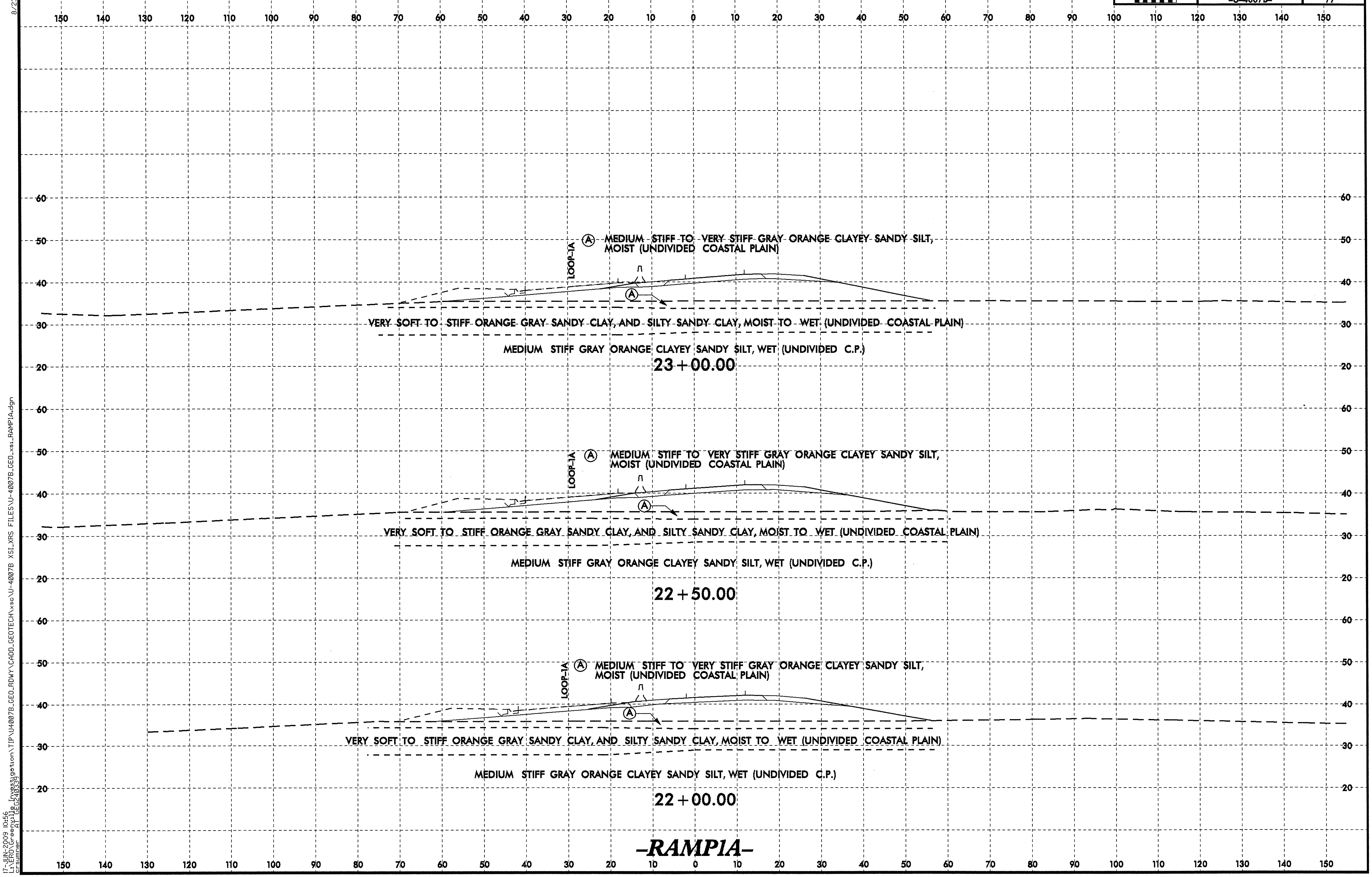
PROJ. REFERENCE NO.	SHEET NO.
U-4007B	77



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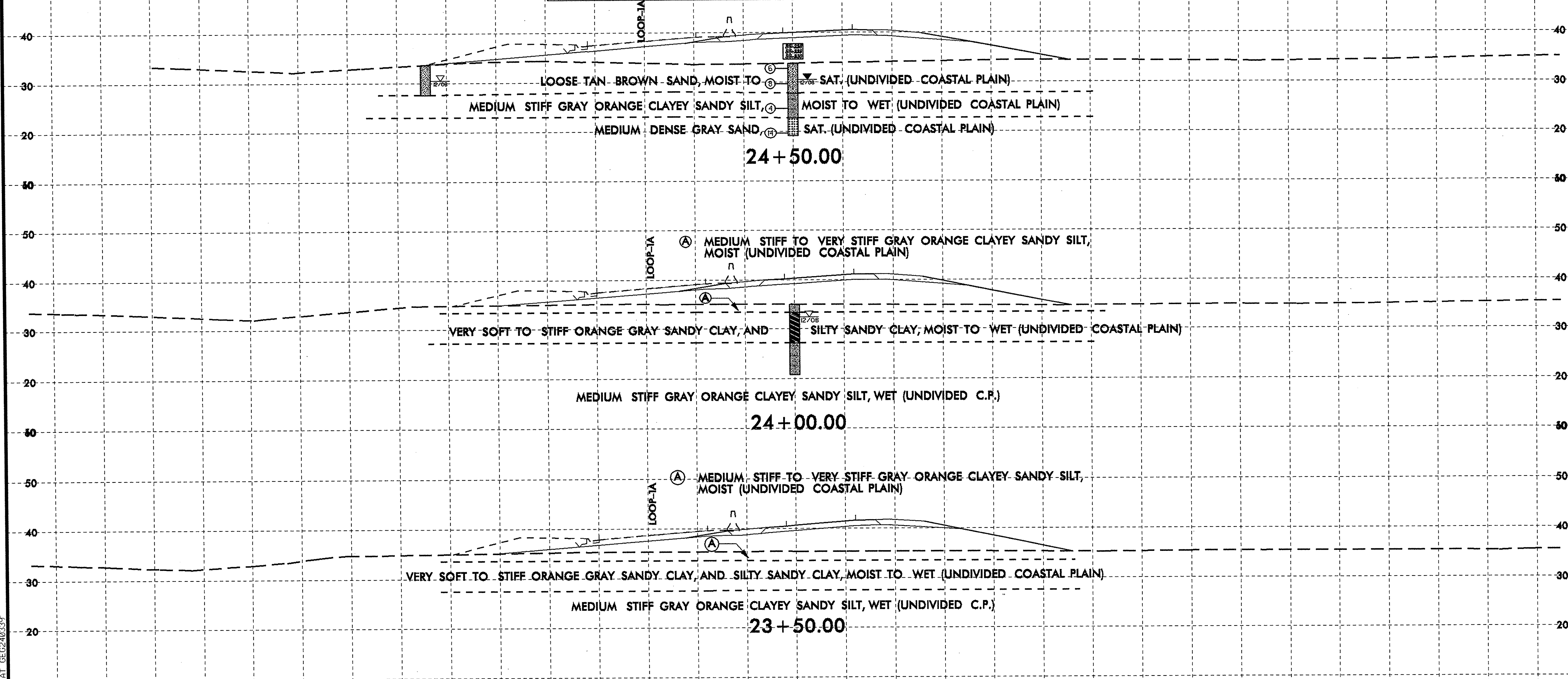
8/23/99

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-228	CL	24+50	1.0-1.5	A-2-4(0)	23	NP	9.3	72.2	8.5	10.1	100	99	21	-	-
SS-229	CL	24+50	8.1-9.6	A-4(4)	27	10	0.2	53.6	20.0	26.2	100	100	66	27.9	-
SS-230	CL	24+50	13.1-14.6	A-3(0)	20	NP	26.9	65.0	4.0	4.0	100	90	10	-	-



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crsumner AT GEO240339

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	-U-4007B-	79

LOOSE TO MEDIUM DENSE TAN ORANGE SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

12/08

26+00.00

LOOP-1A

Ⓐ VERY SOFT BROWN SANDY CLAY WITH LITTLE ORGANIC MATTER, MOIST TO SAT. (ALLUVIAL)

LOOSE TO MEDIUM DENSE TAN ORANGE SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF GRAY ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

25+50.00

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-3	CL	25+00	1.0-3.00	A-6(5)	37	26	10.3	53.8	21.4	14.5	100	96	39	18.5	8.8

Ⓐ VERY SOFT BROWN SANDY CLAY WITH LITTLE ORGANIC MATTER, MOIST TO SAT. (ALLUVIAL)

Ⓑ LOOSE TO MEDIUM DENSE TAN ORANGE SAND, MOIST TO SAT. (UNDIVIDED C.P.)

S-3

SOFT TO MEDIUM STIFF GRAY ORANGE CLAYEY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)

25+00.00

-RAMP1A-

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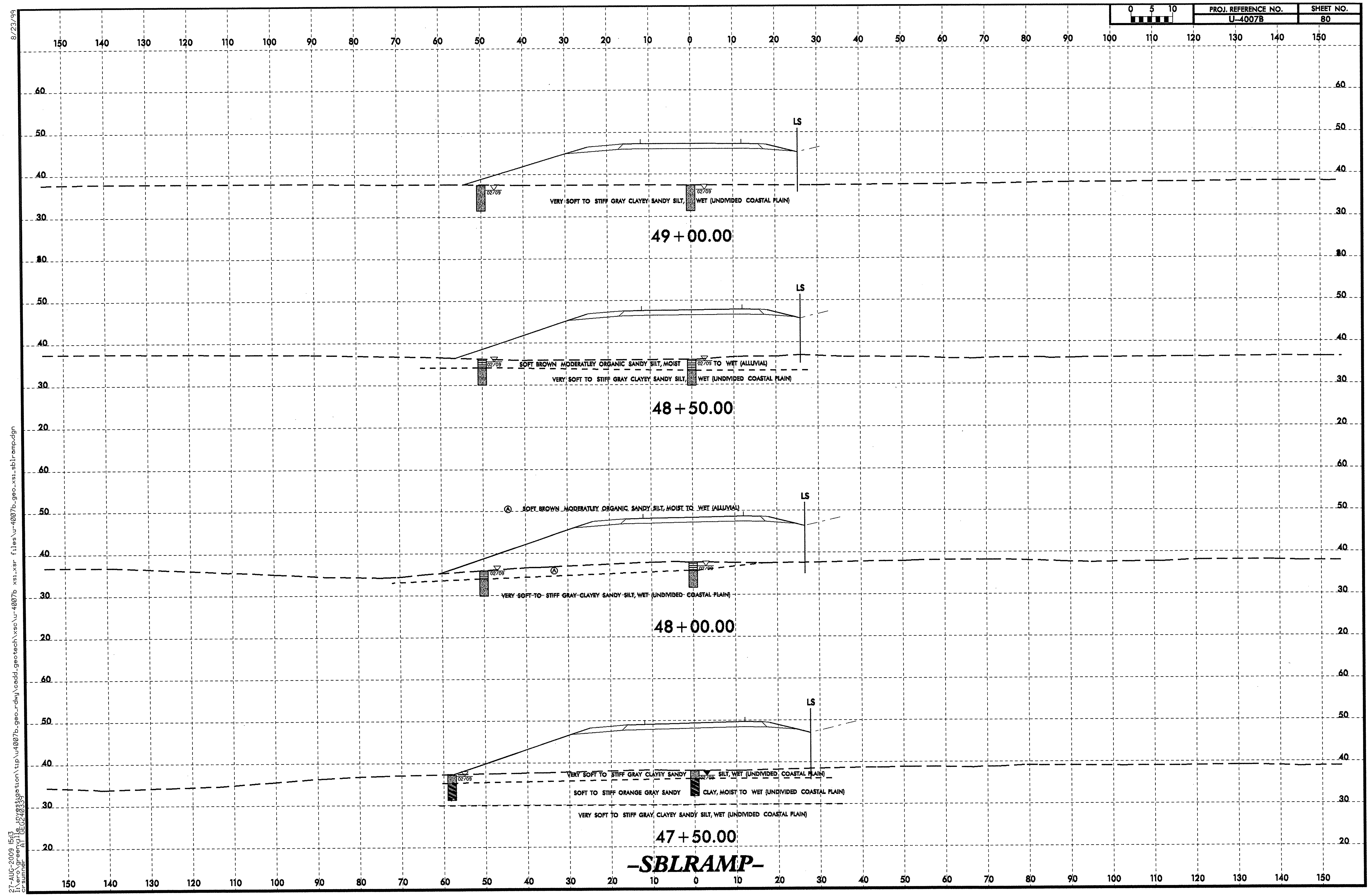

PROJ. REFERENCE NO.
U-4007B
SHEET NO.
80
0 5 10
LS
VERY SOFT TO STIFF GRAY CLAYEY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)
49+00.00
SOFT BROWN MODERATLEY ORGANIC SANDY SILT, MOIST TO WET (ALLUVIAL)
VERY SOFT TO STIFF GRAY CLAYEY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)
48+50.00
Ⓐ SOFT BROWN MODERATLEY ORGANIC SANDY SILT, MOIST TO WET (ALLUVIAL)
VERY SOFT TO STIFF GRAY CLAYEY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)
48+00.00
VERY SOFT TO STIFF GRAY CLAYEY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)
SOFT TO STIFF ORANGE GRAY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
VERY SOFT TO STIFF GRAY CLAYEY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)
47+50.00
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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	81

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-105	20 LT	60+00	1.0- 1.5	A-4(0)	22	7	15.0	52.3	10.5	22.2	91	92	38	-	-
SS-106	20 LT	60+00	3.8- 5.3	A-4(3)	27	10	6.0	51.4	16.3	26.2	100	98	58	26.5	-
SS-107	20 LT	60+00	9.3- 10.3	A-7-6(13)	41	21	8.1	24.2	19.4	48.4	100	98	69	-	-

Ⓐ LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)

37.30

SOFT TO MEDIUM STIFF ORANGE GRAY SANDY CLAYEY SILT AND SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

SOFT TO STIFF ORANGE TO GRAY SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

60+50.00

Ⓐ LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)

SS-106
SS-106
SS-107

5
3
3
12/08

SOFT TO MEDIUM STIFF ORANGE GRAY SANDY CLAYEY SILT AND SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

SOFT TO STIFF ORANGE TO GRAY SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

60+00.00

LOOP-1A

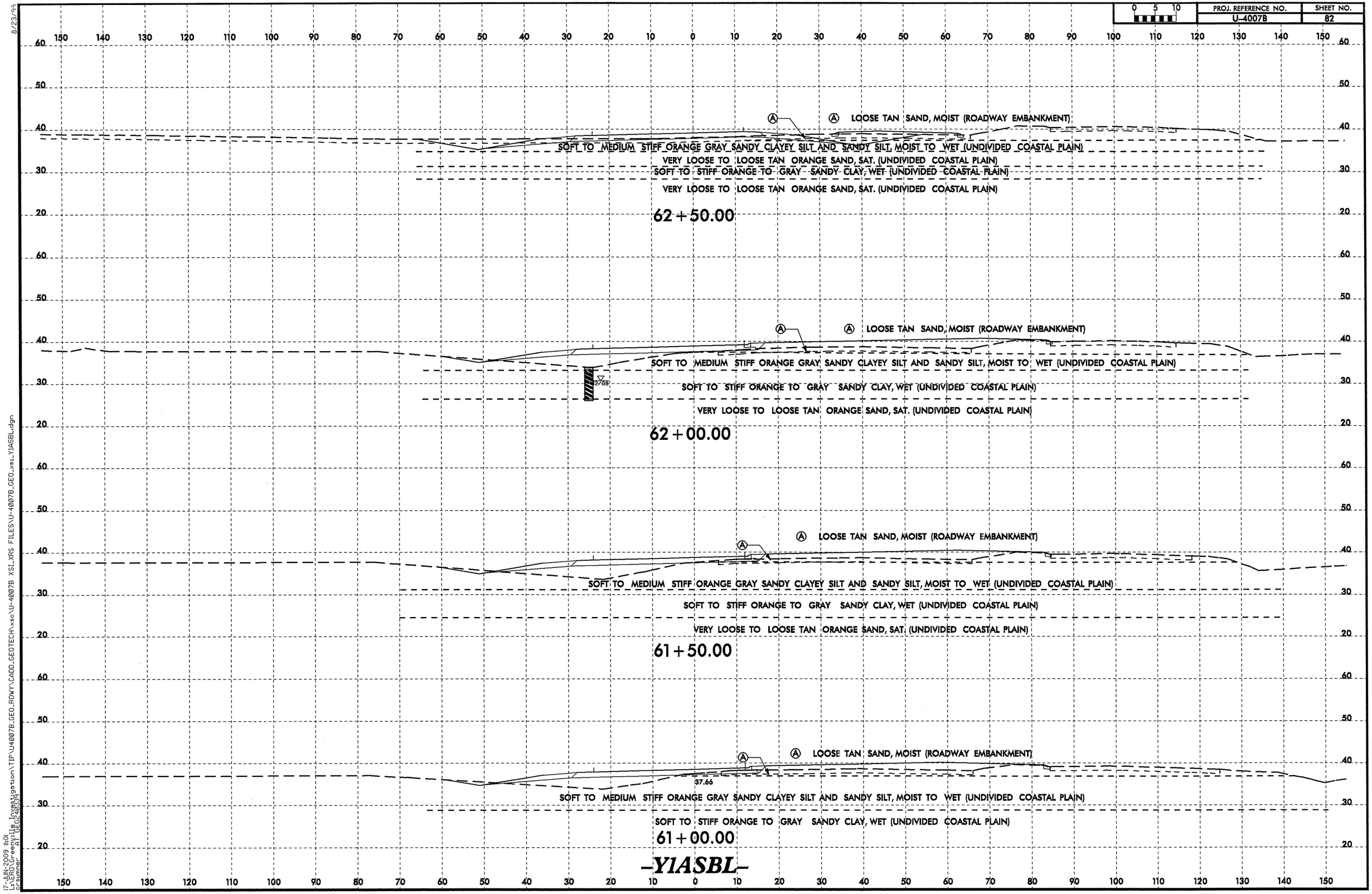
Ⓐ LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)

SOFT TO MEDIUM STIFF ORANGE GRAY SANDY CLAYEY SILT AND SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

SOFT ORANGE TO GRAY SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

59+50.00

–Y1ASBL–



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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	83

Ⓐ LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)

VERY LOOSE TO LOOSE TAN ORANGE SAND, SAT. (UNDIVIDED COASTAL PLAIN)

END LOOP-1D
STA. 23+84.81

63+00.00

–Y1ASBL–

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crausmar AT GEO 40533

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	84

Ⓐ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST
(UNDIVIDED COASTAL PLAIN)

Ⓐ

12/08

MEDIUM STIFF TAN ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

92+00.00

LS

MEDIUM STIFF TAN ORANGE SANDY CLAY, WET
UNDIVIDED COASTAL PLAIN)

VERY LOOSE TO DENSE TAN SAND AND CLAYEY SAND, MOIST TO SAT.
(UNDIVIDED COASTAL PLAIN)

HARD TO VERY HARD GRAY LIMESTONE, (CASTLE HAYNE FORMATION)

LOOSE TO VERY DENSE GRAY SAND WITH SHELL-FRAGMENTS SAT. (CASTLE HAYNE FORMATION)

91+50.00

LS

VERY LOOSE TO DENSE TAN SAND AND CLAYEY SAND, MOIST TO SAT.
(UNDIVIDED COASTAL PLAIN)

HARD TO VERY HARD GRAY LIMESTONE, (CASTLE HAYNE FORMATION)

LOOSE TO VERY DENSE GRAY SAND WITH SHELL-FRAGMENTS SAT. (CASTLE HAYNE FORMATION)

91+00.00

-Y2-

8/23/99

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	U-4007B	85

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

60 50 40 30 20

VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TAN ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

94+00.00

60 50 40 30 20

Ⓐ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TAN ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

93+50.00

60 50 40 30 20

Ⓐ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TAN ORANGE SANDY CLAY, WET UNDIVIDED COASTAL PLAIN)

93+00.00

60 50 40 30 20

Ⓐ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TAN ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

92+50.00

–Y2–

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

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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

70 60 50 40 30 20

Ⓐ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TAN ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

LOOSE TAN SAND, SAT. (UNDIVIDED C.P.)

95+50.00

60 50 40 30 20

LS

Ⓐ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TAN ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

LOOSE TAN SAND, SAT. (UNDIVIDED C.P.)

95+00.00

60 50 40 30 20

LS

Ⓐ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TAN ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

LOOSE TAN SAND, SAT. (UNDIVIDED C.P.)

94+50.00

–Y2–

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

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	87

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

70 60 50 40 30 20

Ⓐ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓑ LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)

Ⓑ Ⓐ Ⓐ 2/08

MEDIUM STIFF TAN ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

LOOSE TAN SAND, SAT. (UNDIVIDED COASTAL PLAIN)

97+00.00

70 60 50 40 30 20

Ⓐ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓐ Ⓐ

MEDIUM STIFF TAN ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

LOOSE TAN SAND, SAT. (UNDIVIDED COASTAL PLAIN)

96+50.00

70 60 50 40 30 20

Ⓐ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓐ Ⓐ

MEDIUM STIFF TAN ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

LOOSE TAN SAND, SAT. (UNDIVIDED C.P.)

96+00.00

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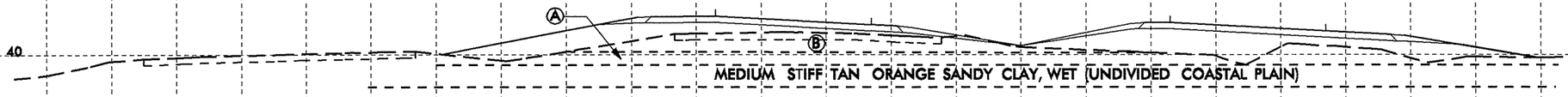
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	88

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

70 60 50 40 30 20

Ⓐ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓑ LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)



MEDIUM STIFF TAN ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

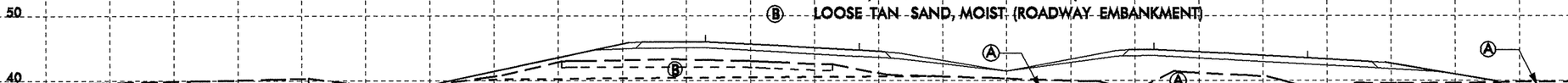
LOOSE TAN SAND, SAT. (UNDIVIDED COASTAL PLAIN)

98+50.00

60 50 40 30 20

Ⓐ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓑ LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)



MEDIUM STIFF TAN ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

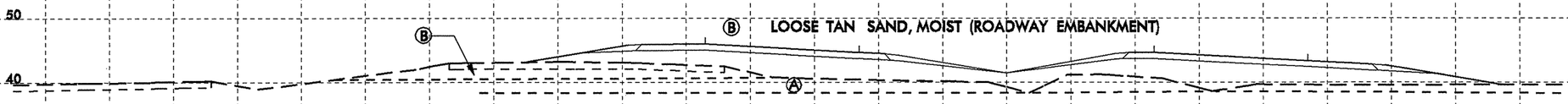
LOOSE TAN SAND, SAT. (UNDIVIDED COASTAL PLAIN)

98+00.00

60 50 40 30 20

Ⓐ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓑ LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)



MEDIUM STIFF TAN ORANGE SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

LOOSE TAN SAND, SAT. (UNDIVIDED COASTAL PLAIN)

97+50.00

70 60 50 40 30 20

–Y2–

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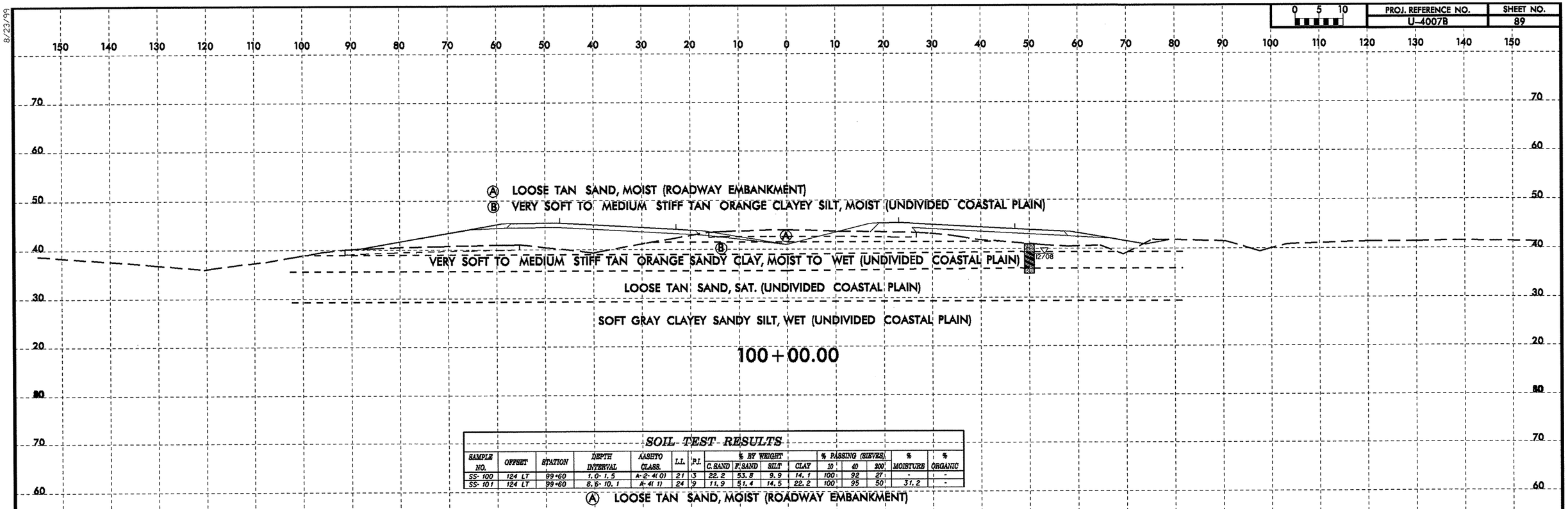
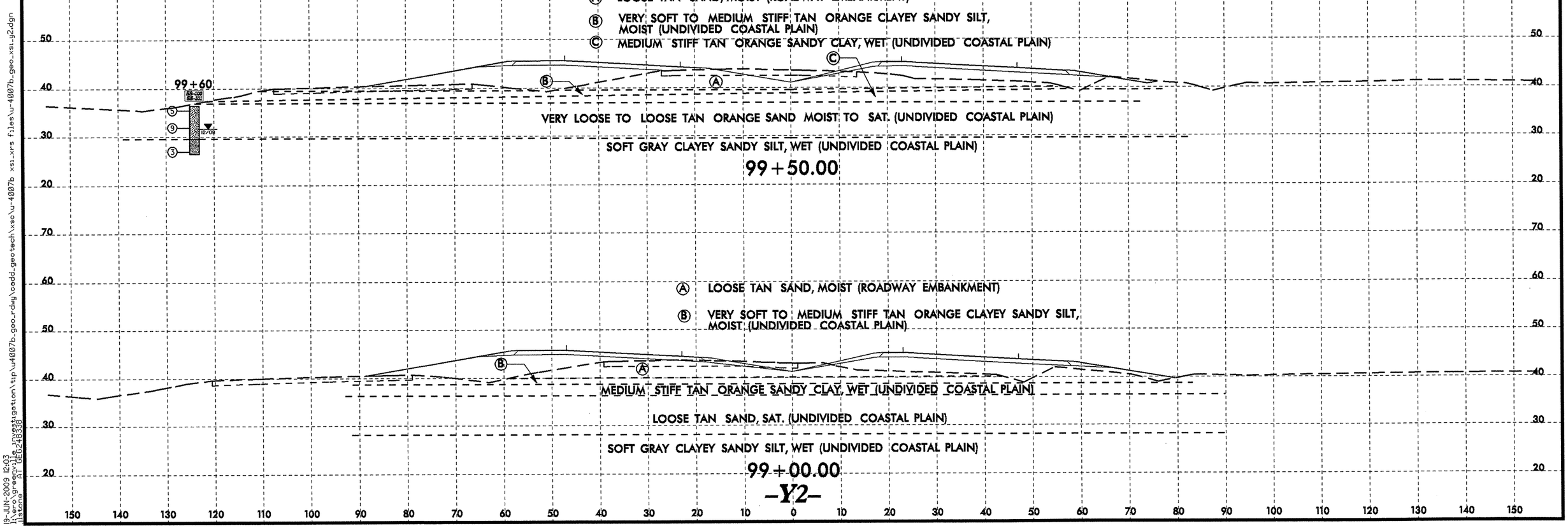
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	89



SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	LL	P.I.	% BY WEIGHT C. SAND	F. SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
SS-100	124 LT	99+60	1.0-1.5	A-2-4(0)	21	3	22.2	53.8	9.9	14.1	100	92	27	-	-
SS-101	124 LT	99+60	8.6-10.1	A-4(1)	24	9	11.9	51.4	14.5	22.2	100	95	50	31.2	-



300 280 260 240 220 200 180 160 140 120 100 80 60 40 20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300

80 60 40 20

72+04 Y-A SB

Ⓐ LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)
Ⓑ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SILT, MOIST (UNDIVIDED COASTAL PLAIN)
VERY SOFT TO MEDIUM STIFF TAN ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
SOFT GRAY CLAYEY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)

101+50.00

7-49 Y-A SB

Ⓐ LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)
Ⓑ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SILT, MOIST (UNDIVIDED COASTAL PLAIN)
VERY SOFT TO MEDIUM STIFF TAN ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
SOFT GRAY CLAYEY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)

101+00.00

Y-A SB LS

Ⓐ LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)
Ⓑ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SILT, MOIST (UNDIVIDED COASTAL PLAIN)
VERY SOFT TO MEDIUM STIFF TAN ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
LOOSE TAN SAND, SAT. (UNDIVIDED COASTAL PLAIN)
SOFT GRAY CLAYEY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)

100+50.00

–Y2–

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	91

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

80 70 60 50 40 30 20

73+64
Y-1A SBL

Ⓐ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

12"08

VERY SOFT TO MEDIUM STIFF TAN ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

SOFT GRAY CLAYEY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)

103+00.00

73+07
Y-1A SBL

Ⓐ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SILT, MOIST (UNDIVIDED COASTAL PLAIN)
Ⓑ LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)

VERY SOFT TO MEDIUM STIFF TAN ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

SOFT GRAY CLAYEY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)

102+50.00

72+56
Y-1A SBL

Ⓐ VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SILT, MOIST (UNDIVIDED COASTAL PLAIN)
Ⓑ LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT)

VERY SOFT TO MEDIUM STIFF TAN ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

SOFT GRAY CLAYEY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)

102+00.00

-Y2-

8/23/99

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	92

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

80 70 60 50 40 30 20 10

74+64

Y-1A SBL

VERY SOFT TO MEDIUM STIFF TAN ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

SOFT GRAY CLAYEY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)

104+00.00

74+14

Y-1A SBL

103+38

12/06

VERY SOFT TO MEDIUM STIFF TAN ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

SOFT GRAY CLAYEY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)

103+50.00

-Y2-

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

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Consumer Acct. (ECE2003)

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-124	80 RT	105+00	1.0-1.5	A-2-4(0)	18	NP	20.1	68.8	4.1	7.1	98	92	13	-	-
SS-125	80 RT	105+00	3.5-5.0	A-6(2)	24	11	10.7	46.8	18.3	24.2	99	95	45	25.7	-
SS-126	80 RT	105+00	8.5-10.0	A-6(1)	27	11	13.0	61.5	7.3	28.2	100	99	38	-	-
SS-127	80 RT	105+00	13.5-15.0	A-4(4)	29	10	10.8	51.4	19.6	28.2	100	100	66	33.6	-
SS-128	80 RT	105+00	18.5-20.0	A-2-4(0)	20	NP	35.8	48.2	2.9	13.1	99	81	17	-	-

75+64 Y-1A SBL

Ⓐ VERY LOOSE TO MEDIUM DENSE TAN ORANGE SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

SS-124 SS-125 SS-126 SS-127 SS-128

20 4 WOH 12/08

VERY SOFT TO MEDIUM STIFF TAN ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY LOOSE TO LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

105+00.00

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-97	60 LT	104+36	1.0-1.5	A-2-4(0)	18	NP	20.3	63.0	6.7	10.1	97	90	19	-	-
SS-98	60 LT	104+36	3.5-5.3	A-2-4(0)	19	2	6.9	67.5	6.5	19.2	100	98	28	-	-
SS-99	60 LT	104+36	8.5-10.3	A-6(10)	35	22	17.5	25.2	19.0	38.3	100	97	62	-	-

75+14 Y-1A SBL

104+36 SS-97 SS-98 SS-99

Ⓐ VERY LOOSE TO MEDIUM DENSE TAN ORANGE SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

6 WOH 2/08

VERY LOOSE TO MEDIUM DENSE TAN ORANGE SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO MEDIUM STIFF TAN ORANGE SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

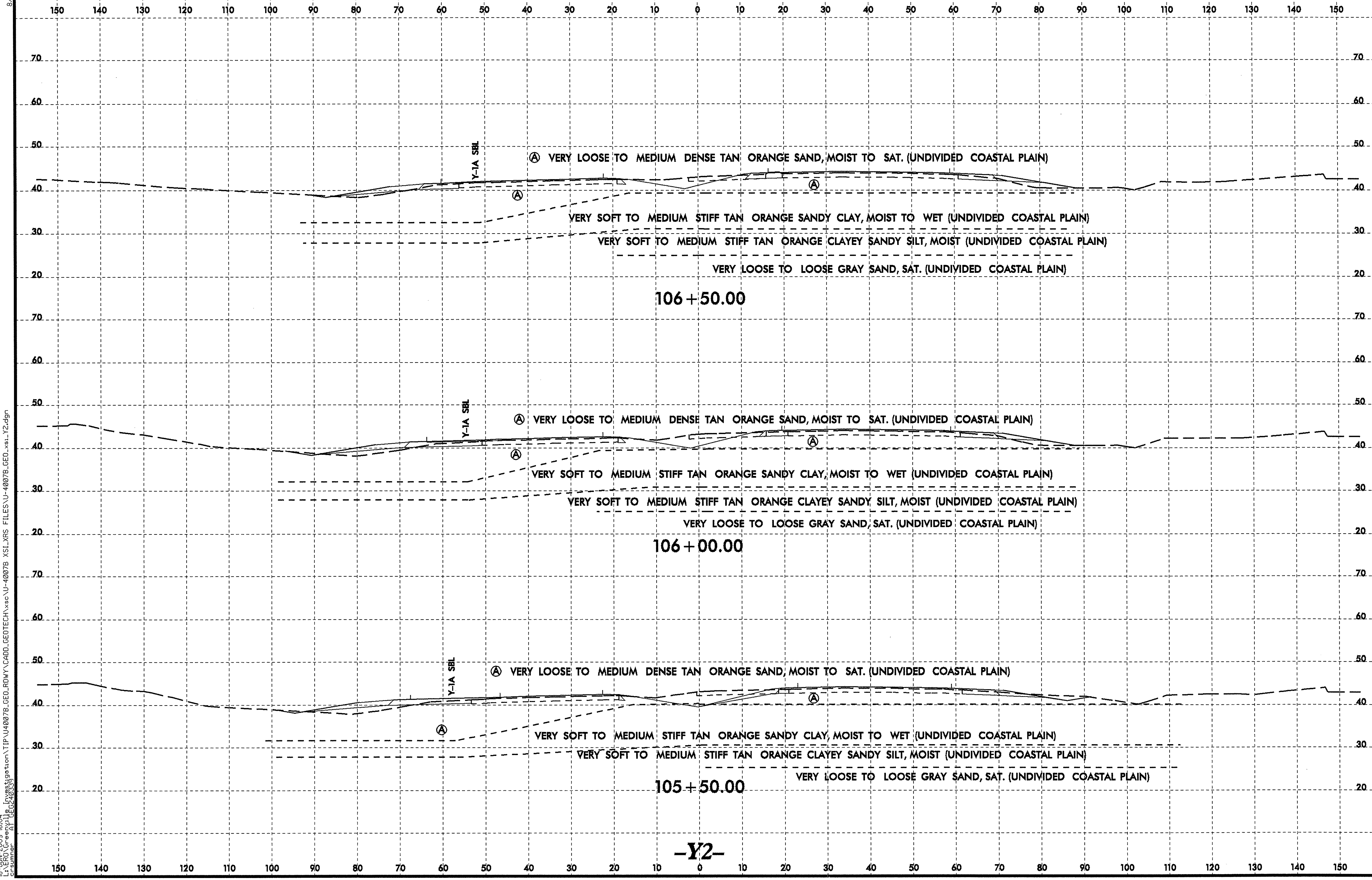
4

SOFT GRAY CLAYEY SANDY SILT, WET (UNDIVIDED COASTAL PLAIN)

104+50.00

-Y2-

PROJ. REFERENCE NO.	SHEET NO.
U-4007B	94



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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

60 50 40 30 20

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

11+50.00

60 50 40 30 20

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

11+00.00

70 60 50 40 30 20 10

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

10+50.00

–Y4–

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

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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

60 50 40 30 20

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

13+50.00

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

13+00.00

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

12+50.00

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

12/08

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

12+00.00

–Y4–

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

PROJ. REFERENCE NO.	SHEET NO.
U-4007B	97

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

15+50.00

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

15+00.00

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

14+50.00

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-219	CL	14+00	1.0-1.5	A-4(3)	25	10	5.8	38.3	27.6	28.2	100	99	61	-	-
SS-220	CL	14+00	3.1-4.6	A-7-6(18)	44	26	3.8	26.6	25.2	44.4	100	99	74	29.3	-
SS-221	CL	14+00	8.1-9.6	A-2-4(0)	19	NP	13.9	74.1	5.9	6.0	100	96	14	-	-

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

SS-219
SS-220
SS-221

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

14+00.00

-Y4-

8/23/99

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crsumner AT GEO240339

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60 50 40 30 20

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

17+50.00

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

17+00.00

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

16+50.00

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

12/08

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

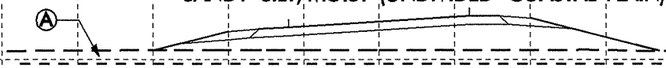
16+00.00

–Y4–

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

60 50 40 30 20 70

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

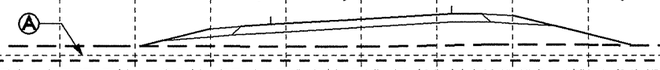


VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

19+50.00

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)



VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

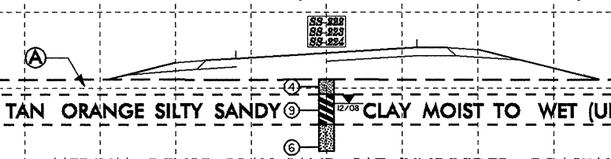
MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

19+00.00

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-222	CL	18+50	1.0-1.5	A-4(3)	24	9	8.7	37.9	29.2	24.2	100	98	60	-	-
SS-223	CL	18+50	3.1-4.6	A-7-6(14)	41	23	6.5	30.4	24.8	38.3	100	98	69	24.4	-
SS-224	CL	18+50	8.1-9.6	A-2-4(0)	16	NP	36.2	44.9	6.9	12.1	100	87	22	-	-

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)



VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

18+50.00

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

18+00.00

–Y4–

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

60 50 40 30 20

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

21+50.00

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

21+00.00

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

20+50.00

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

MEDIUM DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

20+00.00

-Y4-

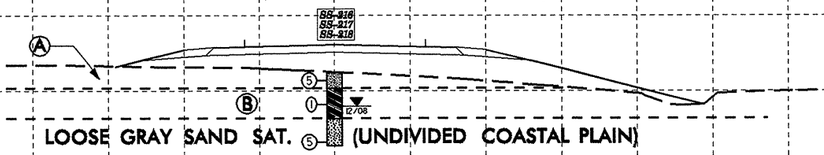
PROJ. REFERENCE NO.	SHEET NO.
U-4007B	101

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-216	CL	23+00	1.0-1.5	A-4(0)	21	3	12.7	54.6	18.5	14.1	100	96	38	-	-
SS-217	CL	23+00	3.1-4.6	A-6(5)	29	12	3.8	37.9	24.0	34.3	100	99	64	29.1	-
SS-218	CL	23+00	8.1-9.6	A-2-4(0)	22	7	18.4	51.5	8.9	21.2	100	95	32	-	-

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

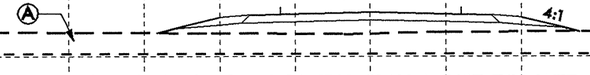
Ⓑ VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)



LOOSE GRAY SAND SAT. ⑤ (UNDIVIDED COASTAL PLAIN)

23+00.00

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)



VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SAND SAT.
(UNDIVIDED COASTAL PLAIN)

22+50.00

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT AND SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

22+00.00

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PROJ. REFERENCE NO.	SHEET NO.
U-4007B	102

Ⓐ LOOSE TAN SAND, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓐ

SOFT TAN ORANGE SILTY SANDY CLAY,
MOIST TO WET (UNDIVIDED COASTAL PLAIN)

25+00.00

Ⓐ LOOSE TAN SAND, MOIST (UNDIVIDED COASTAL PLAIN)

24+65

Ⓐ

12/08

SOFT TAN ORANGE SILTY SANDY CLAY,
MOIST TO WET (UNDIVIDED COASTAL PLAIN)

24+50.00

Ⓐ LOOSE TAN SAND, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓐ

SOFT TAN ORANGE SILTY SANDY CLAY,
MOIST TO WET (UNDIVIDED COASTAL PLAIN)

24+00.00

Ⓐ VERY SOFT TO STIFF TAN ORANGE SILTY SANDY CLAY
MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓐ

LOOSE GRAY SAND SAT.
(UNDIVIDED COASTAL PLAIN)

23+50.00

–Y4–

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

SOFT TAN ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SAND SAT. (UNDIVIDED COASTAL PLAIN)

27+00.00

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

SOFT TAN ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SAND SAT. (UNDIVIDED COASTAL PLAIN)

26+50.00

Ⓐ SOFT TAN ORANGE SILTY SANDY CLAY, MOIST TO WET (ARTIFICIAL FILL)

SOFT TAN ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

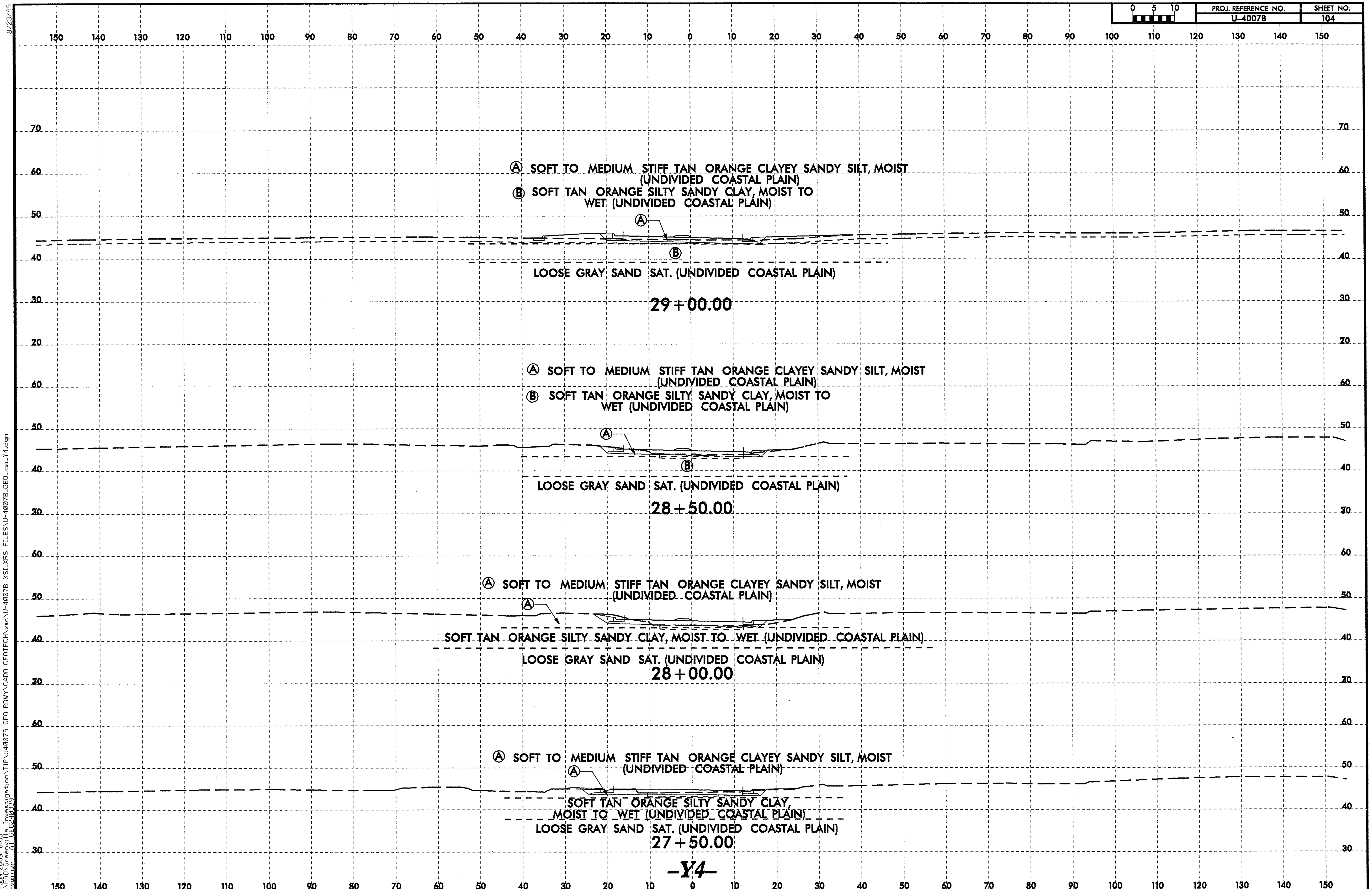
26+00.00

Ⓐ LOOSE TAN SAND, MOIST (UNDIVIDED COASTAL PLAIN)

SOFT TAN ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

25+50.00

-Y4-

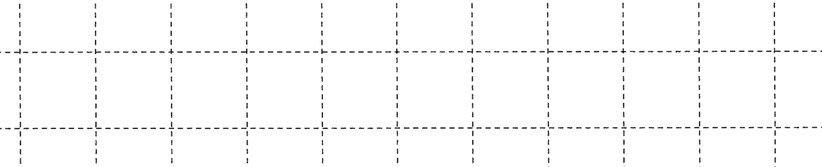

PROJ. REFERENCE NO.
U-4007B
SHEET NO.
104
Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)
Ⓑ SOFT TAN ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
LOOSE GRAY SAND SAT. (UNDIVIDED COASTAL PLAIN)
29+00.00
Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)
Ⓑ SOFT TAN ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
LOOSE GRAY SAND SAT. (UNDIVIDED COASTAL PLAIN)
28+50.00
Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)
SOFT TAN ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
LOOSE GRAY SAND SAT. (UNDIVIDED COASTAL PLAIN)
28+00.00
Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)
SOFT TAN ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)
LOOSE GRAY SAND SAT. (UNDIVIDED COASTAL PLAIN)
27+50.00
-Y4-

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-213	50RT	30+00	1.0-1.5	A-4(1)	22	8	8.7	46.2	21.0	24.2	100	97	50	-	-
SS-214	50RT	30+00	3.1-4.6	A-6(14)	37	20	2.4	26.0	29.2	42.3	100	100	77	13.5	-
SS-215	50RT	30+00	8.1-9.6	A-2-4(0)	25	8	17.1	54.2	6.5	22.2	100	96	30	-	-

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓑ SOFT TAN ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)



LOOSE GRAY SAND SAT. (UNDIVIDED COASTAL PLAIN)

30+00.00

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓑ SOFT TAN ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

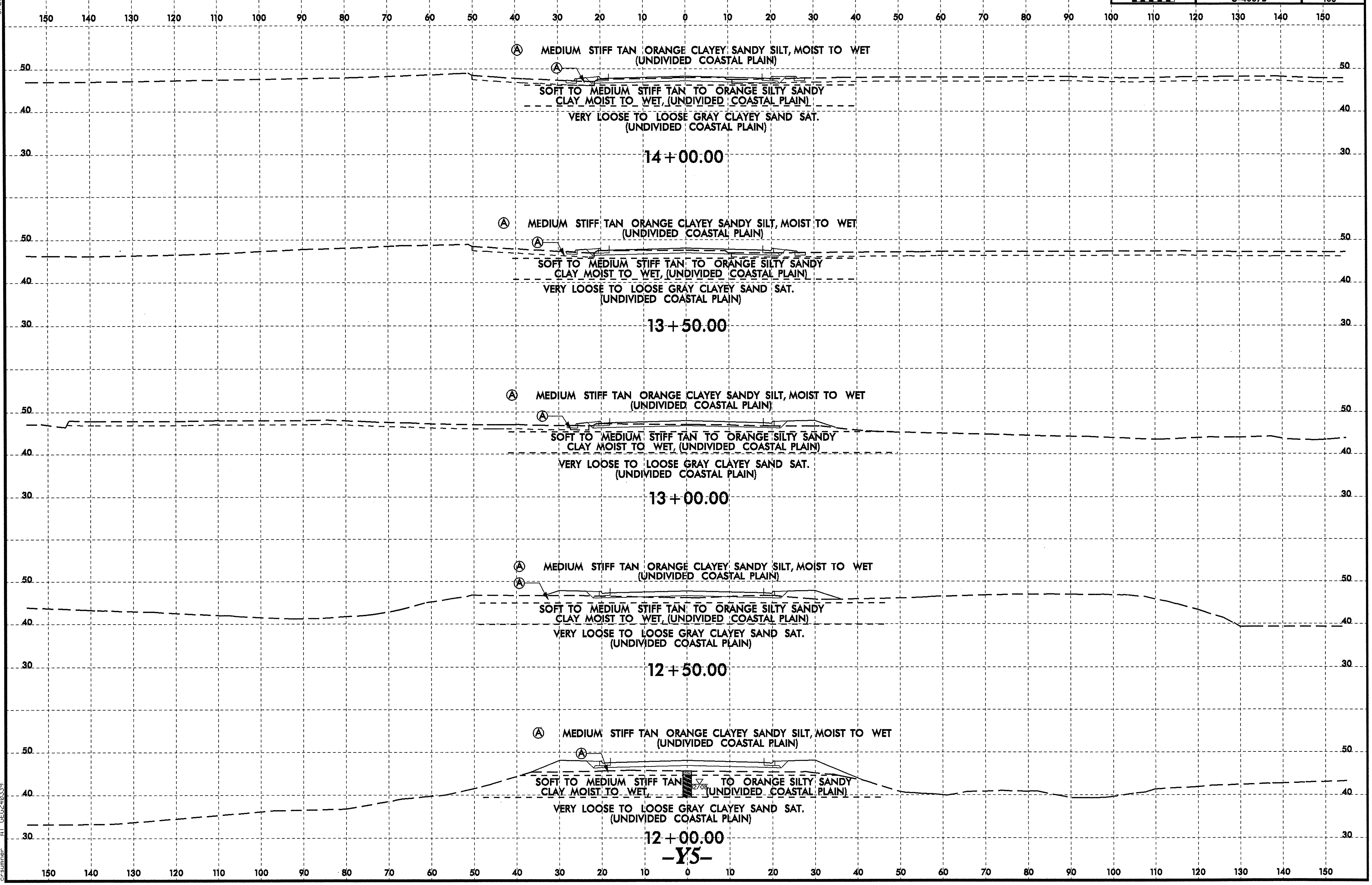
LOOSE GRAY SAND SAT. (UNDIVIDED COASTAL PLAIN)

29+50.00

-Y4-

PROJ. REFERENCE NO.	SHEET NO.
U-4007B	106

8/23/99



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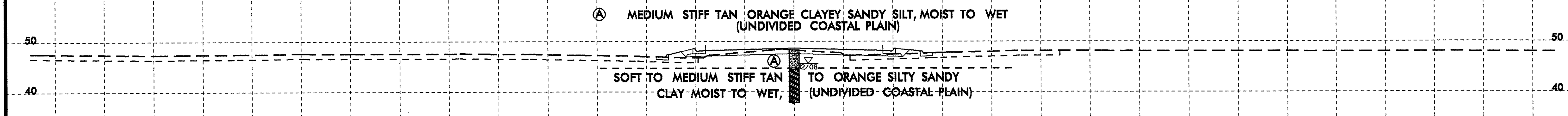

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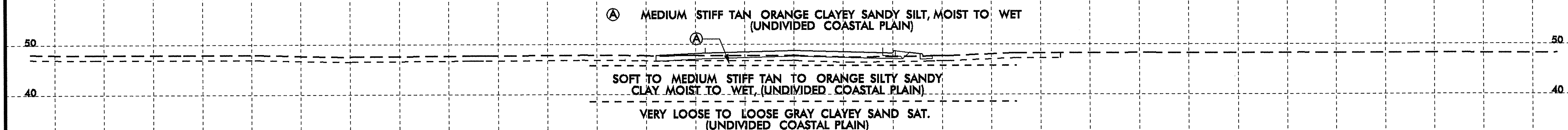
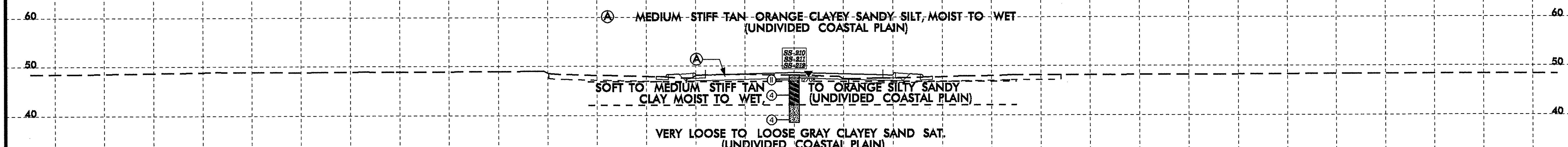


15+50.00

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-210	CL	15+00	1.0-1.3	A-4(0)	21	5	13.9	51.0	12.9	22.2	98	93	37	-	-
SS-211	CL	15+00	3.1-4.6	A-6(2)	23	11	8.1	44.8	21.0	26.2	100	98	50	21.2	-
SS-212	CL	15+00	8.1-9.6	A-2-4(0)	26	8	3.2	64.1	10.5	22.2	100	99	35	-	-



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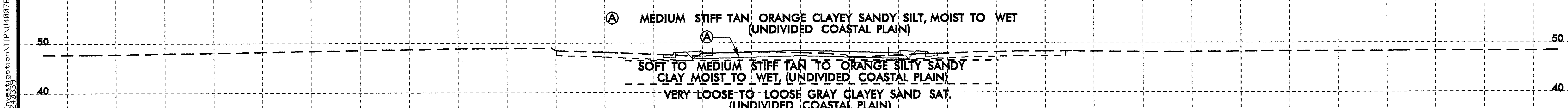

14+50.00

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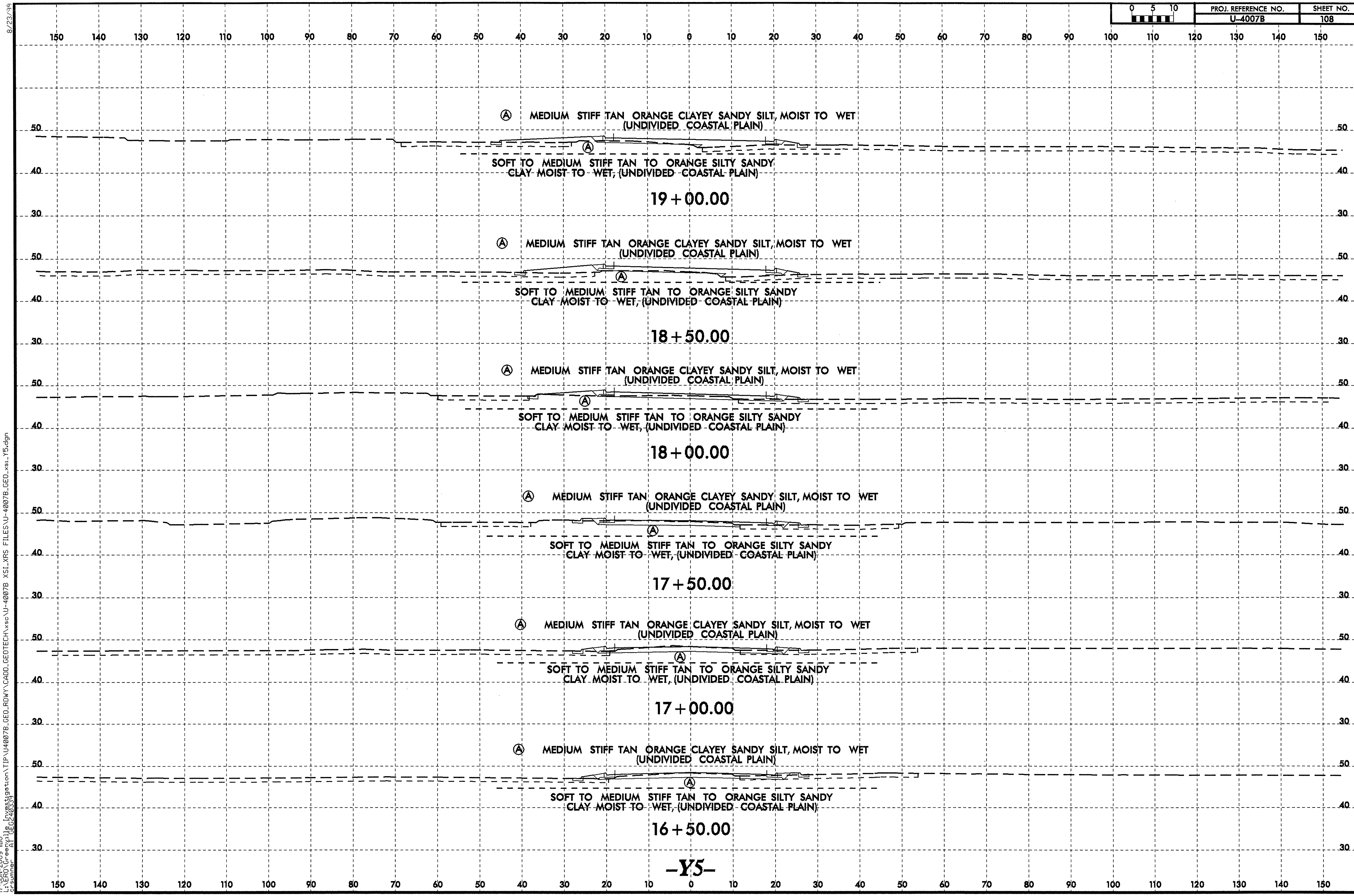
PROJ. REFERENCE NO.	SHEET NO.
U-4007B	108



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crsumner AT GEG240339

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

50
40
30
70
60
50
40
30

Ⓐ MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓐ

SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)

20+50.00

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
S-1	30LT	20+00	1.0-3.00	A-4(1)	22	8	10.3	46.7	16.3	26.2	100	97	45	-	-
S-2	30LT	20+00	3.00-6.00	A-6(8)	33	16	3.8	34.4	21.5	40.3	100	99	63	-	-

Ⓐ MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

S-1
S-2
12/08

Ⓐ

SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)

20+00.00

Ⓐ MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓐ

SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)

19+50.00

Ⓐ MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓐ

SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)

19+40.51

–Y5–

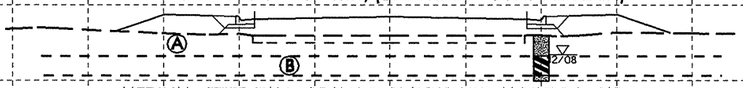
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

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

60 50 40 30

Ⓐ MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓑ SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)

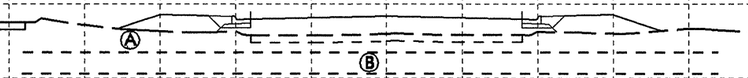


MEDIUM STIFF TAN ORANGE CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

22+00.00

Ⓐ MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓑ SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)



MEDIUM STIFF TAN ORANGE CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

21+50.00

Ⓐ MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

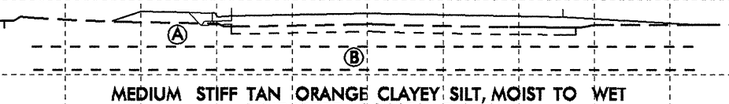
Ⓑ SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TAN ORANGE CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

21+14.88

Ⓐ MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓑ SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)



MEDIUM STIFF TAN ORANGE CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

21+00.00

–Y5–

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60 50 40 30

Ⓐ MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓑ SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)

LS LS

Ⓑ Ⓐ

MEDIUM STIFF TAN ORANGE CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

22+41.44

Ⓐ MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓑ SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)

Ⓐ Ⓑ

MEDIUM STIFF TAN ORANGE CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

22+01.93

Ⓐ MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓑ SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)

Ⓐ Ⓑ

MEDIUM STIFF TAN ORANGE CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

22+00.66

-Y5-

CONTRACT: C202558 ID: U-4007B

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

CONTENTS

LINE	STATION	PLAN	PROFILE
-Y4-	24+00 TO 30+00	4	6
-Y5-	10+35 TO 22+41	5	7

CROSS SECTIONS	STATION	SHEET
-Y4-	26+50 TO 29+00	8-9
-Y5-	13+50 TO 18+50	10-11

APPENDIX	PAGE
DCP LOGS	1-3

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

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. *35008.1.1 (U-4007B)* F.A. PROJ. *STPNHF-17(31)*

COUNTY *ONSLOW*

PROJECT DESCRIPTION *WESTERN PARKWAY FROM APPROXIMATELY 1300' SOUTH OF COUNTRY CLUB RD. TO WESTERN BLVD.*

INVENTORY ADDENDUM

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4007B	1	11

WBS NO.	F.A. PROJ. NO.	DESCRIPTION
35008.1.1	STPNHF-17(31)	PE
35008.3.4	NHF-0017(77)	ROW & UTILS.
35008.2.ST1	STM-0017(111)	CONSTR.

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) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (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 THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

PERSONNEL

CONTRACT PERSONNEL

INVESTIGATED BY *J.L. STONE*

CHECKED BY *D.N. ARGENBRIGHT*

SUBMITTED BY *D.N. ARGENBRIGHT*

DATE *MAY 2010*

- **Refer to the preceding Inventory as well as this Inventory Addendum.**

NORTH CAROLINA LICENSED SEAL 2007 GEOLOGIST JOSEPH L. STONE 5/3/10

DRAWN BY: *C.R. SUMNER, J.L. STONE*

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

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

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	2 OF 10

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 TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:

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
LIQUID LIMIT PLASTIC INDEX	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 A 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 0.50 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 PLASTIC RANGE (PI) PL — PLASTIC LIMIT	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
OM — OPTIMUM MOISTURE SL — SHRINKAGE LIMIT	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	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.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.

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 WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 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
- SOUNDING ROD
- SPT CPT DPT DMT VST PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- SPT N-VALUE
- REF — SPT REFUSAL

SAMPLE DESIGNATIONS

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

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

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- _ MOBILE B- _
- _ BK-51
- _ CME-45C
- _ CME-750
- _ PORTABLE HOIST
- X DIEDRICH D-50
- _ _

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

HAMMER TYPE:
- _ AUTOMATIC _ MANUAL

CORE SIZE:
- _ -B _
- _ -N _
- _ -H _

HAND TOOLS:
- _ POST HOLE DIGGER
- X HAND AUGER
- _ SOUNDING ROD
- _ VANE SHEAR TEST
- _ _

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 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, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS 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 FEET
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 THE 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, 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: _

_

_ ELEVATION: _ FT.

NOTES: UNDIVIDED C.P. = UNDIVIDED COASTAL PLAIN

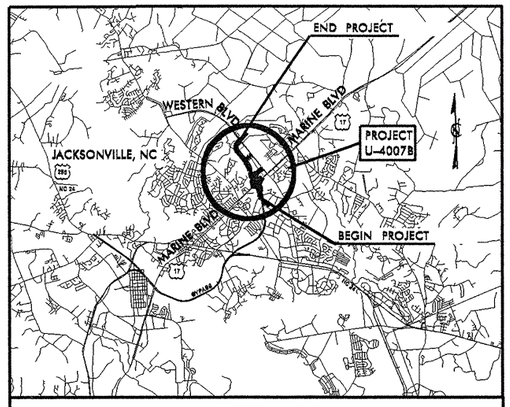
-

REVISED 02/23/06

TIP PROJECT: U-4007B

CONTRACT C202558

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

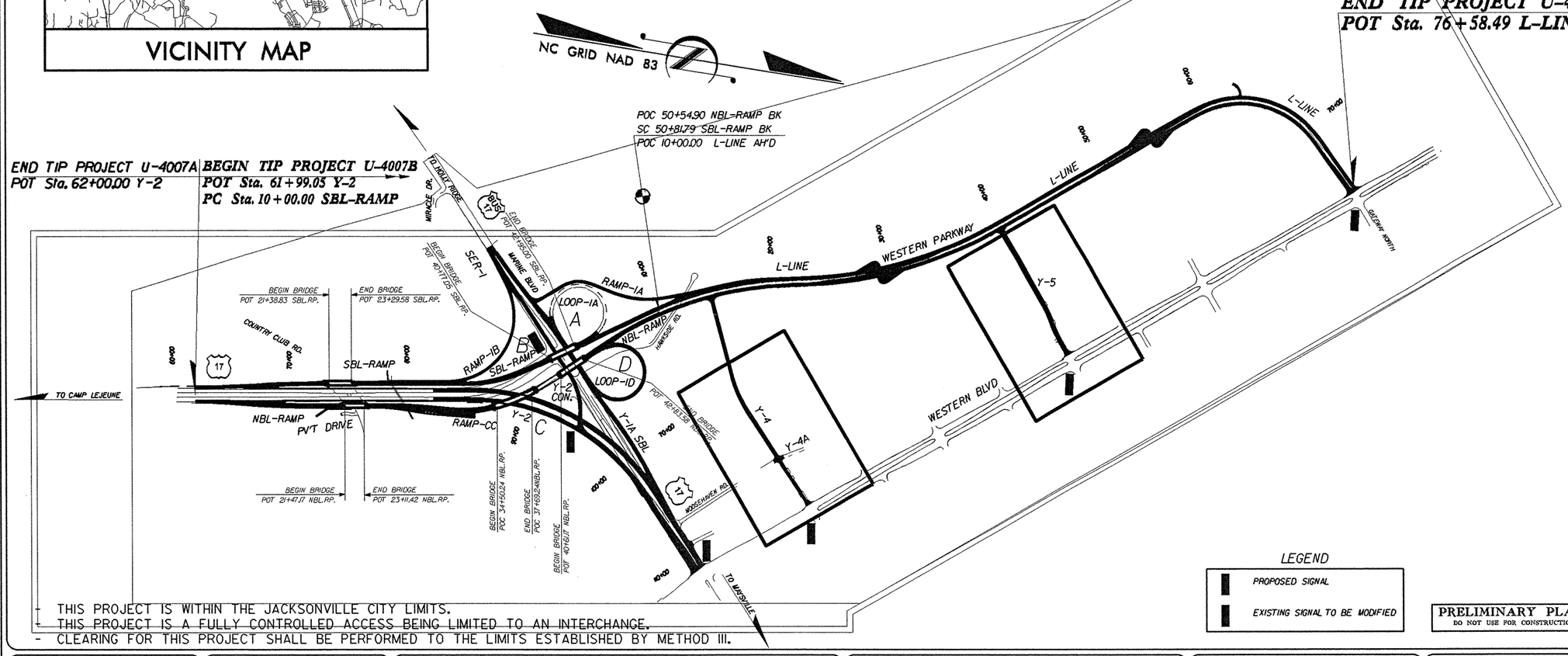
ONSLOW COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4007B	2A	11

WBS NO.	F.A. PROJ. NO.	DESCRIPTION
35008.1.1	STPNHF-17(31)	PE
35008.3.4	NHF-0017(77)	ROW & UTILS.
35008.X.X		CONSTR.

LOCATION: WESTERN PARKWAY FROM APPROXIMATELY 1300' SOUTH OF COUNTRY CLUB RD. TO WESTERN BLVD.

TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNALS CURB, GUTTER, STRUCTURES, & CULVERTS.

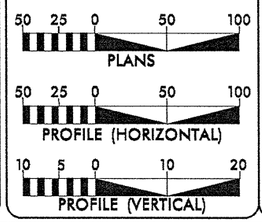


- THIS PROJECT IS WITHIN THE JACKSONVILLE CITY LIMITS.
- THIS PROJECT IS A FULLY CONTROLLED ACCESS BEING LIMITED TO AN INTERCHANGE.
- CLEARING FOR THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

LEGEND
- PROPOSED SIGNAL
- EXISTING SIGNAL TO BE MODIFIED

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

GRAPHIC SCALES



DESIGN DATA

ADT 2011 = 36,300
ADT 2031 = 57,600
DHV = 10 %
D = 60 %
T = 8 % *
V = 50 MPH
(* TTST 3% + DUAL 5%)
FUNC. CLASS: FWY./EXPWY.

PROJECT LENGTH

LENGTH OF ROADWAY T.I.P. PROJECT U-4007B	=	1.177 MI.
LENGTH OF STRUCTURE T.I.P. PROJECT U-4007B	=	0.857 MI
TOTAL LENGTH OF T.I.P. PROJECT U-4007B	=	2.034 MI

PREPARED IN THE OFFICE OF:
Stantec
Stantec Consulting Inc.
Suite 300, 801 Jones Franklin Road
Raleigh, NC U.S.A.
27606
Tel. 919.85 1.6866
Fax. 919.85 1.7024
www.stantec.com
FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: FEB 20, 2009

LETTING DATE: OCT. 19, 2010

ROBERT A. WILLIAMS, PE
PROJECT ENGINEER

KEITH F. HUDSON, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT: B. DOUG TAYLOR, PE
PROJECT ENGINEER - ROADWAY DESIGN

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	3 OF 11

EARTHWORK BALANCE SHEET

- **Refer to the Earthwork Balance Sheet for the preceding Inventory, which includes the alignment in this Inventory Addendum.**

Note: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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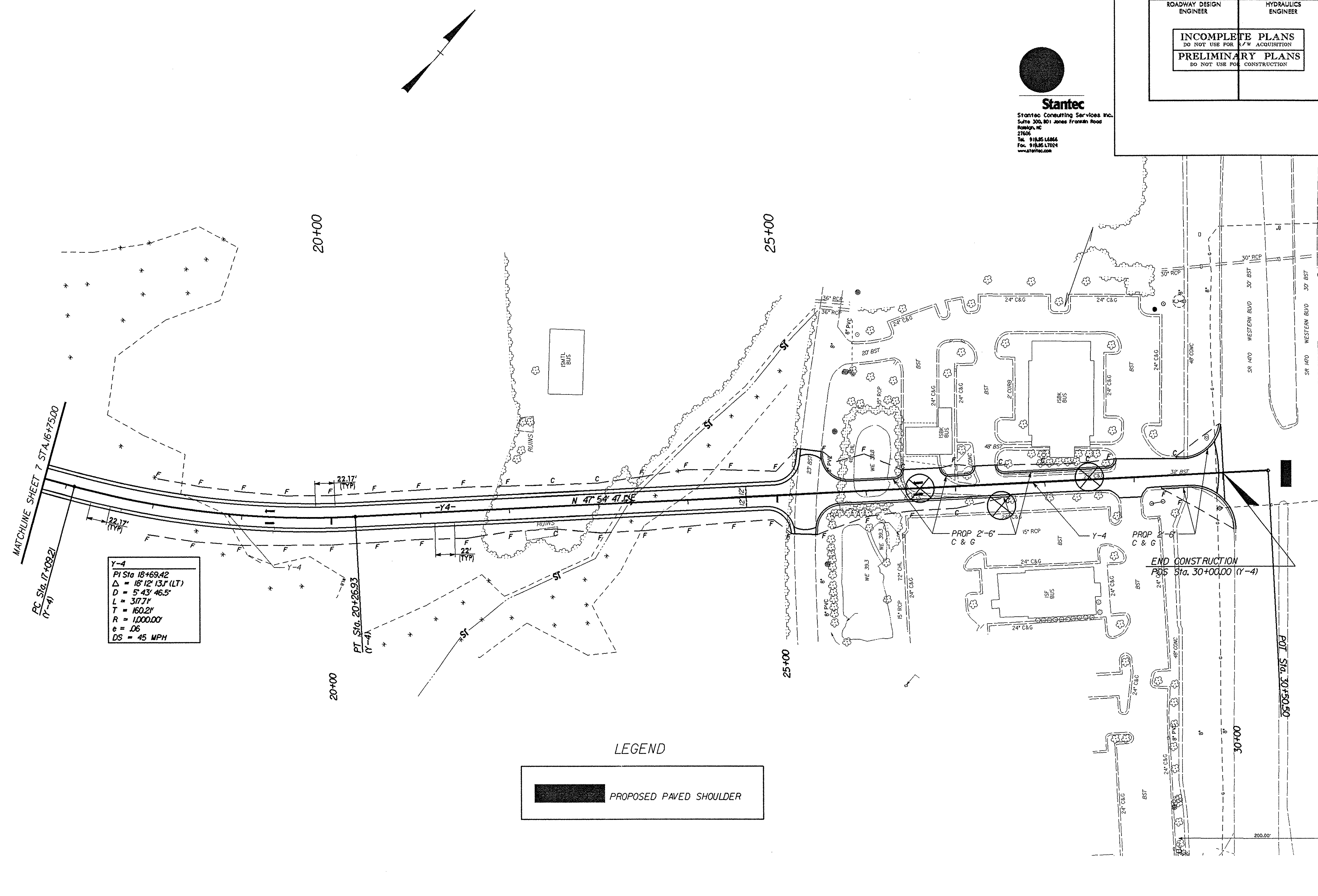

Y-4
PI Sta 18+69.42
Δ = 18° 12' 13.1" (LT)
D = 5° 43' 46.5"
L = 317.71'
T = 160.21'
R = 1,000.00'
e = .06
DS = 45 MPH

LEGEND

PROPOSED PAVED SHOULDER

REVISIONS

8/17/99

27-APR-2010 14:58
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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	5
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
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REVISIONS
8/17/99

18" CMP
EIP
MATCHLINE SHEET 9 STA.12+50.00
48" RCP
Y-5
N 50° 52' 45.3" E
R=50'
(TS)
24" C&G
18" RCP
60" CONC
ISF BUS
BST
36" BST
N 50° 57' 05.3" E
PROP 2'-6" C & G
30" CMP
WL SOU
RIP RAP
PC Sta. 17+64.88 (Y-5)
PRC Sta. 19+40.51 (Y-5)
PT Sta. 21+41.88 (Y-5)
POT Sta. 22+99.88 (Y-5)
END CONSTRUCTION
POT Sta. 22+41.44 (Y-5)
RIPRAP
8" CONC
WE 415
8" PVC
15+00
20+00
SR
WE 441
30" RCP
6" CURB
CURB
15' CONC
24" CHL
T&TFO
8" 30" RCP
(LS)
60"CONC
EOI
36" RCP
48" CRP
408

LEGEND

PROPOSED PAVED SHOULDER

Y-5
PI Sta 18+52.92
Δ = 10° 03' 45.5" (RT)
D = 5° 43' 46.5'
L = 175.63'
T = 88.04'
R = 1,000.00'
e = .025
DS = 45 MPH

Y-5
PI Sta 20+27.91
Δ = 9° 59' 25.5" (LT)
D = 5° 43' 46.5'
L = 174.37'
T = 87.40'
R = 1,000.00'
e = .025
DS = 45 MPH

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	6

ROADWAY DESIGN ENGINEER

HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

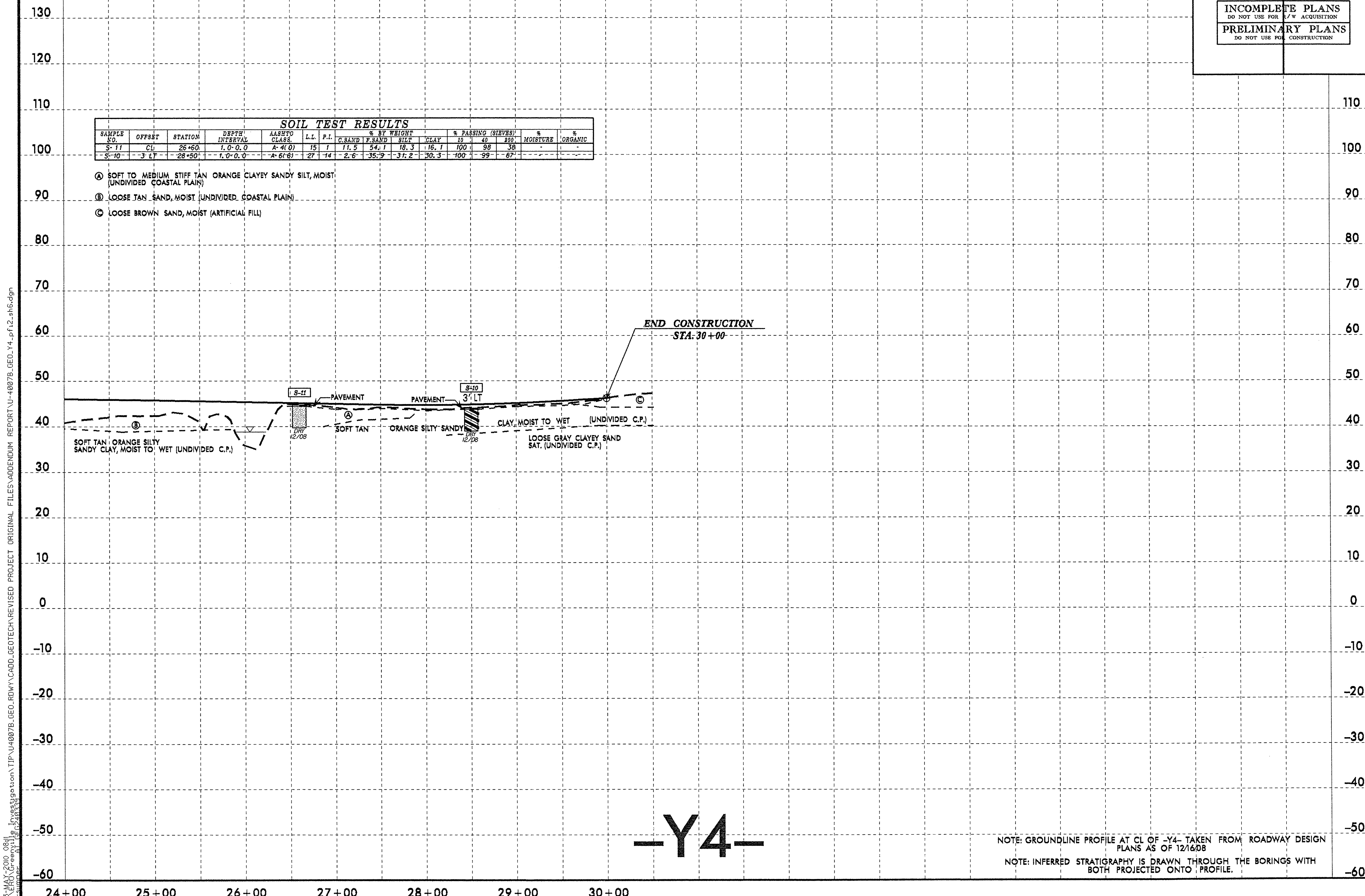
SOIL TEST RESULTS

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-11	CL	26+60	1.0-0.0	A-4(0)	15	1	11.5	54.1	18.3	16.1	100	98	38	-	-
S-10	3 LT	28+50	1.0-0.0	A-6(6)	27	14	2.6	35.9	31.2	30.3	100	99	67	-	-

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓑ LOOSE TAN SAND, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓒ LOOSE BROWN SAND, MOIST (ARTIFICIAL FILL)



-Y4-

NOTE: GROUNDLINE PROFILE AT CL OF -Y4- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

5/14/99

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PROJECT REFERENCE NO.	SHEET NO.
U-4007B	7
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

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
S-1	6LT	16+00	1.5-0.0	A-6(4)	25	12	2.8	41.2	25.7	30.3	100	99	58	-	-
S-2	6LT	16+00	4.0-0.0	A-6(4)	26	12	2.2	42.6	22.9	32.3	100	100	57	-	-
S-3	5LT	17+00	1.0-0.0	A-6(11)	38	21	2.0	36.5	21.1	40.4	100	100	63	-	-
S-4	5LT	17+00	2.0-0.0	A-4(1)	21	8	4.0	45.8	23.9	26.2	100	99	52	-	-
S-5	5LT	18+00	2.0-0.0	A-6(2)	25	12	5.4	51.5	16.9	26.2	100	99	44	-	-

Ⓐ MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

BEGIN CONSTRUCTON
STA. 10+35

END CONSTRUCTION
22+41

PAVEMENT S-1 S-2 6' LT 2/10

PAVEMENT S-3 S-4 5' LT 2/10

PAVEMENT S-5 5' LT 2/10

PAVEMENT

SOFT TO MEDIUM MOIST TO WET

STIFF TAN ORANGE (UNDIVIDED C.P.)

SILTY SANDY CLAY

SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

VERY SOFT CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

VERY LOOSE TO DENSE GRAY SAND, SAT. (UNDIVIDED COASTAL PLAIN)

VERY LOOSE TO LOOSE GRAY CLAYEY SAND SAT. (UNDIVIDED COASTAL PLAIN)

MEDIUM STIFF TAN ORANGE CLAYEY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

-Y5-

NOTE: GROUNDLINE PROFILE AT CL OF -Y5- TAKEN FROM ROADWAY DESIGN PLANS AS OF 12/16/08

NOTE: INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO PROFILE.

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

10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00

5/14/99

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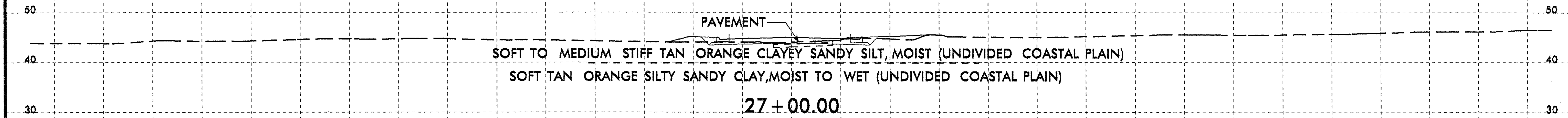
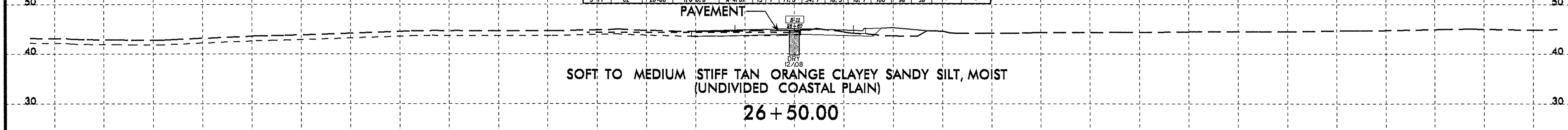
PROJ. REFERENCE NO.	SHEET NO.
U-4007B	8



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-11	CL	26+60	1.0-0.0	A-4(0)	15	1	11.5	54.1	18.3	16.1	100	98	38	-	-



-Y4-

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crsumner AT GEO240339

PAVEMENT

SOFT TAN ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

LOOSE GRAY CLAYEY SAND SAT. (UNDIVIDED COASTAL PLAIN)

29+00.00

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
S-10	3 LT	28+50	1.0-0.0	A-6(6)	27	14	2.6	35.9	31.2	30.3	100	99	67	-	-

PAVEMENT

S-10

SOFT TAN ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

DRY 2/08

LOOSE GRAY CLAYEY SAND SAT. (UNDIVIDED COASTAL PLAIN)

28+50.00

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓐ

PAVEMENT

SOFT TAN ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

28+00.00

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
S-8	24 RT	27+50	1.0-0.0	A-2-4(0)	15	1	14.7	59.9	13.2	12.1	100	96	30	-	-
S-9	24 RT	27+50	4.5-0.0	A-4(0)	19	7	8.5	47.4	21.9	22.2	100	98	48	-	-

Ⓐ SOFT TO MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

Ⓑ LOOSE BROWN SAND, MOIST (ARTIFICIAL FILL)

Ⓐ

PAVEMENT

S-8 S-9

Ⓑ

SOFT TAN ORANGE SILTY SANDY CLAY,MOIST TO WET (UNDIVIDED COASTAL PLAIN)

27+50.00

-Y4-

27-APR-2010 15:00
L:\ERO\Greenville Investigation\TIP\U4007B_GEO_RDWY\CADD_GEOTECH\REVISED PROJECT ORIGINAL FILES\ADDENDUM REPORT\U-4007B_GEO_xsl_Y4.dgn
crsumner AT GEO240339

PAVEMENT

SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)

VERY LOOSE TO LOOSE GRAY CLAYEY SAND SAT.
(UNDIVIDED COASTAL PLAIN)

15+50.00

Ⓐ MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET
(UNDIVIDED COASTAL PLAIN)

PAVEMENT Ⓐ PAVEMENT

SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)

VERY LOOSE TO LOOSE GRAY CLAYEY SAND SAT.
(UNDIVIDED COASTAL PLAIN)

15+00.00

Ⓐ MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET
(UNDIVIDED COASTAL PLAIN)

PAVEMENT Ⓐ PAVEMENT

SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)

VERY LOOSE TO LOOSE GRAY CLAYEY SAND SAT.
(UNDIVIDED COASTAL PLAIN)

14+50.00

Ⓐ MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET
(UNDIVIDED COASTAL PLAIN)

Ⓐ PAVEMENT PAVEMENT

SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)

VERY LOOSE TO LOOSE GRAY CLAYEY SAND SAT.
(UNDIVIDED COASTAL PLAIN)

14+00.00

SOIL TEST RESULTS

SAMPLE NO.	OFFSET	STATION	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT GRAVEL	SAND	SILT	CLAY	% PASSING (SIEVES) 10	40	200	% MOISTURE	% ORGANIC
S-7	15RT	13+53	1.0-2.0	A-4(0)	22	9	12.7	49.6	15.4	22.2	99	95	40	-	-

Ⓐ MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET
(UNDIVIDED COASTAL PLAIN)

Ⓐ PAVEMENT 13+53 S-7 PAVEMENT

SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)
DRY 2.10

VERY LOOSE TO LOOSE GRAY CLAYEY SAND SAT.
(UNDIVIDED COASTAL PLAIN)

13+50.00

-Y5-

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
S-5	54T	18+00	2.0-0.0	A-6(2)	25	12	5.4	51.5	16.9	26.2	100	99	44	-	-

PAVEMENT — S-5 — PAVEMENT — ▽ 2/10

SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

18+00.00

PAVEMENT — PAVEMENT

SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

17+50.00

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
S-3	54T	17+00	1.0-0.0	A-6(11)	38	21	2.0	36.5	21.1	40.4	100	100	63	-	-
S-4	54T	17+00	2.0-0.0	A-4(1)	21	8	4.0	45.8	23.9	26.2	100	99	52	-	-

Ⓐ MEDIUM STIFF TAN ORANGE CLAYEY SANDY SILT, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

Ⓑ SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)

PAVEMENT — Ⓐ — Ⓑ — S-3 S-4 — PAVEMENT — ▽ 2/10

SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)

17+00.00

PAVEMENT — PAVEMENT

SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)

16+50.00

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
S-1	6LT	16+00	1.5-0.0	A-6(4)	25	12	2.8	41.2	25.7	30.3	100	99	58	-	-
S-2	6LT	16+00	4.0-0.9	A-6(4)	26	12	2.2	42.6	22.9	32.3	100	100	57	-	-

PAVEMENT — S-1 S-2 — PAVEMENT — ▽ 2/10

SOFT TO MEDIUM STIFF TAN TO ORANGE SILTY SANDY CLAY MOIST TO WET, (UNDIVIDED COASTAL PLAIN)

16+00.00

-Y5-

CONE PENETROMETER RESULTS
NC - DOT, GEOTECHNICAL ENGINEERING UNIT

ATTACHMENT
Page

PROJECT NO.	U-4007B
PROJECT ID	0
ROUTE	-Y4-, -Y5-
COUNTY	ONSLOW

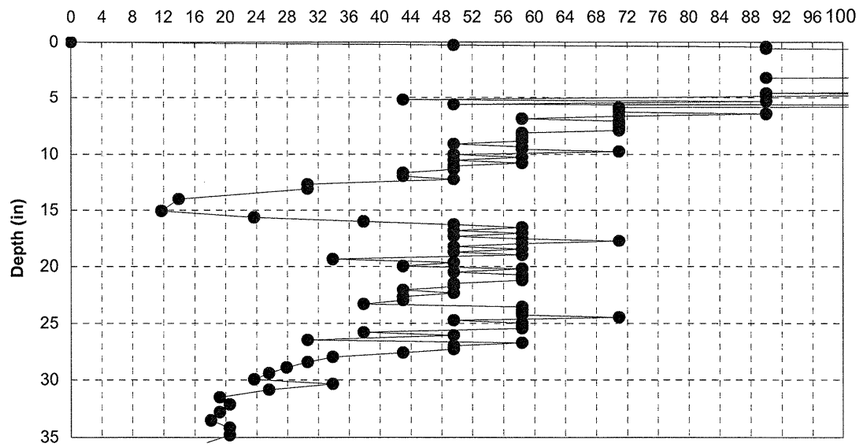
GEOLOGIST	SUMMIT ENG
GEOTECHS	SUMMIT ENG

FILE	0.0

-Y4- RAW 1
16+60 FILL
Datum = SUBGRADE 02/09/10

Interval 0.0 to 0.0	
# of Values	0
Avg CBR	#DIV/0!
Wghtd Avg.	#DIV/0!
Max CBR	0.0
Min CBR	0.0

Interval 0.0 to 39.4	
# of Values	145
Avg CBR	75.4
Wghtd Avg.	50.4
Max CBR	100+
Min CBR	11.8



CONE PENETROMETER RESULTS
NC - DOT, GEOTECHNICAL ENGINEERING UNIT

Page 1

PROJECT NO.	U-4007B
PROJECT ID	0
ROUTE	-Y4-, -Y5-
COUNTY	ONSLOW

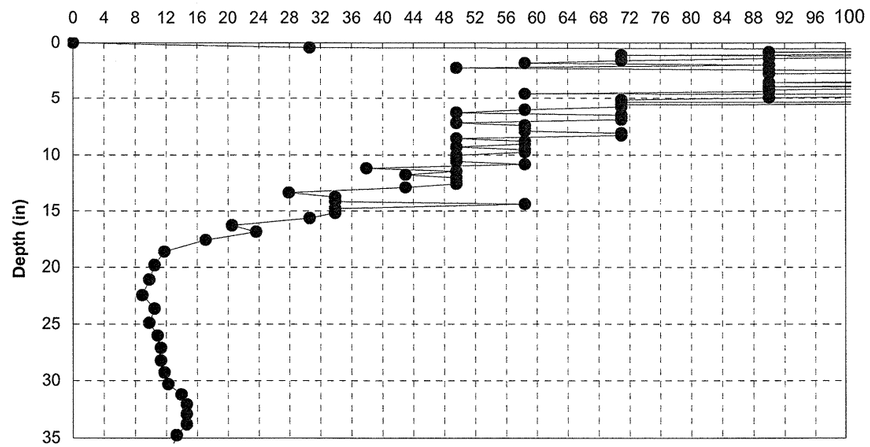
GEOLOGIST	SUMMIT ENG
GEOTECHS	SUMMIT ENG

FILE	0.0

-Y4- RAW
28+50 GRADE
Datum = SUBGRADE 02/09/10

Interval 0.0 to 0.0	
# of Values	0
Avg CBR	#DIV/0!
Wghtd Avg.	#DIV/0!
Max CBR	0.0
Min CBR	0.0

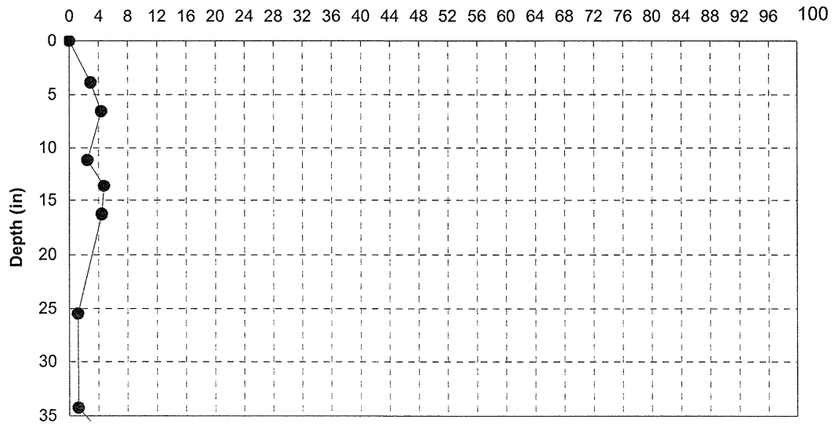
Interval 0.0 to 40.3	
# of Values	99
Avg CBR	65.7
Wghtd Avg.	32.7
Max CBR	100+
Min CBR	8.9



-Y4- RAW
27+50 GRADE
Datum = SUBGRADE 02/09/10

Interval 0.0 to 0.0	
# of Values	0
Avg CBR	#DIV/0!
Wghtd Avg.	#DIV/0!
Max CBR	0.0
Min CBR	0.0

Interval 0.0 to 39.1	
# of Values	9
Avg CBR	3.5
Wghtd Avg.	2.6
Max CBR	5.1
Min CBR	1.2



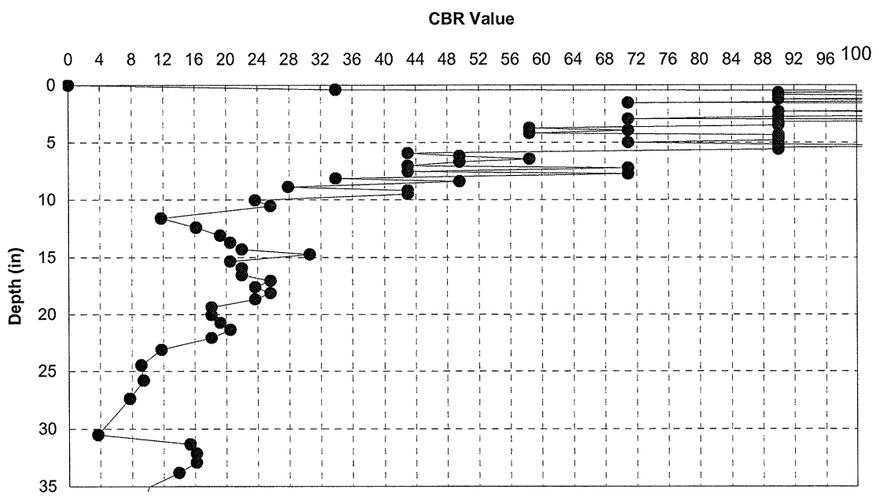
CONE PENETROMETER RESULTS
NC - DOT, GEOTECHNICAL ENGINEERING UNIT

PROJECT NO.	U-4007B
PROJECT ID	0
ROUTE	-Y4-, -Y5-
COUNTY	ONSLOW

GEOLOGIST	SUMMIT ENG
GEOTECHS	SUMMIT ENG

FILE	0.0

-Y5- RAW 1
13+50 FILL
Datum = SUBGRADE 02/09/10



Interval 0.0 to 0.0	
# of Values	0
Avg CBR	#DIV/0!
Wghtd Avg.	#DIV/0!
Max CBR	0.0
Min CBR	0.0

Interval 0.0 to 39.8	
# of Values	84
Avg CBR	61.4
Wghtd Avg.	27.8
Max CBR	100+
Min CBR	3.7

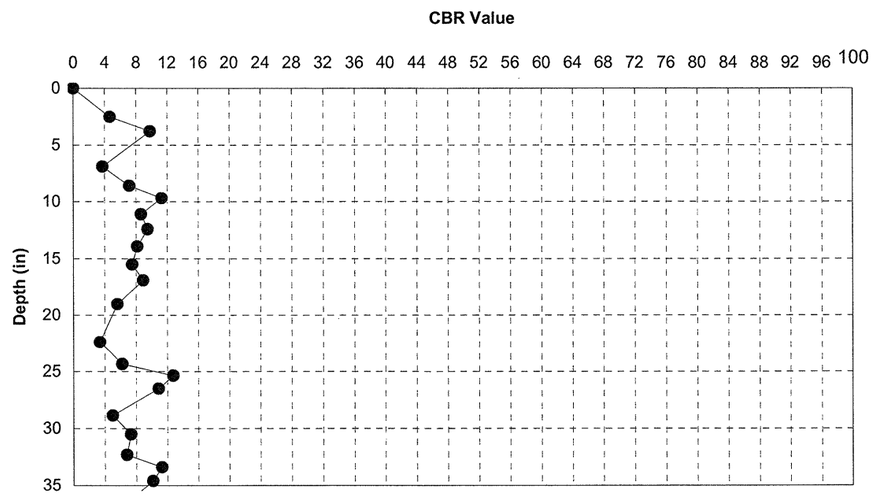
CONE PENETROMETER RESULTS
NC - DOT, GEOTECHNICAL ENGINEERING UNIT

PROJECT NO.	U-4007B
PROJECT ID	0
ROUTE	-Y4-, -Y5-
COUNTY	ONSLOW

GEOLOGIST	SUMMIT ENG
GEOTECHS	SUMMIT ENG

FILE	0.0

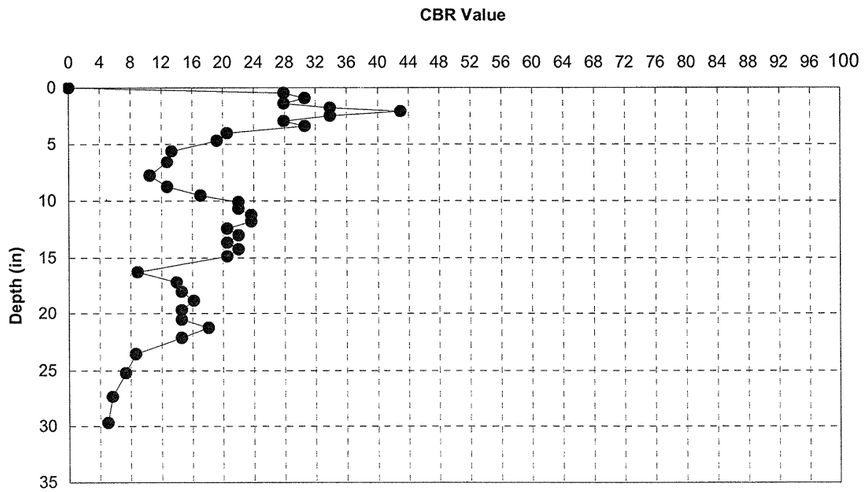
-Y5- RAW 2
16+00 GRADE
Datum = SUBGRADE 02/09/10



Interval 0.0 to 0.0	
# of Values	0
Avg CBR	#DIV/0!
Wghtd Avg.	#DIV/0!
Max CBR	0.0
Min CBR	0.0

Interval 0.0 to 38.3	
# of Values	22
Avg CBR	7.8
Wghtd Avg.	6.9
Max CBR	12.8
Min CBR	3.4

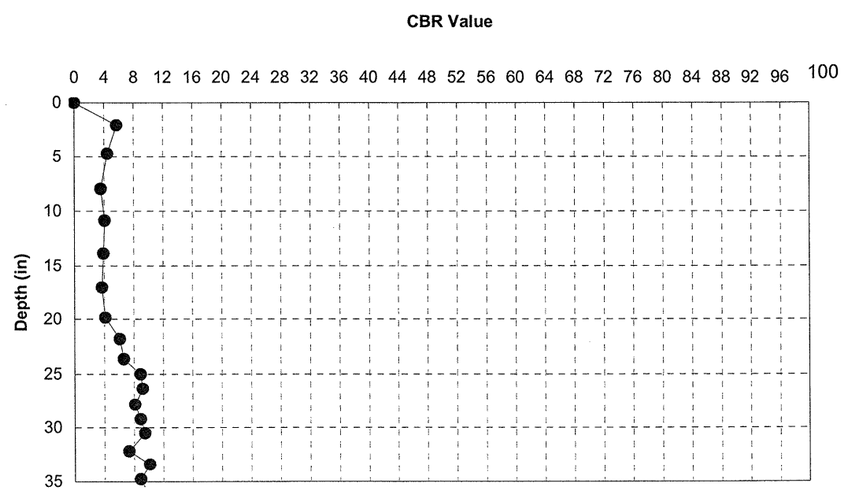
-Y5- RAW 2
15+00 GRADE
Datum = SUBGRADE 02/09/10



Interval 0.0 to 0.0	
# of Values	0
Avg CBR	#DIV/0!
Wghtd Avg.	#DIV/0!
Max CBR	0.0
Min CBR	0.0

Interval 0.0 to 29.7	
# of Values	36
Avg CBR	19.5
Wghtd Avg.	15.4
Max CBR	43.0
Min CBR	5.0

-Y5- RAW 3
17+00 GRADE
Datum = SUBGRADE 02/09/10



Interval 0.0 to 0.0	
# of Values	0
Avg CBR	#DIV/0!
Wghtd Avg.	#DIV/0!
Max CBR	0.0
Min CBR	0.0

Interval 0.0 to 38.6	
# of Values	20
Avg CBR	7.1
Wghtd Avg.	6.2
Max CBR	10.1
Min CBR	3.6

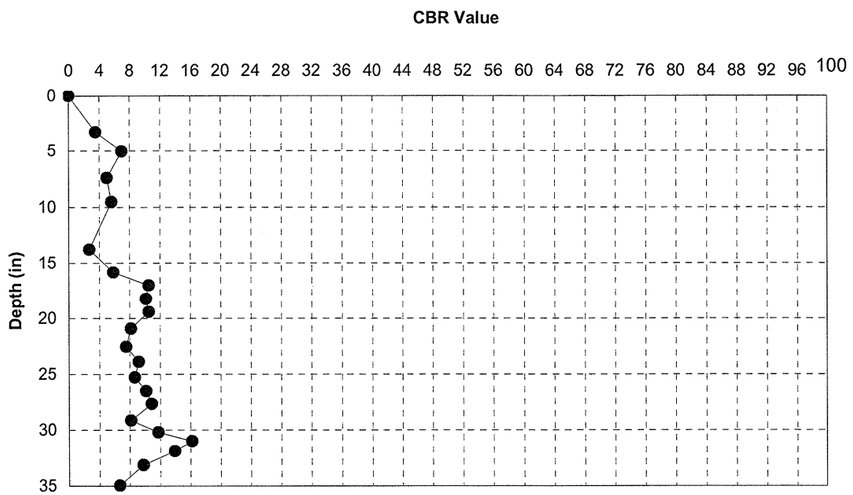
CONE PENETROMETER RESULTS
NC - DOT, GEOTECHNICAL ENGINEERING UNIT

PROJECT NO.	U-4007B
PROJECT ID	0
ROUTE	-Y4-, -Y5-
COUNTY	ONSLOW

GEOLOGIST	SUMMIT ENG
GEOTECHS	SUMMIT ENG

FILE	0.0

-Y5- RAW 3
18+00 GRADE
Datum = SUBGRADE 02/09/10



Interval 0.0 to 0.0	
# of Values	0
Avg CBR	#DIV/0!
Wghtd Avg.	#DIV/0!
Max CBR	0.0
Min CBR	0.0

Interval 0.0 to 39.3	
# of Values	23
Avg CBR	8.4
Wghtd Avg.	7.1
Max CBR	16.2
Min CBR	2.7

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4007B	1	7

WBS NO.	F.A.PROJ.NO.	DESCRIPTION
35008.1.1	STPNHF-17(31)	PE
35008.3.4	NHF-0017(77)	ROW & UTILS.
35008.2.ST1	STM-0017(111)	CONSTR.

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

CONTENTS

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

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. *35008.1.1 (U-4007B)* F.A. PROJ. *STPNHF-17(31)*

COUNTY *ONSLOW*

PROJECT DESCRIPTION *WESTERN PARKWAY FROM APPROXIMATELY 1300' SOUTH OF COUNTRY CLUB RD. TO WESTERN BLVD.*

INVENTORY ADDENDUM

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) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA ARE PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (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 THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

PERSONNEL

JRS
CMW
RES
JME

INVESTIGATED BY *J.L. STONE*

CHECKED BY *D.N. ARGENBRIGHT*

SUBMITTED BY *D.N. ARGENBRIGHT*

DATE *JUNE 2010*

- **Refer to the preceding Inventory as well as this Inventory Addendum.**

NORTH CAROLINA LICENSED SEAL 2007 GEOLOGIST JOSEPH L. STONE 6-24-10

DRAWN BY: *C.R. SUMNER, J.L. STONE*

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

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

CONTRACT: C202558

ID: U-4007B

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	2 OF 7

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 TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:

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											GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
#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			
LIQUID LIMIT	6 MX		NP	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
PLASTIC INDEX				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 A 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	N/A
	LOOSE	4 TO 10	
	MEDIUM DENSE	10 TO 30	
	DENSE	30 TO 50	
	VERY DENSE	>50	
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT	<2	<0.25
	SOFT	2 TO 4	0.25 TO 0.50
	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
NONPLASTIC	0-5	VERY LOW
LOW PLASTICITY	6-15	SLIGHT
MED. PLASTICITY	16-25	MEDIUM
HIGH PLASTICITY	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.
UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED)
GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.

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 WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LIQUID LIMIT LESS THAN 31
MODERATELY COMPRESSIBLE	LIQUID LIMIT EQUAL TO 31-50
HIGHLY COMPRESSIBLE	LIQUID LIMIT GREATER THAN 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%
MODERATELY ORGANIC	5 - 10%	12 - 20%
HIGHLY ORGANIC	>10%	>20%

OTHER MATERIAL	
TRACE	1 - 10%
LITTLE	10 - 20%
SOME	20 - 35%
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
- SOUNDING ROD
- SPT CPT DPT DMT VST PMT — TEST BORING
- AUGER BORING
- CORE BORING
- MW — MONITORING WELL
- PIEZOMETER INSTALLATION
- SLOPE INDICATOR INSTALLATION
- SPT N-VALUE
- REF — SPT REFUSAL

SAMPLE DESIGNATIONS

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

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

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
- [ ] MOBILE B-___
- [ ] BK-51
- [X] CME-45B
- [ ] CME-750
- [ ] PORTABLE HOIST
- [ ] _____
- [ ] _____

ADVANCING TOOLS:
- [ ] CLAY BITS
- [ ] 6" CONTINUOUS FLIGHT AUGER
- [ ] 8" HOLLOW AUGERS
- [ ] HARD FACED FINGER BITS
- [ ] TUNG.-CARBIDE INSERTS
- [X] CASING [ ] W/ ADVANCER
- [X] TRICONE 2 15/16 " STEEL TEETH
- [ ] TRICONE _____ " TUNG.-CARB.
- [ ] CORE BIT
- [ ] _____

HAMMER TYPE:
- [X] AUTOMATIC [ ] MANUAL

CORE SIZE:
- [ ] -B_____
- [ ] -N_____
- [ ] -H_____

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

ROCK DESCRIPTION

HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 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, YIELDS SPT N VALUES > 100 BPF*
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, YIELDS 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 FEET
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 THE 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, 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:

ELEVATION: FT.

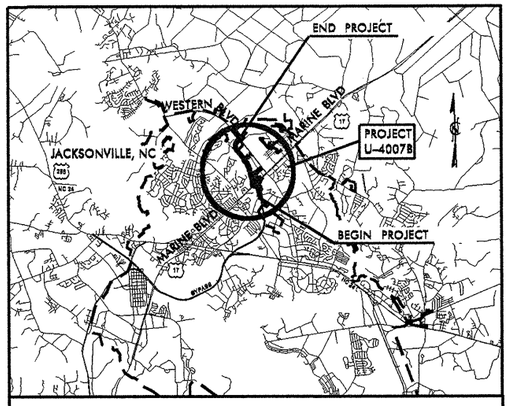
NOTES: UNDIVIDED C.P. = UNDIVIDED COASTAL PLAIN

REVISED 02/23/06

TIP PROJECT: U-4007B

CONTRACT C202558

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

ONSLOW COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-4007B	2A	7

WBS NO.	F.A. PROJ. NO.	DESCRIPTION
35008.1.1	STPNHF-17(31)	PE
35008.3.4	NHF-0017(77)	ROW & UTILS.
35008.X.X		CONSTR.

LOCATION: WESTERN PARKWAY FROM APPROXIMATELY 1300' SOUTH OF COUNTRY CLUB RD. TO WESTERN BLVD.

TYPE OF WORK: GRADING, PAVING, DRAINAGE, SIGNALS CURB, GUTTER, STRUCTURES, & CULVERTS.

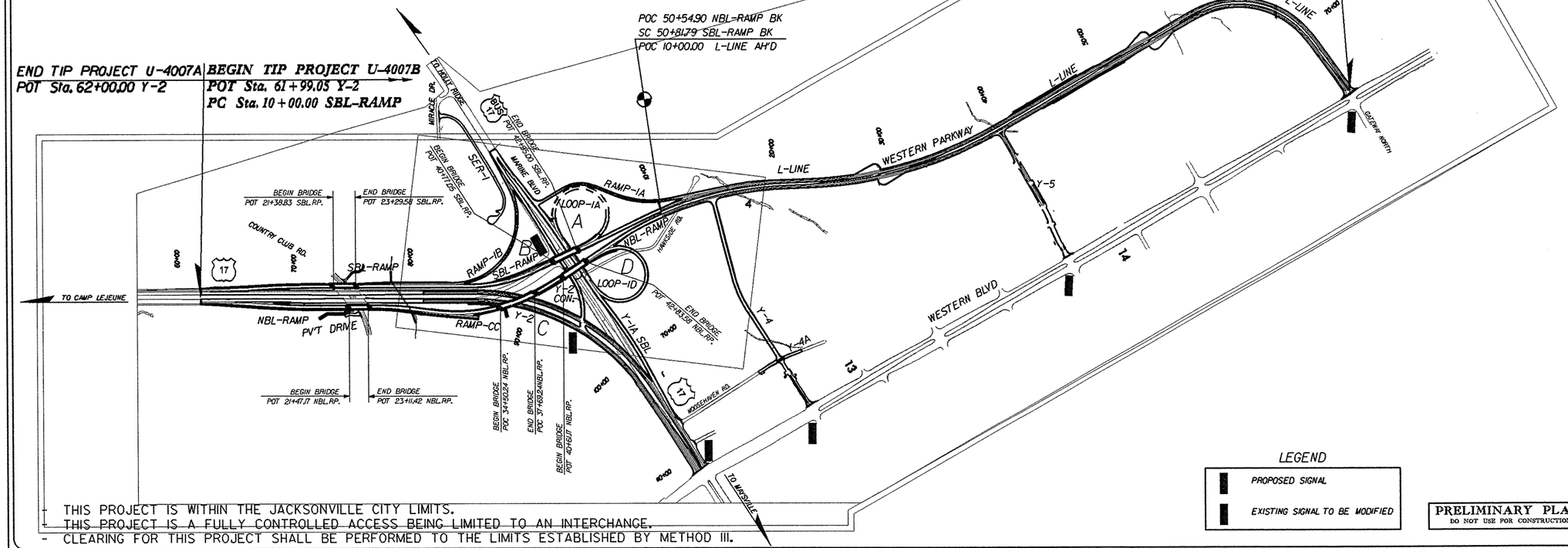
NC GRID NAD 83

POC 50+54.90 NBL=RAMP BK
SC 50+81.79 SBL=RAMP BK
POC 10+00.00 L-LINE AH'D

END TIP PROJECT U-4007B
POT Sta. 76+58.49 L-LINE

END TIP PROJECT U-4007A
POT Sta. 62+00.00 Y-2

BEGIN TIP PROJECT U-4007B
POT Sta. 61+99.05 Y-2
PC Sta. 10+00.00 SBL-RAMP



LEGEND

PROPOSED SIGNAL

EXISTING SIGNAL TO BE MODIFIED

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

- THIS PROJECT IS WITHIN THE JACKSONVILLE CITY LIMITS.
- THIS PROJECT IS A FULLY CONTROLLED ACCESS BEING LIMITED TO AN INTERCHANGE.
- CLEARING FOR THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III.

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2011 = 36,300
ADT 2031 = 57,600
DHV = 10 %
D = 60 %
T = 8 % *
V = 50 MPH
(* TTST 3% + DUAL 5%)
FUNC. CLASS: FWY./EXPWY.

PROJECT LENGTH

LENGTH OF ROADWAY T.I.P. PROJECT U-4007B	=	1.177 MI.
LENGTH OF STRUCTURE T.I.P. PROJECT U-4007B	=	0.857 MI
TOTAL LENGTH OF T.I.P. PROJECT U-4007B	=	2.034 MI

PREPARED IN THE OFFICE OF:
Stantec
Stantec Consulting Inc.
Suite 300, 801 Jones Franklin Road
Raleigh, NC U.S.A.
27606
Tel. 919.85 L6866
Fax. 919.85 L7024
www.stantec.com
FOR THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

2006 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
FEB 20, 2009

LETTING DATE:
OCT. 19, 2010

ROBERT A. WILLIAMS, PE
PROJECT ENGINEER

KEITH F. HUDSON, PE
PROJECT DESIGN ENGINEER

NCDOT CONTACT: B. DOUG TAYLOR, PE
PROJECT ENGINEER - ROADWAY DESIGN

HYDRAULICS ENGINEER

SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

P.E.
STATE HIGHWAY DESIGN ENGINEER

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

BEVERLY EAVES PERDUE
GOVERNOR

EUGENE A. CONTI, JR.
SECRETARY

June 24, 2010

STATE PROJECT: 35008.1.1 (U-4007B)
F.A. PROJECT: STPNHF-17 (31)
COUNTY: Onslow
DESCRIPTION: Western Parkway from Approximately 1300' South of Country Club Rd. To Western Blvd.

SUBJECT: Geotechnical Inventory (Addendum)

Project Description

The project area lies in the city of Jacksonville, beginning at a point along Martin Luther King Jr. Parkway approximately 1300 feet south of the intersection of Martin Luther King Jr. Parkway and Country Club Rd. and extending generally northward approximately 2.0 miles to Western Blvd. This geotechnical investigation was confined to the areas of proposed construction related revisions regarding -SER-1-.

Fieldwork for this project was conducted from April 2010 through May 2010. Standard Penetration Test borings were advanced with a CME 45-B drill machine with an automatic hammer. Hand auger borings were also completed. Representative soil samples were collected for visual classification in the field and for laboratory analysis by the Materials and Tests Unit.

The following alignment, totaling 0.23 miles was investigated. Subsurface profiles and selected cross sections of this alignment are included in this report.

Line	Station(±)
-SER-1-	10+00 to 22+35

Areas of Special Geotechnical Interest

1) The following sections contain cohesive soils which have the potential to cause embankment stability and/or long term settlement problems:

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT
1589 MAIL SERVICE CENTER
RALEIGH NC 27699-1589

TELEPHONE: 919-250-4088
FAX: 919-250-4237
Website: www.ncdot.org./doh

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC

Line	Station(±)
-SER-1-	10+00 to 19+25
-SER-1-	21+50 to 22+35

2) The following sections contain organic soils, which have the potential for embankment stability and/or subgrade problems during construction.

Line	Station(±)
-SER-1-	15+12 to 16+77
-SER-1-	18+75 to 19+23

3) The entire area was found to exhibit seasonal high ground water.

Physiography and Geology

This project corridor is located within the Coastal Plain Physiographic Province. Topography along the project is nearly flat to gently sloping. Natural ground elevations ranged from 29± to 36± feet above sea level.

Surficial soils in this area are generally classified as undivided coastal plain sediments and are underlain by the Castle Hayne Formation.

Ground Water

Ground water data was collected from April 2010 through May 2010, during a time of normal precipitation. Ground water elevations ranged from 29± to 33± feet above sea level.

Soils

Soils within this project area have been identified as undivided coastal plain soils and artificial fill soils.

Soils classified as undivided coastal plain are comprised of 2± to 6± feet of loose to medium dense sand (A-2-4, A-3), 3± to 6± feet of medium stiff to stiff sandy and clayey silt (A-4), and 2± to 4± feet of soft sandy clay (A-6). A moisture sample collected within this cohesive unit returned natural moisture content of 18%.

Additionally, surficial organic deposits were identified. These soils were primarily 3± to 7± feet in thickness and comprised of very soft moderately organic sandy and silty clay (A-6, A-7-6). Samples taken from within these units indicated organic percentages ranging from 9% to 12% and moisture contents ranging from 69% to 83%.

Soils identified as artificial fill are comprised of 1± feet of dense sand and gravel (A-2-4, A-1-b) and 5± feet of stiff clayey sandy silt (A-4).

Respectfully Submitted,

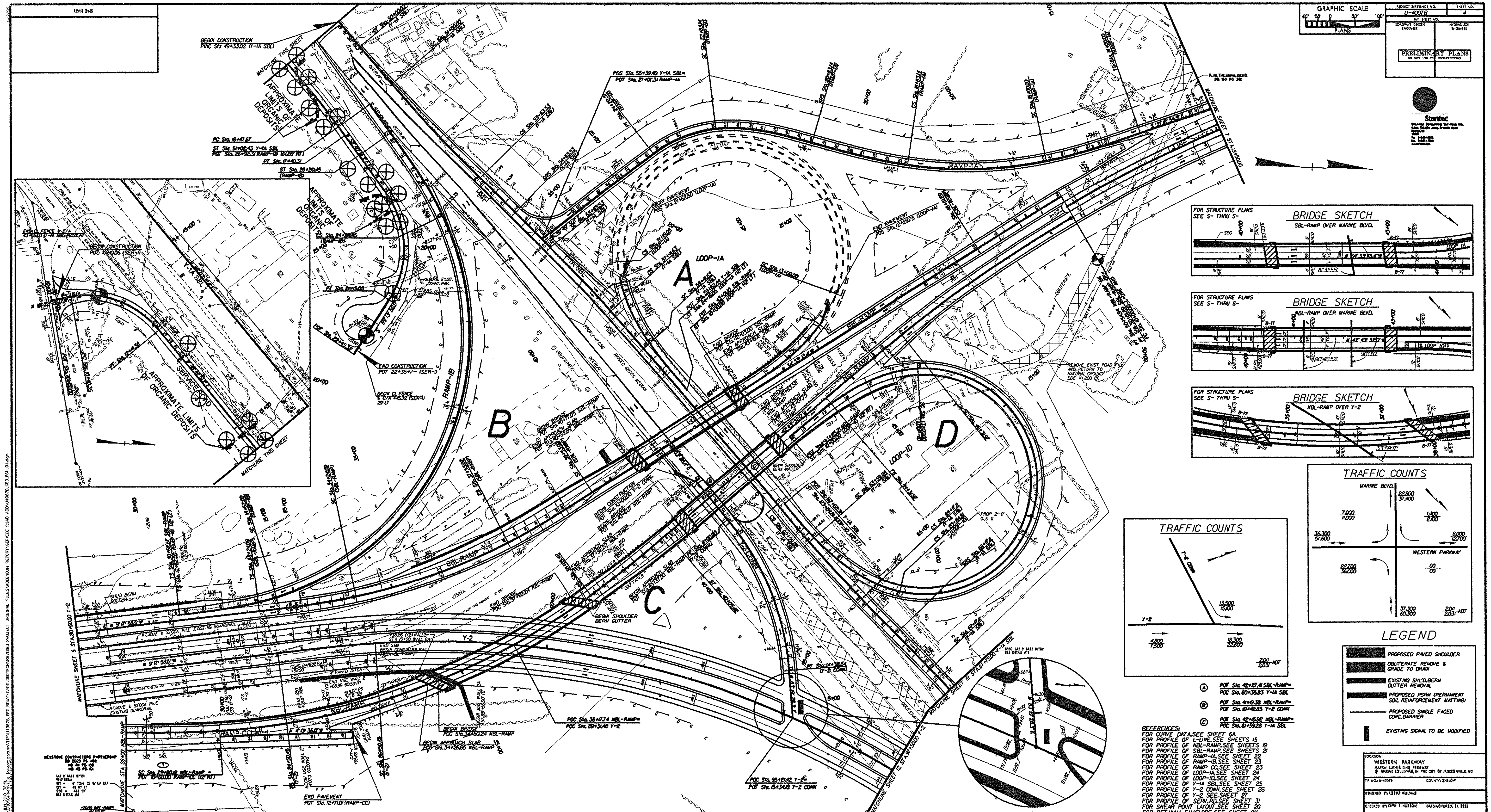
Joseph L. Stone, L.G.
Project Geological Engineer

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	3B OF 7

EARTHWORK BALANCE SHEET

- **Refer to the Earthwork Balance Sheet for the preceding Inventory**

Note: Earthwork quantities are calculated by the Roadway Design Unit. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.


REVISIONS
GRAPHIC SCALE
PLANS
PROJECT REFERENCE NO. U-4007B
SHEET NO. 4
ROADWAY DESIGN ENGINEER
HYDRAULICS ENGINEER
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
Stantec
BEGIN CONSTRUCTION
PINC Sta 49+33.02 (Y-1A SBL)
MATCHLINE THIS SHEET
APPROXIMATE LIMITS OF ORGANIC DEPOSITS
BEGIN CONSTRUCTION
POT 10+00.06 (SER-1)
Y-1A SBL
SERVICE ROAD
END CONSTRUCTION
POT 22+35+/- (SER-1)
RAMP-1A
RAMP-1B
LOOP-1A
LOOP-1D
SBL-RAMP
NBL-RAMP
RAMP-CC
Y-2
Y-2 CONN.
A
B
C
D
END PAVEMENT
POT Sta. 12+71.01 (RAMP-CC)
MATCHLINE SHEET 5 STA.80+50.00 Y-2
MATCHLINE STA 28+00 NBL-RAMP
MATCHLINE SHEET 12 STA.97+50.00 Y-2
MATCHLINE SHEET 12 STA.67+75.00 Y-1A SBL
MATCHLINE SHEET 7 STA.13+50.00
REMOVE EXIST ROAD FILL AND RETURN TO NATURAL GROUND
BRIDGE SKETCH
FOR STRUCTURE PLANS SEE S- THRU S-
SBL-RAMP OVER MARINE BLVD.
BRIDGE SKETCH
FOR STRUCTURE PLANS SEE S- THRU S-
NBL-RAMP OVER MARINE BLVD.
BRIDGE SKETCH
FOR STRUCTURE PLANS SEE S- THRU S-
NBL-RAMP OVER Y-2
TRAFFIC COUNTS
MARINE BLVD.
WESTERN PARKWAY
22,900 / 37,400
7,000 / 11,000
1,400 / 2,100
36,300 / 57,600
8,000 / 12,700
22,700 / 36,000
00 / 00
37,300 / 60,300
2011 / 2031 ADT
TRAFFIC COUNTS
Y-2 CONN
Y-2
13,500 / 15,100
4,800 / 7,500
18,300 / 22,600
2011 / 2031 ADT
A POT Sta. 42+27.41 SBL-RAMP= POC Sta. 60+35.83 Y-1A SBL
B POT Sta. 41+19.38 NBL-RAMP= POT Sta. 10+42.83 Y-2 CONN
C POT Sta. 42+15.92 NBL-RAMP= POC Sta. 61+59.28 Y-1A SBL
REFERENCES:
FOR CURVE DATA,SEE SHEET 6A
FOR PROFILE OF L-LINE,SEE SHEETS 15
FOR PROFILE OF NBL-RAMP,SEE SHEETS 19
FOR PROFILE OF SBL-RAMP,SEE SHEETS 21
FOR PROFILE OF RAMP-1A,SEE SHEET 22
FOR PROFILE OF RAMP-1B,SEE SHEET 23
FOR PROFILE OF RAMP CC,SEE SHEET 23
FOR PROFILE OF LOOP-1A,SEE SHEET 24
FOR PROFILE OF LOOP-1D,SEE SHEET 24
FOR PROFILE OF Y-1A SBL,SEE SHEET 25
FOR PROFILE OF Y-2 CONN,SEE SHEET 26
FOR PROFILE OF Y-2 SEE,SHEET 27
FOR PROFILE OF SERV.RD,SEE SHEET 31
FOR SHEAR POINT LAYOUT,SEE SHEET 2G
FOR RET.WALL ENVELOPE,SEE SHEET 2H
LEGEND
PROPOSED PAVED SHOULDER
OBLITERATE REMOVE & GRADE TO DRAIN
EXISTING SHL'D.BERM GUTTER REMOVAL
PROPOSED PSRM (PERMANENT SOIL REINFORCEMENT MATTING)
PROPOSED SINGLE FACED CONC.BARRIER
EXISTING SIGNAL TO BE MODIFIED
LOCATION:
WESTERN PARKWAY
MARTIN LUTHER KING FREEWAY @ MARINE BOULEVARD, IN THE CITY OF JACKSONVILLE, NC
TIP NO.: U-4007B
COUNTY: ONSLOW
DESIGNED BY: ROBERT WILLIAMS
CHECKED BY: KEITH F. HUDSON
6

PROJECT REFERENCE NO.	SHEET NO.
U-4007B	5
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

5/14/99

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-4	CL	11+00	1.0-1.5	A-4(0)	18	NP	6.5	62.2	17.2	14.1	100	98	37	-	-
SS-5	CL	11+00	4.0-5.0	A-2-4(0)	20	2	19.6	50.5	15.8	14.1	77	68	27	-	-
S-4	10 LT	17+00	0.0-3.0	A-2-4(0)	19	NP	7.5	70.1	8.3	14.1	100	97	26	-	-
S-5	10 LT	17+00	3.0-6.0	A-6(2)	30	15	11.7	51.9	8.1	28.3	100	96	39	-	-
S-3	20 RT	18+50	3.5-5.5	A-6(3)	26	13	6.5	49.1	16.2	28.3	100	98	48	18.6	-
S-1	CL	21+00	0.0-3.0	A-2-4(0)	20	NP	10.6	75.1	1.2	13.1	100	98	15	-	-
SS-1	CL	22+00	1.0-1.5	A-2-4(0)	22	NP	16.4	67.1	7.5	9.1	94	88	19	-	-
SS-2	CL	22+00	3.5-5.0	A-3(0)	21	NP	12.4	78.9	1.6	7.1	100	97	10	-	-
SS-3	CL	22+00	8.5-10.0	A-6(4)	31	17	5.1	54.5	14.1	26.3	100	98	45	-	-

(A) MEDIUM STIFF TAN GRAY SANDY SILT, MOIST (UNDIVIDED COASTAL PLAIN)

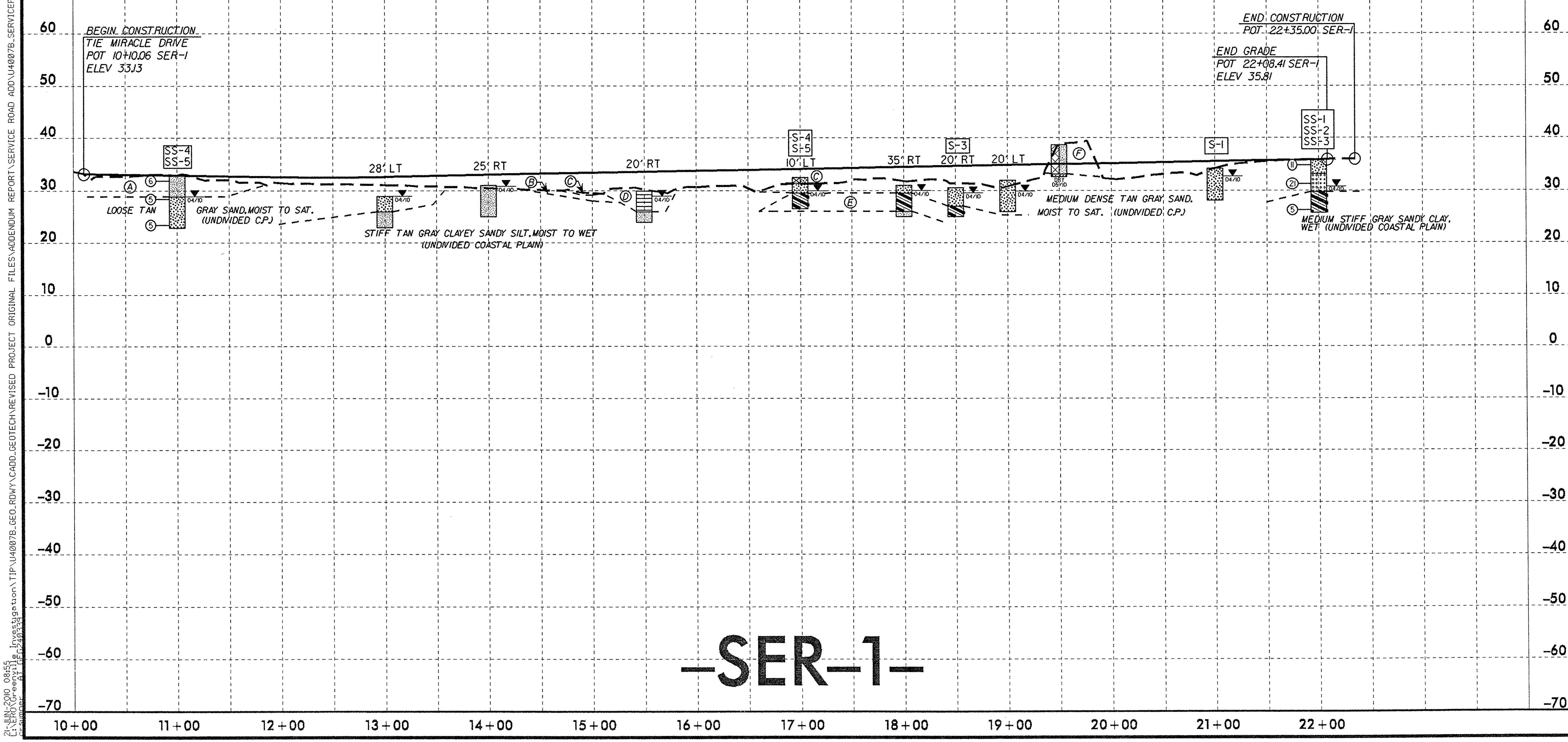
(B) LOOSE TAN SAND, MOIST TO SAT., (UNDIVIDED COASTAL PLAIN)

(C) DENSE GRAY SAND AND GRAVEL, MOIST (ARTIFICIAL FILL)

(D) SOFT BROWN MODERATELY ORGANIC SILTY SANDY CLAY, MOIST TO WET (UNDIVIDED COASTAL PLAIN)

(E) SOFT GRAY SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

(F) STIFF GRAY CLAYEY SANDY SILT, MOIST TO WET (ARTIFICIAL FILL)



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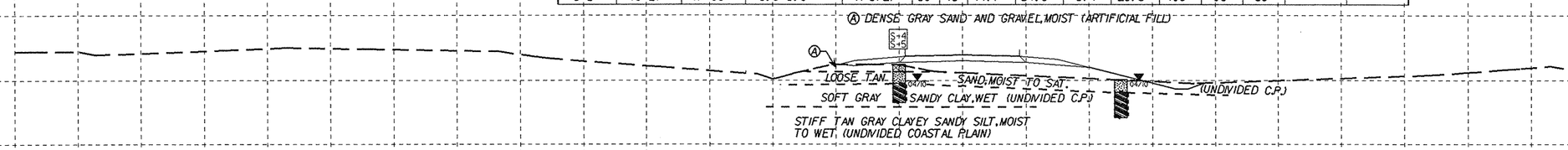
0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	6

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
S-4	10 LT	17+00	0.0-3.0	A-2-4(0)	19	NP	7.5	70.1	8.3	14.1	100	97	26	-	-
S-5	10 LT	17+00	3.0-6.0	A-6(2)	30	15	11.7	51.9	8.1	28.3	100	96	39	-	-



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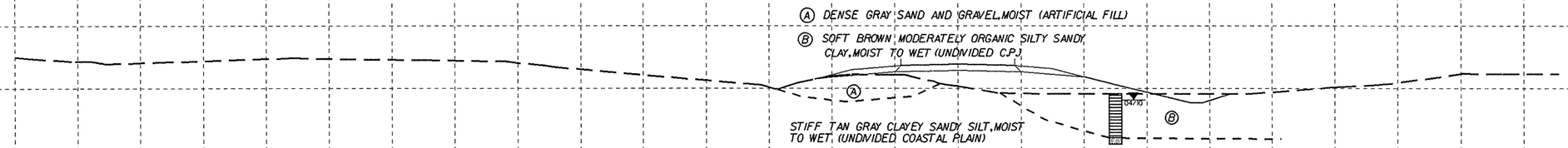
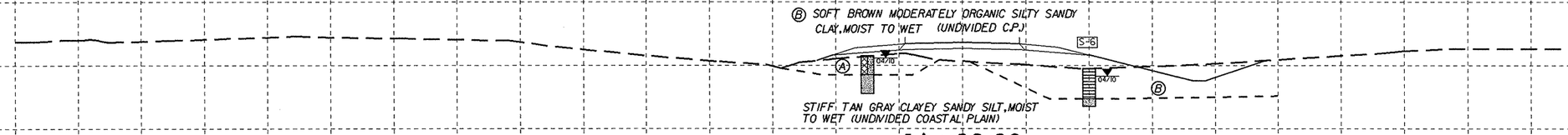


16+50.00

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
S-6	20 RT	16+00	0.0-4.8	A-7-6(12)	45	16	4.8	26.1	26.7	42.4	100	97	72	83.9	12.2



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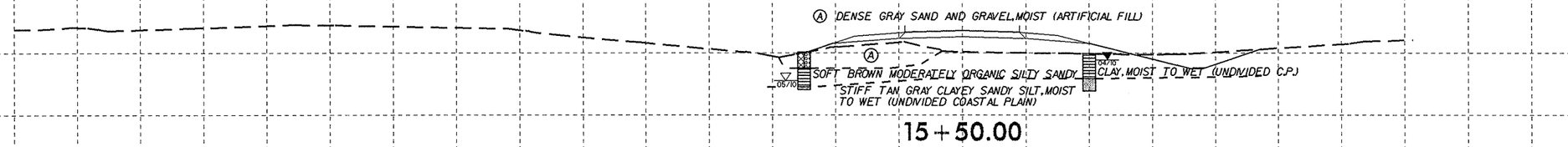

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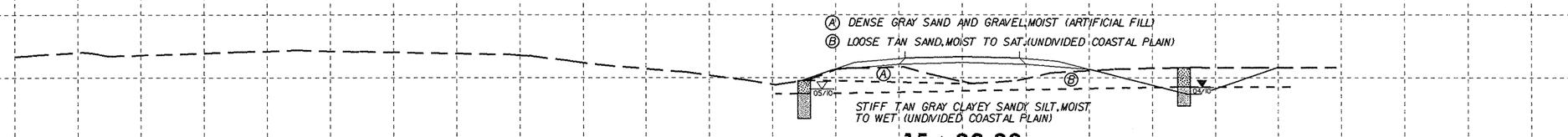

15+00.00

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0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	U-4007B	7

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

40 30 20

Ⓑ STIFF GRAY CLAYEY SANDY SILT, MOIST TO WET (ARTIFICIAL FILL)

STA. 24+33.76 RAMP-1B

MEDIUM DENSE TAN GRAY SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

SOFT GRAY SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

DRY 04/10

04/10

19+50.00

50 40 30 20

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
S-2	20 RT	19+00	1.0-6.0	A-7-6(6)	41	14	4.4	39.2	16.0	40.4	100	100	58	69.7	9.7

Ⓐ LOOSE GRAY SAND, MOIST (ARTIFICIAL FILL)

S-2

STA. 25+05.24 RAMP-1B

MEDIUM DENSE TAN GRAY SAND, MOIST TO SAT. (UNDIVIDED C.P.)

VERY SOFT BROWN SANDY ORGANIC MATTER, WET

CLAY WITH TITLE (UNDIVIDED C.P.)

SOFT GRAY SANDY CLAY, WET (UNDIVIDED C.P.)

04/10 04/10 04/10

19+00.00

40 30 20

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
S-3	20 RT	18+50	3.5-5.5	A-6(3)	26	13	6.5	49.1	16.2	28.3	100	98	48	18.6	

Ⓐ LOOSE GRAY SAND, MOIST (ARTIFICIAL FILL)

S-3

LOOSE TO MEDIUM DENSE TAN GRAY SAND, MOIST TO SAT. (UNDIVIDED COASTAL PLAIN)

SOFT GRAY SANDY CLAY, WET (UNDIVIDED COASTAL PLAIN)

04/10 04/10

18+50.00

30 20 10

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

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