

REFERENCE: HL-0008D

PROJECT: 49367

SEE SHEET 3 FOR PLAN SHEET LAYOUT
AT TIME OF INVESTIGATION

CONTENTS

<u>LINE</u>	<u>STATION</u>	<u>PLAN</u>
-L-	30+23 TO 42+03	4-5

CROSS SECTIONS

<u>LINE</u>	<u>STATION</u>	<u>SHEET</u>
-L-	30+50 TO 41+50	6-II

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

ROADWAY
SUBSURFACE INVESTIGATION

COUNTY WAKE
PROJECT DESCRIPTION SR 1301 (SUNSET LAKE ROAD)
BETWEEN SR 1152 (HOLLY SPRINGS ROAD) AND
SR 3973 (LOCKLEY ROAD)

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HL-0008D	1	11

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO PERFORM INDEPENDENT SUBSURFACE INVESTIGATIONS AND MAKE INTERPRETATIONS AS NECESSARY TO CONFIRM CONDITIONS ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES:
- THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
 - BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

PERSONNEL

A. N. JONES

N. O. MOORE

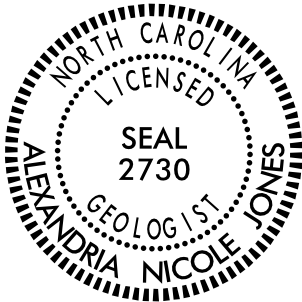
INVESTIGATED BY A. N. JONES

DRAWN BY A. N. JONES

CHECKED BY N. T. ROBERSON

SUBMITTED BY N. T. ROBERSON

DATE APRIL 2023



DocuSigned by:
Alexandria Jones 05/11/2023
4349EE40DD60478...
SIGNATURE DATE

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION										GRADATION										ROCK DESCRIPTION										TERMS AND DEFINITIONS														
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i>										WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.										HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:										ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC. ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (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 (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.														
SOIL LEGEND AND AASHTO CLASSIFICATION										ANGULARITY OF GRAINS										WEATHERED ROCK (WR)										CRYSTALLINE ROCK (CR)														
GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)					SILT-CLAY MATERIALS (> 35% PASSING #200)					THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.										FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.										FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.													
GROUP CLASS.	A-1-a, A-1-b, A-2, A-2-4, A-2-5, A-2-6, A-2-7					A-4, A-5, A-6, A-7, A-7-5, A-7-6					MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.										NON-CRYSTALLINE ROCK (NCR)										A-3, A-4, A-5, A-6, A-7													
SYMBOL											SLIGHTLY COMPRESSIBLE MODERATELY COMPRESSIBLE HIGHLY COMPRESSIBLE																																	
% PASSING #10 #40 #200	50 MX 30 MX 15 MX 50 MX 25 MX 10 MX 35 MX 35 MX 35 MX 35 MX 36 MN 36 MN 36 MN 36 MN					36 MN 36 MN 36 MN 36 MN 36 MN 36 MN 36 MN 36 MN 36 MN 36 MN 36 MN 36 MN					PERCENTAGE OF MATERIAL										COASTAL PLAIN SEDIMENTARY ROCK (CP)										MUCK, PEAT													
MATERIAL PASSING #40 LL PI	— 6 MX — NP 40 MX 41 MN 10 MX 10 MX 40 MX 41 MN 11 MN 10 MX 10 MX 40 MX 41 MN 11 MN 10 MX 10 MX 40 MX 41 MN 11 MN					40 MX 41 MN 10 MX 10 MX 40 MX 41 MN 11 MN 10 MX 10 MX 40 MX 41 MN 11 MN 10 MX 10 MX 40 MX 41 MN 11 MN					ORGANIC MATERIAL										FRESH										VERY SLIGHT (V SL.)													
GROUP INDEX	0 0 0 4 MX 8 MX 12 MX 16 MX NO MX					SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER					GROUND WATER										SLIGHT (SL.)										MODERATE (MOD.)													
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND FINE SAND SILTY OR CLAYEY GRAVEL AND SAND SILTY SOILS CLAYEY SOILS					HIGHLY ORGANIC SOILS					WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING										VERY SLIGHT (V SL.)										MODERATE (MOD.)													
GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD					FAIR TO POOR					STATIC WATER LEVEL AFTER 24 HOURS										MODERATELY SEVERE (MOD. SEV.)										SEVERE (SEV.)													
PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30										PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA										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.														
CONSISTENCY OR DENSENESS										MISCELLANEOUS SYMBOLS												ROCK HARDNESS																						
PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY					RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)					ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION											VERY HARD																						
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE					< 4 4 TO 10 10 TO 30 30 TO 50 > 50					SOIL SYMBOL											HARD																						
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					ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT											MODERATELY HARD																						
TEXTURE OR GRAIN SIZE										RECOMMENDATION SYMBOLS												VERY HARD																						
U.S. STD. SIEVE SIZE OPENING (MM)	4 10 40 60 200 270					0.075 0.25 0.85 2.0 75 200					UNDERCUT											HARD																						
BOULDER (BLDR.)	COBBLE (COB.)					GRAVEL (GR.)					SHALLOW UNDERCUT											MODERATELY HARD																						
GRAIN SIZE	305 75 2.0 0.25 0.05 0.005					MM IN. 12 3					ABBREVIATIONS											MEDIUM HARD																						
SOIL MOISTURE - CORRELATION OF TERMS										AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE - COARSE DMT - DILATOMETER TEST DPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS. - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS HI. - HIGHLY												MED. - MEDIUM MICA. - MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL w - MOISTURE CONTENT V - VERY										VST - VANE SHEAR TEST WEA. - WEATHERED γ - UNIT WEIGHT γ _d - DRY UNIT WEIGHT SAMPLE ABBREVIATIONS S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING RATIO												
SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION					GUIDE FOR FIELD MOISTURE DESCRIPTION					EQUIPMENT USED ON SUBJECT PROJECT											FRACTURE SPACING																						
LL PLASTIC RANGE (PI)	LIQUID LIMIT					- SATURATED - (SAT.)					DRILL UNITS:											TERM																						
OM SHRINKAGE LIMIT	OPTIMUM MOISTURE					- WET - (W)					ADVANCING TOOLS:											SPACING																						
SL	SHRINKAGE LIMIT					- MOIST - (M)					CLAY BITS	HAMMER TYPE:											THICKNESS																					
PLASTICITY										CME-45C												VERY THICK BEDDED																						
PLASTICITY INDEX (PI)										CME-55												THICKLY BEDDED																						
DRY STRENGTH										CME-550												MODERATELY BEDDED																						
VERY LOW										VANE SHEAR TEST												VERY THINLY BEDDED																						
SLIGHT										PORTABLE HOIST												THICKLY LAMINATED																						
MEDIUM										TRICONE												THINLY LAMINATED																						
HIGH										TRICONE												CORE BIT																						
COLOR										CORE BIT												CORE SIZE:																						
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.										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						
										CORE BIT												CORE SIZE:																						

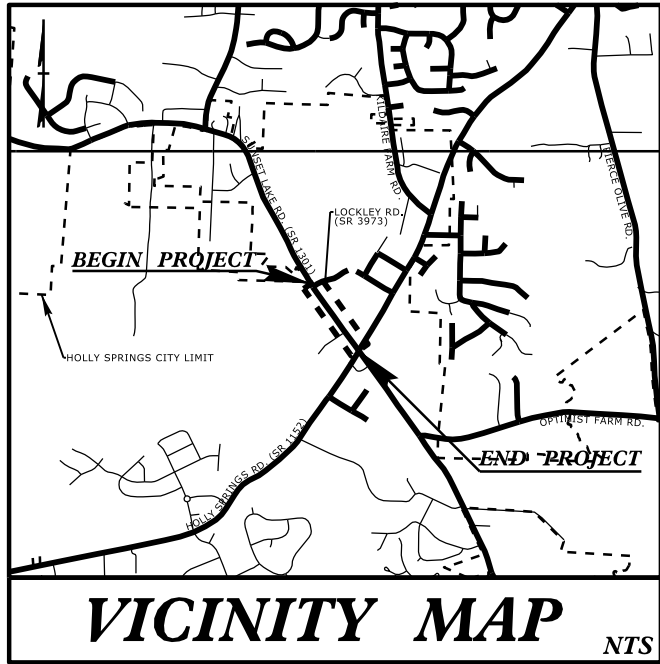
09/08/99

03-APR-2023 12:27
S:\ERO\Raigh Investigation\TIP\HL0008D.GEO\RDWY\CADD_GEO\TECH\PlanPr of VHL0008D.Rdy_tsh.dgn
\$\$\$\$\$USERNAME\$\$\$\$\$

CONTRACT: TIP PROJECT: HL-0008D

CONTRACT:

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

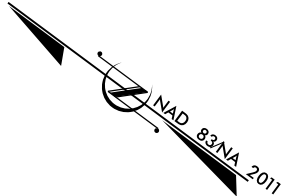


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
WAKE COUNTY

LOCATION: SR 1301 (SUNSET LAKE ROAD) BETWEEN SR 1152 (HOLLY SPRINGS ROAD) AND SR 3973 (LOCKLEY ROAD)
TYPE OF WORK: GRADING, PAVING, & DRAINAGE

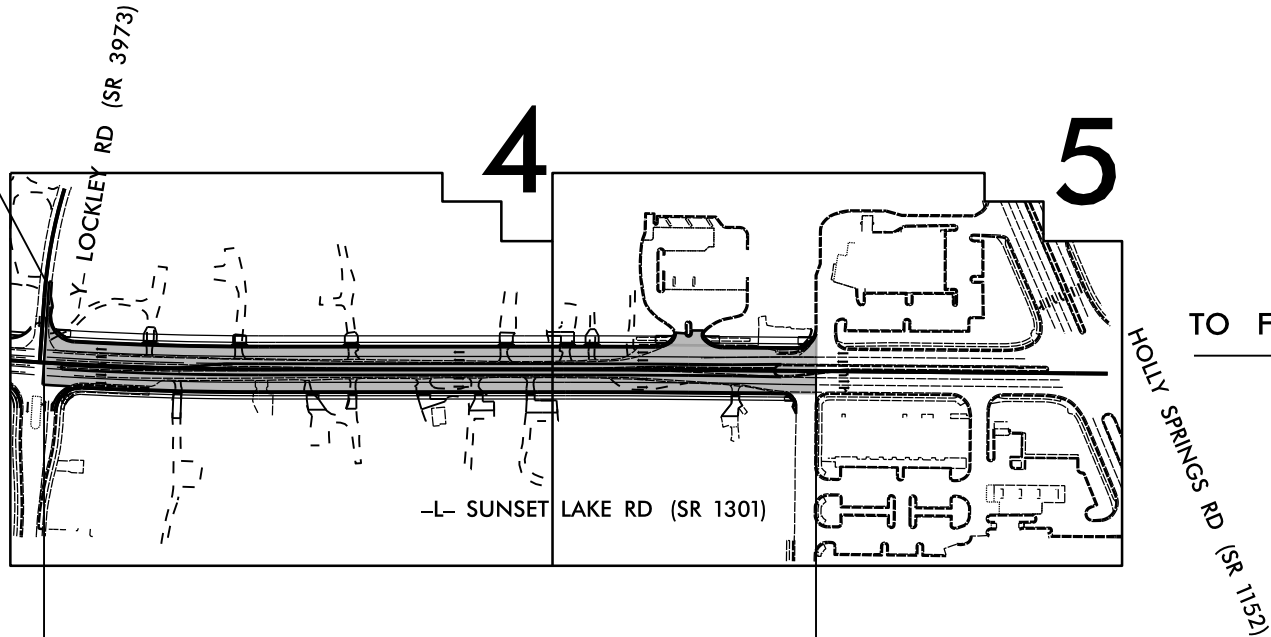
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HL-0008D	3	11
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
49367.1.8		PE	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



BEGIN CONSTRUCTION
-Y- STA. 101+44.38

TO FELTONVILLE

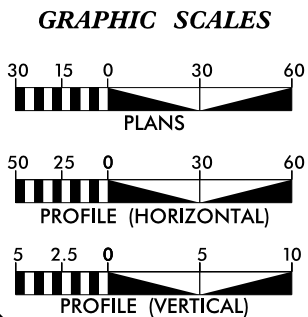


END TIP PROJECT HL-0008D
-L- STA. 42+02.79

BEGIN TIP PROJECT HL-0008D
-L- STA. 30+23.39

THIS PROJECT IS WITHIN THE MUNICIPAL BOUNDARIES OF HOLLY SPRINGS.
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD III

SUBMITTAL: REV. UPDATED 25% PLANS
DATE: 10/7/2022



DESIGN DATA
ADT 2024 = 12,100
ADT 2044 = 16,700
V = 40 MPH
FUNCTIONAL CLASS:
MAJOR COLLECTOR

PROJECT LENGTH
LENGTH OF ROADWAY TIP PROJECT HL-0008D = 0.223 MILES
NCDOT CONTACT: JOHN W. BRAXTON
SENIOR PROJECT ENGINEER
PH: 919-707-6219

Prepared In the Office of:
Infrastructure Consulting Services, Inc.

RKA
RAMEY KEMP ASSOCIATES

2018 STANDARD SPECIFICATIONS

FEBRUARY 7, 2023
RIGHT OF WAY DATE:
AUGUST 12, 2024
LETTING DATE:

KAYLA M. POULOS, PE
PROJECT ENGINEER
MIKAYLA M. LINDSEY, EI
PROJECT DESIGNER

HYDRAULICS ENGINEER

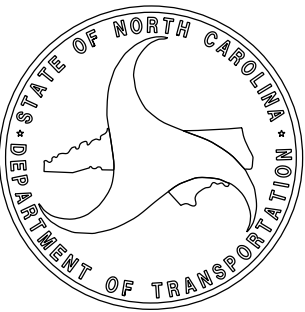
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION
INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION

SIGNATURE:

ROADWAY DESIGN ENGINEER

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

SIGNATURE:





STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

J. ERIC BOYETTE
SECRETARY

April 28, 2023

STATE PROJECT: 49367.1.8 (HL-0008D)
FEDERAL PROJECT: N/A
COUNTY: WAKE

DESCRIPTION: SR 1301 (Sunset Lake Road) between SR 1152 (Holly Springs Road) and SR 3973 (Lockley Road)

SUBJECT: Geotechnical Report – Inventory

The Geotechnical Engineering Unit has completed a subsurface investigation for this project and presents the following inventory.

Project Description

This project consists of widening SR 1301 (Sunset Lake Road) between SR 1152 (Holly Springs Road) and SR 3973 (Lockley Road)

A geotechnical investigation was conducted during March of 2023. Six hand-auger borings were performed by the Geotechnical Engineering Unit. Representative soil samples were collected for visual classification in the field and selected samples were submitted for laboratory analysis by the Materials and Tests Unit.

The following alignment, totaling 0.223 miles, was investigated.

<u>Line</u>	<u>Stations</u>
-L-	30+23 to 42+03

Physiography and Geology

The project is located approximately 2 miles southeast of the town of Apex and within the Coastal Plain physiographic province of North Carolina. Coastal Plain soils in this area are derived from the Middendorf Formation. The topography is relatively flat. The widening project consists of residential areas.

Soils Properties

Soils encountered during this investigation are Roadway Embankment and Undivided Coastal Plain.

Roadway Embankment soils are found throughout the entire project. These soils primarily consist of brown-orange, moist, soft to medium stiff, sandy clay with trace gravel (A-6). The sample results for this soil yielded a plastic index of 14.

Undivided Coastal Plain soils are present throughout the entire project. These soils are characterized by orange, red, and tan, moist, soft to stiff, sandy silt and sandy clay (A-4, A-6). The sample results for these soils yielded plastic indices ranging from NP to 15.

Groundwater

Groundwater measurements were taken during March of 2023 during average rainfall conditions. Groundwater was present in one boring, and it was 3.2’ below existing grade.

8/17/99

NOTES:

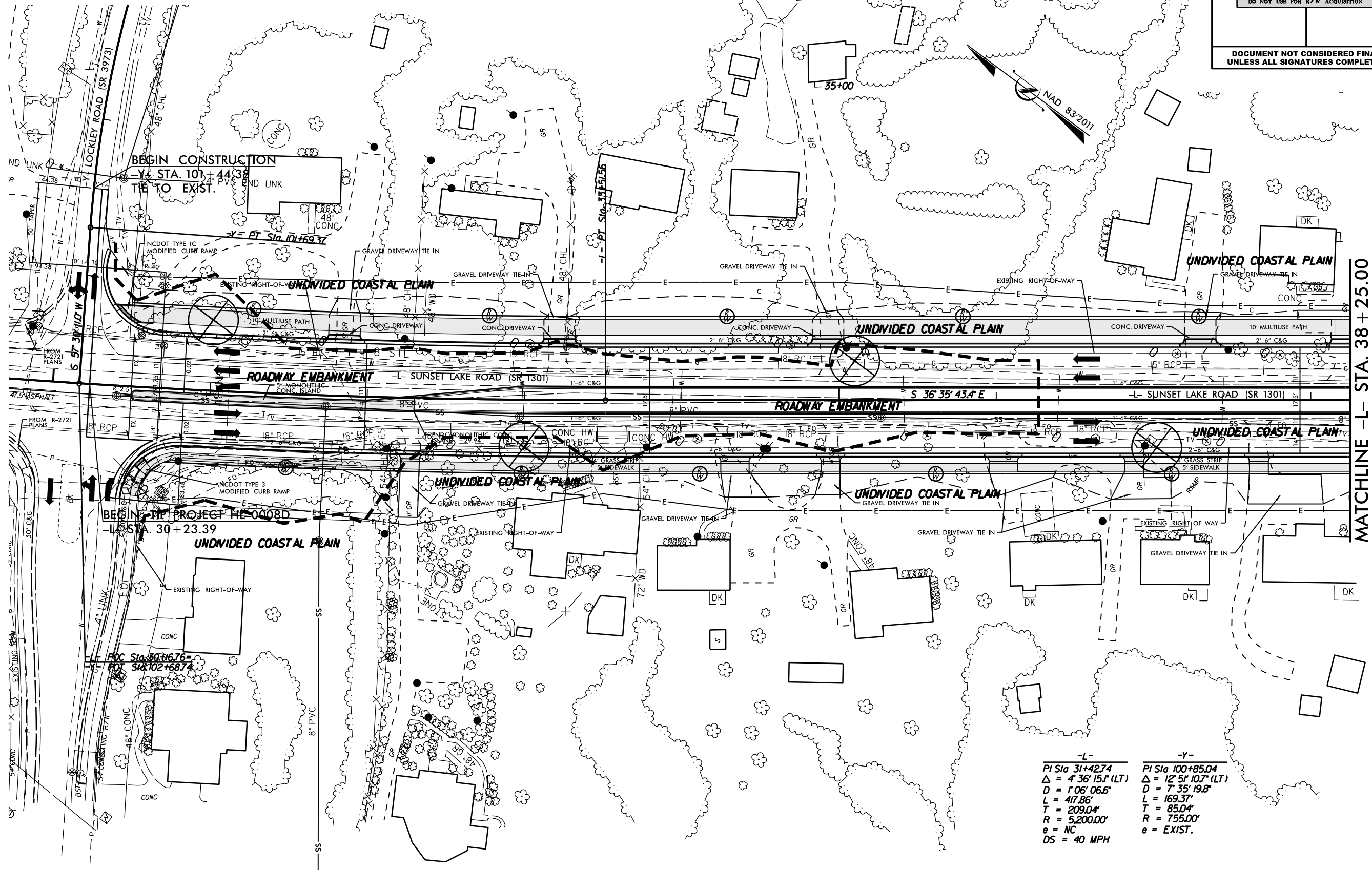
1. ALL DRIVEWAYS ARE 12' MIN. UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS ARE TO EDGE OF TRAVEL UNLESS OTHERWISE SPECIFIED.
3. MAINTAIN ACCESS TO ALL MAILBOXES WITHIN THE PROJECT LIMITS. CONTRACTOR TO RELOCATE AS NECESSARY.



PROJECT REFERENCE NO.		SHEET NO.	
HL-0008D		4	
RW SHEET NO.			
ROADWAY DESIGN ENGINEER		HYDRAULICS ENGINEER	
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

REVISIONS

03-APR-2023 13:35
SS:FRON Roleigh Investigation\TIP\HL0008D_GEO\RDWY\CADD_GEO\TECHN\PlanPr\of\HL0008D_Rdy_psh04_F80.dgn
#####USERNAME###



-L-	-Y-
PI Sta 31+42.74	PI Sta 100+85.04
$\Delta = 4^\circ 36' 15.1''$ (LT)	$\Delta = 12^\circ 51' 10.7''$ (LT)
D = 1'06'06.6"	D = 7'35'19.8"
L = 417.86'	L = 169.37'
T = 209.04'	T = 85.04'
R = 5,200.00'	R = 755.00'
e = NC	e = EXIST.
DS = 40 MPH	

MATCHLINE -L- STA. 38 + 25.00
SEE SHEET 5

27-APR-2023 08:55
 \\F:\Rohlf\Investigation\TIP\HL00080_GEO_FDWY\CADD_GEO\TECH\PlanProf\HL00080_Pdy_psn05_FB0.dgn

NOTES:

1. ALL DRIVEWAYS ARE 12' MIN. UNLESS OTHERWISE NOTED.
2. ALL DIMENSIONS ARE TO EDGE OF TRAVEL UNLESS OTHERWISE SPECIFIED.
3. MAINTAIN ACCESS TO ALL MAILBOXES WITHIN THE PROJECT LIMITS.
CONTRACTOR TO RELOCATE AS NECESSARY.

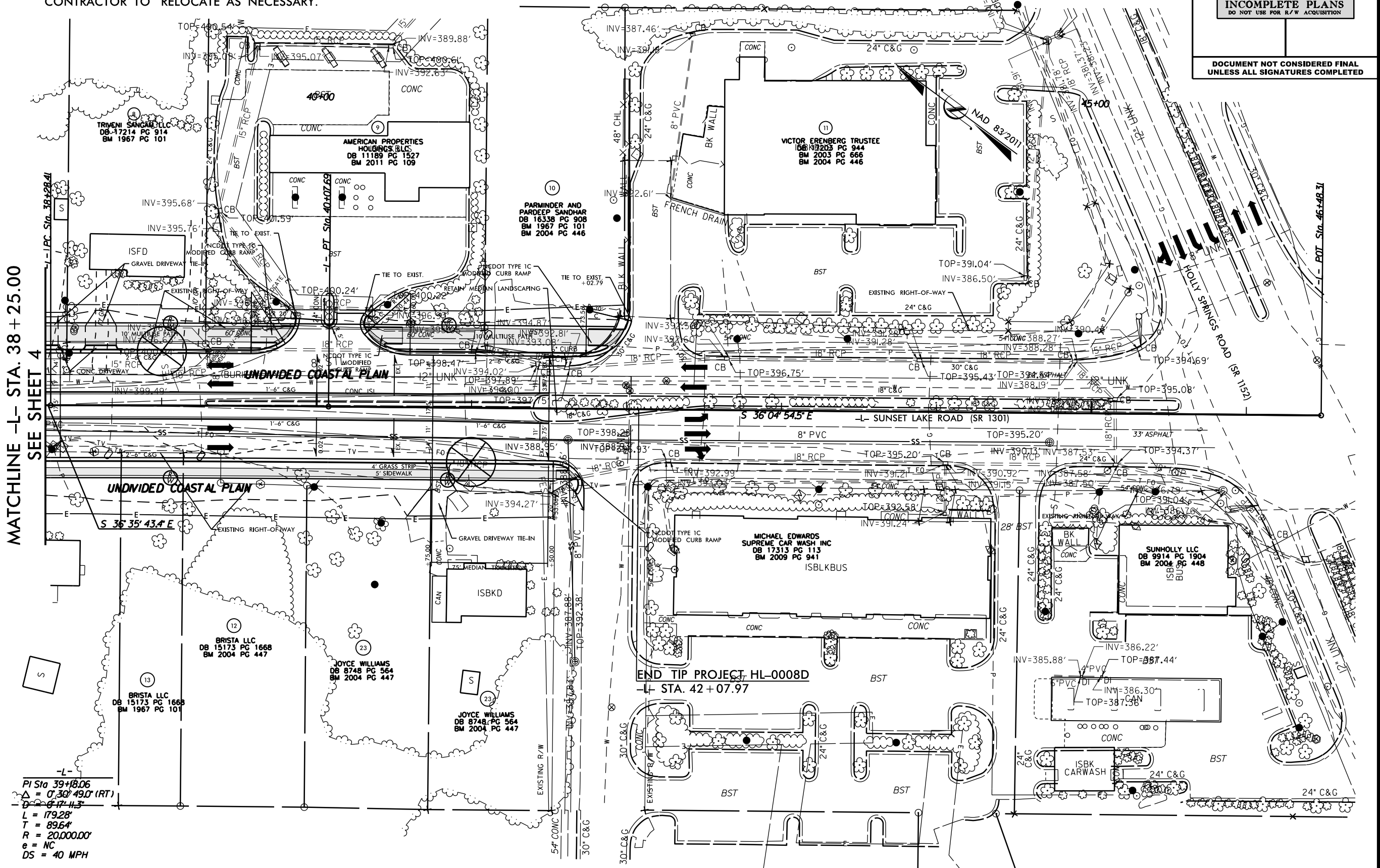
MATCHLINE -L- STA. 38+25.00

SEE SHEET 4

PI Sta 39+18.06
 $\Delta = 0^\circ 30' 49.0''$ (RT)
~~D = 6' 17" 11.3"~~
L = 179.28'
T = 89.64'
R = 20,000.00'
e = NC
DS = 40 MPH

Infrastructure Consulting Services, Inc.
dba
RKA
RAMEY KEMP ASSOCIATES

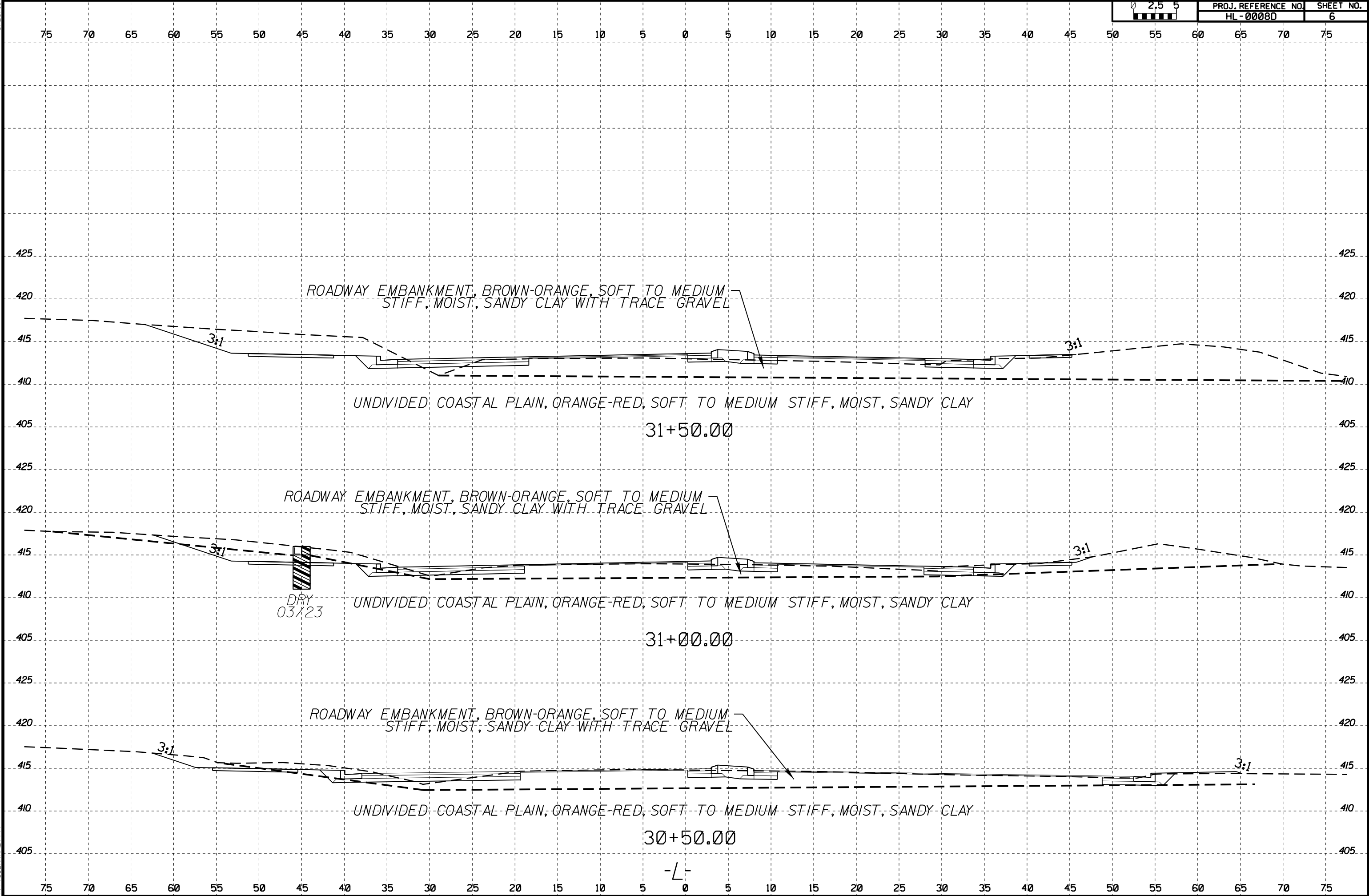
PROJECT REFERENCE NO.	SHEET NO.
HL-0008D	5
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
INCOMPLETE PLANS DO NOT USE FOR R/W ACQUISITION	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



6/23/16

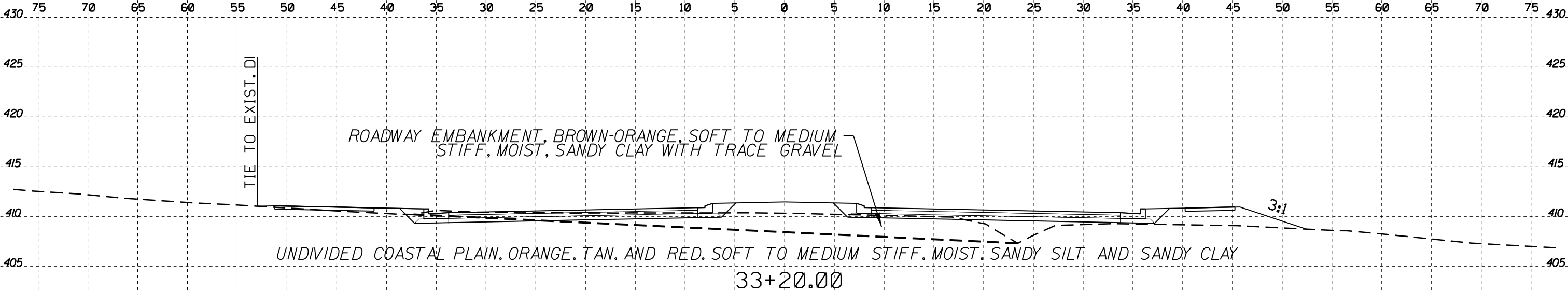


PROJ. REFERENCE NO.	SHEET NO.
HL-0008D	6



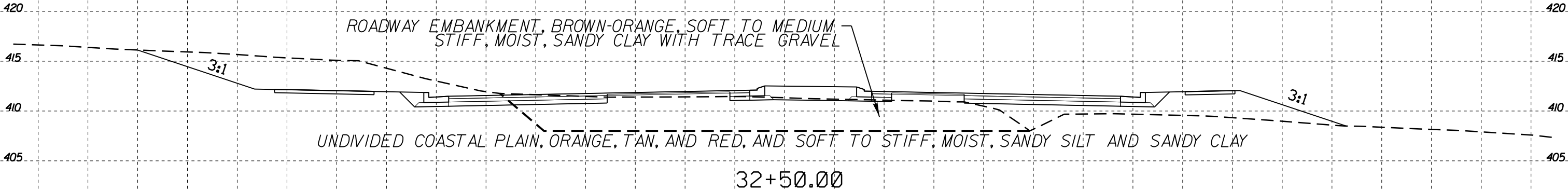
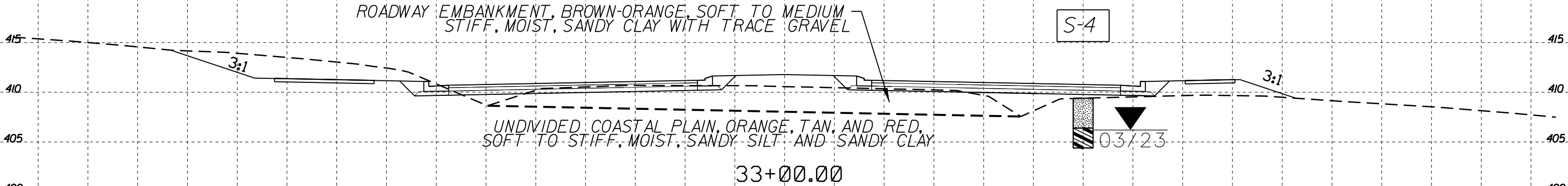
04-APR-2023 14:40
S:\FROM_Ralph\Investigation\TIP\HL0008D_GEO_ROWY\CADD_GEO\TECH\XSC\HL0008D_Geo.XSI.dgn
\$\$\$USERNAME\$\$\$

6/23/16



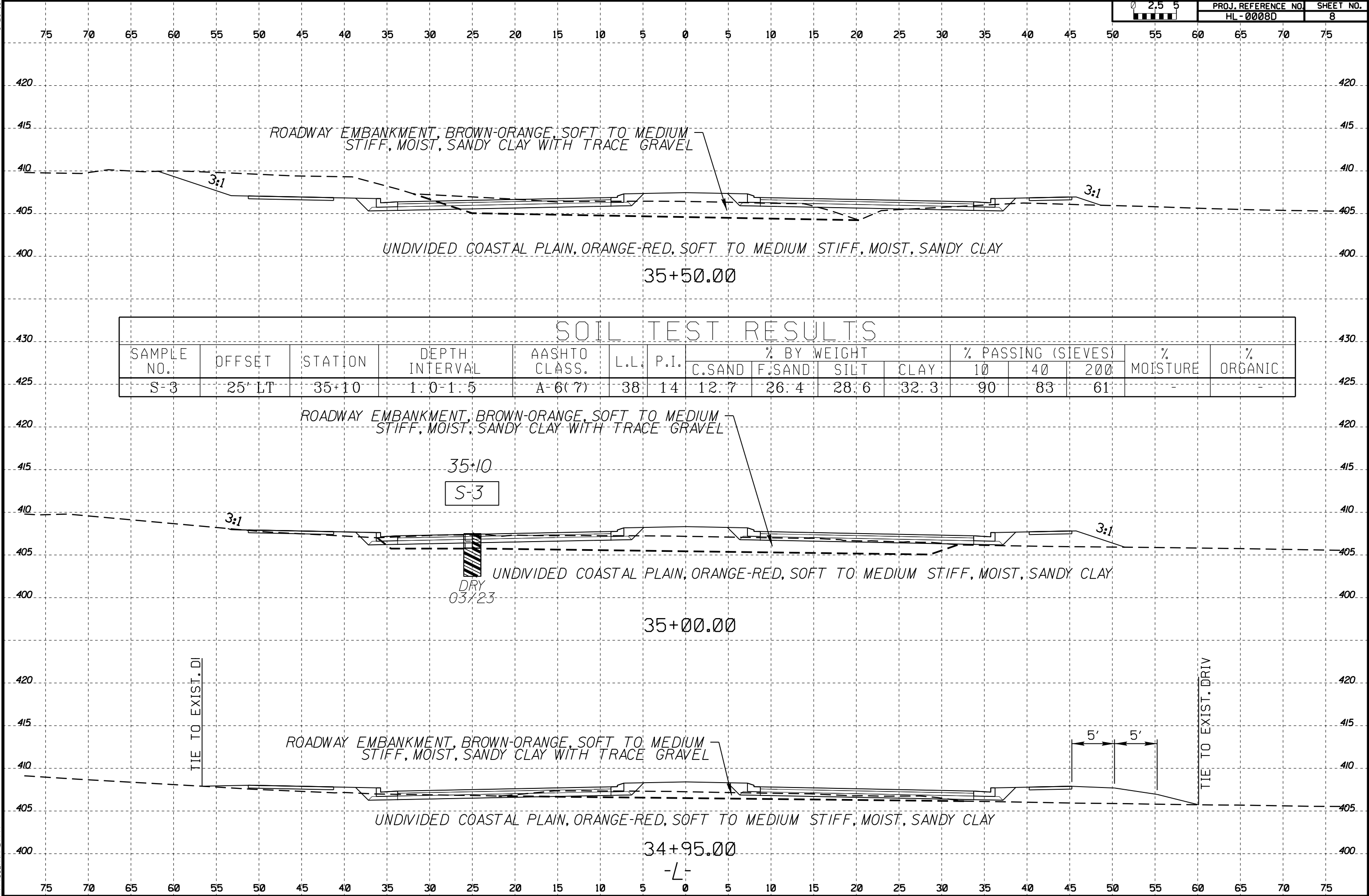
SOIL TEST RESULTS

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-4	30' RT	33+00	1.0-1.5	A-4(0)	16	1	12.3	38.1	33.4	16.1	96	91	57	-	-



-L-

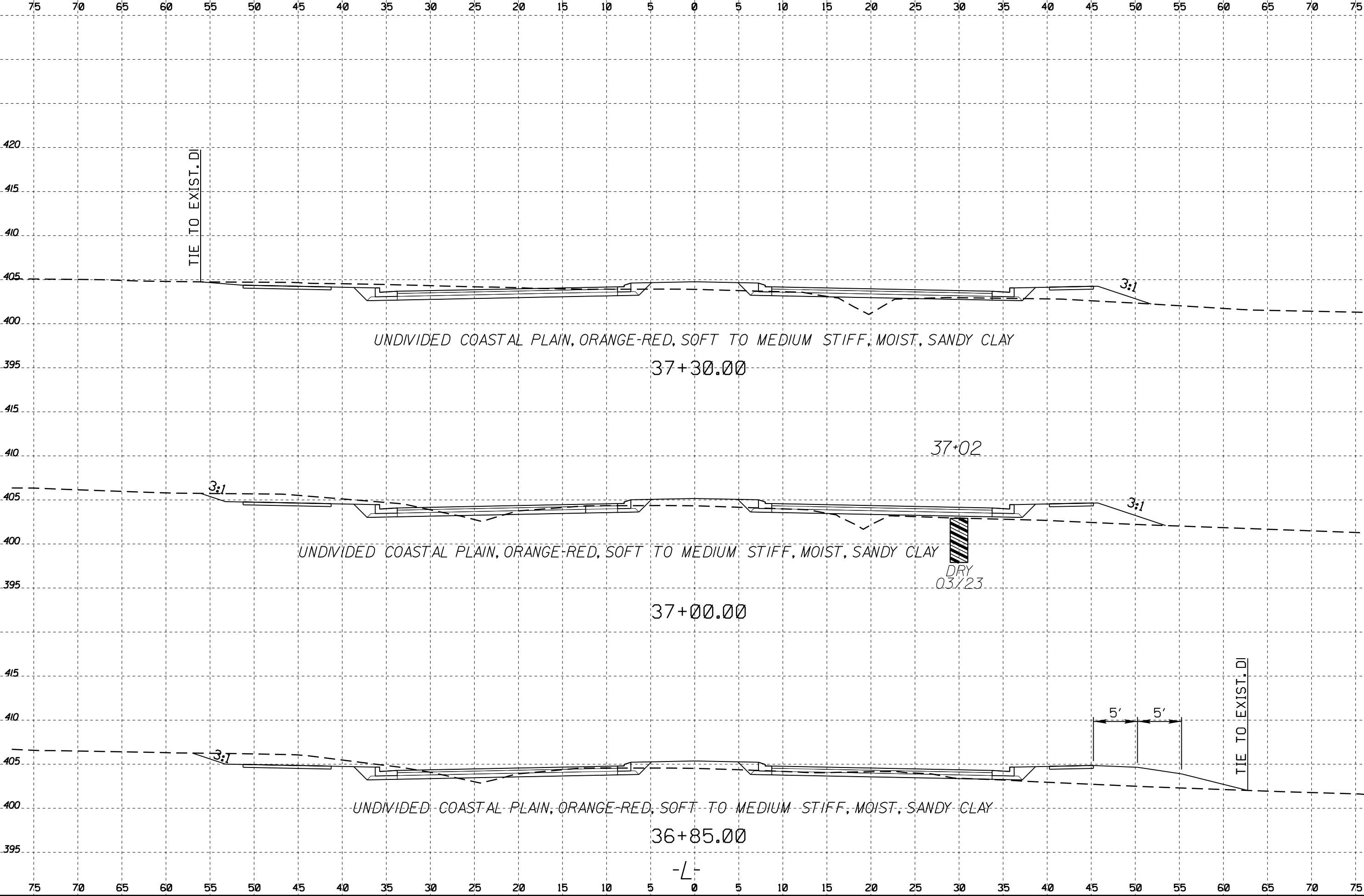
6/23/16



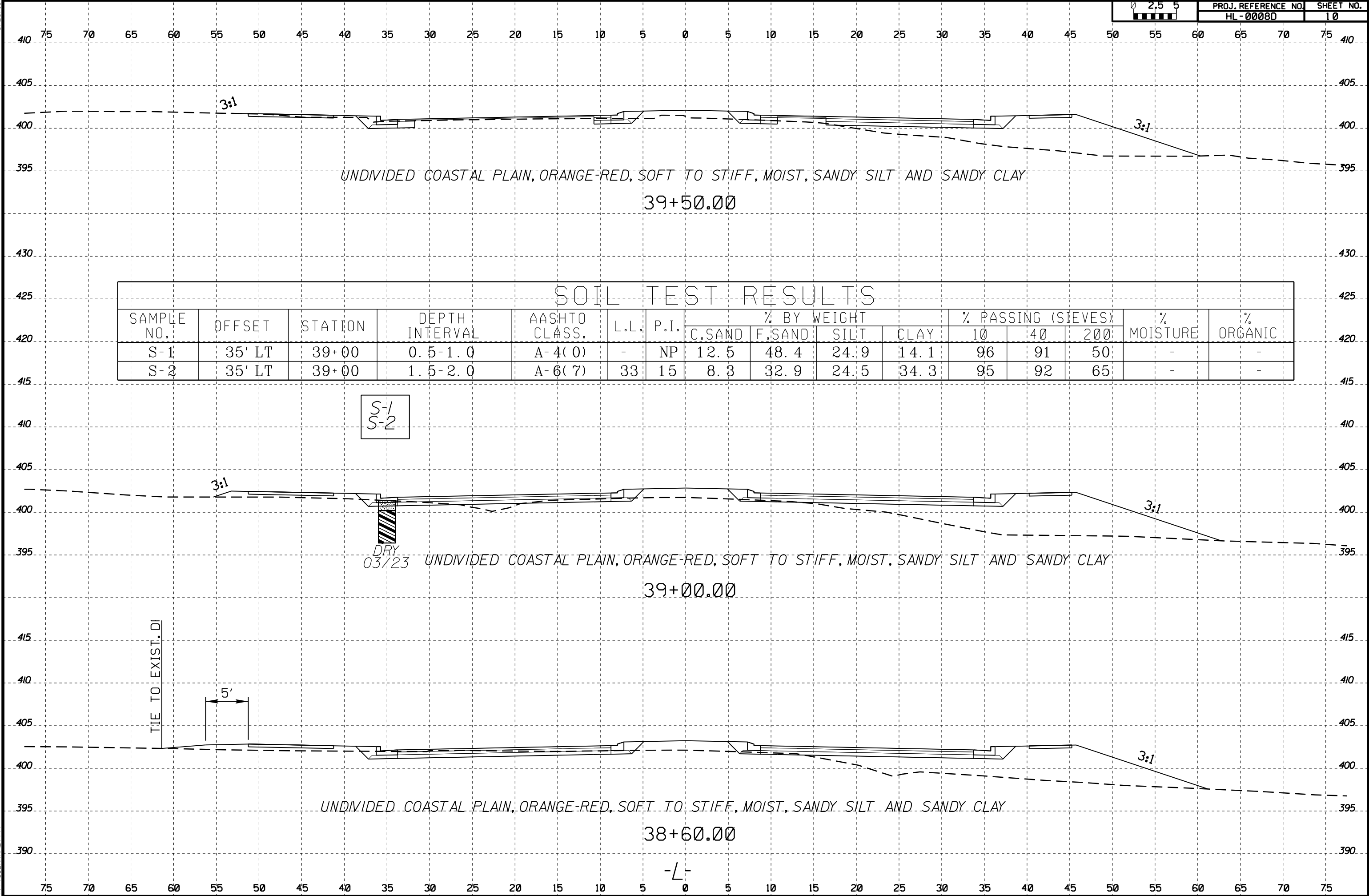
6/23/16



PROJ. REFERENCE NO.	SHEET NO.
HL-0008D	9



6/23/16

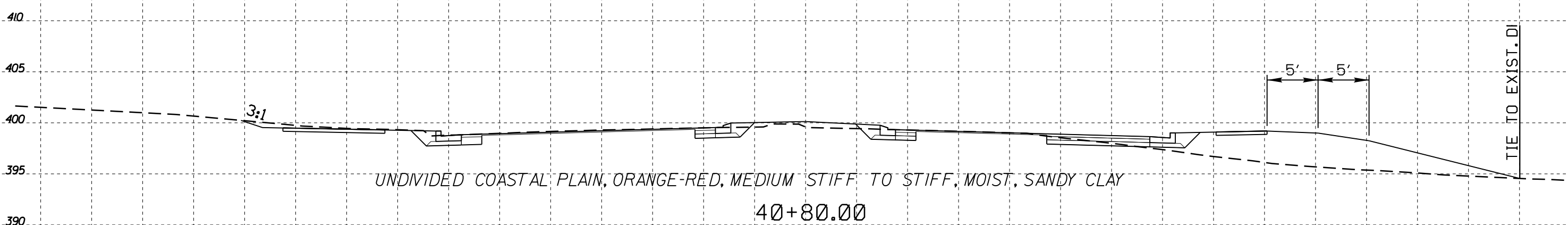
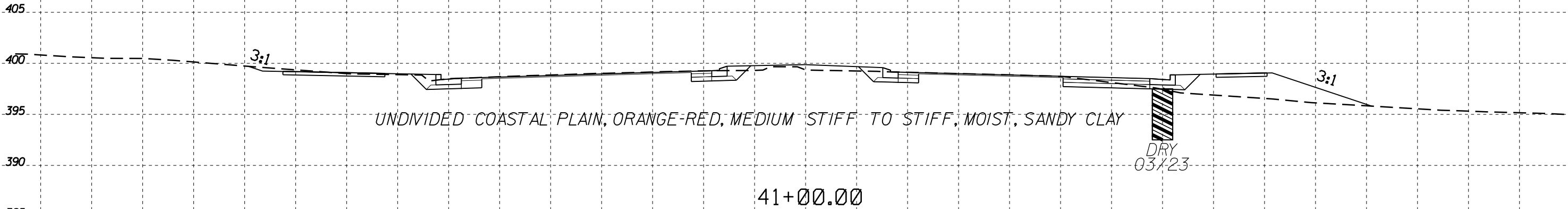
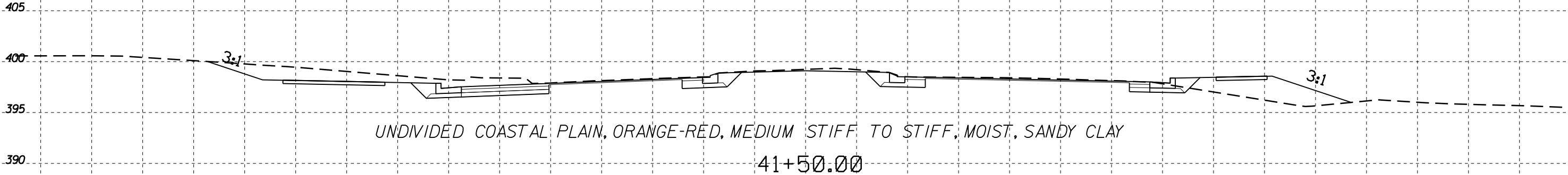


6/23/16



PROJ. REFERENCE NO.	SHEET NO.
HL-0008D	11

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75



75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75