Report Form: LADOTD - ENGLISH Project File: P:\2014\GEOTECHNICAL\APS1406-G040 HWY 318 AND HWY 90\APS 1406 G040 HWY 318 AND HWY 90 14 OCTOBER.GPJ 10/14/14 12:29

BORING NO. BR-1

DRILL RIG AND EQUIPMENT: DRILL RIG MODEL: SIMCO 2800; DRILLING METHOD: WET METHOD; HOLE DIAMETER: 31/8"; SPT HAMMER / ETR: AUTO

ELEVATION: 12.0

Depth (Feet)	Soil Type and Color	Wet Density	Moisture Content	Liquid Limit	Plasticity Index	% Passing #200	SPT or UU	Failure Mode/ SPT Termination	Sample Type Number	Elevation
0	Very stiff, gray, LEAN CLAY, (CL)	138	21	45	25		2.76@0.80	S/S	C1	
	Stiff, gray, LEAN CLAY, (CL)	130	22	49	28		1.58@1.60	S/S	C2	
	Stiff, gray, FAT CLAY, (CH)	129	30	56	35		0.99@2.40	S/S	C3	
	Medium stiff, gray, FAT CLAY, (CH)		33		--				C4	
10	Soft, gray, FAT CLAY, (CH)	126	34	52	27		0.35@4.00	M.S.	C5	2.0
	Soft, gray, SILT, (ML) with clay,	132	33	35	9		0.46@4.80	M.S.	C6	
		116	35	36	11		0.25@5.60	M.S.	C7	
		123	38	35	9		0.33@6.40	M.S.	C8	
	Becoming medium stiff		34						C9	
20	Medium stiff, gray, LEAN CLAY, (CL)		34	36	11		0.67@8.00	M.S.	C10	-8.0
			27	38	20				C11	
30	Stiff, gray, FAT CLAY, (CH)	139	25	53	35		1.74@12.00	M.S.	C12	-18.0
			20		--				C13	
40	Very stiff, gray, LEAN CLAY, (CL)	137	23	46	29		2.50@16.00	S/S	C14	-28.0
			24	35	17				C15	
50	Medium stiff, gray, SILT, (ML) with clay	133	28	32	7	94.1	0.64@20.00	M.S.	C16	-38.0
	Stiff, gray, FAT CLAY, (CH)		42	88	64				C17	
60		128	31	72	46		1.18@24.00	S/S	C18	-48.0
	-with sand		25		--	74.6			C19	
70	Very stiff, gray, LEAN CLAY, (CL)	140	23	40	22		2.93@28.00	M.S.	C20	-58.0
	Soft, gray, FAT CLAY, (CH)		21	58	41				C21	
80		132	36	54	36		0.45@32.00	S/S	C22	-68.0
	Gray, SILT, (ML) with clay		29	41	10				C23	
90	Stiff, gray, LEAN CLAY, (CL)	131	26	43	20		1.34@36.00	M.S.	C24	-78.0
	Stiff, gray, FAT CLAY, (CH)		31	72	51				C25	
100	-very stiff	131	28	56	33		3.12@40.00	S/S	C26	-88.0
	Gray, CLAYEY SAND, (SC)		25		--	48.9			C27	
110	Stiff, gray, FAT CLAY, (CH) -with sand	140	20	58	40	71.5	1.09@44.00	M.S.	C28	-98.0
	Medium dense, gray, CLAYEY SAND, (SC)		23		--	29.8	9-10-10 (20)	4	D29	
120			23		--	27.6	10-11-10 (21)	4	D30	-108.0
	Bottom of hole at 120 feet Backfilled with grout upon completion.									

BORING NO. BR-1 | STA.: | WATER LEVEL: N/A DUE TO WET DRILLING METHOD
LATITUDE: 29.86516 | OFFSET:
LONGITUDE: -91.63083 | DATE TAKEN: 7/9/2014 | BACKFILL METHOD: GROUT
LRS ID: | STR. NO.: | SQD. LDR.: VG

BORING NO. BR-2

DRILL RIG AND EQUIPMENT: DRILL RIG MODEL: SIMCO 2800; DRILLING METHOD: WET METHOD; HOLE DIAMETER: 31/8"; SPT HAMMER / ETR: AUTO

ELEVATION: 11.7

Depth (Feet)	Soil Type and Color	Wet Density	Moisture Content	Liquid Limit	Plasticity Index	% Passing #200	SPT or UU	Failure Mode/ SPT Termination	Sample Type Number	Elevation
0	Gray, FAT CLAY, (CH)		15	51	29				C1	
	Stiff, gray, FAT CLAY, (CH)	120	28	64	35		1.44@1.60	S/S	C2	
		124	28	59	37		1.30@2.40	M.S.	C3	
	Medium stiff, gray, LEAN CLAY, (CL)	120	30	47	24		0.60@3.20	M.S.	C4	
10		123	30	46	24		0.75@4.00	M.S.	C5	1.7
		128	30	41	17		0.58@4.80	M.S.	C6	
	Very soft, gray, SILT, (ML) with clay,	114	33	35	10		0.23@5.60	M.S.	C7	
		122	34	34	9		0.25@6.40	M.S.	C8	
		119	35	34	7		0.23@7.20	M.S.	C8	
20	-soft	120	34	37	11		0.36@8.00	M.S.	C9	-8.3
									C10	
			26		--				C11	
30	Medium stiff, gray, LEAN CLAY, (CL)	125	26	41	23		0.63@12.00	S/S	C12	-18.3
			22		--				C13	
40	-Stiff	123	26	38	18		1.75@16.00	S/S	C14	-28.3
			35	42	22				C15	
50	-Stiff	122	29	37	16		1.70@20.00	S/S	C16	-38.3
	Very stiff, gray, FAT CLAY, (CH)		43	85	55				C17	
60		120	30	73	47		2.07@24.00	S/S	C18	-48.3
			28		--				C19	
70	Stiff, gray, LEAN CLAY, (CL)	127	25	46	28		1.79@28.00	S/S	C20	-58.3
	Medium stiff, gray, FAT CLAY, (CH)		21	62	45				C21	
80	Medium stiff, gray, LEAN CLAY, (CL)	121	30	43	24		0.68@32.00	S/S	C22	-68.3
			31		--				C23	
90	Stiff, gray, FAT CLAY, (CH)		30	58	30				C24	-78.3
		118	36	82	55		1.80@38.00	S/S	C25	
100			40		--				C26	-88.3
	Very stiff, gray, LEAN CLAY, (CL)	123	23	49	24		2.00@42.00	S/S	C27	
110	-stiff	126	24	45	24		1.57@44.00	S/S	C28	-98.3
	Medium dense, gray, CLAYEY SAND, (SC)		14		--	39.5	9-11-11 (22)	4	D29	
120	-becoming clayey		18		--	85.2	7-8-8 (16)	4	D30	-108.3
	Bottom of hole at 120 feet Backfilled with grout upon completion.									

BORING NO. BR-2 | STA.: | WATER LEVEL: N/A DUE TO WET DRILLING METHOD
LATITUDE: 29.86530 | OFFSET:
LONGITUDE: -91.63110 | DATE TAKEN: 7/7/2014 | BACKFILL METHOD: GROUT
LRS ID: | STR. NO.: | SQD. LDR.: VG

BORING NO. BR-3

DRILL RIG AND EQUIPMENT: DRILL RIG MODEL: SIMCO 2800; DRILLING METHOD: WET METHOD; HOLE DIAMETER: 31/8"; SPT HAMMER / ETR: AUTO

ELEVATION: 11.7

Depth (Feet)	Soil Type and Color	Wet Density	Moisture Content	Liquid Limit	Plasticity Index	% Passing #200	SPT or UU	Failure Mode/ SPT Termination	Sample Type Number	Elevation
0	Gray, LEAN CLAY, (CL)		17	41	20				C1	
	Stiff, gray, FAT CLAY, (CH)	115	21	92	67		1.54@1.60	S/S	C2	
		122	29	59	37		1.37@2.40	M.S.	C3	
	Soft, gray, LEAN CLAY, (CL)	111	32	44	21		0.27@3.20	M.S.	C4	
10	Stiff, gray, LEAN CLAY, (CL)	123	31	40	16		1.04@4.00		C5	1.7
	-medium stiff	128	32	39	16		0.56@4.80		C6	
	Soft, gray, SILT, (ML) with clay,	120	35	35	8		0.29@5.60	M.S.	C7	
	-very soft	123	35	34	7		0.27@6.40	M.S.	C8	
		113	33	35	8		0.21@7.20	M.S.	C9	
20	-medium stiff	124	34	38	11		0.80@8.00	M.S.	C10	-8.3
			26		--				C11	
30	Stiff, gray, LEAN CLAY, (CL)	133	23	48	28		1.75@12.00		C12	-18.3
			22	49	28				C13	
40		129	26	48	28		1.67@16.00	M.S.	C14	-28.3
			34		--				C15	
50		126	29	41	19		1.09@20.00	M.S.	C16	-38.3
	Stiff, gray, FAT CLAY, (CH)		39	91	52				C17	
60	Very stiff, gray, SILT, (ML) with clay	125	28	36	11		2.06@24.00	M.S.	C18	-48.3
			26		--	91.0			C19	
70	Very stiff, gray, LEAN CLAY, (CL)	127	24	47	27		2.11@28.00	M.S.	C20	-58.3
			21		--				C21	
80	Very stiff, gray, FAT CLAY, (CH)	120	24	59	33		2.43@32.00	M.S.	C22	-68.3
	Stiff, gray, SILT, (ML) with clay	125	28	32	9		1.43@34.00	S/S	C23	
90			33	31	7				C24	-78.3
	Very stiff, gray, FAT CLAY, (CH)	127	33	62	43		2.32@38.00	S/S	C25	
100			28		--	92.8			C26	-88.3
	-stiff	123	30	58	34		1.49@42.00	S/S	C27	
110	Gray, LEAN CLAY, (CL)		34	47	22				C28	-98.3
	Stiff, gray, FAT CLAY, (CH)	116	35	75	50		1.28@46.00	S/S	C29	
120			35		--				C30	-108.3
	Bottom of hole at 120 feet Backfilled with grout upon completion.									

BORING NO. BR-3 | STA.: | WATER LEVEL: N/A DUE TO WET DRILLING METHOD
LATITUDE: 29.86558 | OFFSET:
LONGITUDE: -91.63164 | DATE TAKEN: 7/3/2014 | BACKFILL METHOD: GROUT
LRS ID: | STR. NO.: | SQD. LDR.: VG

STANDARD ABBREVIATIONS & DEFINITIONS

CL, CH, ML, SC

N.P. = Non-Plastic
ORG. = Organic

FAILURE MODE:
M.S. = Multiple Shear SL. = Slump
S/S = Slickensides YLD. = Yield
V.S. = Vertical Shear 60 S. = Shear Angle

SPT TERMINATION, AASHTO T 206
1 = 7.2.1 – 50 Blows Within A 6" Interval
2 = 7.2.2 – 100 Blows Total
3 = 7.2.3 – No Advancement for 10 Blows
4 = 7.2.4 – Sampler Driven the Entire 18"
5 = Non-standard

SOIL PROPERTIES

⊗ = SOIL TYPE nomenclature is based on ASTM D 2487
WET DENSITY = Wet density of in-place soil, (pounds per cu. ft.) determined by AASHTO T 208.
MOISTURE CONTENT = Moisture Content of in-place soil, expressed as a percentage of the dry weight of the soil, (%), determined by DOTD TR 403, Method B.
LIQUID LIMIT & PLASTICITY INDEX = Atterberg limits and indices, DOTD TR 428
SPT = Standard Penetration Test, AASHTO T 206, number of blows per each 6 inch increment, unless amount of penetration is shown
UU = Unconsolidated Undrained triaxial test, AASHTO T 296, compressive strength (tons per sq. ft.), of one specimen confined at noted pressure (pounds per sq. in.)
C = Soil cohesion (tons per sq. ft.)
φ = Soil angle of internal friction (degrees)
△ = Unconsolidated Undrained triaxial test, AASHTO T 296, three specimens, (c – φ).
+ = Consolidated drained direct shear test, AASHTO T 236, (c – φ).
* = Hydrometer test performed

MISCELLANEOUS:

c-3 = Location and identification of thin-walled tube sample, AASHTO T 207
(c-3) = Location and identification of thin-walled tube sample, AASHTO T 207, with a portion of the sample saved for consolidation testing
⊠ D-3 = Location and identification of SPT sample, AASHTO T 206
NO RECV. = No Recovery, unable to recover sample for testing or classification.
DIST. = Disturbed sample recovered with thin-walled tube sampler.
▽ 24 HRS = Water Table depth below ground surface recorded at noted time after completion of bore hole.
ETR = = Energy Transfer Ratio determined according to ASTM D4633

CORRELATION OF PENETRATION RESISTANCE AND SOIL PROPERTIES

SOIL	DESIGNATION		"N" (blows per ft.)
SAND AND SILT	RELATIVE DENSITY	VERY LOOSE	LESS THAN 4
		LOOSE	4 – 10
		MEDIUM DENSE	10 – 30
		DENSE	30 – 50
		VERY DENSE	OVER 50
CLAY	CONSISTENCY	VERY SOFT	LESS THAN 2
		SOFT	2 – 4
		MEDIUM STIFF	4 – 8
		STIFF	8 – 15
		VERY STIFF	15 – 30
		HARD	OVER 30

STATE OF LOUISIANA
SERGIO AVILES
License No. 33571
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
10/14/14

STATE OF LOUISIANA
SAIRAM EDDANAPUDI
License No. 35129
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
10/14/14

THIS SIGNATURE AND SEAL IS AFFIXED TO THIS DRAWING AS CERTIFICATION THAT THE LABORATORY TESTING AND ANALYSIS WAS PERFORMED ACCORDING TO THE LISTED PROCEDURES. NO DESIGN COMPUTATIONS WERE PERFORMED OR REVIEWED BY ME.

SHEET NUMBER 1

PARISH: ST. MARY
FEDERAL PROJECT:
STATE PROJECT: US 90/LA 318 INTERCHANGE H004932.5

DESIGNED:
CHECKED:
DETAILED: SP
CHECKED: SZ/SA
DATE: 10/14/2014
SHEET: 1 OF 5

NO.	DATE	REVISION DESCRIPTION	BY

US 90/LA 318 Alternative E

LOGS OF SOIL BORINGS

Field Book No.

DOTD

APS DESIGN & TESTING