TRANSMITTAL

AAI

Ardaman & Associates, Inc.

To: USACE-MVN District
P O Box 60267
New Orleans, LA 70160

Date: June 7, 2011
Job No.: 113-10-81-3667
Project: New Westwego PS
CD Contract # W912P8-09-0046-0008
BPA # 09-A-0004
Block Call # 049G

Attention: Glenn Gremillion

From: Eric A. Paille EAP

COPIES	DESCRIPTION
1	Daily Field Report 05528
1	Chain of Custody
1	Atterberg Limit, Organic Content, Moisture Content, -200
1	Sand Cone Density (T-60)
1	One Point Proctor Verification (T-60)
1	Signed QA Testing Request Form

THESE ARE TRANSMITTED:

■ **FOR YOUR USE** ☐ **FOR REVIEW & COMMENT** ■ **AS REQUESTED**

☐ **REVISE AS NOTED** ☐ **TO BE DISTRIBUTED**

REMARKS: Email: Jeremy George jeremy.m.george@usace.army.mil

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated Laboratory

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Ardaman & Associates, Inc.
316 Highlandia Drive
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REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 05528
DATE OF SERVICE: 06/02/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 06/06/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 614 PREVIOUS: 614
DENSITY - CURRENT: 2094 PREVIOUS: 2094
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(Curve 3550-352)	Dark Gray Clay (CH)	26.0	92.3	
2.	(Curve 4171-498)	Dark Gray Clay (CH)	22.8	96.6	
3.	(Curve 2762-24)	Dark Gray Clay (CH)	26.6	92.1	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
56.	(RETEST 49) 82+94 o/s 151.0' (PS) N.504367.4 E.3660451.4	12	6/2.4'	1	25.3	26.0	114.3	91.2	92.3	98.8
57.	(RETEST 40) 133+14 o/s 63' (PS) N.501023.2 E.3661272.6	12	3/6.8'	2	25.1	22.8	118.5	94.7	96.6	98.0

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 05528

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 06/02/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
58.	(RETEST 41) 135+19 o/s 73' (PS) N.501018.0 E.3661478.3	12	3/6.6'	1	24.0	26.0	112.8	91.0	92.3	98.6
59.	(RETEST 47) 87+48 Centerline Crown N.503970.9 E.3660186.2	6	10/13.2'	3	29.3	26.6	118.2	91.4	92.1	99.2
60.	(RETEST 45) 77+49 Centerline Crown N.504931.7 E.3660458.9	6	10/13.2'	3	29.2	26.6	116.8	90.4	92.1	98.2

Test results on this report meet project specifications as noted on page 1.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric G. Paille

Eric Paille
CMT Supervisor

1007

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AAI
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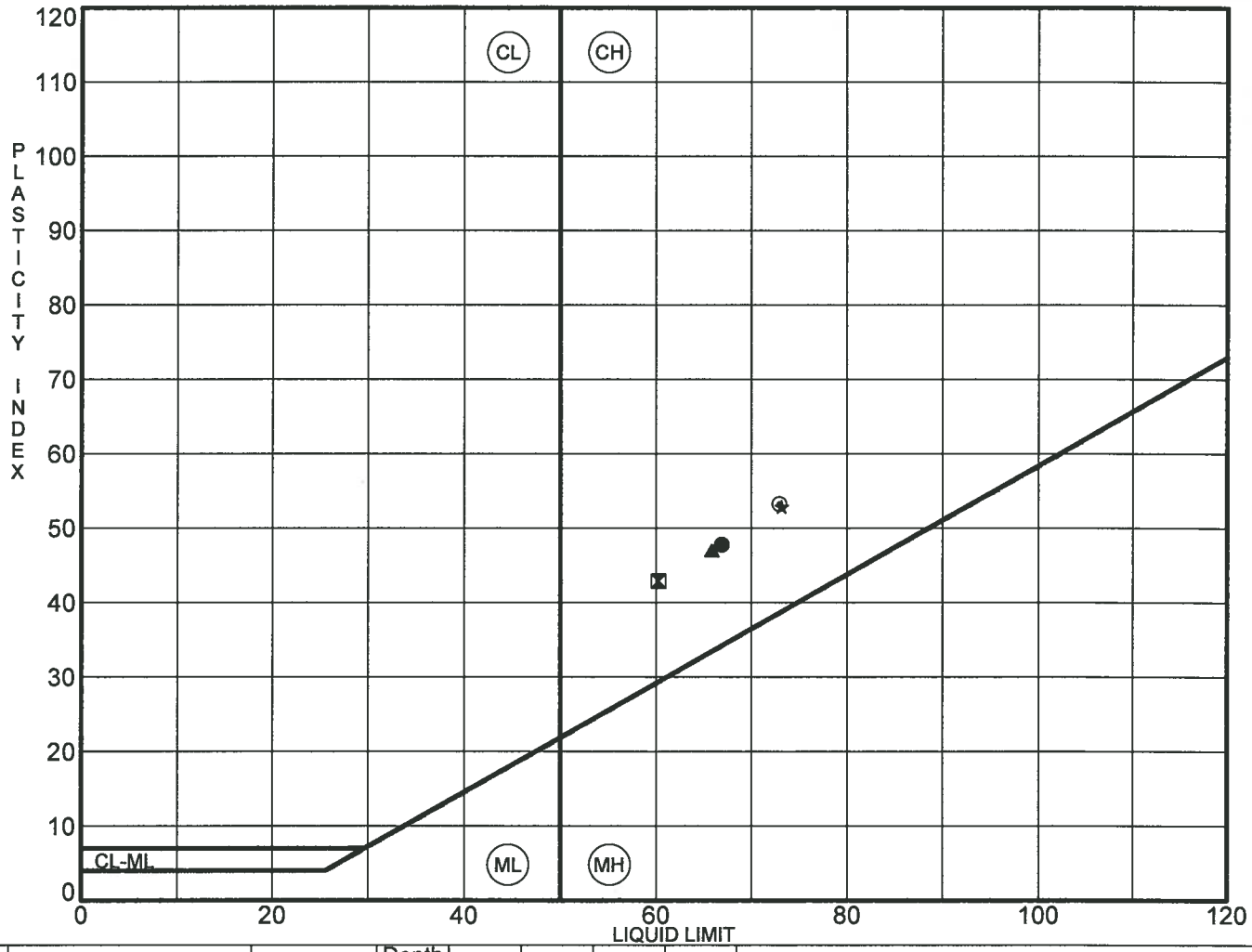
CHAIN OF CUSTODY RECORD

Job No.: 113-10-81-3667 Date: 6-2-11
Project Name : New Westwego PS to Orleans Village
Project Location: Jefferson Parish
Collectors Name: Bill Singleton
Type of Sample: Clay No. of Containers: 5

SAMPLE ID	SAMPLE LOCATION		PURPOSE			
T-56	Retest 49	87+94	Att, ORG, -200, MC			
T-57	Retest 40	133+14				
T-58	Retest 41	135+19				
T-59	Retest 47	87+48				
T-60	Retest 45	77+49				IP + Proctor + Sand cone

Sample Shipped by : Ardaman & Associates Date: 6-2-11
Custodian: Bill Singleton
Sample Received by: James Sines Date: 6/2/11
Company Name: Ardaman & Associates

Remarks:



	Sample Number	Sample ID	Depth (ft.)	LL	PL	PI	Fines	Visual Classification
●	**T-56**		**0.0**	**67**	**19**	**48**	**97.1**	Dark Gray Clay (CH)
⊠	**T-57**		**0.0**	**60**	**17**	**43**	**97.0**	Dark Gray Clay (CH)
▲	**T-58**		**0.0**	**66**	**19**	**47**	**96.8**	Dark Gray Clay (CH)
★	**T-59**		**0.0**	**73**	**20**	**53**	**96.9**	Dark Gray Clay (CH)
⊙	**T-60**		**0.0**	**73**	**20**	**53**	**96.4**	Dark Gray Clay (CH)

Remarks: All tests were performed in general accordance with ASTM Standards D4318, D421, D2217, and D1140.

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Ardaman & Associates, Inc.

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Telephone: 225-752-4790
Fax: 225-752-4878

ATTERBERG LIMITS' RESULTS

Project: New Westwego PS to Orleans Village

Client: USACE

AAI Project Number: 10-81-3667

ORGANIC CONTENT (ASTM D2974)

Ardaman & Associates, Inc.

Project: New Westwego PS to Orleans Village

File No.: 10-81-3667

Client: USACE

Date: 6/7/2011

Sample ID	Depth (feet)	Bowl No.	Tare Weight (gm)	Oven-dried Weight (w/tare)	Muffle-dried Weight (w/tare)	Muffle-dried Weight (w/o tare)	Ash Content (%)	Organic Content (%)
T-56	0 - 0	MM	54.33	84.57	83.07	28.74	95.04	5.0
T-57	0 - 0	206	66.03	96.44	95.34	29.31	96.38	3.6
T-58	0 - 0	RS	57.99	89.42	88.06	30.07	95.67	4.3
T-59	0 - 0	H	56.81	88.77	87.27	30.46	95.31	4.7
T-60	0 - 0	J	67.68	98.01	96.51	28.83	95.05	4.9

Note: FOC = Organic Content divided by 174.

MOISTURE CONTENTS

Ardaman & Associates, Inc.

File No.: 10-81-3667

Date: 6/7/2011

Boring No.	Depth (ft.)	Moisture Content (%)	Classification	Can No.	Wet Wt. w/Can (grams)	Dry Wt. w/Can (grams)	Wt. of Can (grams)
T-56	0 - 0	25.25	Dark Gray Clay (CH)		445.26	386.22	152.4
T-57	0 - 0	25.10	Dark Gray Clay (CH)		433.95	371.3	121.71
T-58	0 - 0	23.96	Dark Gray Clay (CH)		473.28	411.23	152.22
T-59	0 - 0	29.33	Dark Gray Clay (CH)		439.93	368.13	123.36
T-60	0 - 0	29.15	Dark Gray Clay (CH)		444.62	372.15	123.53

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-56
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 82+94 o/s 151.0' (PS) N 504367.4 E 3660451.4 Lift 6 Elev. 2.4' (RETEST T-49)
Total Sample Weight: 105.47 gm (Dry)

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 6/4/2011
Done By: BS
Calc by: JT

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
06/04		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
06/05		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	155.5	152.4	3.10	2.94	97.06	
#230						
Pan						

Total Weight: 105.47 grams

Initial Water Content

445.26 Wet Wt. (grams)
386.22 Dry Wt. (grams)
59.0 Wt. H2O (grams)

386.22 Dry Wt. (grams)
152.4 Tare Wt.
105.47 Weight Sample

25.25 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-57
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 133+14 o/s 63' (PS) N 501023.2 E 3661272.6 Lift 6 Elev. 6.8' (RETEST T-40)
Total Sample Weight: 110.83 gm (Dry)

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 6/4/2011
Done By: BS
Calc by: JT

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
06/04		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
06/05		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	125.04	121.71	3.33	3.00	97.00	
#230						
Pan						

Total Weight: 110.83 grams

Initial Water Content

433.95 Wet Wt. (grams)
371.3 Dry Wt. (grams)
62.7 Wt. H2O (grams)

371.3 Dry Wt. (grams)
121.71 Tare Wt.
110.83 Weight Sample

25.10 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-58
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 135+19 o/s 73' (PS) N 501018.0 E 3661478.3 Lift 3 Elev. 6.6' (RETEST T-41)
Total Sample Weight: 103.05 gm (Dry)

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 6/4/2011
Done By: BS
Calc by: JT

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
06/04		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
06/05		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	155.54	152.22	3.32	3.22	96.78	
#230						
Pan						

Total Weight: 103.05 grams

Initial Water Content

473.28 Wet Wt. (grams)
411.23 Dry Wt. (grams)
62.1 Wt. H2O (grams)

411.23 Dry Wt. (grams)
152.22 Tare Wt.
103.05 Weight Sample

23.96 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-59
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 87+48 Centerline Crown N 503970.9 E 3660186.2 Lift 10 Elev. 13.2' (RETEST T-47)
Total Sample Weight: 104.15 gm (Dry)

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 6/4/2011
Done By: BS
Calc by: JT

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
06/04		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
06/05		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	126.56	123.36	3.20	3.07	96.93	
#230						
Pan						

Total Weight: 104.15 grams

Initial Water Content

439.93 Wet Wt. (grams)
368.13 Dry Wt. (grams)
71.8 Wt. H2O (grams)

368.13 Dry Wt. (grams)
123.36 Tare Wt.
104.15 Weight Sample

29.33 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-60
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 77+49 Centerline Crown N 504931.7 E 3660458.9 Lift 10 Elev. 13.2' (RETEST T-45)
Total Sample Weight: 105.1 gm (Dry)

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 6/4/2011
Done By: BS
Calc by: JT

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
06/04		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
06/05		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	127.33	123.53	3.80	3.62	96.38	
#230						
Pan						

Total Weight: 105.1 grams

Initial Water Content

444.62 Wet Wt. (grams)
372.15 Dry Wt. (grams)
72.5 Wt. H2O (grams)

372.15 Dry Wt. (grams)
123.53 Tare Wt.
105.1 Weight Sample

29.15 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

SAND CONE DENSITY

ASTM D1556
Method A

Job No. 113-10-81-3667 Test No. T-60 Date: 6/2/2011

Technician: Bill Singleton Lift No. 10 Location Station 77+49

(1) Unit weight of sand	93.9	lbs/ft^3	Date Calibrated	5/23/2011	
(2)Weight of sand in cone	3.86	lbs	Date Calibrated	5/23/2011	
(3) Original weight of sand and Jar	14.96	lbs	Note: See attached work sheets for unit weight of sand and weight of sand in cone.		
(4) Final weight of sand and Jar	5.54	lbs			
(5) Weight of sand in cone and hole	9.42	lbs (3)-(4)	(8) Wet weight of soil	6.97	lbs
(6) Weight of sand in hole	5.56	lbs (5)-(2)	(9) Wet density of soil	117.7	lbs/ft^3 (8) / (7)
(7) Volume of hole	0.0592	ft^3 (6) / (1)			

MOISTURE CONTENT

OVEN DRY ASTM D2216			MICROWAVE ASTM D4643			
Tare no. Z-21			Tare No.			
						Trial dry weights
(10) Wet weight of soil & tare	444.62g		(16) Wet weight of soil & tare		g	
(11) Dry weight of soil & tare	372.15g		(17) Dry weight of soil & tare (Final)		g	#1-
(12) Weight of water	72.47g	(10) - (11)	(18) Weight of water	(16) - (17)	g	#2-
(13)Tare weight	123.53g		(19)Tare weight		g	#3-
(14) Dry weight of soil	248.62g	(11) - (13)	(20) Dry weight of soil	(17) - (19)	g	#4-
(15) Moisture %	29.1	(12) / (14)x100	(21) Moisture %		(18) / (20) *100	

(22) Wet density of soil	117.7	lbs/ft^3 (9)	(25) Maximum Dry density	92.1	Proctor No. 2762-24
(23) Dry density of soil	91.2	lbs/ft^3 (22)/1+(24)x100	Optimum Moisture	26.6	
(24)Moisture %	29.1	Moisture content used in dry density calculation circle one		Oven	Microwave
% Compaction	99	(23)/(25)		X	

REMARKS: Nuclear WD 116.8

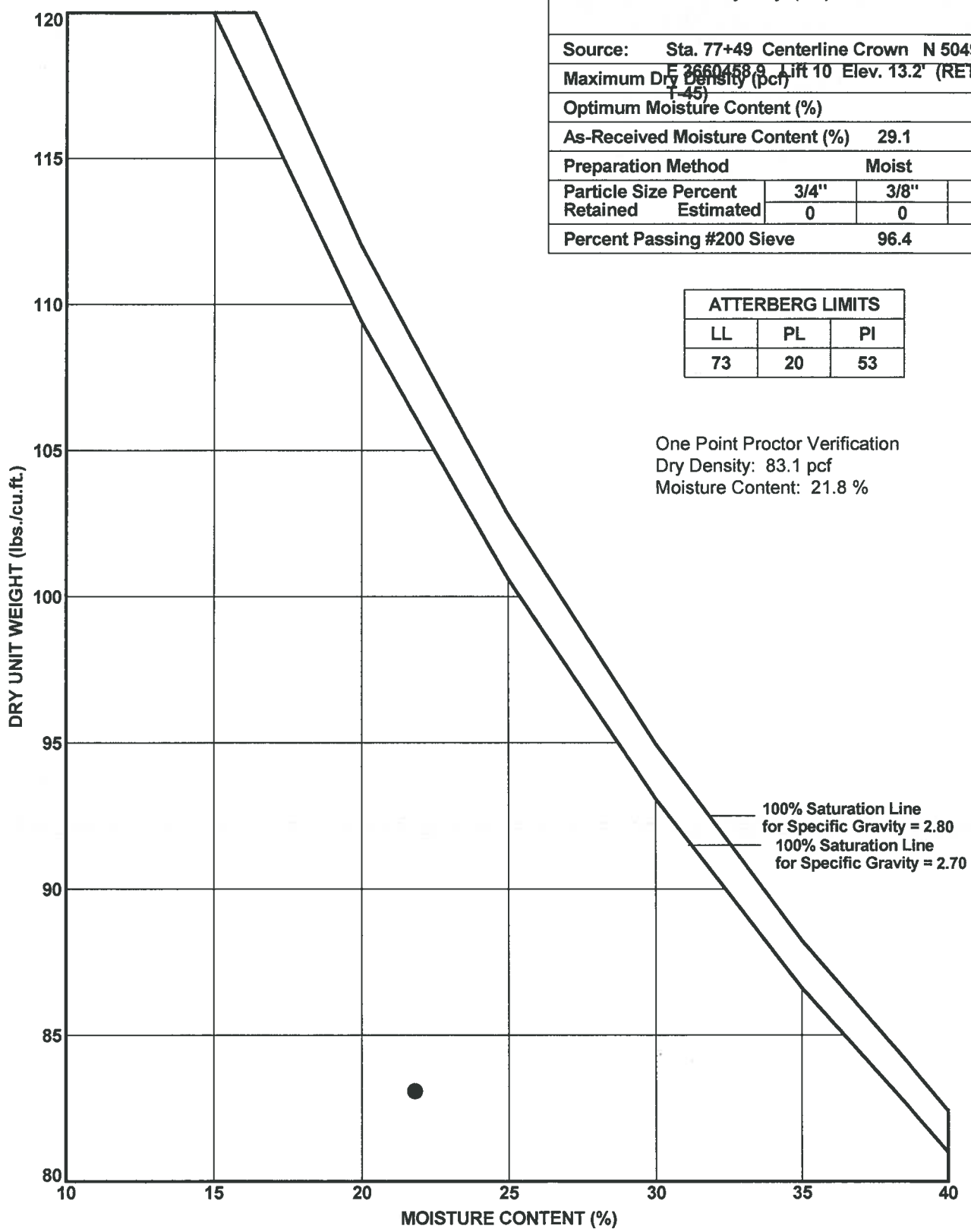
Sand Cone WD 117.7

0.9 0.77% difference

Material:	Dark Gray Clay (CH)		
Source:	Sta. 77+49 Centerline Crown N 504931.7 E 2660458.9 Lift 10 Elev. 13.2' (RETEST T-45)		
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	29.1		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	96.4		

ATTERBERG LIMITS		
LL	PL	PI
73	20	53

One Point Proctor Verification
Dry Density: 83.1 pcf
Moisture Content: 21.8 %



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans
Village
Westwego, LA.

Curve No.: T-60
Date: 06/06/11
File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 06/07/11

225-752-4870

QA TESTING REQUEST FORM

Lab: Ardaman

BPA# 09-A-0004

Submit invoice to:

ATTN: S. Bennie Benson (smith.b.benson@us.army.mil)
United States Corp of Engineers - MVN District
P.O. Box 60267
New Orleans, LA 70160

Authorization to complete the following testing services as indicated below:

Call Officer: Gremillion, Glenn

Signature: [signature]

Date: 5/25/2011

BLOCK CALL #: 049G

Project Name: New Westwego PS to Orleans Village Levee

CD Contract #: W912P8-09-D-0046-0008

USACE POC: Jeremy George

POC Phone: 985.209.8530

Order Date: 5/24/2011

Test Date: 6/2/11 ~~5/26/2011~~

Test Time: 9:30 AM ~~9:00-1:00pm~~

QA Lab Rep: B. 11

QA Lab Phone: 225-752-4790

Is the requested services estimated to be over $2,500? NO | **(if yes follow FAR 13.303-5)**

Distribution List: Jeremy George; jeremy.m.george@usace.army.mil
or Comments: Steven Montjoy
John Thompson

# ORDERED	UNIT	DESCRIPTION	ASTM	# COMPLETE
		CONCRETE (estimated placement size cu. yds.)		
	HR	ACI TECH - PERFORM FIELD TESTS (Cyls, Slump, %Air, Temp, Unit Wt.)	C1077+	
	EACH	CONCRETE CURING AND COMPRESSIVE STRENGTH	C39	
		VIBRATION MONITORING		
	HR	VIBRATION TECH & EQUIP		
		SOILS FIELD TESTING		
10	HR	SOILS FIELD TECH - PERFORM TESTS	D3740	5.5
8	EACH	SOIL DENSITY - NUCLEAR METHOD	D6938*	5
1	EACH	SOIL DENSITY - SAND CONE METHOD	D1556	1
8	EACH	MOISTURE CONTENT TEST (OVEN/MICROWAVE)	D2216/D4643*	5
8	EACH	SOILS CLASSIFICATION	D2487*	5
8	EACH	ATTERBERG LIMITS DETERMINATION	D4318*	5
8	EACH	SOILS FINER - NO 200 SIEVE, WASH	C117/D1140*	5
8	EACH	SOILS ORGANIC CONTENT - METHOD 'C'	D2974	5
	EACH	STANDARD PROCTOR	D698*	
2	EACH	STANDARD PROCTOR - 1 POINT	D698	1
	EACH	RELATIVE DENSITY MIN / MAX	D4253/D4254*	
		SPECIAL TESTING REQUIREMENTS		
	EACH	TENSION TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
	EACH	BEND TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
		WELD INSPECTION & TESTING		
	HR	CERTIFIED WELDING INSPECTOR	AWS D1.1/D1.1M	
	EACH	LIQUID PENETRANT TESTING	ASTM E165	
	EACH	ULTRASONIC TESTING	ASTM E 164	
	EACH	RADIOGRAPHIC TESTING	ASTM E94	
	EACH	MAGNETIC TESTING	ASTM E709	

*Note that where applicable, testing procedures should follow USACE EM 1110-2-1906 Lab Testing manual and/or in accordance with project specifications.

Testing Services have been completed as authorized and as indicated:

Start Time: 800 Ams Stop Time: 1330 hrs Travel Time: 3.5 Mile: 180

USACE Representative: Jeremy George

USACE Signature: [signature] Date: 6-2-11

Remarks: 2nd time sheet is used This completes tests on this sheet

IN-PLACE DENSITY TESTING SERVICE ORDER

Client: USACE
Project: New Westwego PS

Client No.:
Project No.: 10-81-3667
Report No.:
Date/Time Requested:
Date/Time of Service: 10/18/11

Auth:

Services: Perform in-place density and moisture content tests to determine the degree of field compaction.

JOBSITE:
KEYMAP:
CONTRACTOR: Phylway

GAUGE 3/98 (3411B) S/N 5913

STD COUNT	CURRENT	PREVIOUS
MOISTURE	1706	
DENSITY	562	

TEST MODE: DT ✓ BS ___
PROBE DEPTH 6

	METHOD	REQUIREMENTS
MOISTURE	ASTM D 2216	ASTM D 698
DENSITY	ASTM D 6938	↓

M/D NO.	MATERIAL DESCRIPTION	OPTIMUM MOISTURE	MAXIMUM DENSITY	Project Requirements Moisture	Project Requirements Density
1.				-3/+5	90 %+
2.					
3.					
4.					
5.					
6.					
7.					
8.					

TEST NO.	TEST LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO.	MOISTURE CONTENT	DENSITY pcf	% compaction
69	Sta. 22+20 ℄	6	11/13.6		lbs / 24.2 %	113.9 wet / dry	
2.	N 506732.3 E. 3656146.0				lbs / %	~~121.1~~ wet / dry	
70	Sta 32+17 ℄		11/13.6		lbs / 23.5 %	121.1 wet / dry	
4.	N 506539.6 E 3657122.9				lbs / %	wet / dry	
71	Sta. 37+24 ℄		10/13.1		lbs / 18.3 %	114.0 wet / dry	
6.	N. 506442.0 E. 3657623.4				lbs / %	wet / dry	
72	Sta 41+51 ℄		10/13.1		lbs / 26.7 %	110.0 wet / dry	
8.	N 506361.7 E 3658042.5				lbs / %	wet / dry	
73	Sta. 27+20 ℄		11/13.6		lbs / 21.8 %	114.3 wet / dry	
10.	506632 3656641.4	↓			lbs / %	wet / dry	

DEPT	ECODE	SUBLAB	UNITS	RATE

TECH:

START: STOP: MILEAGE:

DATE TEST PERFORMED
FIELD RESULTS REPORTED TO:

CLIENT REP:
REVIEWED BY:

225-752-4818

QA TESTING REQUEST FORM

Lab: Ardaman
BPA# 09-A-0004
Submit invoice to:
ATTN: S. Bennie Benson (smith.b.benson@us.army.mil)
United States Corp of Engineers - MVN District
P.O. Box 60267
New Orleans, LA 70160

Authorization to complete the following testing services as indicated below:
Call Officer: Gremillion, Glenn
Signature:
Date: 10/15/11
BLOCK CALL #: 065G

Project Name: New Westego PS to Orleans Village Levee
CD Contract #: W912P8-09-D-0046-0008
USACE POC: Jeremy George
POC Phone: 985.209.8530
Order Date: 10/13/2011
Test Date: 10/18 ~~10/17~~/2011
Test Time: 10:00
QA Lab Rep:
QA Lab Phone: 225-752-4790
Is the requested services estimated to be over $2,500? NO | YES (if yes follow FAR 13.303-5)

Distribution List: Jeremy George; jeremy.m.george@usace.army.mil
or Comments: Steven Montjoy
John Thompson

# ORDERED	UNIT	DESCRIPTION	ASTM	# COMPLETE
		CONCRETE (estimated placement size cu. yds.)		
	HR	ACI TECH - PERFORM FIELD TESTS (Cyls, Slump, %Air, Temp, Unit Wt.)	C1077+	
	EACH	CONCRETE CURING AND COMPRESSIVE STRENGTH	C39	
		VIBRATION MONITORING		
	HR	VIBRATION TECH & EQUIP		
		SOILS FIELD TESTING		
10	HR	SOILS FIELD TECH - PERFORM TESTS	D3740	8.D
5	EACH	SOIL DENSITY - NUCLEAR METHOD	D6938*	5
1	EACH	SOIL DENSITY - SAND CONE METHOD	D1556	1
5	EACH	MOISTURE CONTENT TEST (OVEN/MICROWAVE)	D2216/D4643*	5
5	EACH	SOILS CLASSIFICATION	D2487*	5
5	EACH	ATTERBERG LIMITS DETERMINATION	D4318*	5
5	EACH	SOILS FINER - NO 200 SIEVE, WASH	C117/D1140*	5
5	EACH	SOILS ORGANIC CONTENT - METHOD 'C'	D2974	5
	EACH	STANDARD PROCTOR	D698*	
1	EACH	STANDARD PROCTOR - 1 POINT	D698	1
	EACH	RELATIVE DENSITY MIN / MAX	D4253/D4254*	
		SPECIAL TESTING REQUIREMENTS		
	EACH	TENSION TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
	EACH	BEND TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
		WELD INSPECTION & TESTING		
	HR	CERTIFIED WELDING INSPECTOR	AWS D1.1/D1.1M	
	EACH	LIQUID PENETRANT TESTING	ASTM E165	
	EACH	ULTRASONIC TESTING	ASTM E 164	
	EACH	RADIOGRAPHIC TESTING	ASTM E94	
	EACH	MAGNETIC TESTING	ASTM E709	

*Note that where applicable, testing procedures should follow USACE EM 1110-2-1906 Lab Testing manual and/or in accordance with project specifications.

Testing Services have been completed as authorized and as indicated:

Start Time: 8:30 Stop Time: 14:30 Travel Time: 3.0 Mile: 165
USACE Representative: Jeremy George
USACE Signature: Jeremy George
Date: 10/18/11
Remarks:

TRANSMITTAL

AAI

Ardaman & Associates, Inc.

To: USACE-MVN District
P O Box 60267
New Orleans, LA 70160

Date: October 26, 2011
Job No.: 113-10-81-3667
Project: New Westwego PS
CD Contract # W912P8-09-0046-0008
BPA # 09-A-0004
Block Call # 064G

Attention: Glenn Gremillion

From: Bill Singleton BS

COPIES	DESCRIPTION
1	Daily Field Report 06294
1	Chain of Custody
1	Atterberg Limit, Organic Content, Moisture Content, -200
1	Signed QA Testing Request Form

THESE ARE TRANSMITTED:

■ **FOR YOUR USE** ☐ **FOR REVIEW & COMMENT** ■ **AS REQUESTED**

☐ **REVISE AS NOTED** ☐ **TO BE DISTRIBUTED**

REMARKS: Email: Jeremy George jeremy.m.george@usace.army.mil

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated Laboratory

316 HIGHLANDIA DRIVE
BATON ROUGE, LA 7 0810
PHONE: (225) 752-4790
FAX: (225) 752-4878

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 06294
DATE OF SERVICE: 10/12/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 10/26/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D3017
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3411-B
GAUGE SERIAL NO.: 11234
STANDARD COUNTS
MOISTURE - CURRENT: 747 PREVIOUS: 744
DENSITY - CURRENT: 2130 PREVIOUS: 2133
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(3185-132)	Brown & Gray Clay	28.5	90.0	
2.	(3291-184)	Brown & Gray Clay (CH)	21.9	99.5	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
67.	Station 48+51 127' PS N.506351 3 E.3658752 3	12	5/3.5'	1	28.0	28.5	121.6	95.0	90.0	105.6
68.	Station 52+49 118' PS N.506275 6 E.3659093 4	12	4/3.5'	2	22.8	21.9	115.3	93.9	99.5	94.4

Test results on this report meet project specifications as noted above.

Report of Tests continued on page 2

Our letters and reports are for the exclusive use of the client to whom they are addressed and shall not be reproduced except in full without the approval of the testing laboratory. The use of our name must receive our written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not indicative of the quantities of apparently identical or similar products.

Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 06294

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 10/12/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)

ADDITIONAL COMMENTS:

Technician: Adam Gregoire, Field Technician

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Billy Singleton

Billy Singleton
CMT Manager

Our letters and reports are for the exclusive use of the client to whom they are addressed and shall not be reproduced except in full without the approval of the testing laboratory. The use of our name must receive our written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not indicative of the quantities of apparently identical or similar products.

AAI
Ardaman and Associates, Inc.

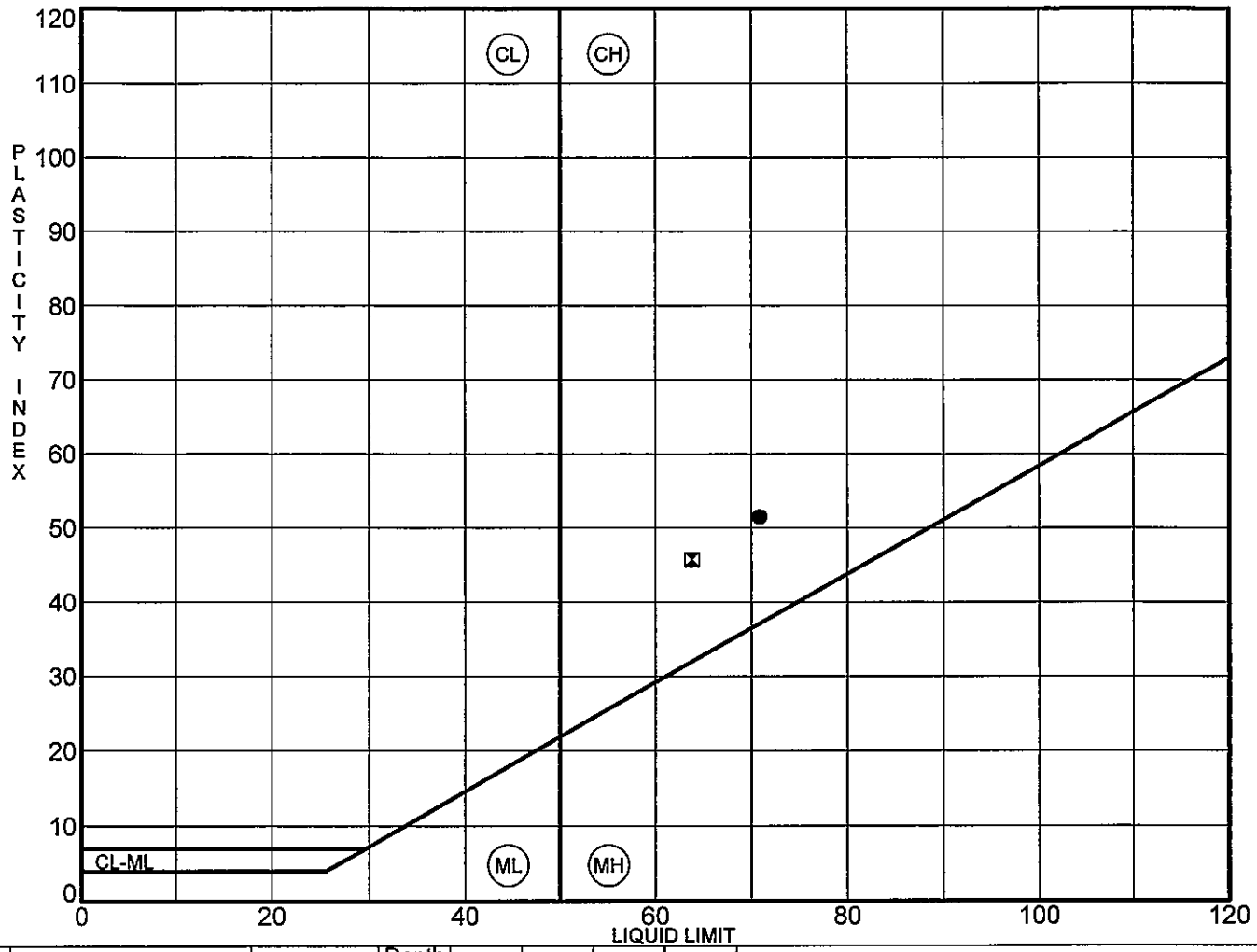
CHAIN OF CUSTODY RECORD

Job No.: 11-01-3667 Date: 10-12-11
Project Name : New Westwego
Project Location: Westwego
Collectors Name: AG
Type of Sample: Bric (CH) No. of Containers: 2

SAMPLE ID	SAMPLE LOCATION	PURPOSE
T-67	48+51	Mg AH org - 200
T-68	52+49	" " " "

Sample Shipped by : AAI Date: 10-12-11
Custodian: Adam Gregoire
Sample Received by: Bill Singleton Date: 10-13-11
Company Name: AAI

Remarks:



	Sample Number	Sample ID	Depth (ft.)	LL	PL	PI	Fines	Visual Classification
●	**T-67**		**0.0**	**71**	**19**	**52**	**95.9**	Gray Clay (CH) Sta. 48+51 o/s 127' PS
⊠	**T-68**		**0.0**	**64**	**18**	**46**	**94.4**	Gray Clay (CH) Sta. 52+49 o/s 118' PS

Remarks: All tests were performed in general accordance with ASTM Standards D4318, D421, D2217, and D1140.

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

Ardaman & Associates, Inc.

Ardaman and Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Telephone: 225-752-4790
Fax: 225-785-4878

ATTERBERG LIMITS' RESULTS

Project: New Westwego PS to Orleans Village

Client: USACE

AAI Project Number: 10-81-3667

MOISTURE CONTENTS

Ardaman & Associates, Inc.

File No.: 10-81-3667

Date: 10/26/2011

Boring No.	Depth (ft.)	Moisture Content (%)	Classification	Can No.	Wet Wt. w/Can (grams)	Dry Wt. w/Can (grams)	Wt. of Can (grams)
T-67	0 - 0	27.96	Gray Clay (CH) Sta. 48+51 o/s 127' PS		406.73	351.12	152.23
T-68	0 - 0	22.77	Gray Clay (CH) Sta. 52+49 o/s 118' PS		427.9	371.12	121.73

ORGANIC CONTENT (ASTM D2974)

Ardaman & Associates, Inc.

Project: New Westwego PS to Orleans Village

File No.: 10-81-3667

Client: USACE

Date: 10/26/2011

Sample ID	Depth (feet)	Bowl No.	Tare Weight (gm)	Oven-dried Weight (w/tare)	Muffle-dried Weight (w/tare)	Muffle-dried Weight (w/o tare)	Ash Content (%)	Organic Content (%)
T-67	0 - 0	A	59.06	111.1	108.72	49.66	95.43	4.6
T-68	0 - 0	J	60.31	113.15	111.07	50.76	96.06	3.9

Note: FOC = Organic Content divided by 174.

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-67
Depth: 0-0
Material: Gray Clay (CH) Sta. 48+51 o/s 127' PS
Source: Lift 5 El.3.5' N506351.3 E 365875.3
Total Sample Weight: 104.26 gm (Dry)

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 10/18/2011
Done By: JT
Calc by: BS

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
10/18		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
10/19		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	156.47	152.23	4.24	4.07	95.93	
#230						
Pan						

Total Weight: 104.26 grams

Initial Water Content

406.73 Wet Wt. (grams)
351.12 Dry Wt. (grams)
55.6 Wt. H2O (grams)

351.12 Dry Wt. (grams)
152.23 Tare Wt.
104.26 Weight Sample

27.96 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-68
Depth: 0-0
Material: Gray Clay (CH) Sta. 52+49 o/s 118' PS
Source: Lift 4 El.3.5' N506275.6 E 3659093.4
Total Sample Weight: 101.93 gm (Dry)

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 10/18/2011
Done By: JT
Calc by: BS

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
10/18		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
10/19		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	127.43	121.73	5.70	5.59	94.41	
#230						
Pan						

Total Weight: 101.93 grams

Initial Water Content

427.9 Wet Wt. (grams)
371.12 Dry Wt. (grams)
56.8 Wt. H2O (grams)

371.12 Dry Wt. (grams)
121.73 Tare Wt.
101.93 Weight Sample

22.77 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

225-150-4810

QA TESTING REQUEST FORM

Lab: **Ardaman**
BPA# **09-A-0004**
Submit invoice to:
ATTN: S. Bennie Benson (smith.b.benson@us.army.mil)
United States Corp of Engineers - MVN District
P.O. Box 60267
New Orleans, LA 70160

Authorization to complete the following testing services as indicated below:
Call Officer: Gremillion, Glenn
Signature: [signature]
Date: 9/15/11
BLOCK CALL #: **064G**

Project Name: New Westwego PS to Orleans Village Levee — CD Contract #: **W912P8-09-D-0046-0008**
USACE POC: Jeremy George — POC Phone: 985.209.8530
Order Date: 9/15/2011 — Test Date: 10-12-11 ~~9/19/2011~~ — Test Time: 9:00
QA Lab Rep: — QA Lab Phone: 225.752.4790
Is the requested services estimated to be over $2,500? NO | YES **(if yes follow FAR 13.303-5)**
Distribution List: Jeremy George; jeremy.m.george@usace.army.mil
or Comments: Steven Montjoy
John Thompson

# ORDERED	UNIT	DESCRIPTION	ASTM	# COMPLETE
		CONCRETE (estimated placement size cu. yds.)		
	HR	ACI TECH - PERFORM FIELD TESTS (Cyls, Slump, %Air, Temp, Unit Wt.)	C1077+	
	EACH	CONCRETE CURING AND COMPRESSIVE STRENGTH	C39	
		VIBRATION MONITORING		
	HR	VIBRATION TECH & EQUIP		
		SOILS FIELD TESTING		
8	HR	SOILS FIELD TECH - PERFORM TESTS	D3740	8
4	EACH	SOIL DENSITY - NUCLEAR METHOD	D6938*	2
	EACH	SOIL DENSITY - SAND CONE METHOD	D1556	
6	EACH	MOISTURE CONTENT TEST (OVEN/MICROWAVE)	D2216/D4643*	2
6	EACH	SOILS CLASSIFICATION	D2487*	2
6	EACH	ATTERBERG LIMITS DETERMINATION	D4318*	2
6	EACH	SOILS FINER - NO 200 SIEVE, WASH	C117/D1140*	2
6	EACH	SOILS ORGANIC CONTENT - METHOD 'C'	D2974	2
2	EACH	STANDARD PROCTOR	D698*	
1	EACH	STANDARD PROCTOR - 1 POINT	D698	
	EACH	RELATIVE DENSITY MIN / MAX	D4253/D4254*	
		SPECIAL TESTING REQUIREMENTS		
	EACH	TENSION TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
	EACH	BEND TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
		WELD INSPECTION & TESTING		
	HR	CERTIFIED WELDING INSPECTOR	AWS D1.1/D1.1M	
	EACH	LIQUID PENETRANT TESTING	ASTM E165	
	EACH	ULTRASONIC TESTING	ASTM E 164	
	EACH	RADIOGRAPHIC TESTING	ASTM E94	
	EACH	MAGNETIC TESTING	ASTM E709	

Note that where applicable, testing procedures should follow USACE EM 1110-2-1906 Lab Testing manual and/or in accordance with project specifications.

Testing Services have been completed as authorized and as indicated:
Start Time: 8:00am — Stop Time: 5:30pm — Travel Time: 3 hrs — Mile: 140
USACE Representative: Jeremy George
USACE Signature: [signature] — Date: 10/12/11
Remarks:

TRANSMITTAL

AAI

Ardaman & Associates, Inc.

To: USACE-MVN District
P O Box 60267
New Orleans, LA 70160

Date: December 13, 2010
Job No.: 113-10-81-3667
Project: New Westwego PS
CD Contract # W912P8-09-0046-0008
BPA # 09-A-0004
Block Call # 019G

Attention: Glenn Gremillion

From: Eric A. Paille EAP

COPIES	DESCRIPTION
1	Daily Field Report 04527
1	Chain of Custody
1	Atterberg Limit, Moisture Content, Organic Content , -200
1	One Point Proctor Verification & Sand Cone Density (T-20)
1	Signed QA Testing Request Form

THESE ARE TRANSMITTED:

■ **FOR YOUR USE** ☐ **FOR REVIEW & COMMENT** ■ **AS REQUESTED**

☐ **REVISE AS NOTED** ☐ **TO BE DISTRIBUTED**

REMARKS: Email: Jeremy George jeremy.m.george@usace.army.mil

AASHTO Accredited Laboratory
LELAP Certificate No. 02052

316 HIGHLANDIA DRIVE
BATON ROUGE, LA 7 0810
PHONE: (225) 752-4790
FAX: (225) 752-4878

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 04527
DATE OF SERVICE: 12/07/2010
AUTHORIZATION:
REPORT DATE: 12/13/2010

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: USACE

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 619 PREVIOUS: 626
DENSITY - CURRENT: 2139 PREVIOUS: 2154
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(Curve 132)	Brown Clay (CH)	28.5	90.0	
2.	(Curve 129)	Brown Clay (CH)	29.4	88.2	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
18.	Station 92+72 148' o/s (PS) N.503427.7 E.3660179.3	12	2/-0.8'	2	35.9 *	29.4	112.1	82.5	88.2	93.5
19.	Station 87+00 143' o/s (PS) N.503979.2 E.3660332.8	12	2/.2'	1	31.4	28.5	112.0	85.2	90.0	94.7
20.	Station 82+03 140' o/s (PS) N.504457.1 E.3660466.2	12	2/.5'	1	26.6	28.5	108.4	85.6	90.0	95.1

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 04527

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 12/07/2010

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
21.	Station 77+00 138' o/s (PS) N.504942.2 E.3660603.1	12	2/.6'	1	27.8	28.5	107.1	83.8	90.0	93.1
22.	Station 72+03 141' o/s (PS) N.505418.5 E.3660741.9	12	2/.4'	1	28.8	28.5	111.0	86.2	90.0	95.8

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted above.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric G. Paille

Eric Paille
CMT Supervisor

Our letters and reports are for the exclusive use of the client to whom they are addressed and shall not be reproduced except in full without the approval of the testing laboratory. The use of our name must receive our written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not indicative of the quantities of apparently identical or similar products.

SAND CONE DENSITY

ASTM D1556
Method A

Job No. 113-10-81-3667 Test No. 20 Date: 12/7/2010

Technician: B. Singleton,CET. Lift No. 2 Location New Westwego Levee station 82+03 o/s 140' (PS)

(1) Unit weight of sand	93.7	lbs/ft^3	Date Calibrated	11/15/2010	
(2)Weight of sand in cone	3.82	lbs	Date Calibrated	11/15/2010	
(3) Original weight of sand and Jar	14.60	lbs	Note: See attached work sheets for unit weight of sand		
(4) Final weight of sand and Jar	5.55	lbs	and weight of sand in cone.		
(5) Weight of sand in cone and hole	9.05	lbs (3)-(4)	(8) Wet weight of soil	6.30	lbs
(6) Weight of sand in hole	5.23	lbs (5)-(2)	(9) Wet density of soil	112.9	lbs/ft^3 (8) / (7)
(7) Volume of hole	0.0558	ft^3 (6) / (1)			

MOISTURE CONTENT

OVEN DRY ASTM D2216			MICROWAVE ASTM D4643			
Tare no. Z-18			Tare No.			
						Trial dry weights
(10) Wet weight of soil & tare	455.94g		(16) Wet weight of soil & tare		g	
(11) Dry weight of soil & tare	384.74g		(17) Dry weight of soil & tare (Final)		g	#1-
(12) Weight of water	71.20g	(10) - (11)	(18) Weight of water	(16) - (17)	g	#2-
(13)Tare weight	117.31g		(19)Tare weight		g	#3-
(14) Dry weight of soil	267.43g	(11) - (13)	(20) Dry weight of soil	(17) - (19)	g	#4-
(15) Moisture %	26.6	(12) / (14)x100	(21) Moisture %		(18) / (20) *100	

(22) Wet density of soil	112.9	lbs/ft^3 (9)	(25) Maximum Dry density	90	Proctor No. Curve 132
(23) Dry density of soil	89.2	lbs/ft^3 (22)/1+(24)x100	Optimum Moisture	28.5	
(24)Moisture %	26.6	Moisture content used in dry density calculation circle one			Oven / Microwave
% Compaction	99.1	(23)/(25)			X

REMARKS: Nuclear WD 115.0 (6")

Sand Cone WD 112.9

2.1 1.82% difference

CHAIN OF CUSTODY RECORD

Job No. 10-3667 Date: 12-7-10

Project Name New Westwego PS to Orleans Village

Project Location Jefferson Parish

Collectors Name Bill Singleton

Type of Sample Clay No. of Containers 5

SAMPLE ID	SAMPLE LOCATION	PURPOSE
T-18	92+72	Att, ORG, 200, MC
T-19	87+00	
T-20	82+03	1 sand cone / 1 at proctor
T-21	77+00	
T-22	72+03	

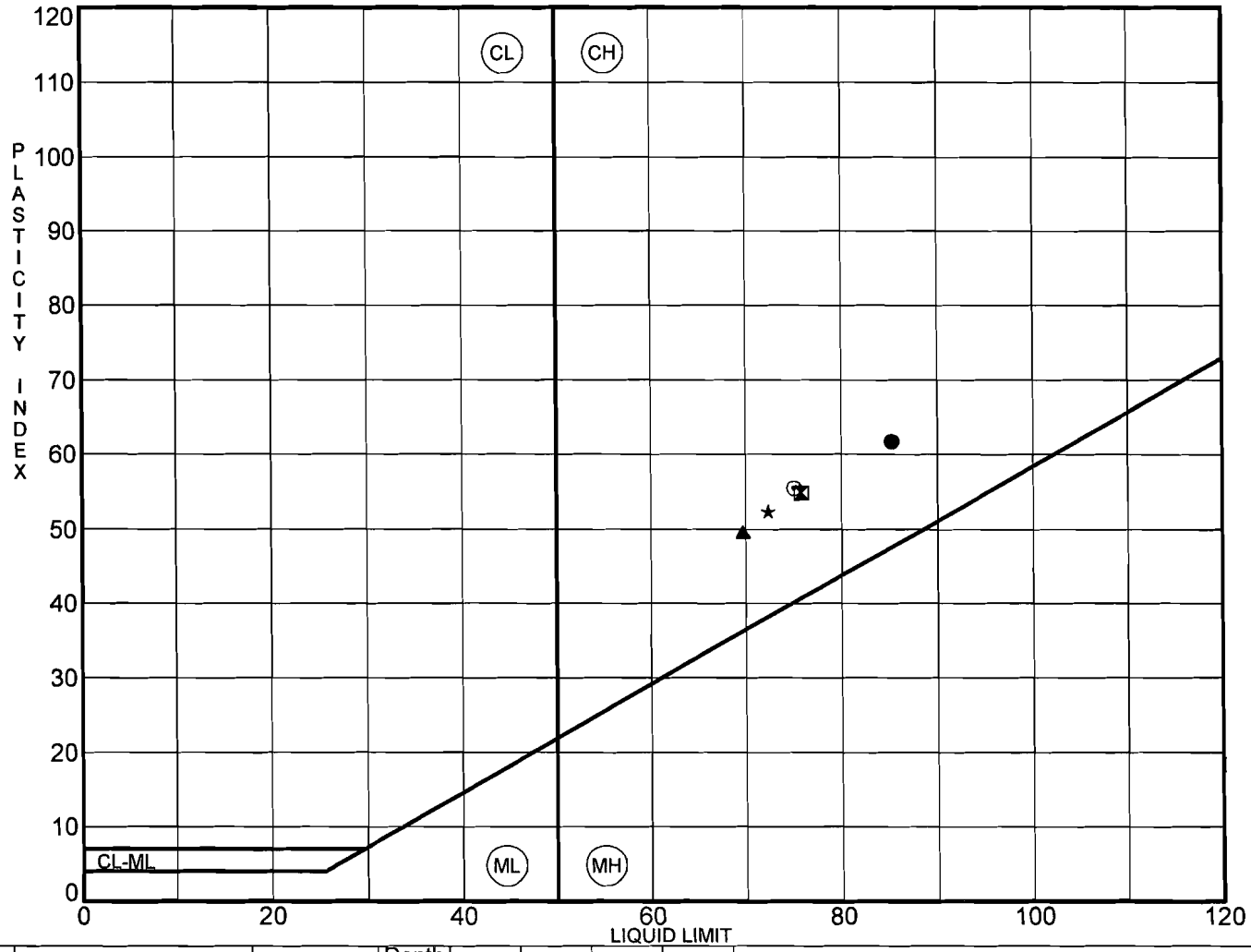
Sample Shipped by Ardaman & Associates, Inc Date 12-7-10

Custodian Bill Singleton

Sample Received by Eric A. Paulk Date 12/8/10

Company Name ~~AAI~~ Ardaman & Associates, Inc

Remarks



	Sample Number	Sample ID	Depth (ft.)	LL	PL	PI	Fines	Visual Classification
●	**T-18**		**0.0**	**85**	**24**	**61**	**89.2**	Brown Clay (CH)
⊠	**T-19**		**0.0**	**76**	**21**	**55**	**92.8**	Brown Clay (CH)
▲	**T-20**		**0.0**	**70**	**20**	**50**	**93.3**	Brown Clay (CH)
★	**T-21**		**0.0**	**72**	**20**	**52**	**93.5**	Brown Clay (CH)
⊙	**T-22**		**0.0**	**75**	**20**	**55**	**94.5**	Brown Clay (CH)

Remarks: All tests were performed in general accordance with ASTM Standards D4318, D421, D2217, and D1140.

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LELAP Certificate No. 02052
USACE Validated

Ardaman & Associates, Inc.

Ardaman and Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Telephone: 225-752-4790
Fax: 225-785-4878

ATTERBERG LIMITS' RESULTS

Project: New Westwego PS to Orleans Village

Client: USACE

AAI Project Number: 10-81-3667

ORGANIC CONTENT (ASTM D2974)

Ardaman & Associates, Inc.

Project: New Westwego PS to Orleans Village

File No.: 10-81-3667

Client: USACE

Date: 12/13/2010

Sample ID	Depth (feet)	Bowl No.	Tare Weight (gm)	Oven-dried Weight (w/tare)	Muffle-dried Weight (w/tare)	Muffle-dried Weight (w/o tare)	Ash Content (%)	Organic Content (%)
T-18	0 - 0	TT	52.57	104.23	102.02	49.45	95.72	4.3
T-19	0 - 0	PT	51.84	111.46	109.32	57.48	96.41	3.6
T-20	0 - 0	203	64.69	119.86	118.06	53.37	96.74	3.3
T-21	0 - 0	GG	64.26	115.99	114.09	49.83	96.33	3.7
T-22	0 - 0	204	63.66	114.74	113.05	49.39	96.69	3.3

Note: FOC = Organic Content divided by 174.

MOISTURE CONTENTS

Ardaman & Associates, Inc.

File No.: 10-81-3667

Date: 12/13/2010

Boring No.	Depth (ft.)	Moisture Content (%)	Classification	Can No.	Wet Wt. w/Can (grams)	Dry Wt. w/Can (grams)	Wt. of Can (grams)
T-18	0 - 0	35.86	Brown Clay (CH)		402.89	328.03	119.26
T-19	0 - 0	31.35	Brown Clay (CH)		486.1	406.48	152.51
T-20	0 - 0	26.62	Brown Clay (CH)		455.94	384.74	117.31
T-21	0 - 0	27.77	Brown Clay (CH)		448.19	376.05	116.28
T-22	0 - 0	28.76	Brown Clay (CH)		469.8	398.29	149.68

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-18
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 92+72 - 148' O/S (PS) N.503427.7 E.36660179.3 / Lift 2 Elev. -.08'
Total Sample Weight: 100.85 gm (Dry)

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 12/10/2010
Done By: CP
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
12/10		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
12/11		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	164.48	153.54	10.94	10.85	89.15	
#230						
Pan						

Total Weight: 100.85 grams

Initial Water Content

402.89 Wet Wt. (grams)
328.03 Dry Wt. (grams)
74.9 Wt. H2O (grams)

328.03 Dry Wt. (grams)
119.26 Tare Wt.
100.85 Weight Sample

35.86 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-19
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 87+00 - 143.00' O/S (PS) N.503979.2 E.36660332.8 / Lift 2 Elev. .2'
Total Sample Weight: 102.7 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 12/10/2010
Done By: CP
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
12/10		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
12/11		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	126.6	119.17	7.43	7.23	92.77	
#230						
Pan						

Total Weight: 102.7 grams

Initial Water Content

486.1 Wet Wt. (grams)
406.48 Dry Wt. (grams)
79.6 Wt. H2O (grams)

406.48 Dry Wt. (grams)
152.51 Tare Wt.
102.7 Weight Sample

31.35 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-20
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 82+03 - 140.00' O/S (PS) N.504457.1 E.3660466.2 / Lift 2 Elev. .5'
Total Sample Weight: 102.94 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 12/10/2010
Done By: CP
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
12/10		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
12/11		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	126.21	119.32	6.89	6.69	93.31	
#230						
Pan						

Total Weight: 102.94 grams

Initial Water Content

455.94 Wet Wt. (grams)
384.74 Dry Wt. (grams)
71.2 Wt. H2O (grams)

384.74 Dry Wt. (grams)
117.31 Tare Wt.
102.94 Weight Sample

26.62 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-21
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 77+00 - 138.00' O/S (PS) N.504942.2 E.3660603.1 / Lift 2 Elev. .6'
Total Sample Weight: 102.2 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 12/10/2010
Done By: CP
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
12/10		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
12/11		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	123.45	116.77	6.68	6.54	93.46	
#230						
Pan						

Total Weight: 102.2 grams

Initial Water Content

448.19 Wet Wt. (grams)
376.05 Dry Wt. (grams)
72.1 Wt. H2O (grams)

376.05 Dry Wt. (grams)
116.28 Tare Wt.
102.2 Weight Sample

27.77 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-22
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 72+03 - 141.00' O/S (PS) N.505418.5 E.3660741.9 / Lift 2 Elev. .4'
Total Sample Weight: 103.56 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 12/10/2010
Done By: CP
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
12/10		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
12/11		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	126.03	120.33	5.70	5.50	94.50	
#230						
Pan						

Total Weight: 103.56 grams

Initial Water Content

469.8 Wet Wt. (grams)
398.29 Dry Wt. (grams)
71.5 Wt. H2O (grams)

398.29 Dry Wt. (grams)
149.68 Tare Wt.
103.56 Weight Sample

28.76 H2O Content (%)

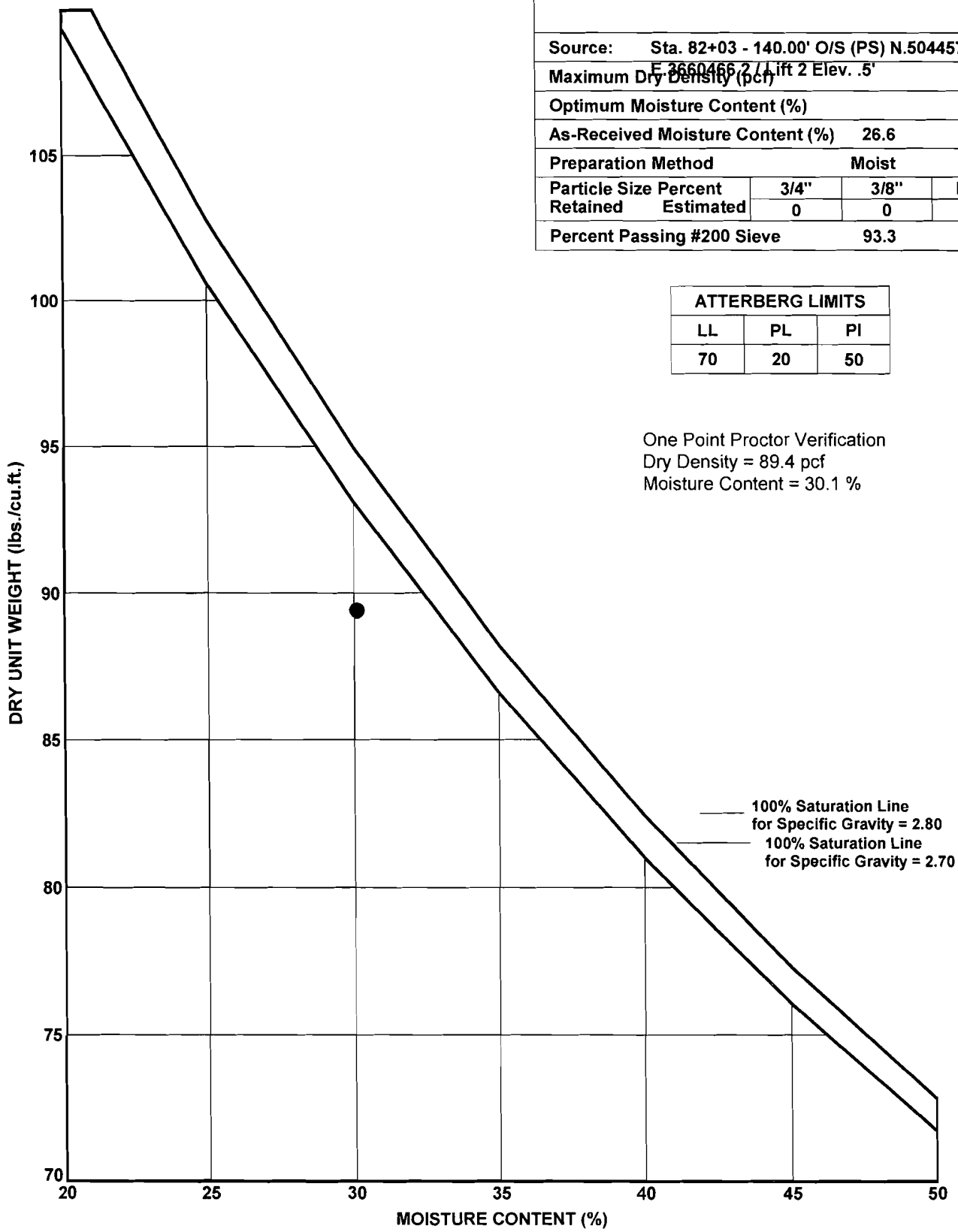
Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Material: Brown Clay (CH)			
Source: Sta. 82+03 - 140.00' O/S (PS) N.504457.1 E.3660466.2 / Lift 2 Elev. .5'			
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	26.6		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	93.3		

ATTERBERG LIMITS		
LL	PL	PI
70	20	50

One Point Proctor Verification
Dry Density = 89.4 pcf
Moisture Content = 30.1 %



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

Curve No.: T-20
Date: 12/13/10
File No.: 10-81-3667

ARD CP110 10-81-3667.GPJ LOG01.GDT 12/13/10

Fax 225-752-4878

QA TESTING REQUEST FORM

Lab: **Ardaman**

BPA# **09-A-0004**

Submit invoice to:

ATTN: S. Bennie Benson (smith.b.benson@us.army.mil)
United States Corp of Engineers - MVN District
P.O. Box 60267
New Orleans, LA 70160

Authorization to complete the following testing services as indicated below:

Call Officer: Gremillion, Glenn

Signature: [signature]

Date: 12/6/10

BLOCK CALL #: **019G**

Project Name: New Westwego PS to Orleans Village — CD Contract #: **W912P8-09-D-0046-0008**

USACE POC: Jeremy George — POC Phone: 985-209-8530

Order Date: 12/6/2010 — Test Date: 12/7/2010 — Test Time: 1:00pm ~~TBD~~

QA Lab Rep: Bill Singleton — QA Lab Phone: 225-752-4790

Is the requested services estimated to be over $2,500? **NO | YES** **(if yes follow FAR 13.303-5)**

Distribution List: Jeremy George jeremy.m.george@usace.army.mil

or Comments: John Thompson

# ORDERED	UNIT	DESCRIPTION	ASTM	# COMPLETE
		CONCRETE (estimated placement size cu. yds.)		
	HR	ACI TECH - PERFORM FIELD TESTS (Cyls, Slump, %Air, Temp, Unit Wt.)	C1077+	
	EACH	CONCRETE CURING AND COMPRESSIVE STRENGTH	C39	
		VIBRATION MONITORING		
	HR	VIBRATION TECH & EQUIP		
		SOILS FIELD TESTING		
8	HR	SOILS FIELD TECH - PERFORM TESTS	D3740	5.5 ✓
5	EACH	SOIL DENSITY - NUCLEAR METHOD	D6938*	5 ✓
1	EACH	SOIL DENSITY - SAND CONE METHOD	D1556	1 ✓
5	EACH	MOISTURE CONTENT TEST (OVEN/MICROWAVE)	(D2216)/D4643*	5 ✓
5	EACH	SOILS CLASSIFICATION	D2487*	5 ✓
5	EACH	ATTERBERG LIMITS DETERMINATION	D4318*	5 ✓
5	EACH	SOILS FINER - NO 200 SIEVE, WASH	C117/D1140*	5 ✓
5	EACH	SOILS ORGANIC CONTENT - METHOD 'C'	D2974	5 ✓
	EACH	STANDARD PROCTOR	D698*	
1	EACH	STANDARD PROCTOR - 1 POINT	D698	1 ✓
	EACH	RELATIVE DENSITY MIN / MAX	D4253/D4254*	
		SPECIAL TESTING REQUIREMENTS		
	EACH	TENSION TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
	EACH	BEND TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
		WELD INSPECTION & TESTING		
	HR	CERTIFIED WELDING INSPECTOR	AWS D1.1/D1.1M	
	EACH	LIQUID PENETRANT TESTING	ASTM E165	
	EACH	ULTRASONIC TESTING	ASTM E 164	
	EACH	RADIOGRAPHIC TESTING	ASTM E94	
	EACH	MAGNETIC TESTING	ASTM E709	

Note that where applicable, testing procedures should follow USACE EM 1110-2-1906 Lab Testing manual and/or in accordance with project specifications.

Testing Services have been completed as authorized and as indicated: ✓

Start Time: 11:30AM Stop Time: 5:00pm Travel Time: 3.0 Mile: 160

USACE Representative: Jeremy George

USACE Signature: Jeremy George

Date: 12/7/10

TRANSMITTAL

AAI

Ardaman & Associates, Inc.

To: **USACE-MVN District**
P O Box 60267
New Orleans, LA 70160

Date: March 30, 2011
Job No.: 113-10-81-3667
Project: New Westwego PS
CD Contract # W912P8-09-0046-0008
BPA # 09-A-0004
Block Call # 032G

Attention: **Glenn Gremillion**

From: Eric A. Paille EAP

COPIES	DESCRIPTION
1	Daily Field Report 05075
1	Chain of Custody
1	Atterberg Limit, Moisture Content, Organic Content , -200
1	One Point Proctor Verification (T-30A) & Sand Cone Density (T-30B)
1	Signed QA Testing Request Form

THESE ARE TRANSMITTED:

■ **FOR YOUR USE** ☐ **FOR REVIEW & COMMENT** ■ **AS REQUESTED**

☐ **REVISE AS NOTED** ☐ **TO BE DISTRIBUTED**

REMARKS: Email: Jeremy George jeremy.m.george@usace.army.mil

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated Laboratory

316 HIGHLANDIA DRIVE
BATON ROUGE, LA 7 0810
PHONE: (225) 752-4790
FAX: (225) 752-4878

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 05075
DATE OF SERVICE: 03/24/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 03/29/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway Construction

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3411-B
GAUGE SERIAL NO.: 25913
STANDARD COUNTS
MOISTURE - CURRENT: 574 PREVIOUS: 569
DENSITY - CURRENT: 1687 PREVIOUS: 1733
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(3182-129)	Brown Clay (CH)	29.4	88.2	
2.	(3555-353)	Brown Clay (CH)	30.0	86.6	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
28.	Station 107+07 o/s 82' (PS) N.502060.6 E.3659753.4	6	1/4.4'	1	31.9	29.4	115.1	87.3	88.2	99.0
29.	Station 101+99 o/s 73'(PS) N.502556.5 E.3659865.2	6	1/4.6'	1	30.4	29.4	114.2	87.6	88.2	99.3
30A	Station 96+99 centerline N.503059.6 E.3659914.6	12	7/11.5'	2	27.7	30.0	102.3	80.1	86.6	92.5

Report of Tests continued on page 2

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PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 03/24/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
30B	Station 96+99 Centerline N.503059.6 E.3659914.6	6	7/11.5'	2	28.7	30.0	107.9	83.8	86.6	96.8
31.	Station 102+00 Centerline N.502573.4 E.3659790.6	12	7/11.4'	2	21.2 *	30.0	101.6	83.8	86.6	96.8
32.	Station 107+02 Centerline N.503084.9 E.3659674.6	12	7/11.4'	2	22.1 *	30.0	99.3	81.3	86.6	93.9

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted on page 1.

ADDITIONAL COMMENTS:

Technician: Calvin Hu, Field Technician

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric Paille

Eric Paille
CMT Supervisor

Our letters and reports are for the exclusive use of the client to whom they are addressed and shall not be reproduced except in full without the approval of the testing laboratory. The use of our name must receive our written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not indicative of the quantities of apparently identical or similar products.

AAI

Ardaman and Associates, Inc.

CHAIN OF CUSTODY RECORD

Job No.: 113-10-81-3667 Date: 3-24-11

Project Name : New Westwego PS to Orleans Village

Project Location:

Collectors Name: Colin th

Type of Sample: Brown Cl No. of Containers: 5 bags

SAMPLE ID	SAMPLE LOCATION	PURPOSE
T-28	107+07	-200, Org, Att
T-29	101+99	" "
T-30A & 30B	96+99	" " Lpt proctor (30A)
T-31	102+00	" "
T-32	107+02	" "

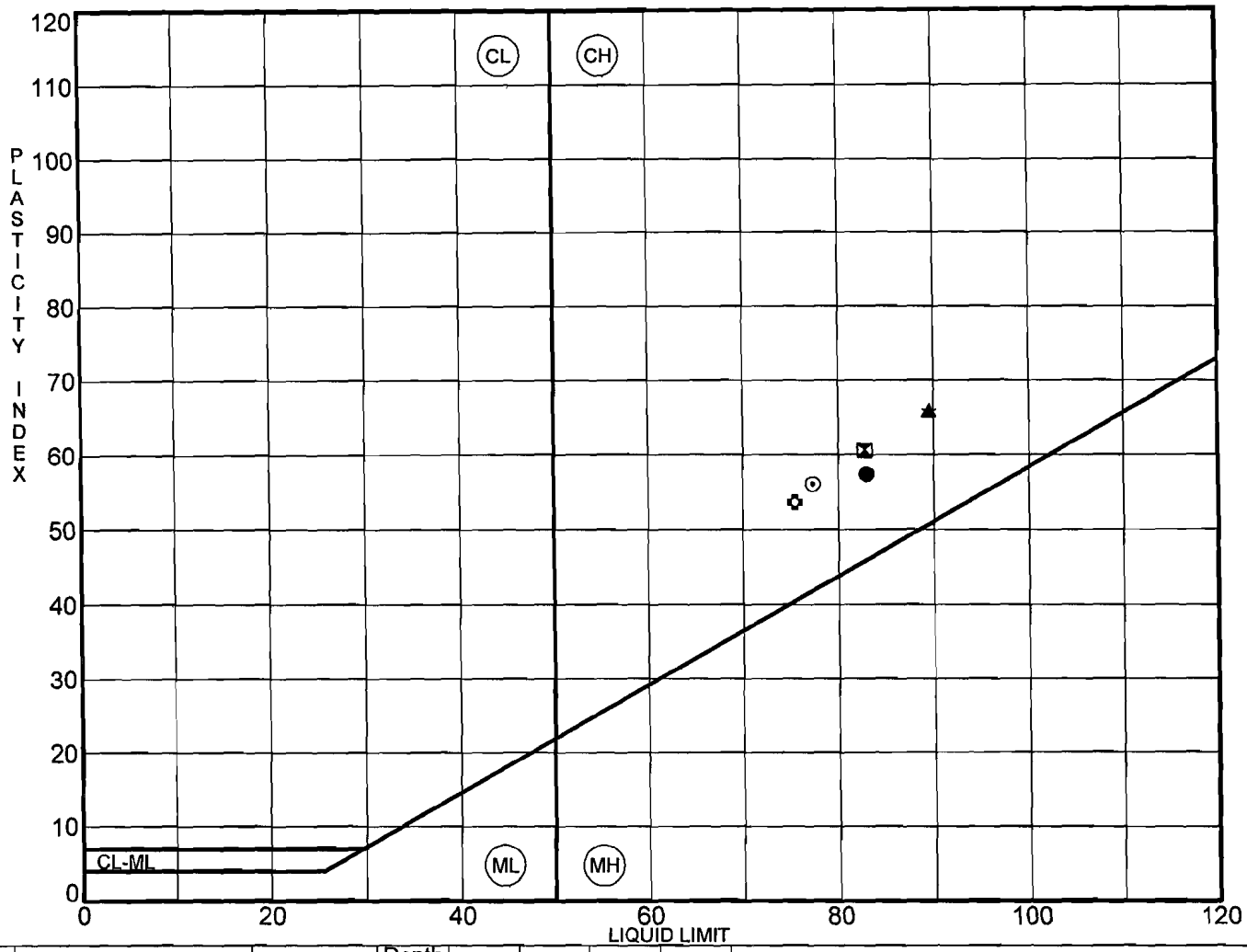
Sample Shipped by : AA I Date: 3-24-11

Custodian: Colin

Sample Received by: [illegible] Date: 3-24-11

Company Name: AA I

Remarks:



	Sample Number	Sample ID	Depth (ft.)	LL	PL	PI	Fines	Visual Classification
●	**T-28**		**0.0**	**83**	**26**	**57**	**95.0**	Brown Clay (CH)
⊠	**T-29**		**0.0**	**83**	**22**	**61**	**92.9**	Brown Clay (CH)
▲	**T-30A**		**0.0**	**90**	**24**	**66**	**97.9**	Brown Clay (CH)
★	**T-30B**		**0.0**	**90**	**24**	**66**	**97.5**	Brown Clay (CH)
⊙	**T-31**		**0.0**	**77**	**21**	**56**	**96.8**	Brown Clay (CH)
✿	**T-32**		**0.0**	**75**	**22**	**53**	**96.6**	Brown Clay (CH)

Remarks: All tests were performed in general accordance with ASTM Standards D4318, D421, D2217, and D1140.

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

Ardaman & Associates, Inc.

Ardaman and Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Telephone: 225-752-4790
Fax: 225-785-4878

ATTERBERG LIMITS' RESULTS

Project: New Westwego PS to Orleans Village

Client: USACE

AAI Project Number: 10-81-3667

ORGANIC CONTENT (ASTM D2974)

Ardaman & Associates, Inc.

Project: New Westwego PS to Orleans Village

File No.: 10-81-3667

Client: USACE

Date: 3/29/2011

Sample ID	Depth (feet)	Bowl No.	Tare Weight (gm)	Oven-dried Weight (w/tare)	Muffle-dried Weight (w/tare)	Muffle-dried Weight (w/o tare)	Ash Content (%)	Organic Content (%)
T-28	0 - 0	204	63.69	98.12	96.06	32.37	94.02	6.0
T-29	0 - 0	I	52.56	72.66	71.54	18.98	94.43	5.6
T-30A	0 - 0	BS	27.64	51.93	50.62	22.98	94.61	5.4
T-30B	0 - 0	G	64.25	87.44	86.15	21.90	94.44	5.6
T-31	0 - 0	SS	67.68	91.82	90.63	22.95	95.07	4.9
T-32	0 - 0	MM	54.36	81.97	80.62	26.26	95.11	4.9

Note: FOC = Organic Content divided by 174.

MOISTURE CONTENTS

Ardaman & Associates, Inc.

File No.: 10-81-3667

Date: 3/29/2011

Boring No.	Depth (ft.)	Moisture Content (%)	Classification	Can No.	Wet Wt. w/Can (grams)	Dry Wt. w/Can (grams)	Wt. of Can (grams)
T-28	0 - 0	31.91	Brown Clay (CH)		462.02	380.26	124.06
T-29	0 - 0	30.40	Brown Clay (CH)		422.25	352.62	123.55
T-30A	0 - 0	27.70	Brown Clay (CH)		490.29	416.41	149.69
T-30B	0 - 0	28.72	Brown Clay (CH)		381.36	323.08	120.17
T-31	0 - 0	21.22	Brown Clay (CH)		514.46	451.3	153.71
T-32	0 - 0	22.14	Brown Clay (CH)		469.57	406.26	120.37

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-28
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 107+07 - 82.0' O/S (PS) N.502060.6 E.3659753.4 / Lift 1 Elev. 4.4'
Total Sample Weight: 171.09 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 3/26/2011
Done By: HU
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
03/26		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
03/27		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	132.61	124.06	8.55	5.00	95.00	
#230						
Pan						

Total Weight: 171.09 grams

Initial Water Content

462.02 Wet Wt. (grams)
380.26 Dry Wt. (grams)
81.8 Wt. H2O (grams)

380.26 Dry Wt. (grams)
124.06 Tare Wt.
171.09 Weight Sample

31.91 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-29
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 101+99 - 73.0' O/S (PS)
N.502556.5 E.3659865.2 / Lift 1 Elev. 4.60'

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 3/26/2011
Done By: HU
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Total Sample Weight: 163.99 gm (Dry)

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
03/26		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
03/27		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	135.17	123.55	11.62	7.09	92.91	
#230						
Pan						

Total Weight: 163.99 grams

Initial Water Content

422.25 Wet Wt. (grams)
352.62 Dry Wt. (grams)
69.6 Wt. H2O (grams)

352.62 Dry Wt. (grams)
123.55 Tare Wt.
163.99 Weight Sample

30.40 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-30A
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 96+99 - CL N.503059.6 E.3659914.6 / Lift 7 Elev. 11.50'
Total Sample Weight: 163.52 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 3/26/2011
Done By: HU
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
03/26		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
03/27		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	153.08	149.69	3.39	2.07	97.93	
#230						
Pan						

Total Weight: 163.52 grams

Initial Water Content

490.29 Wet Wt. (grams)
416.41 Dry Wt. (grams)
73.9 Wt. H2O (grams)

416.41 Dry Wt. (grams)
149.69 Tare Wt.
163.52 Weight Sample

27.70 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-30B
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 96+99 - CL N.503059.6 E.3659914.6 / Lift 7 Elev. 11.50' (SAND CONE TEST LOCATION)
Total Sample Weight: 177.49 gm (Dry)

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 3/26/2011
Done By: HU
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
03/26		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
03/27		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	124.54	120.17	4.37	2.46	97.54	
#230						
Pan						

Total Weight: 177.49 grams

Initial Water Content

381.36 Wet Wt. (grams)
323.08 Dry Wt. (grams)
58.3 Wt. H2O (grams)

323.08 Dry Wt. (grams)
120.17 Tare Wt.
177.49 Weight Sample

28.72 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-31
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 102+00 - CL N.502573.4 E.3659790.6 / Lift 7 Elev. 11.40'
Total Sample Weight: 188.82 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 3/26/2011
Done By: HU
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
03/26		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
03/27		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	159.81	153.71	6.10	3.23	96.77	
#230						
Pan						

Total Weight: 188.82 grams

Initial Water Content

514.46 Wet Wt. (grams)
451.3 Dry Wt. (grams)
63.2 Wt. H2O (grams)

451.3 Dry Wt. (grams)
153.71 Tare Wt.
188.82 Weight Sample

21.22 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-32
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 107+02 - CL N.502084.9 E.3659674.6 / Lift 7 Elev. 11.40'
Total Sample Weight: 208.47 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 3/26/2011
Done By: HU
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
03/26		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
03/27		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	127.43	120.37	7.06	3.39	96.61	
#230						
Pan						

Total Weight: 208.47 grams

Initial Water Content

469.57 Wet Wt. (grams)
406.26 Dry Wt. (grams)
63.3 Wt. H2O (grams)

406.26 Dry Wt. (grams)
120.37 Tare Wt.
208.47 Weight Sample

22.14 H2O Content (%)

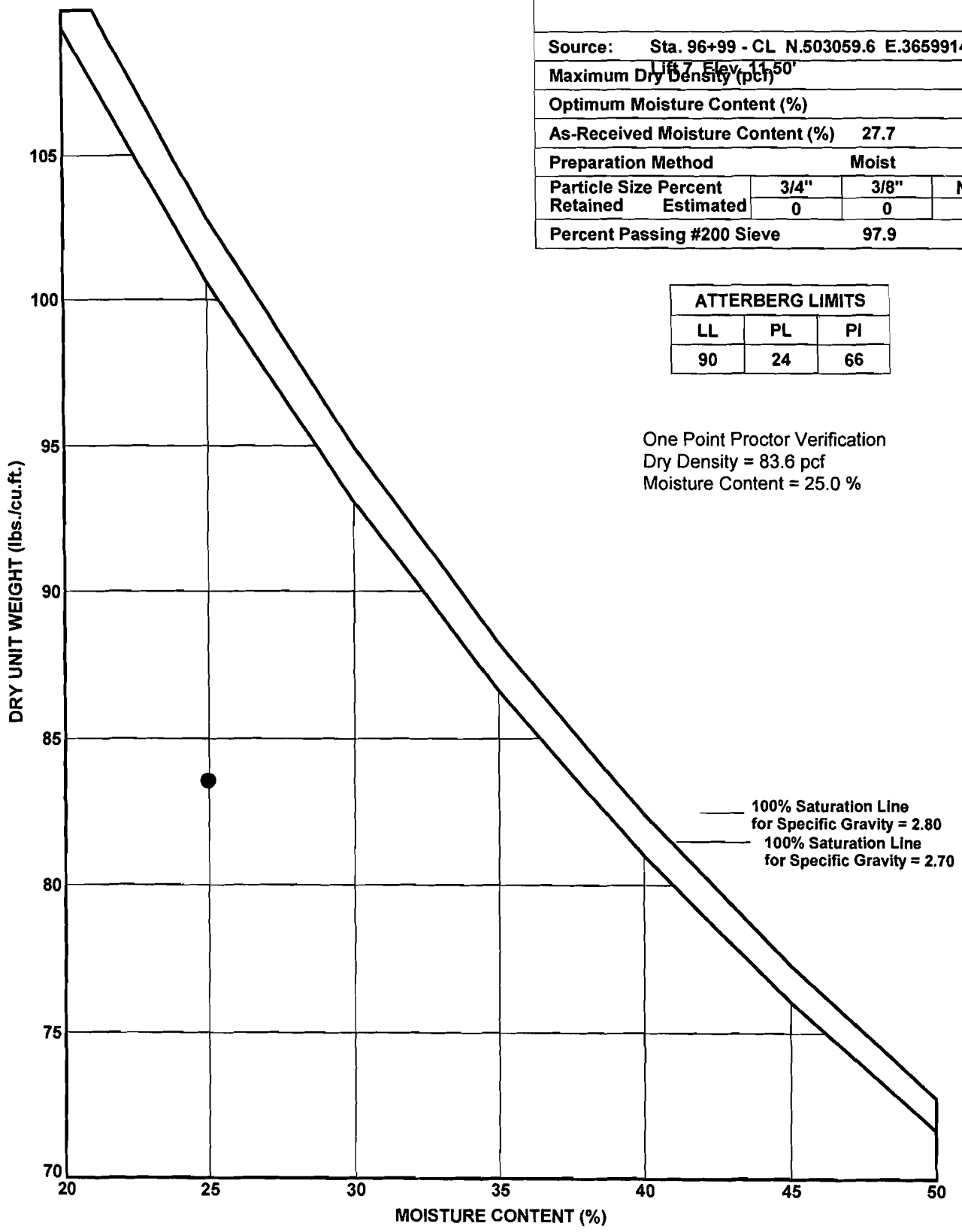
Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Material: Brown Clay (CH)			
Source: Sta. 96+99 - CL N.503059.6 E.3659914.6 / Lift 7 Elev. 11.50'			
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	27.7		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	97.9		

ATTERBERG LIMITS		
LL	PL	PI
90	24	66

One Point Proctor Verification
Dry Density = 83.6 pcf
Moisture Content = 25.0 %



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: T-30A
Date: 03/29/11
File No.: 10-81-3667

ARD CP110 10-81-3667.GPJ LOG01.GDT 03/29/11

SAND CONE DENSITY

ASTM D1556
Method A

Job No. 113-10-81-3667 Test No. T-30B Date: 3/24/2011

Technician: Clavin Hu Lift No. 7 Location New Westwego Levee PS to New Orleans

(1) Unit weight of sand	93.6	lbs/ft^3	Date Calibrated	3/18/2011	
(2)Weight of sand in cone	3.87	lbs	Date Calibrated	3/18/2011	
(3) Original weight of sand and Jar	13.77	lbs	Note: See attached work sheets for unit weight of sand and weight of sand in cone.		
(4) Final weight of sand and Jar	4.45	lbs			
(5) Weight of sand in cone and hole	9.32	lbs (3)-(4)	(8) Wet weight of soil	6.44	lbs
(6) Weight of sand in hole	5.45	lbs (5)-(2)	(9) Wet density of soil	110.6	lbs/ft^3 (8) / (7)
(7) Volume of hole	0.0582	ft^3 (6) / (1)			

MOISTURE CONTENT

OVEN DRY ASTM D2216			MICROWAVE ASTM D4643			
Tare no. Z-5			Tare No.			
						Trial dry weights
(10) Wet weight of soil & tare	490.29g		(16) Wet weight of soil & tare		g	
(11) Dry weight of soil & tare	416.41g		(17) Dry weight of soil & tare (Final)		g	#1-
(12) Weight of water	73.88g	(10) - (11)	(18) Weight of water	(16) - (17)	g	#2-
(13)Tare weight	149.69g		(19)Tare weight		g	#3-
(14) Dry weight of soil	266.72g	(11) - (13)	(20) Dry weight of soil	(17) - (19)	g	#4-
(15) Moisture %	27.7	(12) / (14)x100	(21) Moisture %			(18) / (20) *100

(22) Wet density of soil	110.6	lbs/ft^3 (9)	(25) Maximum Dry density	86.6	Proctor No. 3555-353
(23) Dry density of soil	86.6	lbs/ft^3 (22)/1+(24)x100	Optimum Moisture	30	
(24)Moisture %	27.7	Moisture content used in dry density calculation circle one		Oven	Microwave
% Compaction	100	(23)/(25)		X	

REMARKS: Nuclear WD 107.9

Sand Cone WD 110.6

2.7 2.44% difference

225-752-4878

QA TESTING REQUEST FORM

Lab: **Ardaman**
BPA# **09-A-0004**
Submit invoice to:
ATTN: S. Bennie Benson (smith.b.benson@us.army.mil)
United States Corp of Engineers - MVN District
P.O. Box 60267
New Orleans, LA 70160

Authorization to complete the following testing services as indicated below:

Call Officer: Gremillion, Glenn
Signature: JOHN T. TRAYLOR
Date: 3/21/11
BLOCK CALL #: **032G**

Project Name: New Westwego PS to Orleans Village
CD Contract #: **W912P8-09-D-0046-0008**
USACE POC: Jeremy George
POC Phone: 985.209.8530
Order Date: 3/21/2011
Test Date: 3/24/11 ~~3/23/2011~~ 3/24/11
Test Time: ~~9:00~~ 1:30
QA Lab Rep:
QA Lab Phone: 225-752-4790
Is the requested services estimated to be over $2,500? (NO) | YES **(if yes follow FAR 13.303-5)**
Distribution List: Jeremy George: jeremy.m.george@usace.army.mil
or Comments: Steven Montjoy
John Thompson

# ORDERED	UNIT	DESCRIPTION	ASTM	# COMPLETE
		CONCRETE (estimated placement size cu. yds.)		
	HR	ACI TECH - PERFORM FIELD TESTS (Cyls, Slump, %Air, Temp, Unit Wt.)	C1077+	
	EACH	CONCRETE CURING AND COMPRESSIVE STRENGTH	C39	
		VIBRATION MONITORING		
	HR	VIBRATION TECH & EQUIP		
		SOILS FIELD TESTING		
8	HR	SOILS FIELD TECH - PERFORM TESTS	D3740	7
5	EACH	SOIL DENSITY - NUCLEAR METHOD	D6938*	5
1	EACH	SOIL DENSITY - SAND CONE METHOD	D1556	1
5	EACH	MOISTURE CONTENT TEST (OVEN/MICROWAVE)	D2216/D4643*	5
5	EACH	SOILS CLASSIFICATION	D2487*	5
5	EACH	ATTERBERG LIMITS DETERMINATION	D4318*	5
5	EACH	SOILS FINER - NO 200 SIEVE, WASH	C117/D1140*	5
5	EACH	SOILS ORGANIC CONTENT - METHOD 'C'	D2974	5
	EACH	STANDARD PROCTOR	D698*	
1	EACH	STANDARD PROCTOR - 1 POINT	D698	1
	EACH	RELATIVE DENSITY MIN / MAX	D4253/D4254*	
		SPECIAL TESTING REQUIREMENTS		
	EACH	TENSION TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
	EACH	BEND TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
		WELD INSPECTION & TESTING		
	HR	CERTIFIED WELDING INSPECTOR	AWS D1.1/D1.1M	
	EACH	LIQUID PENETRANT TESTING	ASTM E165	
	EACH	ULTRASONIC TESTING	ASTM E 164	
	EACH	RADIOGRAPHIC TESTING	ASTM E94	
	EACH	MAGNETIC TESTING	ASTM E709	

**Note that where applicable, testing procedures should follow USACE EM 1110-2-1906 Lab Testing manual and/or in accordance with project specifications.*

Testing Services have been completed as authorized and as indicated:

Start Time: 11:30 Stop Time: 6:30 Travel Time: 4 Mile: 160
USACE Representative: Jeremy George
USACE Signature: Jeremy George
Date: 3/24/11

TRANSMITTAL

AAI

Ardaman & Associates, Inc.

To: USACE-MVN District
P O Box 60267
New Orleans, LA 70160

Date: October 5, 2010
Job No.: 113-10-81-3667
Project: New Westwego PS
CD Contract # W912P8-09-0046-0008
BPA # 09-A-0004
Block Call # 013G

Attention: Glenn Gremillion

From: Eric A. Paille EAP

COPIES	DESCRIPTION
1	Daily Field Reports 04074 & 04075
1	Chain of Custody
1	Atterberg Limit, Moisture Content, Organic Content , -200 & Curve 03 & 04
1	Signed QA Testing Request Form

THESE ARE TRANSMITTED:

■ **FOR YOUR USE** ☐ **FOR REVIEW & COMMENT** ■ **AS REQUESTED**

☐ **REVISE AS NOTED** ☐ **TO BE DISTRIBUTED**

REMARKS: Email: Jeremy George jeremy.m.george@usace.army.mil

AASHTO Accredited Laboratory
LELAP Certificate No. 02052

316 HIGHLANDIA DRIVE
BATON ROUGE, LA 7 0810
PHONE: (225) 752-4790
FAX: (225) 752-4878

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 04074
DATE OF SERVICE: 09/30/2010
AUTHORIZATION:
REPORT DATE: 10/04/2010

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: United States Corps Engineers

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 23202
STANDARD COUNTS
MOISTURE - CURRENT: 640 PREVIOUS: 632
DENSITY - CURRENT: 2594 PREVIOUS: 2603
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(Curve 40)	Br Cl (CH)	23.9	95.9	
2.	(Curve 1/2)	Br & G Cl (CH)	30.6	87.9	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
7.	93+17 o/s 16' FS N.503429.4 E.3660009.5	6	1/4.5'	1	23.2	23.9	116.3	94.4	95.9	98.4
8.	103+06 (RETEST T-5) N.502470.2 E.3659766.5	6	1/5.8'	2	28.3	30.6	107.6	83.9	87.9	95.4
9.	154+88 o/s 37' FS N.500770.7 E.3663434.3	12	2/5.5'	1	23.0	23.9	109.7	89.2	95.9	93.0

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 04074

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 09/30/2010

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)

Test results on this report meet project specifications as noted above.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric A. Paille

Eric Paille
CMT Supervisor

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AAI
Ardaman and Associates, Inc.

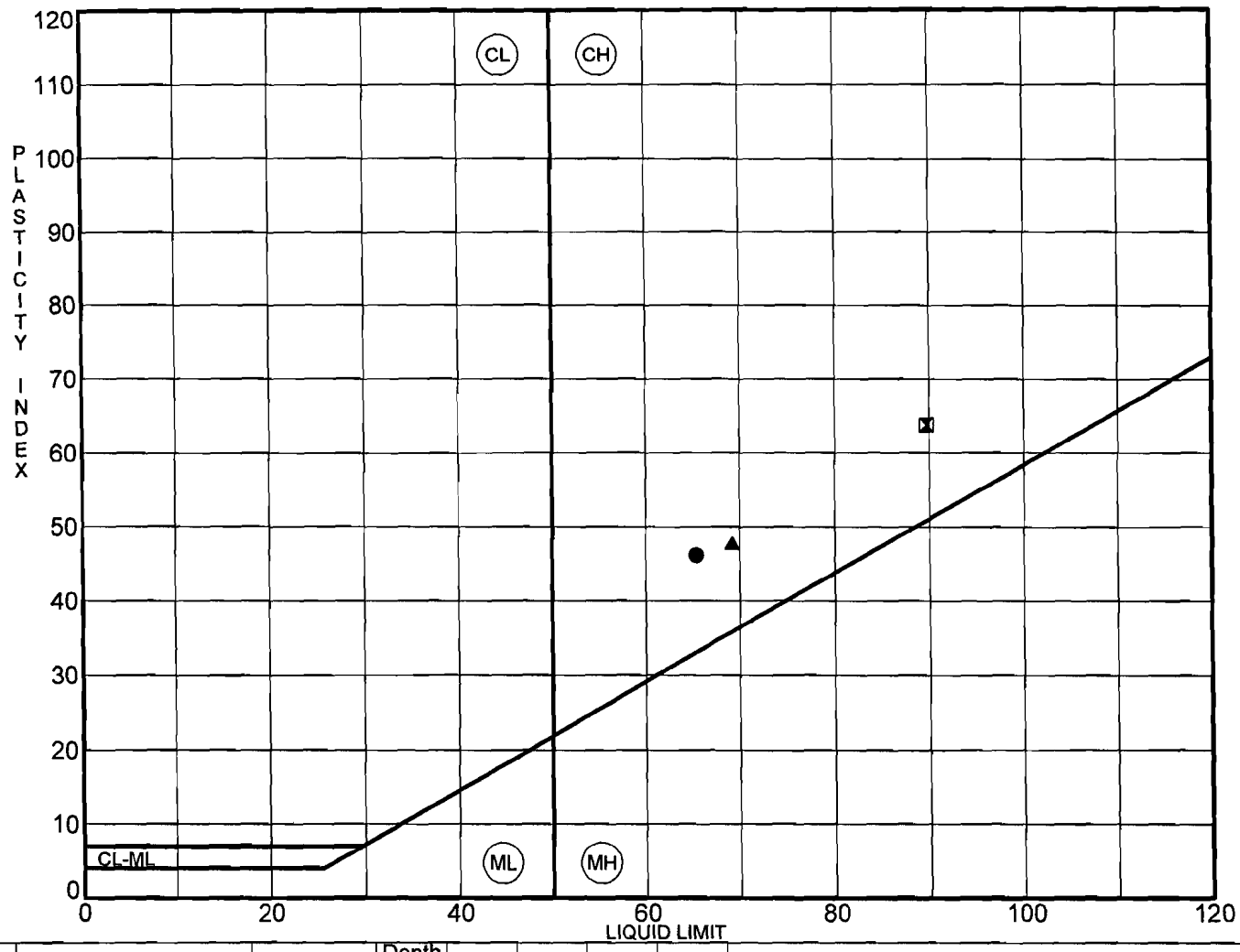
CHAIN OF CUSTODY RECORD

Job No.: 10-3667 Date: 9-30-10
Project Name : New Westwego Levee
Project Location: Jefferson Parish
Collectors Name: Bill Singleton
Type of Sample: Clay No. of Containers: 3

SAMPLE ID	SAMPLE LOCATION	PURPOSE
T-7	93+17	Att, ORG, -200, MC
T-8	103+06	↓
T-9	154+88	↓

Sample Shipped by : AAI Date: 9-30-10
Custodian: Bill Singleton
Sample Received by: Eric G. Pattle Date: 10/1/10
Company Name: Ardaman + Associates, Inc.

Remarks:



	Sample Number	Sample ID	Depth (ft.)	LL	PL	PI	Fines	Visual Classification
●	**T-7**		**0.0**	**65**	**19**	**46**	**95.0**	Brown Clay (CH)
⊠	**T-8**		**0.0**	**90**	**26**	**64**	**91.4**	Brown Clay (CH)
▲	**T-9**		**0.0**	**69**	**21**	**48**	**95.0**	Brown Clay (CH)

Remarks: All tests were performed in general accordance with ASTM Standards D4318, D421, D2217, and D1140.

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

Ardaman & Associates, Inc.

Ardaman and Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Telephone: 225-752-4790
Fax: 225-785-4878

ATTERBERG LIMITS' RESULTS

Project: New Westwego PS to Orleans Village

Client: USACE

AAI Project Number: 10-81-3667

ORGANIC CONTENT (ASTM D2974)

Ardaman & Associates, Inc.

Project: New Westwego PS to Orleans Village

File No.: 10-81-3667

Client: USACE

Date: 10/5/2010

Sample ID	Depth (feet)	Bowl No.	Tare Weight (gm)	Oven-dried Weight (w/tare)	Muffle-dried Weight (w/tare)	Muffle-dried Weight (w/o tare)	Ash Content (%)	Organic Content (%)
T-7	0 - 0	KK	52.51	83.59	82.03	29.52	94.98	5.0
T-8	0 - 0	NN	57.26	87.83	85.67	28.41	92.93	7.1
T-9	0 - 0	201	66.3	96.81	95.27	28.97	94.95	5.0

Note: FOC = Organic Content divided by 174.

MOISTURE CONTENTS

Ardaman & Associates, Inc.

File No.: 10-81-3667

Date: 10/5/2010

Boring No.	Depth (ft.)	Moisture Content (%)	Classification	Can No.	Wet Wt. w/Can (grams)	Dry Wt. w/Can (grams)	Wt. of Can (grams)
T-7	0 - 0	23.25	Brown Clay (CH)		297.16	263.69	119.71
T-8	0 - 0	28.26	Brown Clay (CH)		302.78	262.32	119.15
T-9	0 - 0	22.97	Brown Clay (CH)		355.32	310.85	117.29

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-7
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 93+17 O/S 16' (FS)
N.503429.4 E.3660009.5 / Lift 1 Elev 4.5'
Total Sample Weight: 102.69 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 10/1/2010
Done By: BS
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
10/01		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
10/02		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	124.85	119.71	5.14	5.01	94.99	
#230						
Pan						

Total Weight: 102.69 grams

Initial Water Content

297.16 Wet Wt. (grams)
263.69 Dry Wt. (grams)
33.5 Wt. H2O (grams)

263.69 Dry Wt. (grams)
119.71 Tare Wt.
102.69 Weight Sample

23.25 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-8
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 103+06 (RETEST T-5)
N.502470.2 E.3659766.5 / Lift 1 Elev. 5.8'
Total Sample Weight: 103.73 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 10/1/2010
Done By: BS
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
10/01		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
10/02		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	128.02	119.15	8.87	8.55	91.45	
#230						
Pan						

Total Weight: 103.73 grams

Initial Water Content

302.78 Wet Wt. (grams)
262.32 Dry Wt. (grams)
40.5 Wt. H2O (grams)

262.32 Dry Wt. (grams)
119.15 Tare Wt.
103.73 Weight Sample

28.26 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-9
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 154+88 O/S 37' (FS) N.500770.7 E.3663434.3 / Lift 2 Elev 5.5'
Total Sample Weight: 104.45 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 10/1/2010
Done By: BS
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
10/01		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
10/02		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	122.47	117.29	5.18	4.96	95.04	
#230						
Pan						

Total Weight: 104.45 grams

Initial Water Content

355.32 Wet Wt. (grams)
310.85 Dry Wt. (grams)
44.5 Wt. H2O (grams)

310.85 Dry Wt. (grams)
117.29 Tare Wt.
104.45 Weight Sample

22.97 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

QA TESTING REQUEST FORM

Lab: **Ardaman**

BPA# **09-A-0004**

Submit invoice to:

ATTN: S. Bennie Benson (smith.b.benson@us.army.mil)
United States Corp of Engineers - MVN District
P.O. Box 60267
New Orleans, LA 70160

Authorization to complete the following testing services as indicated below:

Call Officer: Gremillion, Glenn

Signature: [signature]

Date: 9/28/2010

BLOCK CALL #: **013G**

Project Name	New Westwego PS to Orleans Village	CD Contract #:	**W912P8-09-D-0046-0008**
USACE POC:	Jeremy George	POC Phone:	985-209-8530
Order Date:	9/27/2010 Test Date:	TBD 9/30/10 Test Time:	10:00A ~~9:00~~
QA Lab Rep:	Bill Singleton	QA Lab Phone:	225-752-4790

Is the requested services estimated to be over $2,500? (NO) | YES **(if yes follow FAR 13.303-5)**

Distribution List: Jeremy George (email; jeremy.m.george@usace.army.mil)

or Comments: John Thompson

# ORDERED	UNIT	DESCRIPTION	ASTM	# COMPLETE
		CONCRETE (estimated placement size cu. yds.)		
	HR	ACI TECH - PERFORM FIELD TESTS (Cyls, Slump, %Air, Temp, Unit Wt.)	C1077+	
	EACH	CONCRETE CURING AND COMPRESSIVE STRENGTH	C39	
		VIBRATION MONITORING		
	HR	VIBRATION TECH & EQUIP		
		SOILS FIELD TESTING		
8	HR	SOILS FIELD TECH - PERFORM TESTS	D3740	4
4	EACH	SOIL DENSITY - NUCLEAR METHOD	D6938*	3
1	EACH	SOIL DENSITY - SAND CONE METHOD	D1556	0
6	EACH	MOISTURE CONTENT TEST (OVEN/MICROWAVE)	D2216/D4643*	3
6	EACH	SOILS CLASSIFICATION	D2487*	3
6	EACH	ATTERBERG LIMITS DETERMINATION	D4318*	3
6	EACH	SOILS FINER - NO 200 SIEVE, WASH	C117/D1140*	3
6	EACH	SOILS ORGANIC CONTENT - METHOD 'C'	D2974	3
2	EACH	STANDARD PROCTOR	D698*	0
1	EACH	STANDARD PROCTOR - 1 POINT	D698	0
	EACH	RELATIVE DENSITY MIN / MAX	D4253/D4254*	
		SPECIAL TESTING REQUIREMENTS		
	EACH	TENSION TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
	EACH	BEND TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
		WELD INSPECTION & TESTING		
	HR	CERTIFIED WELDING INSPECTOR	AWS D1.1/D1.1M	
	EACH	LIQUID PENETRANT TESTING	ASTM E165	
	EACH	ULTRASONIC TESTING	ASTM E 164	
	EACH	RADIOGRAPHIC TESTING	ASTM E94	
	EACH	MAGNETIC TESTING	ASTM E709	

**Note that where applicable, testing procedures should follow USACE EM 1110-2-1906 Lab Testing manual and/or in accordance with project specifications.*

Testing Services have been completed as authorized and as indicated:

Start Time: 8:30AM Stop Time: 12:30PM Travel Time: _____ Mile: 150

USACE Representative: Jeremy George

USACE Signature: Jeremy Dery

Date: 9/30/10

Rev: Oct 2009

MVN BPA QA Test Order Form.xls

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF
USACE- NEW WESTWEGO LEVEE

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 04075
DATE OF SERVICE: 09/29/2010
AUTHORIZATION:
REPORT DATE: 10/05/2010

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform testing and/or inspection services as requested by the client.

REPORT OF TESTS

I met with Jeremy George with the COE to direct me where to secure two proctor samples for standard proctors. I secured two samples of the clay from station 99+25. The contractor quality control also secured two samples for proctors. I transported the samples to our laboratory for the proper testing.

Technician: Billy Singleton, Field Tech/Geologist
Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric A. Paille

Eric Paille
CMT Supervisor

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AAI

Ardaman and Associates, Inc.

CHAIN OF CUSTODY RECORD

Job No.: 10-3667 Date: 9-29-10

Project Name : New Westwego levee

Project Location: Jefferson Parish

Collectors Name: Bill Singleton

Type of Sample: Clay No. of Containers: 2

SAMPLE ID	SAMPLE LOCATION	PURPOSE
C-3	99+25	Att, DRG, -200, MC, Std (D698)
C-4	99+25	↓

Sample Shipped by : AAI Date: 9-29-10

Custodian: Bill Singleton

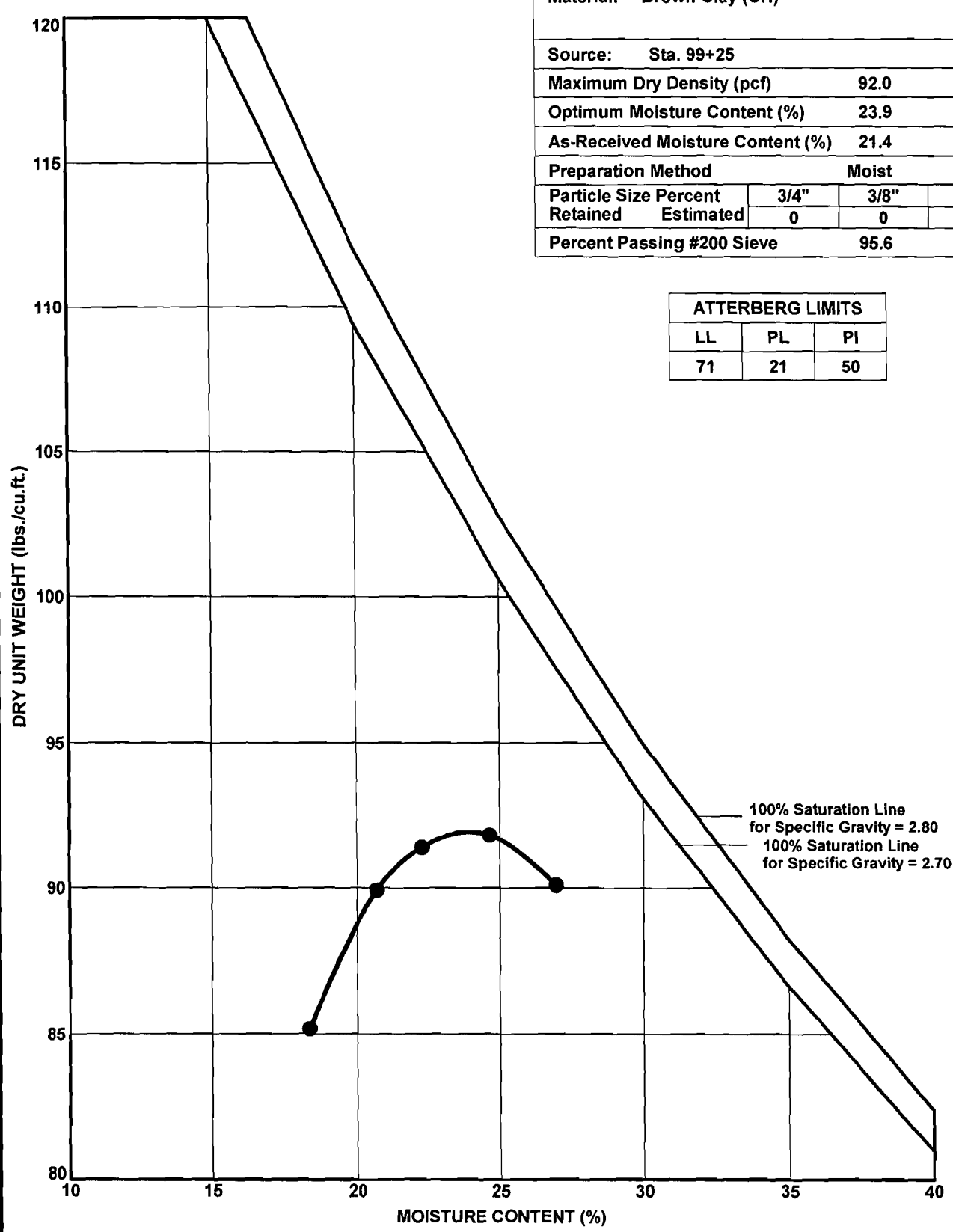
Sample Received by: Eric G. Paulk Date: 10/1/10

Company Name: Ardaman + Associates, Inc.

Remarks:

Material: Brown Clay (CH)			
Source: Sta. 99+25			
Maximum Dry Density (pcf)	92.0		
Optimum Moisture Content (%)	23.9		
As-Received Moisture Content (%)	21.4		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	95.6		

ATTERBERG LIMITS		
LL	PL	PI
71	21	50



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

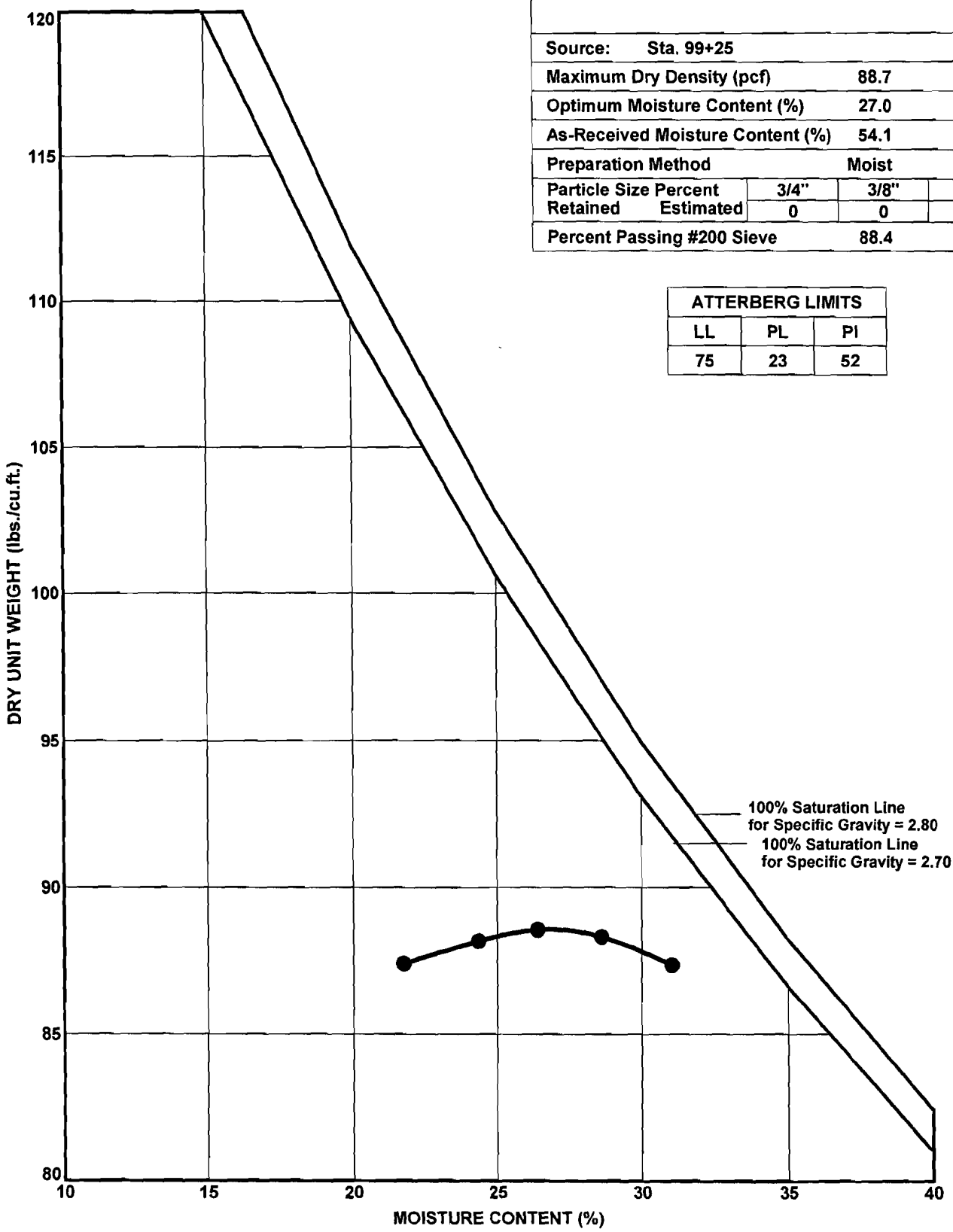
USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: 03
Date: 10/05/10
File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 10/05/10

Material: Brown Clay (CH)			
Source: Sta. 99+25			
Maximum Dry Density (pcf)	88.7		
Optimum Moisture Content (%)	27.0		
As-Received Moisture Content (%)	54.1		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	88.4		

ATTERBERG LIMITS		
LL	PL	PI
75	23	52



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

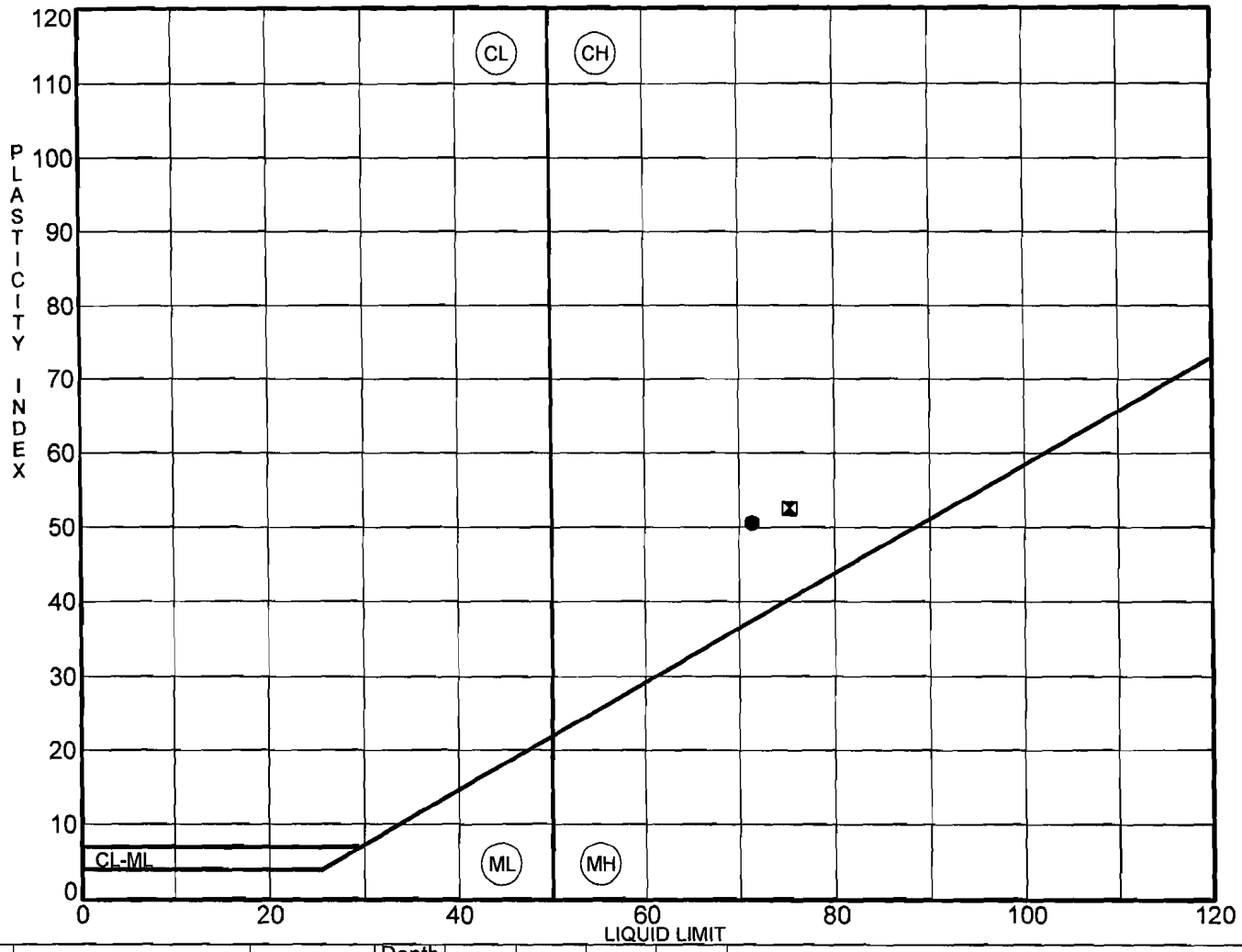
Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: 04
Date: 10/05/10
File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 10/05/10



	Sample Number	Sample ID	Depth (ft.)	LL	PL	PI	Fines	Visual Classification
●	03		0.0	71	21	50	95.6	Brown Clay (CH)
⊠	04		0.0	75	23	52	88.4	Brown Clay (CH)

Remarks: All tests were performed in general accordance with ASTM Standards D4318, D421, D2217, and D1140.

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

Ardaman & Associates, Inc.

Ardaman and Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Telephone: 225-752-4790
Fax: 225-785-4878

ATTERBERG LIMITS' RESULTS

Project: New Westwego PS to Orleans Village

Client: USACE

AAI Project Number: 10-81-3667

ORGANIC CONTENT (ASTM D2974)

Ardaman & Associates, Inc.

Project: New Westwego PS to Orleans Village

File No.: 10-81-3667

Client: USACE

Date: 10/5/2010

Sample ID	Depth (feet)	Bowl No.	Tare Weight (gm)	Oven-dried Weight (w/tare)	Muffle-dried Weight (w/tare)	Muffle-dried Weight (w/o tare)	Ash Content (%)	Organic Content (%)
03	0 - 0	200	59.17	89.71	88.16	28.99	94.92	5.1
04	0 - 0	203	64.69	96.96	94.99	30.30	93.90	6.1

Note: FOC = Organic Content divided by 174.

MOISTURE CONTENTS

Ardaman & Associates, Inc.

File No.: 10-81-3667

Date: 10/5/2010

Boring No.	Depth (ft.)	Moisture Content (%)	Classification	Can No.	Wet Wt. w/Can (grams)	Dry Wt. w/Can (grams)	Wt. of Can (grams)
03	0 - 0	21.43	Brown Clay (CH)		365.97	328.23	152.15
04	0 - 0	54.11	Brown Clay (CH)		310.42	244.83	123.61

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: 03
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 99+25
Total Sample Weight: 105.91 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 10/1/2010
Done By: BS
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
10/01		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
10/02		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	156.81	152.15	4.66	4.40	95.60	
#230						
Pan						

Total Weight: 105.91 grams

Initial Water Content

365.97 Wet Wt. (grams)
328.23 Dry Wt. (grams)
37.7 Wt. H2O (grams)

328.23 Dry Wt. (grams)
152.15 Tare Wt.
105.91 Weight Sample

21.43 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: 04
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 99+25
Total Sample Weight: 75.73 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 10/1/2010
Done By: BS
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
10/01		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
10/02		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	132.43	123.61	8.82	11.65	88.35	
#230						
Pan						

Total Weight: 75.73 grams

Initial Water Content

310.42 Wet Wt. (grams)
244.83 Dry Wt. (grams)
65.6 Wt. H2O (grams)

244.83 Dry Wt. (grams)
123.61 Tare Wt.
75.73 Weight Sample

54.11 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

QA TESTING REQUEST FORM

Lab: **Ardaman**

BPA# **09-A-0004**

Submit invoice to:

ATTN: S. Bennie Benson (smith.b.benson@us.army.mil)
United States Corp of Engineers - MVN District
P.O. Box 60267
New Orleans, LA 70160

Authorization to complete the following testing services as indicated below:

Call Officer: Gremillion, Glenn

Signature:

Date: 9/28/2010

BLOCK CALL #: **013G**

Project Name	New Westwego PS to Orleans Village	CD Contract #:	W912P8-09-D-0046-0008
USACE POC:	Jeremy George	POC Phone:	985-209-8530
Order Date:	9/27/2010 Test Date: TBD 9/29/10	Test Time:	11:00 ~~9:00~~
QA Lab Rep:	Bill Singleton	QA Lab Phone:	225-752-4790

Is the requested services estimated to be over $2,500? (NO) | YES **(if yes follow FAR 13.303-5)**

Distribution List: Jeremy George (email; jeremy.m.george@usace.army.mil)

or Comments: John Thompson

# ORDERED	UNIT	DESCRIPTION	ASTM	# COMPLETE
		CONCRETE (estimated placement size cu. yds.)		
	HR	ACI TECH - PERFORM FIELD TESTS (Cyls, Slump, %Air, Temp, Unit Wt.)	C1077+	
	EACH	CONCRETE CURING AND COMPRESSIVE STRENGTH	C39	
		VIBRATION MONITORING		
	HR	VIBRATION TECH & EQUIP		
		SOILS FIELD TESTING		
8	HR	SOILS FIELD TECH - PERFORM TESTS	D3740	4
4	EACH	SOIL DENSITY - NUCLEAR METHOD	D6938*	0
1	EACH	SOIL DENSITY - SAND CONE METHOD	D1556	0
6	EACH	MOISTURE CONTENT TEST (OVEN/MICROWAVE)	D2216/D4643*	2
6	EACH	SOILS CLASSIFICATION	D2487*	2
6	EACH	ATTERBERG LIMITS DETERMINATION	D4318*	2
6	EACH	SOILS FINER - NO 200 SIEVE, WASH	C117/D1140*	2
6	EACH	SOILS ORGANIC CONTENT - METHOD 'C'	D2974	2
2	EACH	STANDARD PROCTOR	D698*	2
1	EACH	STANDARD PROCTOR - 1 POINT	D698	0
	EACH	RELATIVE DENSITY MIN / MAX	D4253/D4254*	
		SPECIAL TESTING REQUIREMENTS		
	EACH	TENSION TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
	EACH	BEND TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
		WELD INSPECTION & TESTING		
	HR	CERTIFIED WELDING INSPECTOR	AWS D1.1/D1.1M	
	EACH	LIQUID PENETRANT TESTING	ASTM E165	
	EACH	ULTRASONIC TESTING	ASTM E 164	
	EACH	RADIOGRAPHIC TESTING	ASTM E94	
	EACH	MAGNETIC TESTING	ASTM E709	

**Note that where applicable, testing procedures should follow USACE EM 1110-2-1906 Lab Testing manual and/or in accordance with project specifications.*

Testing Services have been completed as authorized and as indicated:

Start Time: 1000Am Stop Time: 1400hr Travel Time: 2.5 Mile: 150

USACE Representative: Jeremy George

USACE Signature: Jeremy George

Date: 9/29/10

TRANSMITTAL

AAI

Ardaman & Associates, Inc.

To: **USACE-MVN District**
P O Box 60267
New Orleans, LA 70160

Date: November 30, 2010
Job No.: 113-10-81-3667
Project: New Westwego PS
CD Contract # W912P8-09-0046-0008
BPA # 09-A-0004
Block Call # 017G

Attention: **Glenn Gremillion**

From: Eric A. Paille EAP

COPIES	DESCRIPTION
1	Daily Field Report 04501
1	Chain of Custody
1	Atterberg Limit, Moisture Content, Organic Content , -200
1	One Point Proctor Verification (T-15)
1	Signed QA Testing Request Form

THESE ARE TRANSMITTED:

■ **FOR YOUR USE** ☐ **FOR REVIEW & COMMENT** ■ **AS REQUESTED**

☐ **REVISE AS NOTED** ☐ **TO BE DISTRIBUTED**

REMARKS: Email: Jeremy George jeremy.m.george@usace.army.mil

AASHTO Accredited Laboratory
LELAP Certificate No. 02052

316 HIGHLANDIA DRIVE
BATON ROUGE, LA 7 0810
PHONE: (225) 752-4790
FAX: (225) 752-4878

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 04501
DATE OF SERVICE: 11/23/2010
AUTHORIZATION:
REPORT DATE: 12/01/2010

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: USACE

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 617 PREVIOUS: 617
DENSITY - CURRENT: 2140 PREVIOUS: 2140
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(Curve 132)	Brown Clay (CH)	28.5	90.0	
2.	(Curve 130)	Brown Clay (CH)	27.6	87.5	
3.	(Curve 129)	Brown Clay (CH)	29.4	88.2	
4.	(Curve 133)	Brown Clay (CH)	26.5	91.6	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
13.	Station 87+54 12' o/s (PS) N.503963.4 E.3660191.1	12	4/8.0'	1	29.9	28.5	115.1	88.6	90.0	98.4
14.	Station 82+90 centerline crown N.504410.6 E.3660317.4	12	3/7.2'	2	34.9 *	27.6	113.5	84.1	87.5	96.1
15.	Station 79+00 9' o/s (FS) N.504288.9 E.3660404.8	12	3/8.1'	2	29.9	27.6	116.7	89.8	87.5	102.6

Report of Tests continued on page 2

Our letters and reports are for the exclusive use of the client to whom they are addressed and shall not be reproduced except in full without the approval of the testing laboratory. The use of our name must receive our written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not indicative of the quantities of apparently identical or similar products.

Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 04501

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 11/23/2010

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
16.	Station 76+53 centerline crown N.505027.0 E.3660382.1	12	3/7.8'	3	37.3 *	29.4	113.0	82.3	88.2	93.3
17.	Station 69+06 39' o/s (FS) N.505699.3 E.3660597.2	12	4/6.3'	4	28.4	26.5	117.0	91.1	91.6	99.5

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted above.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric A. Paille

Eric Paille
CMT Supervisor

Our letters and reports are for the exclusive use of the client to whom they are addressed and shall not be reproduced except in full without the approval of the testing laboratory. The use of our name must receive our written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not indicative of the quantities of apparently identical or similar products.

AAI

Ardaman and Associates, Inc.

CHAIN OF CUSTODY RECORD

Job No.: 10-3667 Date: 11-23-10

Project Name : New Westwego Levee

Project Location: Jefferson Parish

Collectors Name: Bill Singleton

Type of Sample: Clay No. of Containers: 5

SAMPLE ID	SAMPLE LOCATION	PURPOSE
T-13	87+54	Att, MC, ORG, -200
T-14	82+90	
T-15	79+00	Apt Proctor
T-16	76+53	
T-17	69+06	

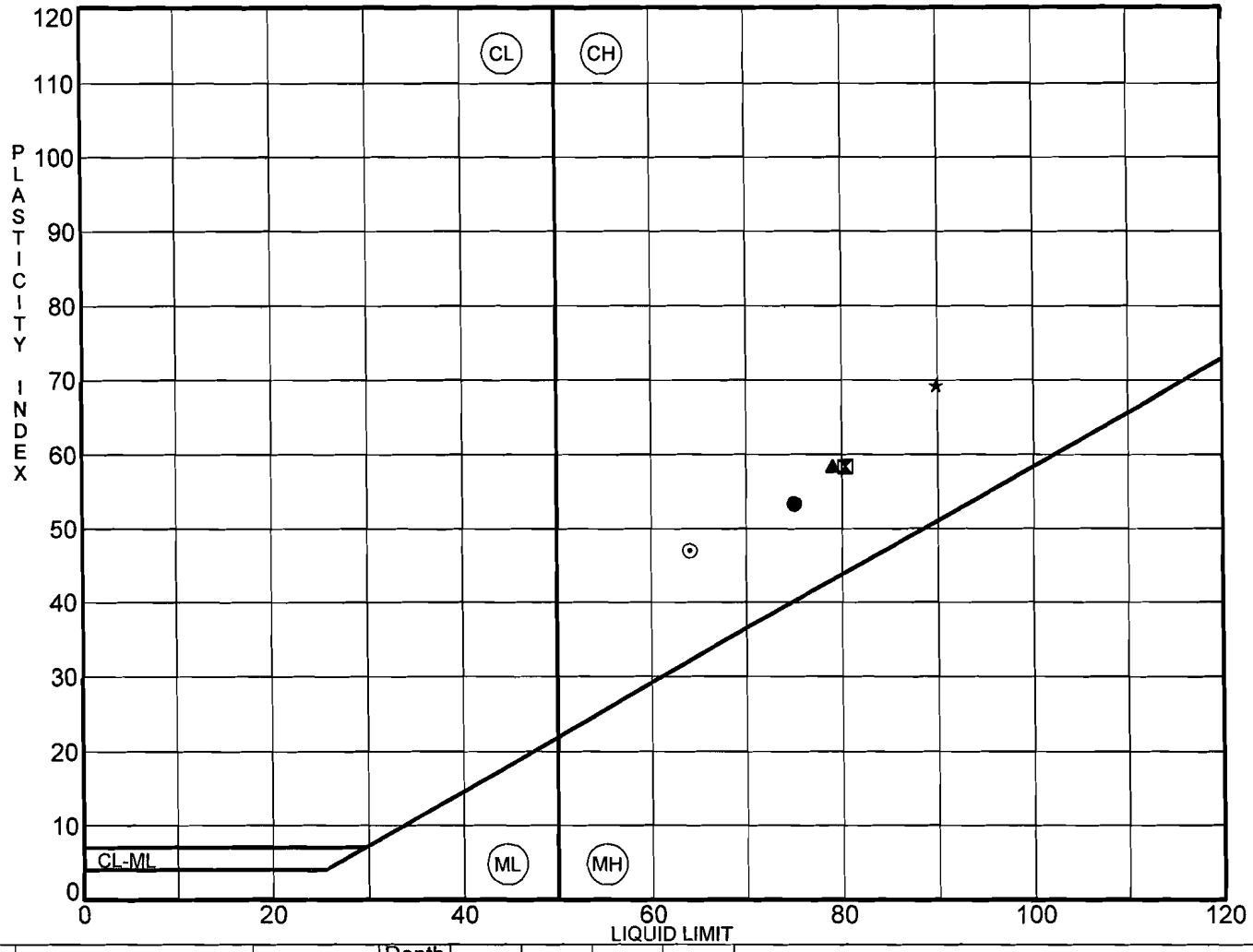
Sample Shipped by : Ardaman + Associates Date: 11-23-10

Custodian: Bill Singleton

Sample Received by: Eric G. Paulli Date: 11-24-10

Company Name: Ardaman + Associates, Inc.

Remarks:



	Sample Number	Sample ID	Depth (ft.)	LL	PL	PI	Fines	Visual Classification
●	**T-13**		**0.0**	**75**	**22**	**53**	**97.6**	Brown Clay (CH)
⊠	**T-14**		**0.0**	**80**	**22**	**58**	**98.0**	Brown Clay (CH)
▲	**T-15**		**0.0**	**79**	**21**	**58**	**98.3**	Brown Clay (CH)
★	**T-16**		**0.0**	**90**	**21**	**69**	**98.6**	Brown Clay (CH)
⊙	**T-17**		**0.0**	**64**	**17**	**47**	**96.5**	Brown Clay (CH)

Remarks: All tests were performed in general accordance with ASTM Standards D4318, D421, D2217, and D1140.

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

Ardaman & Associates, Inc.

Ardaman and Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Telephone: 225-752-4790
Fax: 225-785-4878

ATTERBERG LIMITS' RESULTS

Project: New Westwego PS to Orleans Village

Client: USACE

AAI Project Number: 10-81-3667

ORGANIC CONTENT (ASTM D2974)

Ardaman & Associates, Inc.

Project: New Westwego PS to Orleans Village

File No.: 10-81-3667

Client: USACE

Date: 11/29/2010

Sample ID	Depth (feet)	Bowl No.	Tare Weight (gm)	Oven-dried Weight (w/tare)	Muffle-dried Weight (w/tare)	Muffle-dried Weight (w/o tare)	Ash Content (%)	Organic Content (%)
T-13	0 - 0	204	63.66	101.95	100.5	36.84	96.21	3.8
T-14	0 - 0	QQ	58.06	92.96	91.44	33.38	95.64	4.4
T-15	0 - 0	NN	57.27	92.54	91.01	33.74	95.66	4.3
T-16	0 - 0	TT	52.57	84.87	83.46	30.89	95.63	4.4
T-17	0 - 0	B	61.96	100.3	99.1	37.14	96.87	3.1

Note: FOC = Organic Content divided by 174.

MOISTURE CONTENTS

Ardaman & Associates, Inc.

File No.: 10-81-3667

Date: 11/29/2010

Boring No.	Depth (ft.)	Moisture Content (%)	Classification	Can No.	Wet Wt. w/Can (grams)	Dry Wt. w/Can (grams)	Wt. of Can (grams)
T-13	0 - 0	29.85	Brown Clay (CH)		453.58	384.64	153.7
T-14	0 - 0	34.94	Brown Clay (CH)		467.66	378.09	121.7
T-15	0 - 0	29.89	Brown Clay (CH)		413.78	347.74	126.82
T-16	0 - 0	37.29	Brown Clay (CH)		412.41	332.92	119.75
T-17	0 - 0	28.37	Brown Clay (CH)		417.22	351.16	118.31

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-13
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 87+54 12' o/s PS / N.503963.4 E.3660191.1 Lift 4 Elev. 8.0'
Total Sample Weight: 101.91 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 11/24/2010
Done By: CH
Calc by: DW

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
11/24		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
11/25		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	152.01	149.59	2.42	2.37	97.63	
#230						
Pan						

Total Weight: 101.91 grams

Initial Water Content

453.58 Wet Wt. (grams)
384.64 Dry Wt. (grams)
68.9 Wt. H2O (grams)

384.64 Dry Wt. (grams)
153.7 Tare Wt.
101.91 Weight Sample

29.85 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-14
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 82+90 CL Crown / N.504410.6 E.3660317.4 Lift 3 Elev. 7.2'
Total Sample Weight: 105.55 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 11/24/2010
Done By: CH
Calc by: DW

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
11/24		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
11/25		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	121.66	119.52	2.14	2.03	97.97	
#230						
Pan						

Total Weight: 105.55 grams

Initial Water Content

467.66 Wet Wt. (grams)
378.09 Dry Wt. (grams)
89.6 Wt. H2O (grams)

378.09 Dry Wt. (grams)
121.7 Tare Wt.
105.55 Weight Sample

34.94 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-15
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 79+00 9' o/s FS N.504288.9 E.3660404.8 Lift 3 Elev. 8.1'
Total Sample Weight: 88.55 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 11/24/2010
Done By: CH
Calc by: DW

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
11/24		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
11/25		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	120.63	119.16	1.47	1.66	98.34	
#230						
Pan						

Total Weight: 88.55 grams

Initial Water Content

413.78 Wet Wt. (grams)
347.74 Dry Wt. (grams)
66.0 Wt. H2O (grams)

347.74 Dry Wt. (grams)
126.82 Tare Wt.
88.55 Weight Sample

29.89 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-16
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 76+53 CL Crown / N.505027.0 E.3660382.1 Lift 3 Elev. 7.8'
Total Sample Weight: 97.61 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 11/24/2010
Done By: CH
Calc by: DW

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
11/24		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
11/25		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	154.55	153.14	1.41	1.44	98.56	
#230						
Pan						

Total Weight: 97.61 grams

Initial Water Content

412.41 Wet Wt. (grams)
332.92 Dry Wt. (grams)
79.5 Wt. H2O (grams)

332.92 Dry Wt. (grams)
119.75 Tare Wt.
97.61 Weight Sample

37.29 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-17
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 69+06 39' o/s FS / N.505699.3 E.3660597.2 Lift 4 Elev. 6.3'
Total Sample Weight: 101.1 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 11/24/2010
Done By: CH
Calc by: DW

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
11/24		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
11/25		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	122.84	119.27	3.57	3.53	96.47	
#230						
Pan						

Total Weight: 101.1 grams

Initial Water Content

417.22 Wet Wt. (grams)
351.16 Dry Wt. (grams)
66.1 Wt. H2O (grams)

351.16 Dry Wt. (grams)
118.31 Tare Wt.
101.1 Weight Sample

28.37 H2O Content (%)

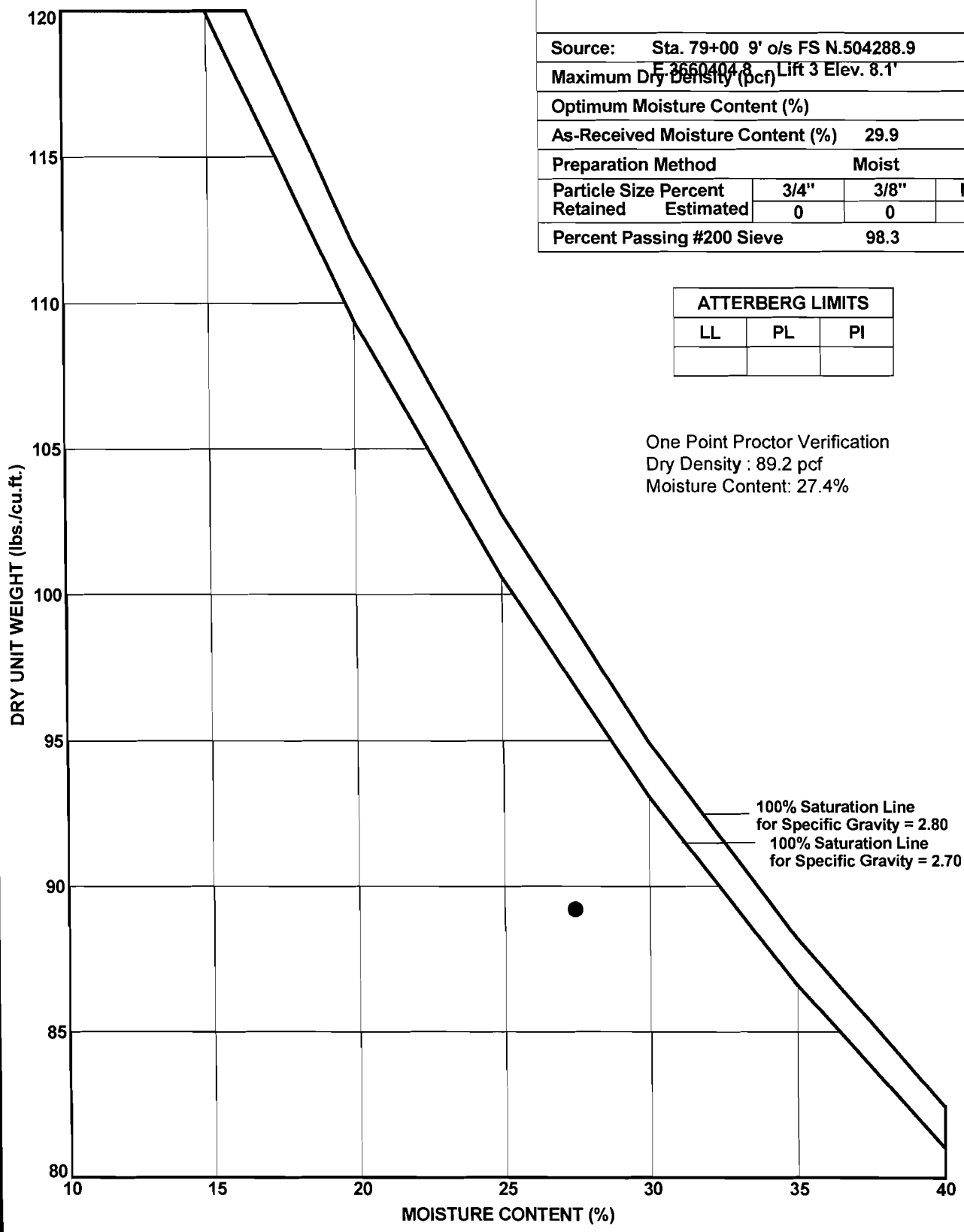
Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Material:	Brown Clay (CH)		
Source:	Sta. 79+00 9' o/s FS N.504288.9 E.3660404.8 Lift 3 Elev. 8.1'		
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	29.9		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	98.3		

ATTERBERG LIMITS		
LL	PL	PI

One Point Proctor Verification
Dry Density : 89.2 pcf
Moisture Content: 27.4%



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: T-15
Date: 11/29/10
File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 11/29/10

Fax 225-152-4010

QA TESTING REQUEST FORM

Lab: **Ardaman**

BPA# **09-A-0004**

Submit invoice to:

ATTN: S. Bennie Benson (smith.b.benson@us.army.mil)
United States Corp of Engineers - MVN District
P.O. Box 60267
New Orleans, LA 70160

Authorization to complete the following testing services as indicated below:

Call Officer: Gremillion, Glenn

Signature: JOHN THOMPSON

Date: 11/18/10

BLOCK CALL #: **017G**

Project Name	New Westwego PS to Orleans Village	CD Contract #:	**W912P8-09-D-0046-0008**
USACE POC:	Jeremy George	POC Phone:	985-209-8530
Order Date:	11/19/2010	Test Date: 11/23/2010	Test Time: 9:00
QA Lab Rep:	Bill Singleton	QA Lab Phone:	225-752-4790

Is the requested services estimated to be over $2,500? (NO) | YES **(if yes follow FAR 13.303-5)**

Distribution List: Jeremy George jeremy.m.george@usace.army.mil

or Comments: John Thompson

# ORDERED	UNIT	DESCRIPTION	ASTM	# COMPLETE
		CONCRETE (estimated placement size cu. yds.)		
	HR	ACI TECH - PERFORM FIELD TESTS (Cyls, Slump, %Air, Temp, Unit Wt.)	C1077+	
	EACH	CONCRETE CURING AND COMPRESSIVE STRENGTH	C39	
		VIBRATION MONITORING		
	HR	VIBRATION TECH & EQUIP		
		SOILS FIELD TESTING		
10	HR	SOILS FIELD TECH - PERFORM TESTS	D3740	4.75
5	EACH	SOIL DENSITY - NUCLEAR METHOD	D6938*	5
	EACH	SOIL DENSITY - SAND CONE METHOD	D1556	
5	EACH	MOISTURE CONTENT TEST (OVEN/MICROWAVE)	(D2216)/D4643*	5
5	EACH	SOILS CLASSIFICATION	D2487*	5
5	EACH	ATTERBERG LIMITS DETERMINATION	D4318*	5
5	EACH	SOILS FINER - NO 200 SIEVE, WASH	C117/D1140*	5
5	EACH	SOILS ORGANIC CONTENT - METHOD 'C'	D2974	5
	EACH	STANDARD PROCTOR	D698*	
1	EACH	STANDARD PROCTOR - 1 POINT	D698	1
	EACH	RELATIVE DENSITY MIN / MAX	D4253/D4254*	
		SPECIAL TESTING REQUIREMENTS		
	EACH	TENSION TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
	EACH	BEND TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
		WELD INSPECTION & TESTING		
	HR	CERTIFIED WELDING INSPECTOR	AWS D1.1/D1.1M	
	EACH	LIQUID PENETRANT TESTING	ASTM E165	
	EACH	ULTRASONIC TESTING	ASTM E 164	
	EACH	RADIOGRAPHIC TESTING	ASTM E94	
	EACH	MAGNETIC TESTING	ASTM E709	

*Note that where applicable, testing procedures should follow USACE EM 1110-2-1906 Lab Testing manual and/or in accordance with project specifications.

Testing Services have been completed as authorized and as indicated:

Start Time: 830am Stop Time: 1315/1015 Travel Time: 3.0 Mile: 160

USACE Representative: Jeremy George

USACE Signature: Jeremy George Date: 11-23-10

TRANSMITTAL

AAI

Ardaman & Associates, Inc.

To: USACE-MVN District
P O Box 60267
New Orleans, LA 70160

Date: March 9, 2011
Job No.: 113-10-81-3667
Project: New Westwego PS
CD Contract # W912P8-09-0046-0008
BPA # 09-A-0004
Block Call # 026G

Attention: Glenn Gremillion

From: Eric A. Paille EAP

COPIES	DESCRIPTION
1	Daily Field Report 04957
1	Chain of Custody
1	Atterberg Limit, Moisture Content, Organic Content , -200
1	One Point Proctor Verification (T-25)
1	Signed QA Testing Request Form

THESE ARE TRANSMITTED:

■ **FOR YOUR USE** ☐ **FOR REVIEW & COMMENT** ■ **AS REQUESTED**

☐ **REVISE AS NOTED** ☐ **TO BE DISTRIBUTED**

REMARKS: Email: Jeremy George jeremy.m.george@usace.army.mil

AASHTO Accredited Laboratory
LELAP Certificate No. 02052

316 HIGHLANDIA DRIVE
BATON ROUGE, LA 7 0810
PHONE: (225) 752-4790
FAX: (225) 752-4878

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 04957
DATE OF SERVICE: 03/02/2011
AUTHORIZATION:
REPORT DATE: 03/08/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: USACE

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D4643
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3411-B
GAUGE SERIAL NO.: 25913
STANDARD COUNTS
MOISTURE - CURRENT: 558 PREVIOUS: 562
DENSITY - CURRENT: 1716 PREVIOUS: 1739
TEST MODE: Direct Transmission
0

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(2609-001)	Brown Clay (CH)	26.4	95.1	
2.	(3178-125)	Brown Clay (CH)	26.2	91.7	
3.	(3462-307)	Brown Clay (CH)	28.8	89.1	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
23.	Station 143+96 16'o/s(FS) N.500864.7 E.3662345.49	12	3/6.8'	1	29.1	26.4	115.4	89.4	95.1	94.0
24.	Station 145+97 16'o/s(FS) N.500850.9 E.3662548.3	12	3/6.8'	2	28.5	26.2	115.8	90.1	91.7	98.3
25.	Station 148+24 Centerline N.500846.7 E.3662773.7	12	3/7.0'	1	25.2	26.4	109.8	87.7	95.1	92.2

Report of Tests continued on page 2

Our letters and reports are for the exclusive use of the client to whom they are addressed and shall not be reproduced except in full without the approval of the testing laboratory. The use of our name must receive our written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not indicative of the quantities of apparently identical or similar products.

Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 04957

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 03/02/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
26.	Station 150+72 11' o/s(FS) N.500824.6 E.3663021.2	12	3/6.8'	3	31.7	28.8	115.8	87.9	89.1	98.7
27.	Station 153+22 19' o/s(FS) N.500799.6 E.3663269.5	12	3/6.7'	2	30.3	26.2	113.0	86.7	91.7	94.5

Test results on this report meet project specifications as noted above.

ADDITIONAL COMMENTS:

Technician: Jami Harpole, Field Technician

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric A. Paille

Eric Paille
CMT Supervisor

Our letters and reports are for the exclusive use of the client to whom they are addressed and shall not be reproduced except in full without the approval of the testing laboratory. The use of our name must receive our written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not indicative of the quantities of apparently identical or similar products.

AAI

Ardaman and Associates, Inc.

CHAIN OF CUSTODY RECORD

Job No.: 10-81-3667 Date: 3-3-11

Project Name : New Westwego

Project Location:

Collectors Name: J. HARPOLE

Type of Sample: Soil No. of Containers: 5

SAMPLE ID	SAMPLE LOCATION	PURPOSE	
T-23	143+96	-200, org, Att, mlc/moisture	
T-24	145+99	↓ ↓	
T-25	148+24	↓ ↓	+ 1 pt. Proctor
T-26	150+72	↓ ↓	
T-27	153+22	↓ ↓	

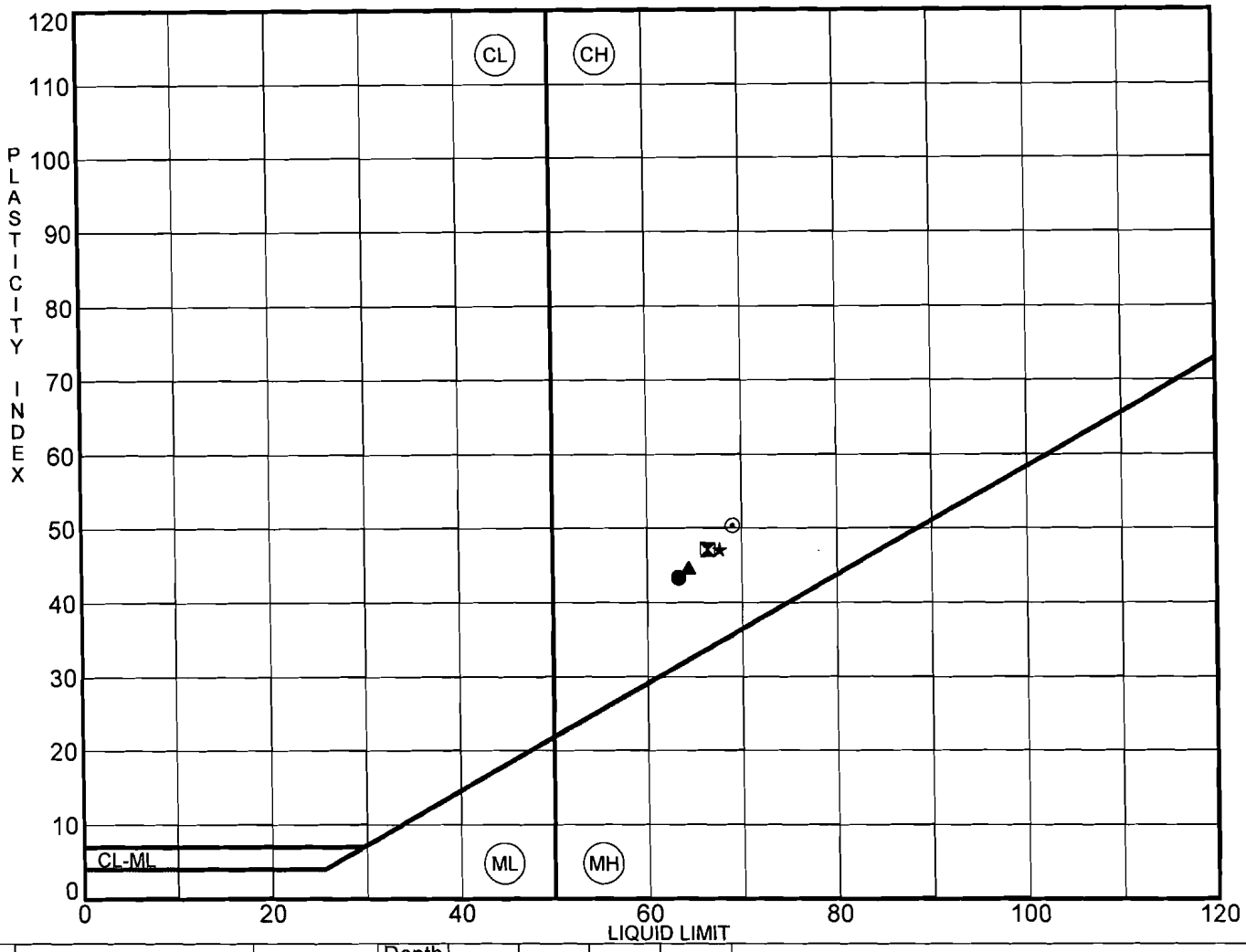
Sample Shipped by: AAI J. HARPOLE Date: 3-3-11

Custodian:

Sample Received by: Eric A. Pattle Date: 3/4/11

Company Name: ARDAMAN & Associates, Inc.

Remarks:



	Sample Number	Sample ID	Depth (ft.)	LL	PL	PI	Fines	Visual Classification
●	**T-23**		**0.0**	**63**	**20**	**43**	**94.9**	Brown Clay (CH)
⊠	**T-24**		**0.0**	**66**	**19**	**47**	**96.7**	Brown Clay (CH)
▲	**T-25**		**0.0**	**64**	**20**	**44**	**97.1**	Brown Clay (CH)
★	**T-26**		**0.0**	**68**	**21**	**47**	**96.3**	Brown Clay (CH)
⊙	**T-27**		**0.0**	**69**	**19**	**50**	**94.2**	Brown Clay (CH)

Remarks: All tests were performed in general accordance with ASTM Standards D4318, D421, D2217, and D1140.

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

Ardaman & Associates, Inc.

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Telephone: 225-752-4790
Fax: 225-752-4878

ATTERBERG LIMITS' RESULTS

Project: New Westwego PS to Orleans Village

Client: USACE

AAI Project Number: 10-81-3667

ORGANIC CONTENT (ASTM D2974)

Ardaman & Associates, Inc.

Project: New Westwego PS to Orleans Village

File No.: 10-81-3667

Client: USACE

Date: 3/7/2011

Sample ID	Depth (feet)	Bowl No.	Tare Weight (gm)	Oven-dried Weight (w/tare)	Muffle-dried Weight (w/tare)	Muffle-dried Weight (w/o tare)	Ash Content (%)	Organic Content (%)
T-23	0 - 0	NN	57.28	85.83	84.44	27.16	95.13	4.9
T-24	0 - 0	201	66.31	91.32	90.15	23.84	95.32	4.7
T-25	0 - 0	B	61.97	91.04	89.95	27.98	96.25	3.7
T-26	0 - 0	PR	65.77	92.49	91.19	25.42	95.13	4.9
T-27	0 - 0	200	59.17	81.53	80.35	21.18	94.72	5.3

Note: FOC = Organic Content divided by 174.

MOISTURE CONTENTS

Ardaman & Associates, Inc.

File No.: 10-81-3667

Date: 3/7/2011

Boring No.	Depth (ft.)	Moisture Content (%)	Classification	Can No.	Wet Wt. w/Can (grams)	Dry Wt. w/Can (grams)	Wt. of Can (grams)
T-23	0 - 0	29.05	Brown Clay		383.87	332.2	154.32
T-24	0 - 0	28.51	Brown Clay		373.37	318.67	126.83
T-25	0 - 0	25.18	Brown Clay		389.23	334.95	119.34
T-26	0 - 0	31.65	Brown Clay		338.87	286.41	120.64
T-27	0 - 0	30.31	Brown Clay		383.32	329.79	153.18

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-23
Depth: 0-0
Material: Brown Clay
Source: Sta. 143+96 - 16' O/S (FS) N. 500864.7 E. 3662345.49 \ Lift 3 Elev. 6.8'
Total Sample Weight: 101.64 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 3/7/2011
Done By: GP
Calc by: GP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
03/07		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
03/08		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	159.5	154.32	5.18	5.10	94.90	
#230						
Pan						

Total Weight: 101.64 grams

Initial Water Content

383.87 Wet Wt. (grams)
332.2 Dry Wt. (grams)
51.7 Wt. H2O (grams)

332.2 Dry Wt. (grams)
154.32 Tare Wt.
101.64 Weight Sample

29.05 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-24
Depth: 0-0
Material: Brown Clay
Source: Sta. 145+99 - 16' O/S (FS) N. 500850.9 E. 3662548.3 \ Lift 3 Elev. 6.8'
Total Sample Weight: 104.3 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 3/7/2011
Done By: GP
Calc by: GP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
03/07		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
03/08		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	130.22	126.83	3.39	3.25	96.75	
#230						
Pan						

Total Weight: 104.3 grams

Initial Water Content

373.37 Wet Wt. (grams)
318.67 Dry Wt. (grams)
54.7 Wt. H2O (grams)

318.67 Dry Wt. (grams)
126.83 Tare Wt.
104.3 Weight Sample

28.51 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-25
Depth: 0-0
Material: Brown Clay
Source: Sta. 148+24 - CL N. 500846.7 E. 3662773.7 \ Lift 3 Elev. 7.0
Total Sample Weight: 100.59 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 3/7/2011
Done By: GP
Calc by: GP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
03/07		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
03/08		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	122.29	119.34	2.95	2.93	97.07	
#230						
Pan						

Total Weight: 100.59 grams

Initial Water Content

389.23 Wet Wt. (grams)
334.95 Dry Wt. (grams)
54.3 Wt. H2O (grams)

334.95 Dry Wt. (grams)
119.34 Tare Wt.
100.59 Weight Sample

25.18 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-26
Depth: 0-0
Material: Brown Clay
Source: Sta. 150+72 - 11' O/S (FS) N. 500824.6 E. 3663021.2 \ Lift 3 Elev. 6.8
Total Sample Weight: 100.16 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 3/7/2011
Done By: GP
Calc by: GP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
03/07		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
03/08		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	124.38	120.64	3.74	3.73	96.27	
#230						
Pan						

Total Weight: 100.16 grams

Initial Water Content

338.87 Wet Wt. (grams)
286.41 Dry Wt. (grams)
52.5 Wt. H2O (grams)

286.41 Dry Wt. (grams)
120.64 Tare Wt.
100.16 Weight Sample

31.65 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-27
Depth: 0-0
Material: Brown Clay
Source: Sta. 153+22 - 19' O/S (FS) N. 500799.6 E. 3663269.5 \ Lift 3 Elev. 6.7
Total Sample Weight: 102.61 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 3/7/2011
Done By: GP
Calc by: GP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
03/07		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
03/08		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	159.12	153.18	5.94	5.79	94.21	
#230						
Pan						

Total Weight: 102.61 grams

Initial Water Content

383.32 Wet Wt. (grams)
329.79 Dry Wt. (grams)
53.5 Wt. H2O (grams)

329.79 Dry Wt. (grams)
153.18 Tare Wt.
102.61 Weight Sample

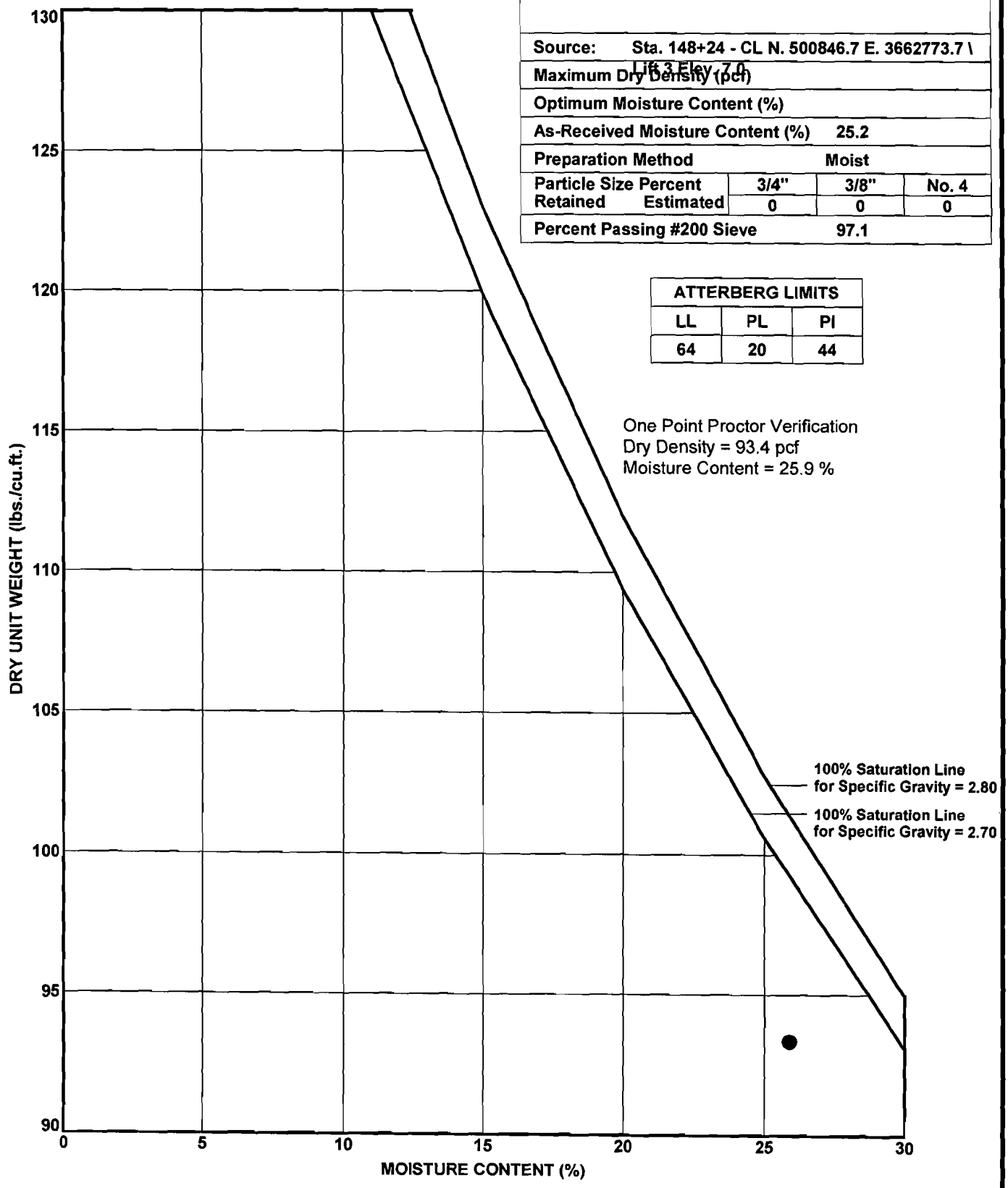
30.31 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Material:	Brown Clay (CH)		
Source:	Sta. 148+24 - CL N. 500846.7 E. 3662773.7 \ Lift 3 Elev. 7.0		
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	25.2		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	97.1		

ATTERBERG LIMITS		
LL	PL	PI
64	20	44



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans
Village
Westwego, LA.

Curve No.: T-25
Date: 03/07/11
File No.: 10-81-3667

ARD CP130 REV 10-81-3667.GPJ LOG01.GDT 03/07/11

ID-81-3667

QA TESTING REQUEST FORM

Lab: Ardaman
BPA# 09-A-0004
Submit invoice to:
ATTN: S. Bennie Benson (smith.b.benson@us.army.mil)
United States Corp of Engineers - MVN District
P.O. Box 60267
New Orleans, LA 70160

Authorization to complete the following testing services as indicated below:
Call Officer: Gremillion, Glenn
Signature: [signature]
Date: 2/23/11
BLOCK CALL #: 026G

Project Name: New Westwego PS to Orleans Village
CD Contract #: W912P8-09-D-0046-0008
USACE POC: Jeremy George
POC Phone: 985-209-8530
Order Date: 2/23/2011
Test Date: ~~2/25/2011~~ 3/2/11
Test Time: ~~9:00~~ 1:00 PM
QA Lab Rep: Bill Singleton
QA Lab Phone: 225-752-4790
Is the requested services estimated to be over $2,500? (NO) | YES **(if yes follow FAR 13.303-5)**

Distribution List: Jeremy George; jeremy.m.george@usace.army.mil
or Comments: John Thompson
Steven Montjoy

# ORDERED	UNIT	DESCRIPTION	ASTM	# COMPLETE
		CONCRETE (estimated placement size cu. yds.)		
	HR	ACI TECH - PERFORM FIELD TESTS (Cyls, Slump, %Air, Temp, Unit Wt.)	C1077+	
	EACH	CONCRETE CURING AND COMPRESSIVE STRENGTH	C39	
		VIBRATION MONITORING		
	HR	VIBRATION TECH & EQUIP		
		SOILS FIELD TESTING		
8	HR	SOILS FIELD TECH - PERFORM TESTS	D3740	4
5	EACH	SOIL DENSITY - NUCLEAR METHOD	D6938*	5
	EACH	SOIL DENSITY - SAND CONE METHOD	D1556	
5	EACH	MOISTURE CONTENT TEST (OVEN/MICROWAVE)	D2216/D4643*	5
5	EACH	SOILS CLASSIFICATION	D2487*	5
5	EACH	ATTERBERG LIMITS DETERMINATION	D4318*	5
5	EACH	SOILS FINER - NO 200 SIEVE, WASH	C117/D1140*	5
5	EACH	SOILS ORGANIC CONTENT - METHOD 'C'	D2974	5
	EACH	STANDARD PROCTOR	D698*	
1	EACH	STANDARD PROCTOR - 1 POINT	D698	1
	EACH	RELATIVE DENSITY MIN / MAX	D4253/D4254*	
		SPECIAL TESTING REQUIREMENTS		
	EACH	TENSION TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
	EACH	BEND TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
		WELD INSPECTION & TESTING		
	HR	CERTIFIED WELDING INSPECTOR	AWS D1.1/D1.1M	
	EACH	LIQUID PENETRANT TESTING	ASTM E165	
	EACH	ULTRASONIC TESTING	ASTM E 164	
	EACH	RADIOGRAPHIC TESTING	ASTM E94	
	EACH	MAGNETIC TESTING	ASTM E709	

**Note that where applicable, testing procedures should follow USACE EM 1110-2-1906 Lab Testing manual and/or in accordance with project specifications.*

Testing Services have been completed as authorized and as indicated:

Start Time: 2:00 Stop Time: 6:00 Travel Time: 3.0 Mile: 140
USACE Representative: Jeremy George
USACE Signature: Jeremy George
Date: 3/2/11

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 03833
DATE OF SERVICE: 08/27/2010
AUTHORIZATION: Jermey George
REPORT DATE: 08/30/2010

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: United States Corp of Enginees

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 623 PREVIOUS: 620
DENSITY - CURRENT: 2161 PREVIOUS: 2151
TEST MODE: Direct Transmission
PROBE DEPTH: 6

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	Curve 01/02	Brown & Gray Clay (CH)	20.9	98.4	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
1.	145+08 21'o/s (FS) N.500851.9 E.3662457.5	6	1/5.0'	1	28.1 *	20.9	118.2	92.3	98.4	93.8
2.	139+03 22'o/s (FS) N.500893.4 E.3661854.2	6	1/4.8'	1	29.3 *	20.9	115.5	89.3	98.4	90.8

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted above.

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 03833

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 08/27/2010

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

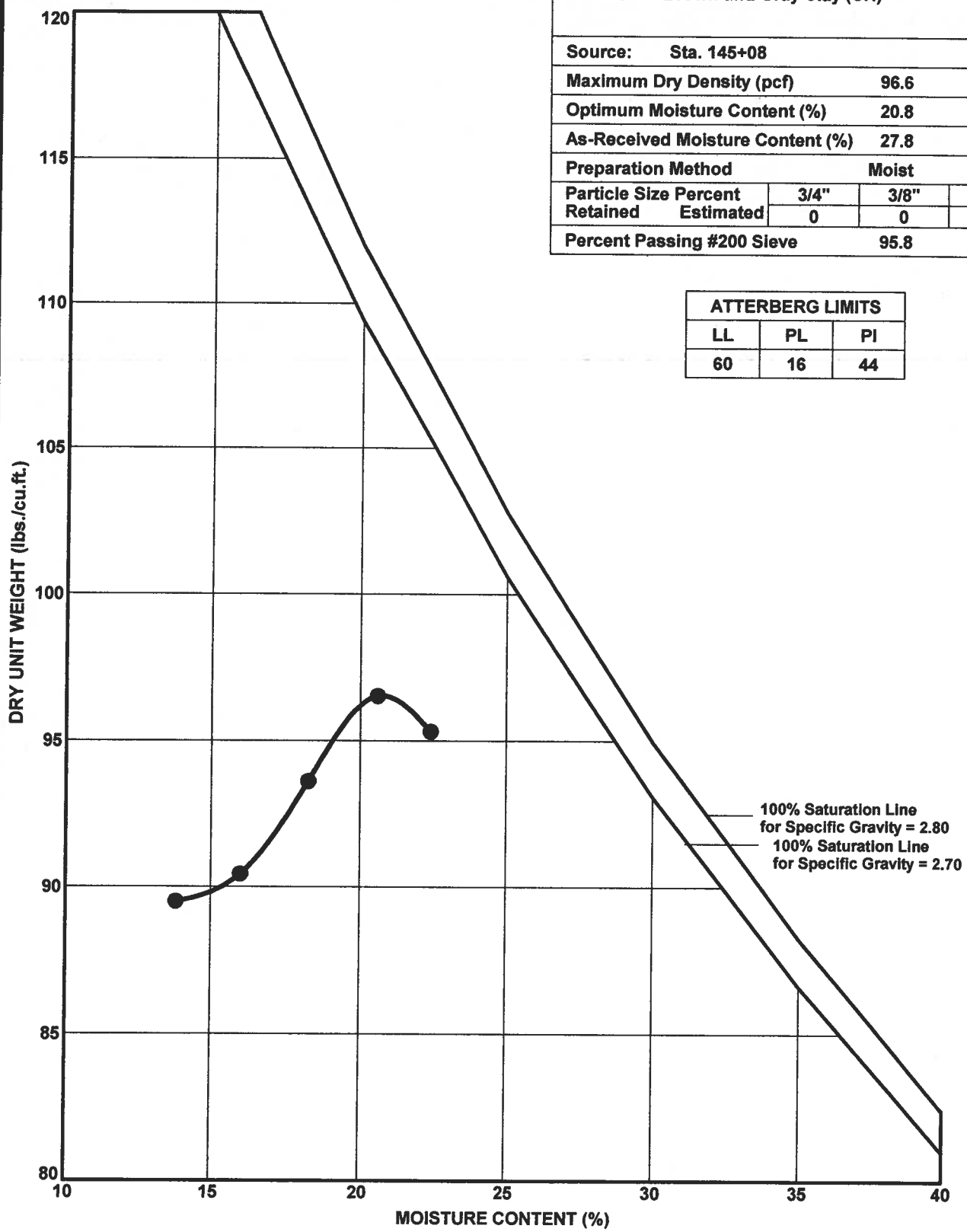
Eric Paille

Eric Paille
CMT Supervisor

Our letters and reports are for the exclusive use of the client to whom they are addressed and shall not be reproduced except in full without the approval of the testing laboratory. The use of our name must receive our written approval. Our letters and reports apply only to the sample

Material:	Brown and Gray Clay (CH)		
Source:	Sta. 145+08		
Maximum Dry Density (pcf)		96.6	
Optimum Moisture Content (%)		20.8	
As-Received Moisture Content (%)		27.8	
Preparation Method		Moist	
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve		95.8	

ATTERBERG LIMITS		
LL	PL	PI
60	16	44



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: 01

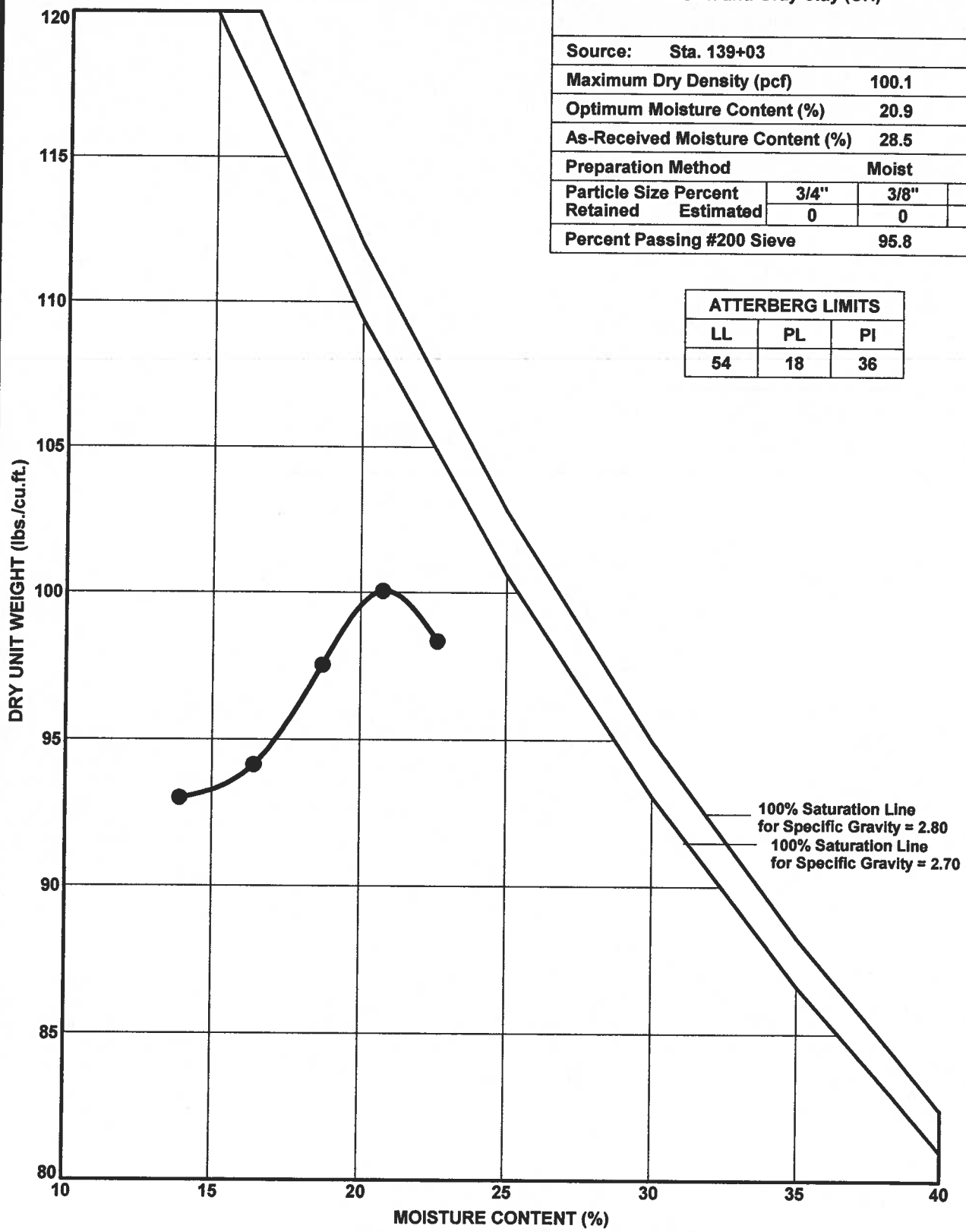
Date: 08/30/10

File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 08/31/10

Material:	Brown and Gray Clay (CH)		
Source:	Sta. 139+03		
Maximum Dry Density (pcf)	100.1		
Optimum Moisture Content (%)	20.9		
As-Received Moisture Content (%)	28.5		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	95.8		

ATTERBERG LIMITS		
LL	PL	PI
54	18	36



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: 02
Date: 08/30/10
File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 08/31/10

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 04029
DATE OF SERVICE: 09/23/2010
AUTHORIZATION:
REPORT DATE: 09/27/2010

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: United States Corp of Engineer

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3430
GAUGE SERIAL NO.: 24542
STANDARD COUNTS
MOISTURE - CURRENT: 616 PREVIOUS: 610
DENSITY - CURRENT: 2291 PREVIOUS: 2289
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(Curve 40)	Brown & Gray Clay (CH)	23.9	95.9	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
3.	110+56 centerline crown N.501741.0 E.3659590.5	6	11/13.5'	1	23.1	23.9	118.5	96.3	95.9	100.4
4.	107+04 o/s 8.8' (FS) N.502085.3 E.365966.32	6	1/8.8'	1	31.0 *	23.9	116.1	88.6	95.9	92.4
5.	103+06 centerline crown N.502470.2 E.3659766.5	6	1/5.8'	1	27.3	23.9	106.3	83.5	95.9	87.1 *

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 04029

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 09/23/2010

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
6.	135+97 o/s 2.2' (FS) N.500916.6 E.3661548.3	12	2/5.3'	1	21.9	23.9	119.8	98.3	95.9	102.5

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted above.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric A. Paille

Eric Paille
CMT Supervisor

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TRANSMITTAL

AAI

Ardaman & Associates, Inc.

To: USACE-MVN District
P O Box 60267
New Orleans, LA 70160

Date: May 23, 2011
Job No.: 113-10-81-3667
Project: New Westwego PS
CD Contract # W912P8-09-0046-0008
BPA # 09-A-0004
Block Call # 048G

Attention: Glenn Gremillion

From: Eric A. Paille EAP

COPIES	DESCRIPTION
1	Daily Field Report 05444
1	Chain of Custody
1	Atterberg Limit, Organic Content,Moisture Content, -200
1	Sand Cone Density (T-50)
1	One Point Proctor Verifications (T-45 & T-50)
1	Signed QA Testing Request Form

REVISED

THESE ARE TRANSMITTED:

■ **FOR YOUR USE** ☐ **FOR REVIEW & COMMENT** ■ **AS REQUESTED**

☐ **REVISE AS NOTED** ☐ **TO BE DISTRIBUTED**

REMARKS: Email: Jeremy George jeremy.m.george@usace.army.mil

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated Laboratory

316 HIGHLANDIA DRIVE
BATON ROUGE, LA 7 0810
PHONE: (225) 752-4790
FAX: (225) 752-4878

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 05444
DATE OF SERVICE: 05/19/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 05/23/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway Construction

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 615 PREVIOUS: 622
DENSITY - CURRENT: 2093 PREVIOUS: 2103
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(Curve 2762-24)	Dark Gray Clay (CH)	26.6	92.1	
2.	(Curve 3555-353)	Dark Gray Clay (CH)	30.0	86.6	
3.	(Curve 3815-388)	Dark Gray Clay (CH)	29.6	88.9	
4.	(Curve 4502-642)	Dark Gray Clay (CH)	28.2	91.6	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
45.	Station 77+49 Centerline Crown N.504931.7 E.3660458.9	6	10/13.2'	1	22.2 *	26.6	118.2	96.7	92.1	105.0
46.	Station 82+44 Centerline Crown N.504457.3 E.3660318.6	6	10/13.1'	2	28.1	30.0	111.4	87.0	86.6	100.5

Report of Tests continued on page 2

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PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 05/19/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
47.	Station 87+48 o/s Centerline Crown N.503491.3 E.3660040.7	6	10/13.2'	3	21.4 *	29.6	112.4	92.6	88.9	104.2
48.	Station 92+49 Centerline Crown N.503491.3 E.3660040.7	6	10/13.2'	3	27.2	29.6	113.1	88.9	88.9	100.0
49.	Station 82+94 151' (PS) N.504367.4 E.3660451.4	12	6/2.4'	4	16.6 *	28.2	112.1	96.1	91.6	104.9
50.	Station 77+92 131' (PS) N.504854.6 E.3660570.3	12	5/2.6'	3	21.1 *	29.6	102.7	84.8	88.9	95.4
51.	Station 59+40 o/s Centerline Crown N.506167.2 E.3659781.7	12	6/9.1	3	27.5	29.6	108.5	85.1	88.9	95.7
52.	Station 55+90 o/s -9' (PS) N.506237.8 E.3659439.4	12	5/8.0'	3	22.2 *	29.6	107.0	87.6	88.9	98.5

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted on page 1.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric Paille

Eric Paille
CMT Supervisor

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AAI

Ardaman and Associates, Inc.

CHAIN OF CUSTODY RECORD

Job No.: 113-1081-3667 Date: 5-19-11

Project Name : New Westavego PS to Orleans Village

Project Location:

Collectors Name:

Type of Sample: No. of Containers:

SAMPLE ID	SAMPLE LOCATION	PURPOSE				
T-45	77+49	Att, ORG, -200, MC				1pt proctor
T-46	82+44					
T-47	87+48					
T-48	92+49					
T-49	82+94					
T-50	77+92	1pt proctor				Sandcone
T-51	59+40					
T-52	55+90					

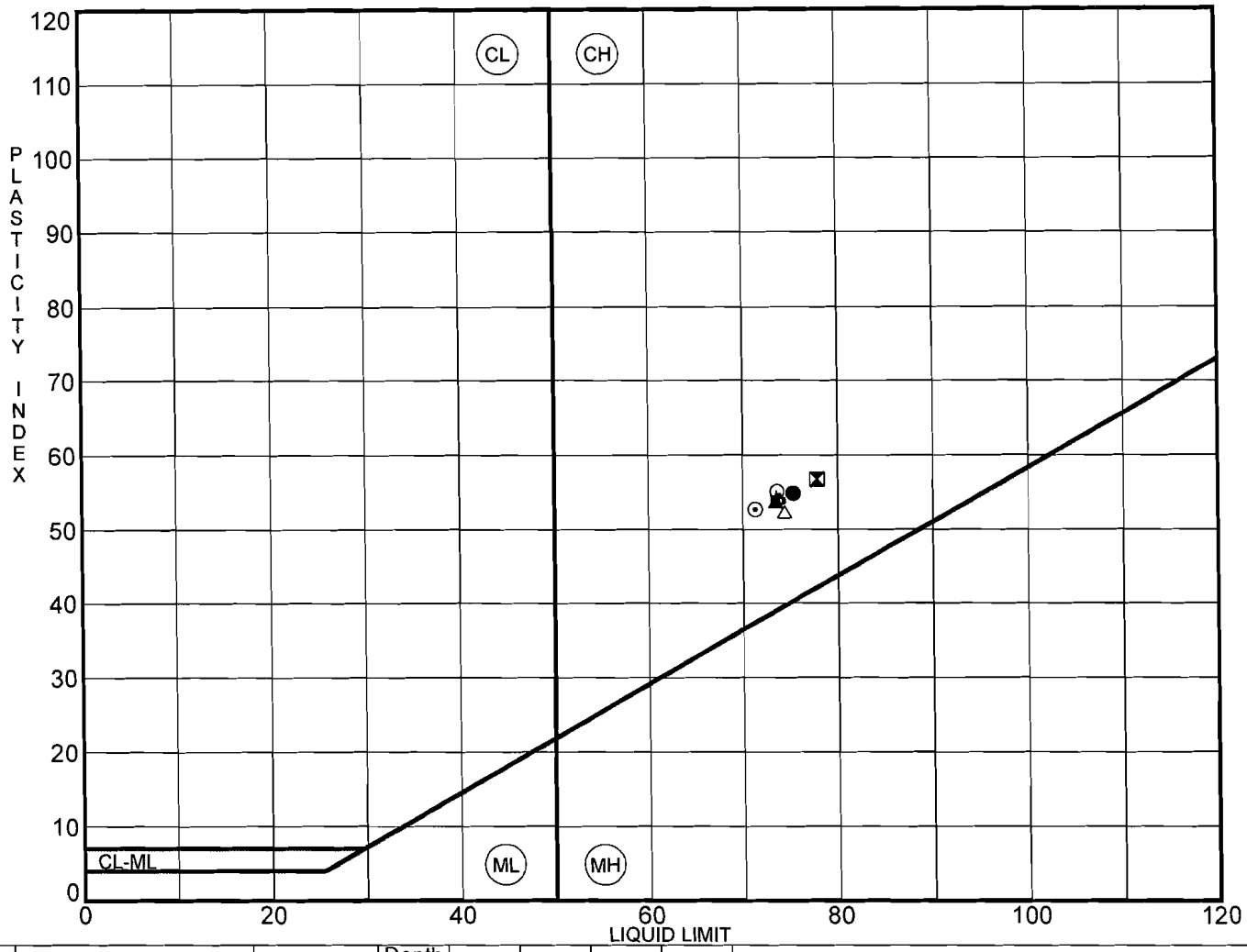
Sample Shipped by : Ardaman & Associates Date: 5-19-11

Custodian: Bill Singleton

Sample Received by: Christopher Perro Date: 5-19-11

Company Name: Ardaman & Associates

Remarks:



	Sample Number	Sample ID	Depth (ft.)	LL	PL	PI	Fines	Visual Classification
●	**T-45**		**0.0**	**75**	**20**	**55**	**96.5**	Dark Gray Clay (CH)
⊠	**T-46**		**0.0**	**78**	**21**	**57**	**97.3**	Dark Gray Clay (CH)
▲	**T-47**		**0.0**	**73**	**20**	**53**	**97.4**	Dark Gray Clay (CH)
★	**T-48**		**0.0**	**74**	**19**	**55**	**97.8**	Dark Gray Clay (CH)
⊙	**T-49**		**0.0**	**71**	**19**	**52**	**97.4**	Dark Gray Clay (CH)
✿	**T-50**		**0.0**	**74**	**20**	**54**	**97.1**	Dark Gray Clay (CH)
○	**T-51**		**0.0**	**74**	**18**	**56**	**97.3**	Dark Gray Clay (CH)
△	**T-52**		**0.0**	**74**	**22**	**52**	**97.4**	Dark Gray Clay (CH)

Remarks: All tests were performed in general accordance with ASTM Standards D4318, D421, D2217, and D1140.

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

Ardaman & Associates, Inc.

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Telephone: 225-752-4790
Fax: 225-752-4878

ATTERBERG LIMITS' RESULTS

Project: New Westwego PS to Orleans Village

Client: USACE

AAI Project Number: 10-81-3667

ORGANIC CONTENT (ASTM D2974)

Ardaman & Associates, Inc.

Project: New Westwego PS to Orleans Village

File No.: 10-81-3667

Client: USACE

Date: 5/23/2011

Sample ID	Depth (feet)	Bowl No.	Tare Weight (gm)	Oven-dried Weight (w/tare)	Muffle-dried Weight (w/tare)	Muffle-dried Weight (w/o tare)	Ash Content (%)	Organic Content (%)
T-45	0 - 0	G	64.22	109.43	106.93	42.71	94.47	5.5
T-46	0 - 0	B	61.99	113.87	110.91	48.92	94.29	5.7
T-47	0 - 0	PP	64.3	92.5	91.21	26.91	95.43	4.6
T-48	0 - 0	MM	54.34	81.19	79.52	25.18	93.78	6.2
T-49	0 - 0	202	53.79	88.2	86.57	32.78	95.26	4.7
T-50	0 - 0	204	63.66	89.32	88.02	24.36	94.93	5.1
T-51	0 - 0	HH	52.5	80.96	79.55	27.05	95.05	5.0
T-52	0 - 0	206	66.04	95.95	94.24	28.20	94.28	5.7

Note: FOC = Organic Content divided by 174.

MOISTURE CONTENTS

Ardaman & Associates, Inc.

File No.: 10-81-3667

Date: 5/23/2011

Boring No.	Depth (ft.)	Moisture Content (%)	Classification	Can No.	Wet Wt. w/Can (grams)	Dry Wt. w/Can (grams)	Wt. of Can (grams)
T-45	0 - 0	22.18	Dark Gray Clay (CH)		346.25	311.27	153.53
T-46	0 - 0	28.06	Dark Gray Clay (CH)		367.51	320.38	152.42
T-47	0 - 0	21.37	Dark Gray Clay (CH)		328.8	291.95	119.52
T-48	0 - 0	27.16	Dark Gray Clay (CH)		313.4	271.66	117.96
T-49	0 - 0	16.58	Dark Gray Clay (CH)		375.83	339.42	119.77
T-50	0 - 0	21.09	Dark Gray Clay (CH)		331.66	295.37	123.27
T-51	0 - 0	27.47	Dark Gray Clay (CH)		328.55	283.43	119.17
T-52	0 - 0	22.19	Dark Gray Clay (CH)		318.08	282.73	123.4

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-45
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 77+49 Centerline Crown N 504931.7 E 3660458.9 Lift 10 Elev. 13.2'
Total Sample Weight: 101.16 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 5/21/2011
Done By: CP
Calc by: JT

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
05/21		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
05/22		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	157.09	153.53	3.56	3.52	96.48	
#230						
Pan						

Total Weight: 101.16 grams

Initial Water Content

346.25 Wet Wt. (grams)
311.27 Dry Wt. (grams)
35.0 Wt. H2O (grams)

311.27 Dry Wt. (grams)
153.53 Tare Wt.
101.16 Weight Sample

22.18 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-46
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 82+44 Centrline Crown N 504457.3 E 3660318.6 Lift 10 Elev. 13.1'
Total Sample Weight: 100.91 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 5/21/2011
Done By: CP
Calc by: JT

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
05/21		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
05/22		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	155.18	152.42	2.76	2.74	97.26	
#230						
Pan						

Total Weight: 100.91 grams

Initial Water Content

367.51 Wet Wt. (grams)
320.38 Dry Wt. (grams)
47.1 Wt. H2O (grams)

320.38 Dry Wt. (grams)
152.42 Tare Wt.
100.91 Weight Sample

28.06 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-47
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 87+48 Centerline Crown N 503970.9 E 3660186.2 Lift 10 Elev. 13.2'
Total Sample Weight: 100.85 gm (Dry)
Hydrometer Sample Weight: _ gm

Date: 5/21/2011
Done By: CP
Calc by: JT

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
05/21		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
05/22		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	122.14	119.52	2.62	2.60	97.40	
#230						
Pan						

Total Weight: 100.85 grams

Initial Water Content

328.8 Wet Wt. (grams)
291.95 Dry Wt. (grams)
36.9 Wt. H2O (grams)

291.95 Dry Wt. (grams)
119.52 Tare Wt.
100.85 Weight Sample

21.37 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-48
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 92+49 Centerline Crown N 503491.3 E 3660040.7 Lift 10 Elev. 13.2'
Total Sample Weight: 100.1 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 5/21/2011
Done By: CP
Calc by: JT

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
05/21		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
05/22		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	120.16	117.96	2.20	2.20	97.80	
#230						
Pan						

Total Weight: 100.1 grams

Initial Water Content

313.4 Wet Wt. (grams)
271.66 Dry Wt. (grams)
41.7 Wt. H2O (grams)

271.66 Dry Wt. (grams)
117.96 Tare Wt.
100.1 Weight Sample

27.16 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-49
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 82+94 o/s 151.0' (PS) N 504367.4 E 3660451.4 Lift 6 Elev. 2.4'
Total Sample Weight: 100.63 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 5/21/2011
Done By: CP
Calc by: JT

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
05/21		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
05/22		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	122.35	119.77	2.58	2.56	97.44	
#230						
Pan						

Total Weight: 100.63 grams

Initial Water Content

375.83 Wet Wt. (grams)
339.42 Dry Wt. (grams)
36.4 Wt. H2O (grams)

339.42 Dry Wt. (grams)
119.77 Tare Wt.
100.63 Weight Sample

16.58 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-50
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 77+92 o/s 131.0' (PS) N 504854.6 E 3660570.3 Lift 5 Elev. 2.6'
Total Sample Weight: 101.77 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 5/21/2011
Done By: CP
Calc by: JT

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
05/21		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
05/22		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	126.19	123.27	2.92	2.87	97.13	
#230						
Pan						

Total Weight: 101.77 grams

Initial Water Content

331.66 Wet Wt. (grams)
295.37 Dry Wt. (grams)
36.3 Wt. H2O (grams)

295.37 Dry Wt. (grams)
123.27 Tare Wt.
101.77 Weight Sample

21.09 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-51
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 59+40 Centerline Crown N 506167.2 E 3659781.7 Lift 6 Elev. 9.1'
Total Sample Weight: 101.42 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 5/21/2011
Done By: CP
Calc by: JT

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
05/21		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
05/22		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	121.88	119.17	2.71	2.67	97.33	
#230						
Pan						

Total Weight: 101.42 grams

Initial Water Content

328.55 Wet Wt. (grams)
283.43 Dry Wt. (grams)
45.1 Wt. H2O (grams)

283.43 Dry Wt. (grams)
119.17 Tare Wt.
101.42 Weight Sample

27.47 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-52
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 55+90 o/s -9.0' (PS) N 506237.8 E 3659439.4 Lift 5 Elev. 8.0'
Total Sample Weight: 102.23 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 5/21/2011
Done By: CP
Calc by: JT

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
05/21		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
05/22		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	126.07	123.4	2.67	2.61	97.39	
#230						
Pan						

Total Weight: 102.23 grams

Initial Water Content

318.08 Wet Wt. (grams)
282.73 Dry Wt. (grams)
35.4 Wt. H2O (grams)

282.73 Dry Wt. (grams)
123.4 Tare Wt.
102.23 Weight Sample

22.19 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

SAND CONE DENSITY

ASTM D1556

Method A

Job No. 113-10-81-3667 Test No. T-50 Date: 5/19/2011

Technician: Bill Singleton Lift No. 5 Location Station 77+92

(1) Unit weight of sand	94.4	lbs/ft^3	Date Calibrated	5/9/2011
(2)Weight of sand in cone	3.83	lbs	Date Calibrated	5/9/2011
(3) Original weight of sand and Jar	15.11	lbs	Note: See attached work sheets for unit weight of sand and weight of sand in cone.	
(4) Final weight of sand and Jar	5.57	lbs		
(5) Weight of sand in cone and hole	9.54	lbs (3)-(4)	(8) Wet weight of soil	6.47 lbs
(6) Weight of sand in hole	5.71	lbs (5)-(2)	(9) Wet density of soil	106.9 lbs/ft^3 (8) / (7)
(7) Volume of hole	0.0605	ft^3 (6) / (1)		

MOISTURE CONTENT

OVEN DRY ASTM D2216			MICROWAVE ASTM D4643			
Tare no. Z-21			Tare No.			Trial dry weights
(10) Wet weight of soil & tare	331.66g		(16) Wet weight of soil & tare		g	
(11) Dry weight of soil & tare	295.37g		(17) Dry weight of soil & tare (Final)		g	#1-
(12) Weight of water	36.29g	(10) - (11)	(18) Weight of water	(16) - (17)	g	#2-
(13)Tare weight	123.27g		(19)Tare weight		g	#3-
(14) Dry weight of soil	172.10g	(11) - (13)	(20) Dry weight of soil	(17) - (19)	g	#4-
(15) Moisture %	21.1	(12) / (14)x100	(21) Moisture %		(18) / (20) *100	

(22) Wet density of soil	106.9	lbs/ft^3 (9)	(25) Maximum Dry density	92.1	Proctor No. 2762-24
(23) Dry density of soil	88.3	lbs/ft^3 (22)/1+(24)x100	Optimum Moisture	26.6	
(24)Moisture %	21.1	Moisture content used in dry density calculation circle one			Oven / Microwave
% Compaction	95.87	(23)/(25)			X

REMARKS: Nuclear WD 105.2

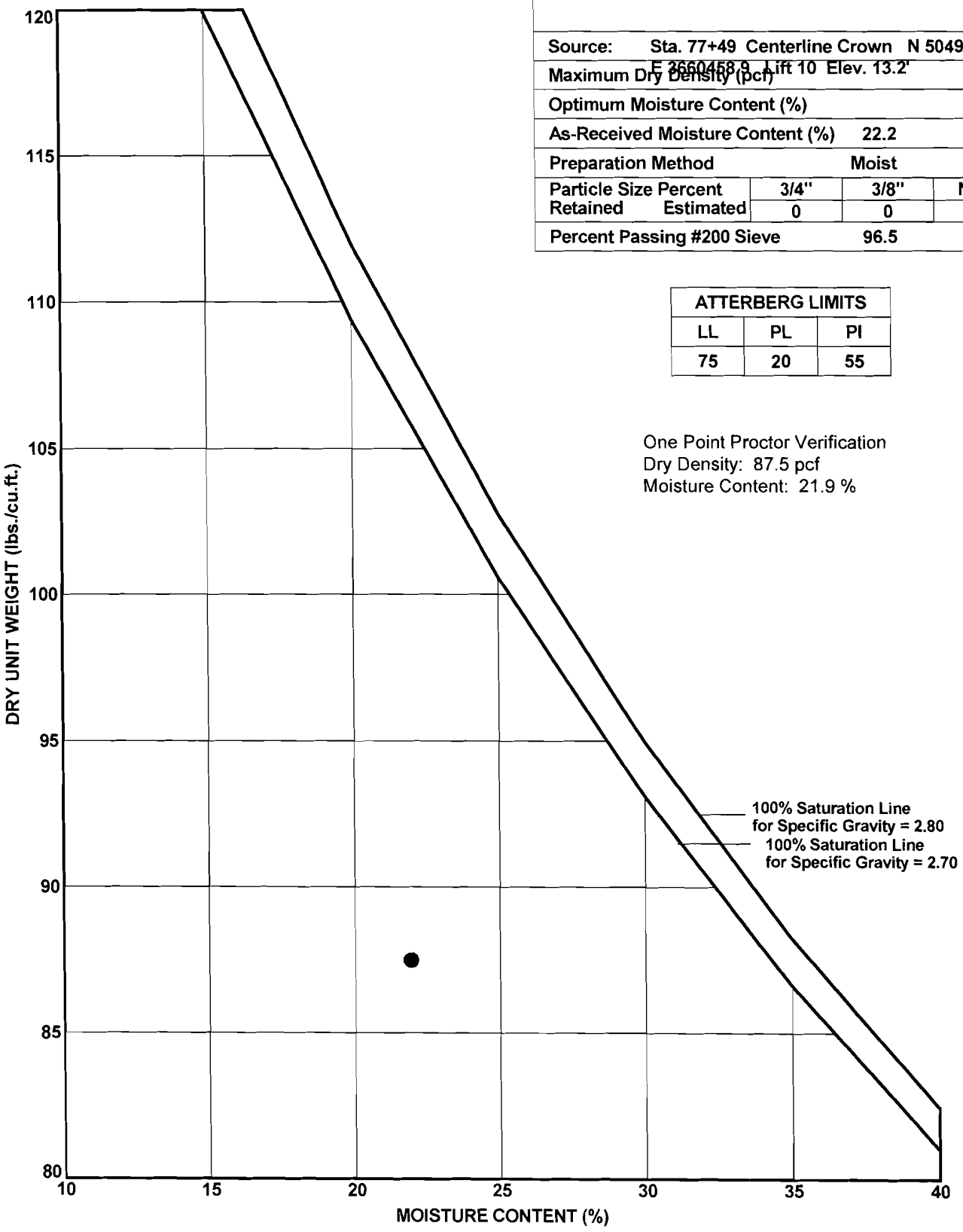
Sand Cone WD 106.9

1.7 1.60% difference

Material:	Dark Gray Clay (CH)		
Source:	Sta. 77+49 Centerline Crown N 504931.7 E 2660458.9 Lift 10 Elev. 13.2'		
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	22.2		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	96.5		

ATTERBERG LIMITS		
LL	PL	PI
75	20	55

One Point Proctor Verification
Dry Density: 87.5 pcf
Moisture Content: 21.9 %



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

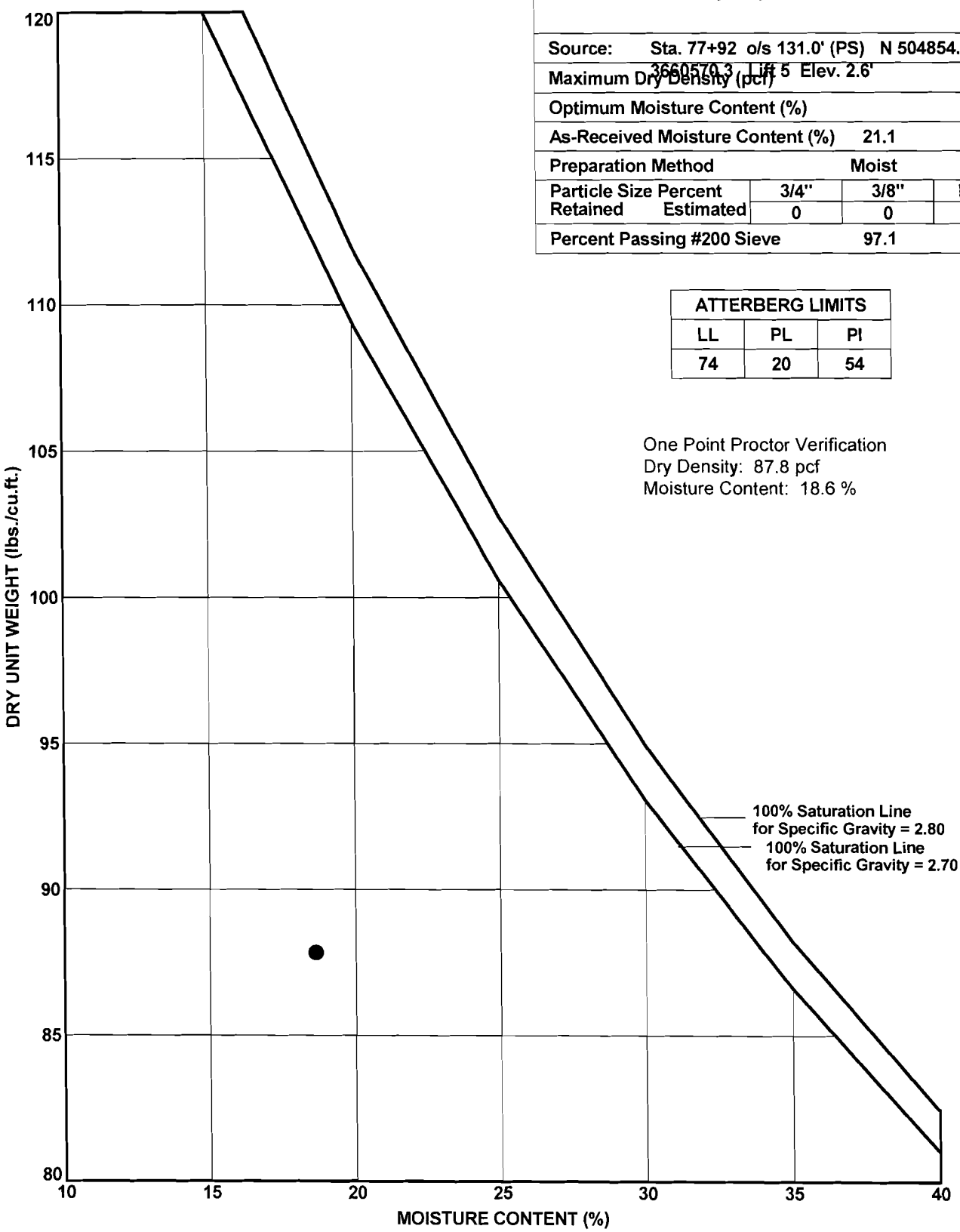
Curve No.: T-45
Date: 05/20/11
File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 05/23/11

Material:	Dark Gray Clay (CH)		
Source:	Sta. 77+92 o/s 131.0' (PS) N 504854.6 E 3660570.3 , Lift 5 Elev. 2.6'		
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	21.1		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	97.1		

ATTERBERG LIMITS		
LL	PL	PI
74	20	54

One Point Proctor Verification
Dry Density: 87.8 pcf
Moisture Content: 18.6 %



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: T-50
Date: 05/20/11
File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 05/23/11

225-750 7070

QA TESTING REQUEST FORM

Lab: Ardaman
BPA# 09-A-0004
Submit invoice to:
ATTN: S. Bennie Benson (smith.b.benson@us.army.mil)
United States Corp of Engineers - MVN District
P.O. Box 60267
New Orleans, LA 70160

Authorization to complete the following testing services as indicated below:
Call Officer: Gremillion, Glenn
Signature: [signature]
Date: 5/13/2011
BLOCK CALL #: 048G

Project Name	New Westwego PS to Orleans Village	CD Contract #:	W912P8-09-D-0046-0008
USACE POC:	Jeremy George	POC Phone:	985.209.8530
Order Date:	5/17/2011	Test Date: 5/19/2011	Test Time: 13:00
QA Lab Rep:		QA Lab Phone:	225-752-4790

Is the requested services estimated to be over $2,500? NO | **(if yes follow FAR 13.303-5)**

Distribution List: Jeremy George; jeremy.m.george@usace.army.mil
or Comments: Stephen Montjoy
John Thompson

# ORDERED	UNIT	DESCRIPTION	ASTM	# COMPLETE
		CONCRETE (estimated placement size cu. yds.)		
	HR	ACI TECH - PERFORM FIELD TESTS (Cyls, Slump, %Air, Temp, Unit Wt.)	C1077+	
	EACH	CONCRETE CURING AND COMPRESSIVE STRENGTH	C39	
		VIBRATION MONITORING		
	HR	VIBRATION TECH & EQUIP		
		SOILS FIELD TESTING		
10	HR	SOILS FIELD TECH - PERFORM TESTS	D3740	7
8	EACH	SOIL DENSITY - NUCLEAR METHOD	D6938*	8
1	EACH	SOIL DENSITY - SAND CONE METHOD	D1556	1
8	EACH	MOISTURE CONTENT TEST (OVEN/MICROWAVE)	D2216/D4643*	8
8	EACH	SOILS CLASSIFICATION	D2487*	8
8	EACH	ATTERBERG LIMITS DETERMINATION	D4318*	8
8	EACH	SOILS FINER - NO 200 SIEVE, WASH	C117/D1140*	8
8	EACH	SOILS ORGANIC CONTENT - METHOD 'C'	D2974	8
	EACH	STANDARD PROCTOR	D698*	X BS 5-19
2	EACH	STANDARD PROCTOR - 1 POINT	D698	2
	EACH	RELATIVE DENSITY MIN / MAX	D4253/D4254*	
		SPECIAL TESTING REQUIREMENTS		
	EACH	TENSION TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
	EACH	BEND TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
		WELD INSPECTION & TESTING		
	HR	CERTIFIED WELDING INSPECTOR	AWS D1.1/D1.1M	
	EACH	LIQUID PENETRANT TESTING	ASTM E165	
	EACH	ULTRASONIC TESTING	ASTM E 164	
	EACH	RADIOGRAPHIC TESTING	ASTM E94	
	EACH	MAGNETIC TESTING	ASTM E709	

Note that where applicable, testing procedures should follow USACE EM 1110-2-1906 Lab Testing manual and/or in accordance with project specifications.

Testing Services have been completed as authorized and as indicated:

Start Time: 1130 Am Stop Time: 1830 hrs Travel Time: 3.5 Mile: 160
USACE Representative: Jeremy George
USACE Signature: Jeremy George Date: 5-19-11
Remarks:

TRANSMITTAL

AAI

Ardaman & Associates, Inc.

To: USACE-MVN District
P O Box 60267
New Orleans, LA 70160

Date: October 22, 2010
Job No.: 113-10-81-3667
Project: New Westwego PS
CD Contract # W912P8-09-0046-0008
BPA # 09-A-0004
Block Call # 014G

Attention: Glenn Gremillion

From: Eric A. Paille EAP

COPIES	DESCRIPTION
1	Daily Field Report 04216
1	Chain of Custody
1	Atterberg Limit, Moisture Content, Organic Content , -200
1	Sand Cone Density (T-10) and One Point Proctor Verification (T-10)
1	Signed QA Testing Request Form

THESE ARE TRANSMITTED:

■ **FOR YOUR USE** ☐ **FOR REVIEW & COMMENT** ■ **AS REQUESTED**

☐ **REVISE AS NOTED** ☐ **TO BE DISTRIBUTED**

REMARKS: Email: Jeremy George jeremy.m.george@usace.army.mil

AASHTO Accredited Laboratory
LELAP Certificate No. 02052

316 HIGHLANDIA DRIVE
BATON ROUGE, LA 7 0810
PHONE: (225) 752-4790
FAX: (225) 752-4878

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 04216
DATE OF SERVICE: 10/19/2010
AUTHORIZATION:
REPORT DATE: 10/22/2010

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: USACE

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 624 PREVIOUS: 619
DENSITY - CURRENT: 2147 PREVIOUS: 2163
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(Curve 108)	Brown Clay (CH)	24.0	90.1	
2.	(Curve 040)	Gray & Brown Clay (CH)	23.9	95.9	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
10.	77+07 17' o/s (FS) N.504976.9 E.3660451.1	12	2/5.6'	1	25.1	24.0	105.3	84.2	90.1	93.5
11.	71+99 36' o/s (FS) N.505471.0 E.3660573.5	12	2/4.8'	2	23.1	23.9	117.2	95.2	95.9	99.3
12.	81+04 25' o/s (FS) N.504599.3 E.3660334.3	12	2/5'	2	23.6	23.9	106.7	86.3	95.9	90.0

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 04216

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 10/19/2010

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)

Test results on this report meet project specifications as noted above.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric Paille

Eric Paille
CMT Supervisor

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AAI

Ardaman and Associates, Inc.

CHAIN OF CUSTODY RECORD

Job No.: 10-3667 Date: 10-19-10

Project Name : New Westwego Levee

Project Location: Jefferson Parish

Collectors Name: Bill Singleton

Type of Sample: Clay No. of Containers: 3

SAMPLE ID	SAMPLE LOCATION	PURPOSE
T-10	77+07	Att, ORG, MC, -200, 1pt, 1 Sandcone
T-11	71+99	Att, ORG, MC, -200
T-12	81+04	Att, ORG, MC, -200

Sample Shipped by : Ardaman & Associates Date: 10-19-10

Custodian: Bill Singleton

Sample Received by: Emil G. Pautte Date: 10/20/10

Company Name: Ardaman & Associates, Inc.

Remarks:

SAND CONE DENSITY

ASTM D1556
Method A

Job No. 113-10-81-3667 Test No. 10 Date: 10/19/2010

Technician: B. Singleton,CET. Lift No. 2 Location New Westwego Levee station 77+07

(1) Unit weight of sand	94.9	lbs/ft^3	Date Calibrated	10/13/2010	
(2)Weight of sand in cone	3.88	lbs	Date Calibrated	10/13/2010	
(3) Original weight of sand and Jar	15.50	lbs	Note: See attached work sheets for unit weight of sand and weight of sand in cone.		
(4) Final weight of sand and Jar	6.58	lbs			
(5) Weight of sand in cone and hole	8.92	lbs (3)-(4)	(8) Wet weight of soil	6.35	lbs
(6) Weight of sand in hole	5.04	lbs (5)-(2)	(9) Wet density of soil	119.6	lbs/ft^3 (8) / (7)
(7) Volume of hole	0.0531	ft^3 (6) / (1)			

MOISTURE CONTENT

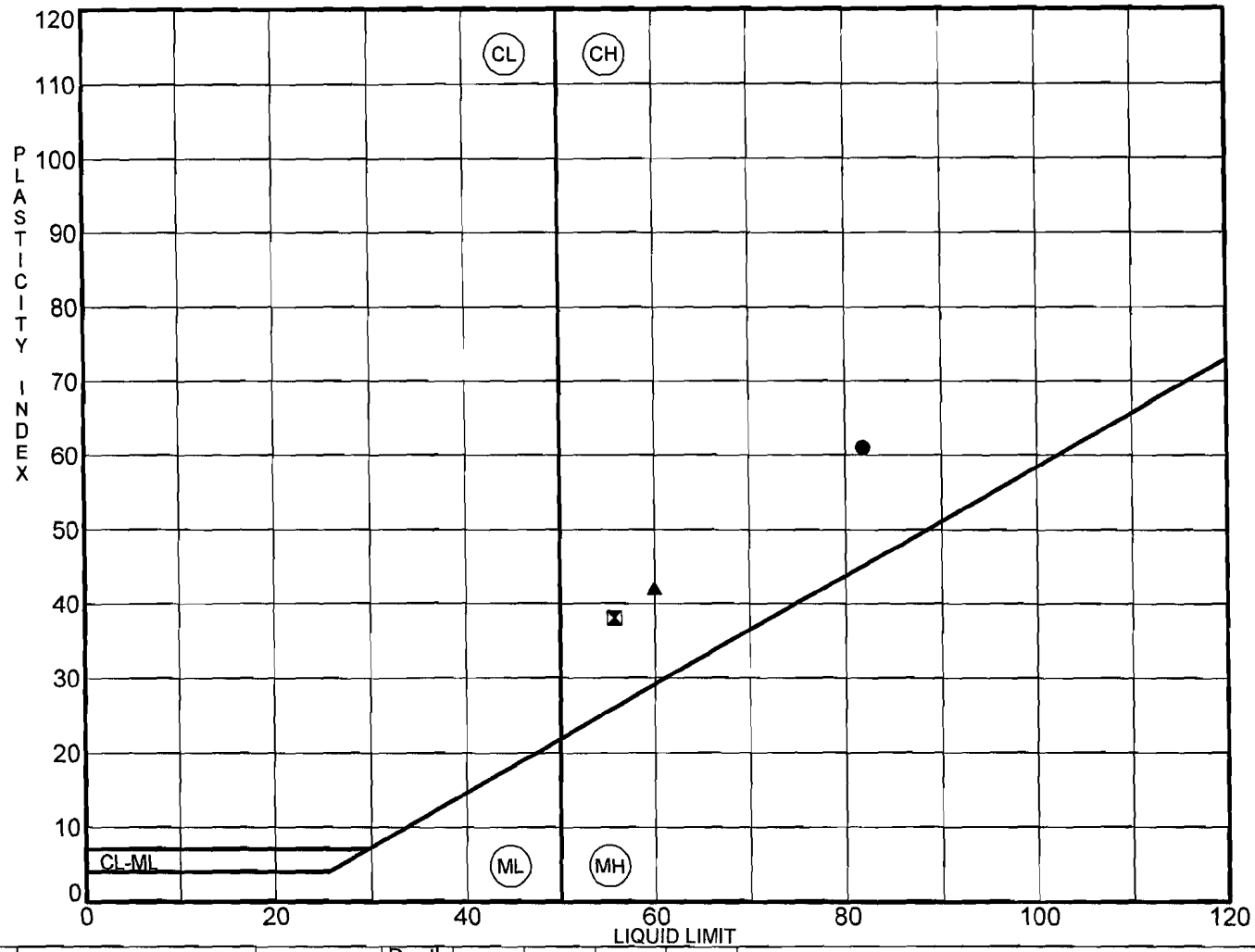
OVEN DRY ASTM D2216			MICROWAVE ASTM D4643			
Tare no. 7-21			Tare No.			
						Trial dry weights
(10) Wet weight of soil & tare	399.83g		(16) Wet weight of soil & tare		g	
(11) Dry weight of soil & tare	344.44g		(17) Dry weight of soil & tare (Final)		g	#1-
(12) Weight of water	55.39g	(10) - (11)	(18) Weight of water	(16) - (17)	g	#2-
(13)Tare weight	123.55g		(19)Tare weight		g	#3-
(14) Dry weight of soil	220.89g	(11) - (13)	(20) Dry weight of soil	(17) - (19)	g	#4-
(15) Moisture %	25.1	(12) / (14)x100	(21) Moisture %		(18) / (20) *100	

(22) Wet density of soil	119.6	lbs/ft^3 (9)	(25) Maximum Dry density	90.1	Proctor No. Curve 108
(23) Dry density of soil	95.6	lbs/ft^3 (22)/1+(24)x100	Optimum Moisture	24	
(24)Moisture %	25.1	Moisture content used in dry density calculation circle one		Oven	Microwave
% Compaction	106.1	(23)/(25)		X	

REMARKS: Nuclear WD 117.4

Sand Cone WD 119.6

1.8 1.53% difference



	Sample Number	Sample ID	Depth (ft.)	LL	PL	PI	Fines	Visual Classification
●	**T-10**		**0.0**	**82**	**21**	**61**	**93.6**	Brown Clay (CH)
⊠	**T-11**		**0.0**	**56**	**18**	**38**	**96.4**	Brown Clay (CH)
▲	**T-12**		**0.0**	**60**	**18**	**42**	**95.3**	Brown Clay (CH)

Remarks: All tests were performed in general accordance with ASTM Standards D4318, D421, D2217, and D1140.

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

Ardaman & Associates, Inc.

Ardaman and Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Telephone: 225-752-4790
Fax: 225-785-4878

ATTERBERG LIMITS' RESULTS

Project: New Westwego PS to Orleans Village

Client: USACE

AAI Project Number: 10-81-3667

ORGANIC CONTENT (ASTM D2974)

Ardaman & Associates, Inc.

Project: New Westwego PS to Orleans Village

File No.: 10-81-3667

Client: USACE

Date: 10/21/2010

Sample ID	Depth (feet)	Bowl No.	Tare Weight (gm)	Oven-dried Weight (w/tare)	Muffle-dried Weight (w/tare)	Muffle-dried Weight (w/o tare)	Ash Content (%)	Organic Content (%)
T-10	0 - 0	RR	65.78	95.92	94.52	28.74	95.36	4.6
T-11	0 - 0	KK	52.53	82.92	81.88	29.35	96.58	3.4
T-12	0 - 0	GG	64.25	94.61	93.56	29.31	96.54	3.5

Note: FOC = Organic Content divided by 174.

MOISTURE CONTENTS

Ardaman & Associates, Inc.

File No.: 10-81-3667

Date: 10/21/2010

Boring No.	Depth (ft.)	Moisture Content (%)	Classification	Can No.	Wet Wt. w/Can (grams)	Dry Wt. w/Can (grams)	Wt. of Can (grams)
T-10	0 - 0	25.08	Brown Clay (CH)		399.83	344.44	123.55
T-11	0 - 0	23.10	Brown Clay (CH)		481.48	413.61	119.76
T-12	0 - 0	23.63	Brown Clay (CH)		437.04	382.11	149.61

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-10
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 77+07 - 17' O/S (FS)
N.504976.9 E.3660451.1 / Lift 2 Elev. 5.6'
Total Sample Weight: 110.1 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 10/20/2010
Done By: BS
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
10/20		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
10/21		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	130.65	123.55	7.10	6.45	93.55	
#230						
Pan						

Total Weight: 110.1 grams

Initial Water Content

399.83 Wet Wt. (grams)
344.44 Dry Wt. (grams)
55.4 Wt. H2O (grams)

344.44 Dry Wt. (grams)
123.55 Tare Wt.
110.1 Weight Sample

25.08 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-11
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 71+99 - 36' O/S (FS)
N.505471.0 E.3660573.5 / Lift 2 Elev. 4.8'
Total Sample Weight: 123.11 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 10/20/2010
Done By: BS
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
10/20		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
10/21		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	124.22	119.76	4.46	3.62	96.38	
#230						
Pan						

Total Weight: 123.11 grams

Initial Water Content

481.48 Wet Wt. (grams)
413.61 Dry Wt. (grams)
67.9 Wt. H2O (grams)

413.61 Dry Wt. (grams)
119.76 Tare Wt.
123.11 Weight Sample

23.10 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-12
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 81+04 - 25' O/S (FS)
N.504599.3 E.3660334.3 / Lift 2 Elev. 5.0'
Total Sample Weight: 108.84 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 10/20/2010
Done By: BS
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
10/20		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
10/21		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	154.75	149.61	5.14	4.72	95.28	
#230						
Pan						

Total Weight: 108.84 grams

Initial Water Content

437.04 Wet Wt. (grams)
382.11 Dry Wt. (grams)
54.9 Wt. H2O (grams)

382.11 Dry Wt. (grams)
149.61 Tare Wt.
108.84 Weight Sample

23.63 H2O Content (%)

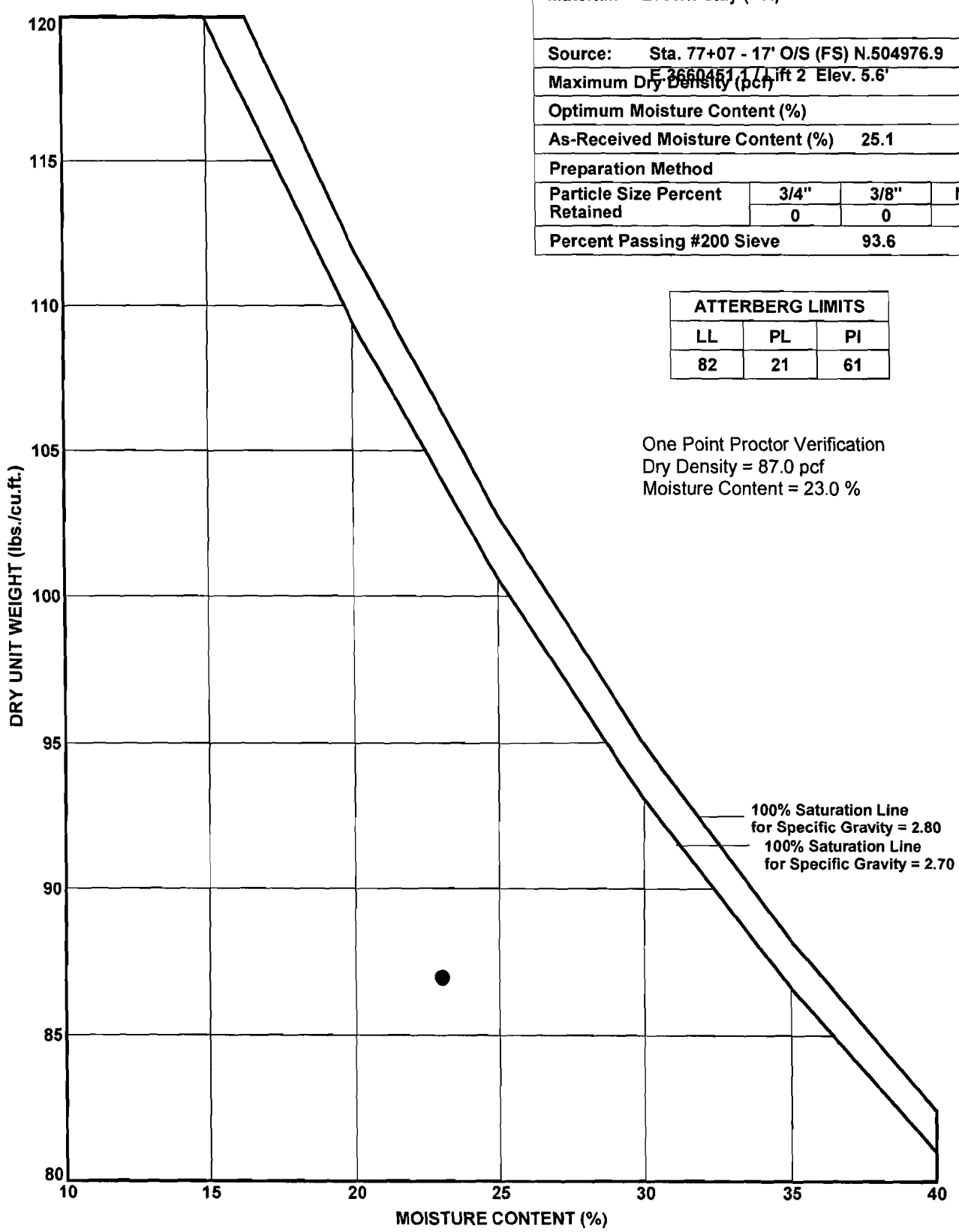
Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Material:	Brown Clay (CH)		
Source:	Sta. 77+07 - 17' O/S (FS) N.504976.9 E.3660451.1 / Lift 2 Elev. 5.6'		
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	25.1		
Preparation Method			
Particle Size Percent Retained	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	93.6		

ATTERBERG LIMITS		
LL	PL	PI
82	21	61

One Point Proctor Verification
Dry Density = 87.0 pcf
Moisture Content = 23.0 %



COMPACTION TEST

Standard Proctor ASTM D 698 Method B

Ardaman & Associates, Inc.

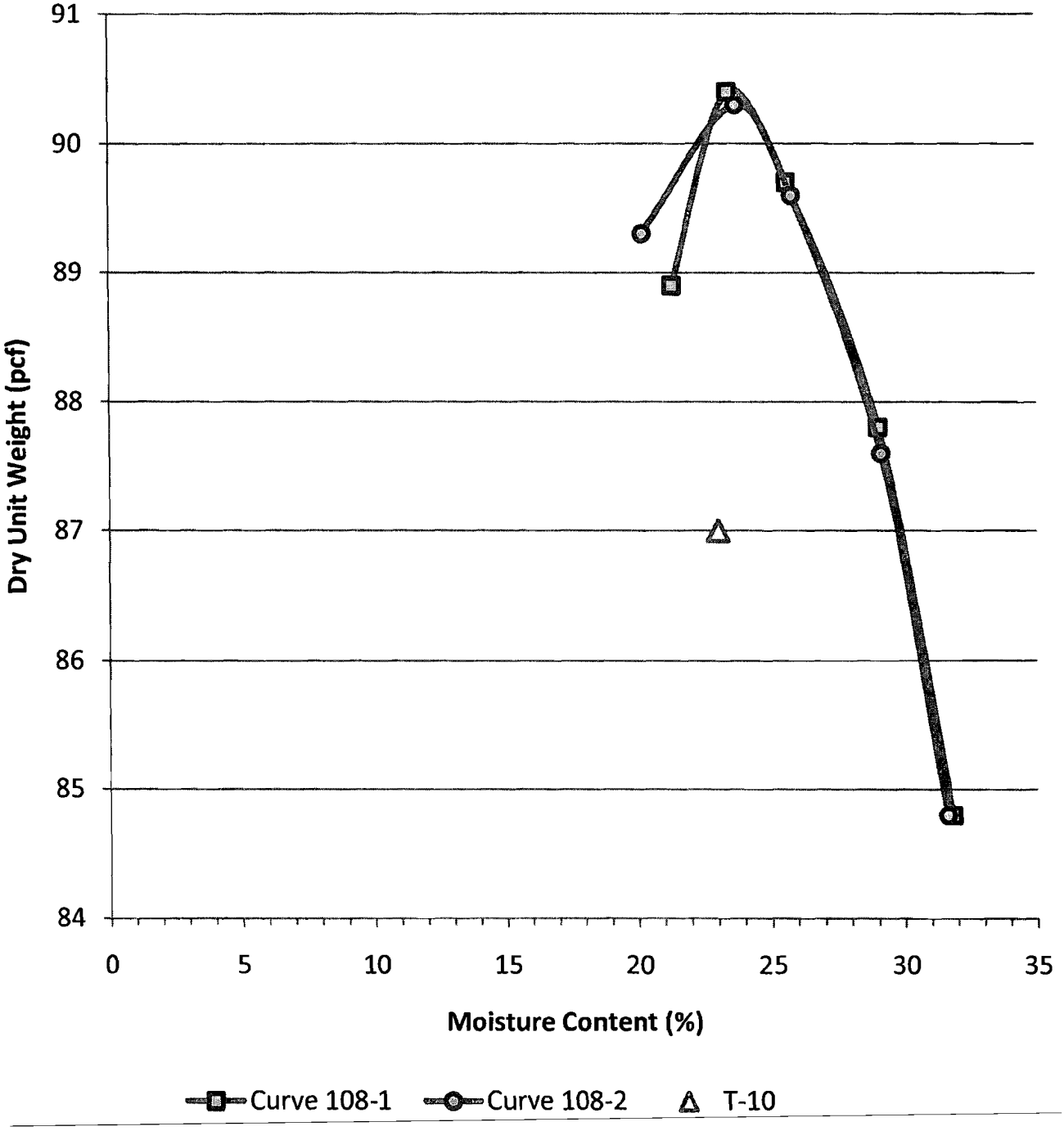
Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans
Village
Westwego, LA.

Curve No.: T-10
Date: 10/21/10
File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 10/21/10

10-81-3667 - One Point Proctor Verification



QA TESTING REQUEST FORM

Lab: **Ardaman**
BPA# **09-A-0004**
Submit invoice to:
ATTN: S. Bennie Benson (smith.b.benson@us.army.mil)
United States Corp of Engineers - MVN District
P.O. Box 60267
New Orleans, LA 70160

Authorization to complete the following testing services as indicated below:
Call Officer: Gremillion, Glenn
Signature:
Date: 10/18/10
BLOCK CALL #: **014G**

Project Name: New Westwego PS to Orleans Village — CD Contract #: **W912P8-09-D-0046-0008**
USACE POC: Jeremy George — POC Phone: 985-209-8530
Order Date: 10/16/2010 — Test Date: 10/19/2010 — Test Time: 9:00 AM ~~TBD~~
QA Lab Rep: Bill Singleton — QA Lab Phone: 225-752-4790
Is the requested services estimated to be over $2,500? (NO) | YES **(if yes follow FAR 13.303-5)**
Distribution List: Jeremy George (email; jeremy.m.george@usace.army.mil
or Comments: John Thompson

# ORDERED	UNIT	DESCRIPTION	ASTM	# COMPLETE
		CONCRETE (estimated placement size cu. yds.)		
	HR	ACI TECH - PERFORM FIELD TESTS (Cyls, Slump, %Air, Temp, Unit Wt.)	C1077+	
	EACH	CONCRETE CURING AND COMPRESSIVE STRENGTH	C39	
		VIBRATION MONITORING		
	HR	VIBRATION TECH & EQUIP		
		SOILS FIELD TESTING		
5	HR	SOILS FIELD TECH - PERFORM TESTS	D3740	5
3	EACH	SOIL DENSITY - NUCLEAR METHOD	D6938*	3
1	EACH	SOIL DENSITY - SAND CONE METHOD	D1556	1
3	EACH	MOISTURE CONTENT TEST (OVEN/MICROWAVE)	D2216/D4643*	3
3	EACH	SOILS CLASSIFICATION	D2487*	3
3	EACH	ATTERBERG LIMITS DETERMINATION	D4318*	3
3	EACH	SOILS FINER - NO 200 SIEVE, WASH	C117/D1140*	3
3	EACH	SOILS ORGANIC CONTENT - METHOD 'C'	D2974	3
	EACH	STANDARD PROCTOR	D698*	0
1	EACH	STANDARD PROCTOR - 1 POINT	D698	1
	EACH	RELATIVE DENSITY MIN / MAX	D4253/D4254*	
		SPECIAL TESTING REQUIREMENTS		
	EACH	TENSION TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
	EACH	BEND TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
		WELD INSPECTION & TESTING		
	HR	CERTIFIED WELDING INSPECTOR	AWS D1.1/D1.1M	
	EACH	LIQUID PENETRANT TESTING	ASTM E165	
	EACH	ULTRASONIC TESTING	ASTM E 164	
	EACH	RADIOGRAPHIC TESTING	ASTM E94	
	EACH	MAGNETIC TESTING	ASTM E709	

*Note that where applicable, testing procedures should follow USACE EM 1110-2-1906 Lab Testing manual and/or in accordance with project specifications.

Testing Services have been completed as authorized and as indicated:

Start Time: 730 AM Stop Time: 1230 hrs Travel Time: 3.0 Mile: 120
USACE Representative: Jeremy George
USACE Signature: Jeremy George
Date: 10/19/10

TRANSMITTAL

AAI

Ardaman & Associates, Inc.

To: USACE - MVN District
P O Box 60267
New Orleans, LA 70160

Date: August 31, 2010
Job No.: 113-10-81-3667
Project: New Westwego PS to Orleans Village
CD Contract# W912P8-09-0046-0008
BPA # 09-A-0004
Block Call # 011G

Attention: Jermey George

From: Eric A. Paille EAP

COPIES	DESCRIPTION
1	Daily Field Report 03833
1	Chain of Custody
1	Atterberg Limit, Moisture Content, Organic Content, -200,Sand Cone Density
	Curve 01 and 02
1	Signed QA Testing Request Form

THESE ARE TRANSMITTED:

■ **FOR YOUR USE** ☐ **FOR REVIEW & COMMENT** ■ **AS REQUESTED**

☐ **REVISE AS NOTED** ☐ **TO BE DISTRIBUTED**

REMARKS: _____

AASHTO Accredited Laboratory
LELAP Certificate No. 02052

316 HIGHLANDIA DRIVE
BATON ROUGE, LA 7 0810
PHONE: (225) 752-4790
FAX: (225) 752-4878

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 03833
DATE OF SERVICE: 08/27/2010
AUTHORIZATION: Jermey George
REPORT DATE: 08/30/2010

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: United States Corp of Enginees

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 623 PREVIOUS: 620
DENSITY - CURRENT: 2161 PREVIOUS: 2151
TEST MODE: Direct Transmission
PROBE DEPTH: 6

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	Curve 01/02	Brown & Gray Clay (CH)	20.9	98.4	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
1.	145+08 21'o/s (FS) N.500851.9 E.3662457.5	6	1/5.0'	1	28.1 *	20.9	118.2	92.3	98.4	93.8
2.	139+03 22'o/s (FS) N.500893.4 E.3661854.2	6	1/4.8'	1	29.3 *	20.9	115.5	89.3	98.4	90.8

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted above.

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 08/27/2010

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric Paille
CMT Supervisor

Our letters and reports are for the exclusive use of the client to whom they are addressed and shall not be reproduced except in full without the approval of the testing laboratory. The use of our name must receive our written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not indicative of the quantities of apparently identical or similar products.

AAI

Ardaman and Associates, Inc.

CHAIN OF CUSTODY RECORD

Job No.: 113-10-81-3667 Date: 8-27-10

Project Name : New Westwego PS to Orleans Village

Project Location: Jefferson Parish

Collectors Name: Bill Singleton

Type of Sample: Clay No. of Containers: 4

SAMPLE ID	SAMPLE LOCATION	PURPOSE
T-1	145+08	AH, ORG, -200, MC
T-2	139+03	
C-1	145+08	Std Proctor
C-2	139+03	Std Proctor

Sample Shipped by : AAI Date: 8-27-10

Custodian: Bill Singleton

Sample Received by: Eric A. Paulk Date: 8/27/10

Company Name: AAI

Remarks:

SAND CONE DENSITY

ASTM D1556
Method A

Job No. 113-10-81-3667 Test No. 2 Date: 8/27/2010

Technician: B. Singleton,CET. Lift No. 1 Location station 139+03 22' o/s (FS)

(1) Unit weight of sand	94.9	lbs/ft^3	Date Calibrated	8/9/2010	
(2)Weight of sand in cone	3.87	lbs	Date Calibrated	8/9/2010	
(3) Original weight of sand and Jar	14.60	lbs	Note: See attached work sheets for unit weight of sand		
(4) Final weight of sand and Jar	5.11	lbs	and weight of sand in cone.		
(5) Weight of sand in cone and hole	9.49	lbs (3)-(4)	(8) Wet weight of soil	6.88	lbs
(6) Weight of sand in hole	5.62	lbs (5)-(2)	(9) Wet density of soil	116.6	lbs/ft^3 (8) / (7)
(7) Volume of hole	0.059	ft^3 (6) / (1)			

MOISTURE CONTENT

OVEN DRY ASTM D2216			MICROWAVE ASTM D4643			
Tare no.	28-Jul		Tare No.			
(10) Wet weight of soil & tare	470.72g		(16) Wet weight of soil & tare	g		Trial dry weights
(11) Dry weight of soil & tare	392.03g		(17) Dry weight of soil & tare (Final)	g		#1-
(12) Weight of water	78.69g	(10) - (11)	(18) Weight of water	(16) - (17)	g	#2-
(13)Tare weight	123.38g		(19)Tare weight		g	#3-
(14) Dry weight of soil	268.65g	(11) - (13)	(20) Dry weight of soil	(17) - (19)	g	#4-
(15) Moisture %	29.3	(12) / (14)x100	(21) Moisture %		(18) / (20) *100	

(22) Wet density of soil	116.6	lbs/ft^3 (9)	(25) Maximum Dry density	98.4	Proctor No. Curve 01/02
(23) Dry density of soil	90.2	lbs/ft^3 (22)/1+(24)x100	Optimum Moisture	20.9	
(24)Moisture %	29.3	Moisture content used in dry density calculation circle one		Oven	Microwave
% Compaction	91.7	(23)/(25)		X	

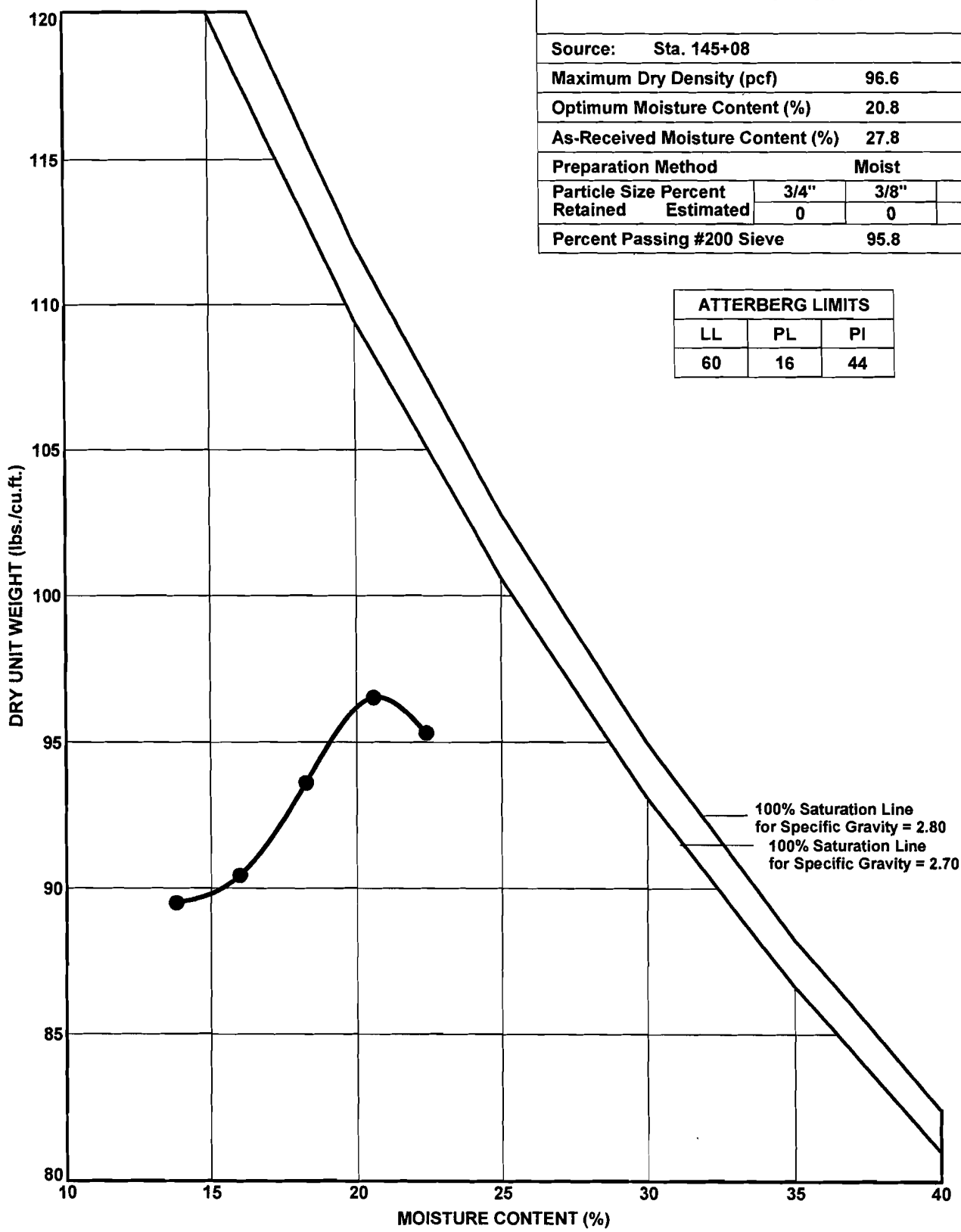
REMARKS: Nuclear WD 115.5

Sand Cone WD 116.6

1.1 0.95% difference

Material: Brown and Gray Clay (CH)			
Source: Sta. 145+08			
Maximum Dry Density (pcf)	96.6		
Optimum Moisture Content (%)	20.8		
As-Received Moisture Content (%)	27.8		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	95.8		

ATTERBERG LIMITS		
LL	PL	PI
60	16	44



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

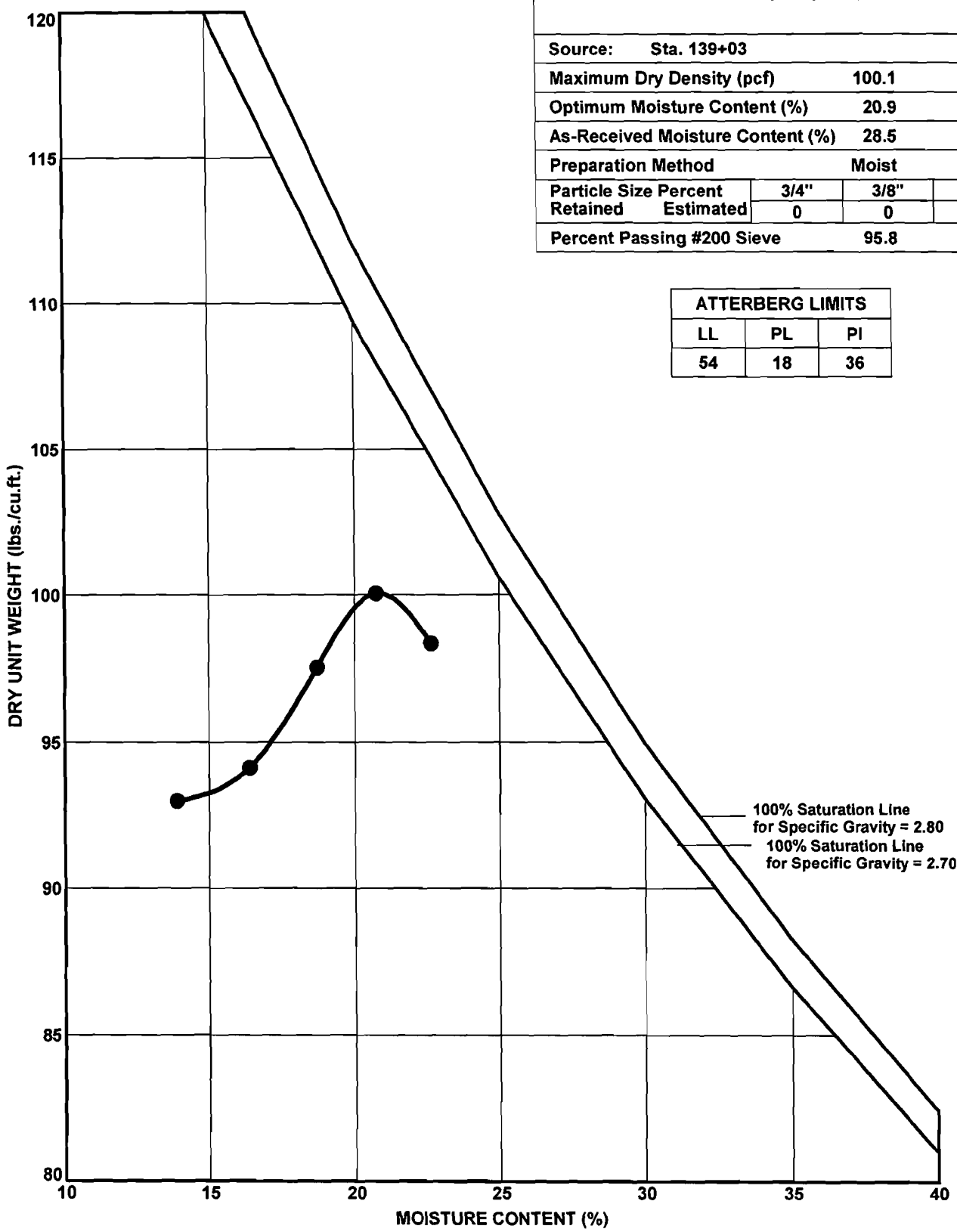
USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: 01
Date: 08/30/10
File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 08/31/10

Material:	Brown and Gray Clay (CH)		
Source:	Sta. 139+03		
Maximum Dry Density (pcf)	100.1		
Optimum Moisture Content (%)	20.9		
As-Received Moisture Content (%)	28.5		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	95.8		

ATTERBERG LIMITS		
LL	PL	PI
54	18	36



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

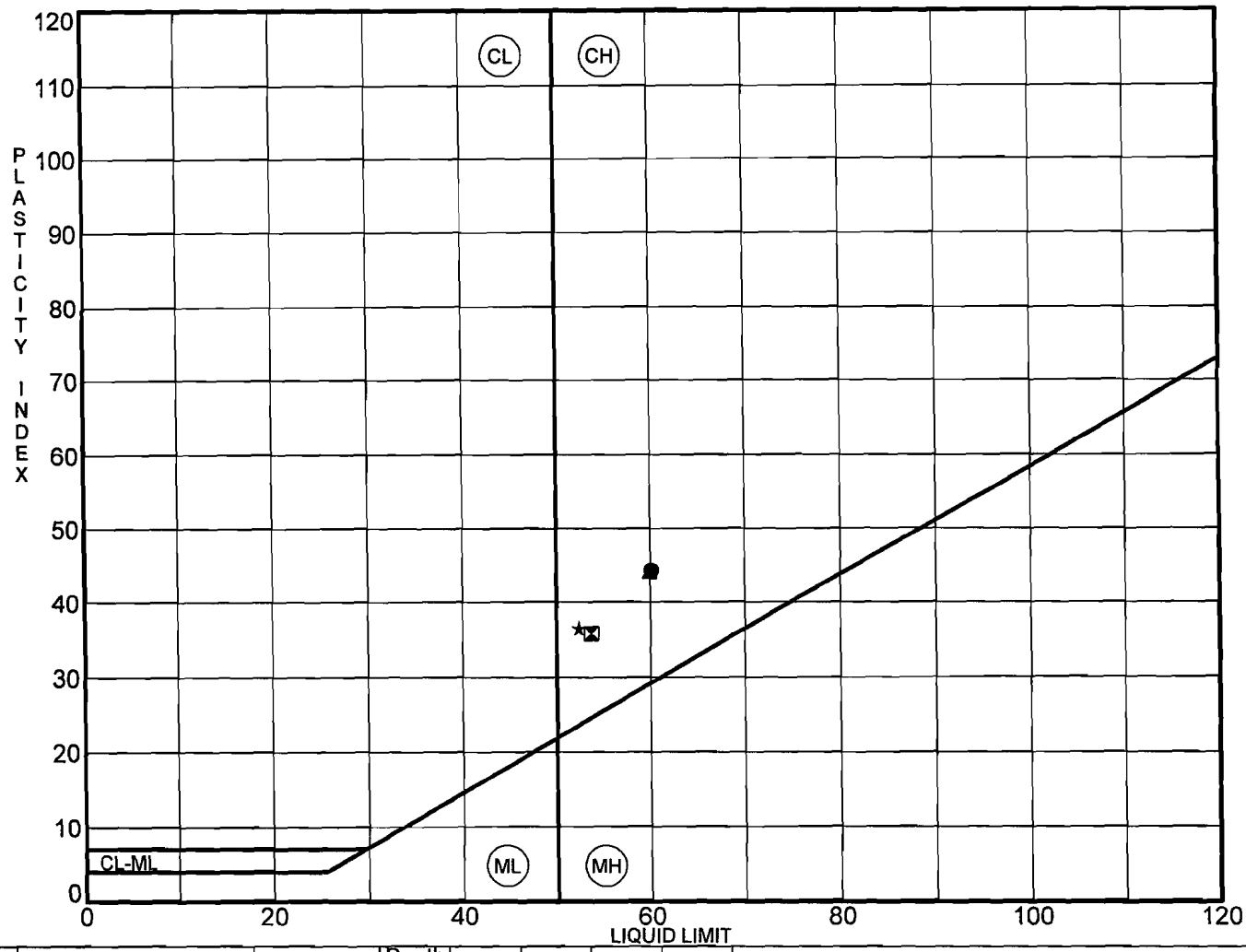
USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: 02

Date: 08/30/10

File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 08/31/10



	Sample Number	Sample ID	Depth (ft.)	LL	PL	PI	Fines	Visual Classification
●	01		0.0	60	16	44	95.8	Brown and Gray Clay (CH)
⊠	02		0.0	54	18	36	95.8	Brown and Gray Clay (CH)
▲	T-1		0.0	60	16	44	97.1	Brown and Gray Clay (CH)
★	T-2		0.0	52	16	36	95.0	Brown and Gray Clay (CH)

Remarks: All tests were performed in general accordance with ASTM Standards D4318, D421, D2217, and D1140.

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LELAP Certificate No. 02052
USACE Validated

Ardaman & Associates, Inc.

Ardaman and Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Telephone: 225-752-4790
Fax: 225-785-4878

ATTERBERG LIMITS' RESULTS

Project: New Westwego PS to Orleans Village

Client: USACE

AAI Project Number: 10-81-3667

ORGANIC CONTENT (ASTM D2974)

Ardaman & Associates, Inc.

Project: New Westwego PS to Orleans Village

File No.: 10-81-3667

Client: USACE

Date: 8/31/2010

Sample ID	Depth (feet)	Bowl No.	Tare Weight (gm)	Oven-dried Weight (w/tare)	Muffle-dried Weight (w/tare)	Muffle-dried Weight (w/o tare)	Ash Content (%)	Organic Content (%)
01	0 - 0	GG	64.26	94.26	93.24	28.98	96.60	3.4
02	0 - 0	201	66.29	96.29	95.19	28.90	96.33	3.7
T-1	0 - 0	200	59.16	89.18	88.14	28.98	96.54	3.5
T-2	0 - 0	KK	52.51	82.52	81.53	29.02	96.70	3.3

Note: FOC = Organic Content divided by 174.

MOISTURE CONTENTS

Ardaman & Associates, Inc.

File No.: 10-81-3667

Date: 8/31/2010

Boring No.	Depth (ft.)	Moisture Content (%)	Classification	Can No.	Wet Wt. w/Can (grams)	Dry Wt. w/Can (grams)	Wt. of Can (grams)
01	0 - 0	27.85	Brown and Gray Clay (CH)		497.94	415.56	119.75
02	0 - 0	28.53	Brown and Gray Clay (CH)		440.27	369.11	119.73
T-1	0 - 0	28.10	Brown and Gray Clay (CH)		526.54	437.24	119.5
T-2	0 - 0	29.29	Brown and Gray Clay (CH)		470.72	392.03	123.38

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: 01
Depth: 0-0
Material: Brown and Gray Clay (CH)
Source: Sta. 145+08
Total Sample Weight: 109.89 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 8/29/2010
Done By: CP
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
08/29		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
08/30		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	125.03	120.42	4.61	4.20	95.80	
#230						
Pan						

Total Weight: 109.89 grams

Initial Water Content

497.94 Wet Wt. (grams)
415.56 Dry Wt. (grams)
82.4 Wt. H2O (grams)

415.56 Dry Wt. (grams)
119.75 Tare Wt.
109.89 Weight Sample

27.85 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: 02
Depth: 0-0
Material: Brown and Gray Clay (CH)
Source: Sta. 139+03
Total Sample Weight: 104.08 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 8/29/2010
Done By: CP
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
08/29		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
08/30		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	122.75	118.37	4.38	4.21	95.79	
#230						
Pan						

Total Weight: 104.08 grams

Initial Water Content

440.27 Wet Wt. (grams)
369.11 Dry Wt. (grams)
71.2 Wt. H2O (grams)

369.11 Dry Wt. (grams)
119.73 Tare Wt.
104.08 Weight Sample

28.53 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-1
Depth: 0-0
Material: Brown and Gray Clay (CH)
Source: Sta. 145+08 - 21' O/S (FS)
N.500851.9 E.3662457.5 / Lift 1 - Elev. 5.0'

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 8/29/2010
Done By: CP
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Total Sample Weight: 106.14 gm (Dry)

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
08/29		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
08/30		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	152.82	149.73	3.09	2.91	97.09	
#230						
Pan						

Total Weight: 106.14 grams

Initial Water Content

526.54 Wet Wt. (grams)
437.24 Dry Wt. (grams)
89.3 Wt. H2O (grams)

437.24 Dry Wt. (grams)
119.5 Tare Wt.
106.14 Weight Sample

28.10 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-2
Depth: 0-0
Material: Brown and Gray Clay (CH)
Source: Sta. 139+03 - 22')/S (FS)
N.500893.4 E.3661854.2 / Lift 1 - Elev 4.8'
Total Sample Weight: 103.93 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 8/29/2010
Done By: CP
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
08/29		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
08/30		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	124.45	119.22	5.23	5.03	94.97	
#230						
Pan						

Total Weight: 103.93 grams

Initial Water Content

470.72 Wet Wt. (grams)
392.03 Dry Wt. (grams)
78.7 Wt. H2O (grams)

392.03 Dry Wt. (grams)
123.38 Tare Wt.
103.93 Weight Sample

29.29 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

QA TESTING REQUEST FORM

Lab: **Ardaman**
BPA# **09-A-0004**
Submit invoice to:
ATTN: S. Bennie Benson (smith.b.benson@us.army.mil)
United States Corp of Engineers - MVN District
P.O. Box 60267
New Orleans, LA 70160

Authorization to complete the following testing services as indicated below:
Call Officer
Signature
Date 8/26/10
BLOCK CALL #: **011G**

Project Name: New Westwego PS to Orleans Village — CD Contract #: W912P8-09-D-0046-0008
USACE POC: Jeremy George — POC Phone: 985-209-8530
Order Date: 8/25/2010 — Test Date: ~~8/30~~/2010 27 — Test Time: 9:00
QA Lab Rep: Bill Singleton — QA Lab Phone: 225-752-4790
Is the requested services estimated to be over $2,500? NO | YES **(if yes follow FAR 13.303-5)**
Distribution List: Jeremy George jeremy.m.george@usace.army.mil
or Comments: John Thompson

# ORDERED	UNIT	DESCRIPTION	ASTM	# COMPLETE
		CONCRETE (estimated placement size cu. yds.)		
	HR	ACI TECH - PERFORM FIELD TESTS (Cyls, Slump, %Air, Temp, Unit Wt.)	C1077+	
	EACH	CONCRETE CURING AND COMPRESSIVE STRENGTH	C39	
		VIBRATION MONITORING		
	HR	VIBRATION TECH & EQUIP		
		SOILS FIELD TESTING		
8	HR	SOILS FIELD TECH - PERFORM TESTS	D3740	5
4	EACH	SOIL DENSITY - NUCLEAR METHOD	D6938*	2
1	EACH	SOIL DENSITY - SAND CONE METHOD	D1556	1
6	EACH	MOISTURE CONTENT TEST (OVEN/MICROWAVE)	D2216/D4643*	4
6	EACH	SOILS CLASSIFICATION	D2487*	4
6	EACH	ATTERBERG LIMITS DETERMINATION	D4318*	4
6	EACH	SOILS FINER - NO 200 SIEVE, WASH	C117/D1140*	4
6	EACH	SOILS ORGANIC CONTENT - METHOD 'C'	D2974	4
2	EACH	STANDARD PROCTOR	D698*	2
	EACH	STANDARD PROCTOR - 1 POINT	D698	
	EACH	RELATIVE DENSITY MIN / MAX	D4253/D4254*	
		SPECIAL TESTING REQUIREMENTS		
	EACH	TENSION TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
	EACH	BEND TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
		WELD INSPECTION & TESTING		
	HR	CERTIFIED WELDING INSPECTOR	AWS D1.1/D1.1M	
	EACH	LIQUID PENETRANT TESTING	ASTM E165	
	EACH	ULTRASONIC TESTING	ASTM E 164	
	EACH	RADIOGRAPHIC TESTING	ASTM E94	
	EACH	MAGNETIC TESTING	ASTM E709	

*Note that where applicable, testing procedures should follow USACE EM 1110-2-1906 Lab Testing manual and/or in accordance with project specifications.

Testing Services have been completed as authorized and as indicated:

Start Time: 715 Am Stop Time: 1215 hrs Travel Time: 3.0 Mile: 160
USACE Representative: Jeremy George
USACE Signature: Jeremy George Date: 8/27/10

TRANSMITTAL

AAI

Ardaman & Associates, Inc.

To: **USACE-MVN District**
P O Box 60267
New Orleans, LA 70160

Date: March 30, 2011
Job No.: 113-10-81-3667
Project: New Westwego PS
CD Contract # W912P8-09-0046-0008
BPA # 09-A-0004
Block Call # 032G

Attention: **Glenn Gremillion**

From: Eric A. Paille EAP

COPIES	DESCRIPTION
1	Daily Field Report 05075
1	Chain of Custody
1	Atterberg Limit, Moisture Content, Organic Content , -200
1	One Point Proctor Verification (T-30A) & Sand Cone Density (T-30B)
1	Signed QA Testing Request Form

THESE ARE TRANSMITTED:

■ **FOR YOUR USE** ☐ **FOR REVIEW & COMMENT** ■ **AS REQUESTED**

☐ **REVISE AS NOTED** ☐ **TO BE DISTRIBUTED**

REMARKS: Email: Jeremy George jeremy.m.george@usace.army.mil

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated Laboratory

316 HIGHLANDIA DRIVE
BATON ROUGE, LA 7 0810
PHONE: (225) 752-4790
FAX: (225) 752-4878

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 05075
DATE OF SERVICE: 03/24/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 03/29/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway Construction

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3411-B
GAUGE SERIAL NO.: 25913
STANDARD COUNTS
MOISTURE - CURRENT: 574 PREVIOUS: 569
DENSITY - CURRENT: 1687 PREVIOUS: 1733
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(3182-129)	Brown Clay (CH)	29.4	88.2	
2.	(3555-353)	Brown Clay (CH)	30.0	86.6	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
28.	Station 107+07 o/s 82' (PS) N.502060.6 E.3659753.4	6	1/4.4'	1	31.9	29.4	115.1	87.3	88.2	99.0
29.	Station 101+99 o/s 73'(PS) N.502556.5 E.3659865.2	6	1/4.6'	1	30.4	29.4	114.2	87.6	88.2	99.3
30A	Station 96+99 centerline N.503059.6 E.3659914.6	12	7/11.5'	2	27.7	30.0	102.3	80.1	86.6	92.5

Report of Tests continued on page 2

Our letters and reports are for the exclusive use of the client to whom they are addressed and shall not be reproduced except in full without the approval of the testing laboratory. The use of our name must receive our written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not indicative of the quantities of apparently identical or similar products.

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 03/24/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
30B	Station 96+99 Centerline N.503059.6 E.3659914.6	6	7/11.5'	2	28.7	30.0	107.9	83.8	86.6	96.8
31.	Station 102+00 Centerline N.502573.4 E.3659790.6	12	7/11.4'	2	21.2 *	30.0	101.6	83.8	86.6	96.8
32.	Station 107+02 Centerline N.503084.9 E.3659674.6	12	7/11.4'	2	22.1 *	30.0	99.3	81.3	86.6	93.9

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted on page 1.

ADDITIONAL COMMENTS:

Technician: Calvin Hu, Field Technician

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric Paille

Eric Paille
CMT Supervisor

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AAI

Ardaman and Associates, Inc.

CHAIN OF CUSTODY RECORD

Job No.: 113-10-81-3667 Date: 3-24-11

Project Name : New Westwego PS to Orleans Village

Project Location:

Collectors Name: Colin th

Type of Sample: Brown Cl No. of Containers: 5 bags

SAMPLE ID	SAMPLE LOCATION	PURPOSE
T-28	107+07	-200, Org, Att
T-29	101+99	" "
T-30A & 30B	96+99	" " Lpt proctor (30A)
T-31	102+00	" "
T-32	107+02	" "

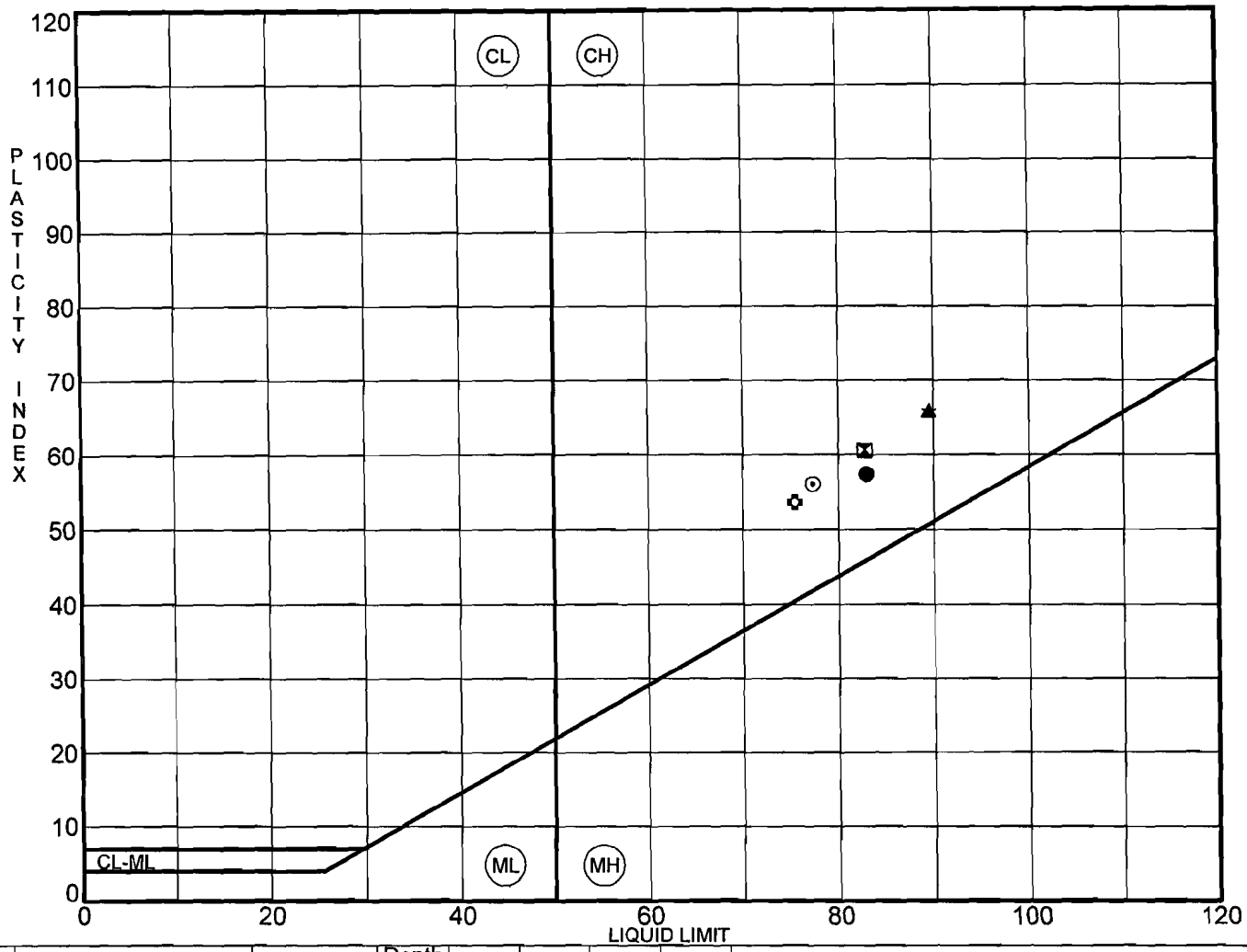
Sample Shipped by : AA I Date: 3-24-11

Custodian: Colin

Sample Received by: [illegible] Date: 3-24-11

Company Name: AA I

Remarks:



	Sample Number	Sample ID	Depth (ft.)	LL	PL	PI	Fines	Visual Classification
●	**T-28**		**0.0**	**83**	**26**	**57**	**95.0**	Brown Clay (CH)
⊠	**T-29**		**0.0**	**83**	**22**	**61**	**92.9**	Brown Clay (CH)
▲	**T-30A**		**0.0**	**90**	**24**	**66**	**97.9**	Brown Clay (CH)
★	**T-30B**		**0.0**	**90**	**24**	**66**	**97.5**	Brown Clay (CH)
⊙	**T-31**		**0.0**	**77**	**21**	**56**	**96.8**	Brown Clay (CH)
✿	**T-32**		**0.0**	**75**	**22**	**53**	**96.6**	Brown Clay (CH)

Remarks: All tests were performed in general accordance with ASTM Standards D4318, D421, D2217, and D1140.

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USACE Validated

Ardaman & Associates, Inc.

Ardaman and Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Telephone: 225-752-4790
Fax: 225-785-4878

ATTERBERG LIMITS' RESULTS

Project: New Westwego PS to Orleans Village

Client: USACE

AAI Project Number: 10-81-3667

ORGANIC CONTENT (ASTM D2974)

Ardaman & Associates, Inc.

Project: New Westwego PS to Orleans Village

File No.: 10-81-3667

Client: USACE

Date: 3/29/2011

Sample ID	Depth (feet)	Bowl No.	Tare Weight (gm)	Oven-dried Weight (w/tare)	Muffle-dried Weight (w/tare)	Muffle-dried Weight (w/o tare)	Ash Content (%)	Organic Content (%)
T-28	0 - 0	204	63.69	98.12	96.06	32.37	94.02	6.0
T-29	0 - 0	I	52.56	72.66	71.54	18.98	94.43	5.6
T-30A	0 - 0	BS	27.64	51.93	50.62	22.98	94.61	5.4
T-30B	0 - 0	G	64.25	87.44	86.15	21.90	94.44	5.6
T-31	0 - 0	SS	67.68	91.82	90.63	22.95	95.07	4.9
T-32	0 - 0	MM	54.36	81.97	80.62	26.26	95.11	4.9

Note: FOC = Organic Content divided by 174.

MOISTURE CONTENTS

Ardaman & Associates, Inc.

File No.: 10-81-3667

Date: 3/29/2011

Boring No.	Depth (ft.)	Moisture Content (%)	Classification	Can No.	Wet Wt. w/Can (grams)	Dry Wt. w/Can (grams)	Wt. of Can (grams)
T-28	0 - 0	31.91	Brown Clay (CH)		462.02	380.26	124.06
T-29	0 - 0	30.40	Brown Clay (CH)		422.25	352.62	123.55
T-30A	0 - 0	27.70	Brown Clay (CH)		490.29	416.41	149.69
T-30B	0 - 0	28.72	Brown Clay (CH)		381.36	323.08	120.17
T-31	0 - 0	21.22	Brown Clay (CH)		514.46	451.3	153.71
T-32	0 - 0	22.14	Brown Clay (CH)		469.57	406.26	120.37

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-28
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 107+07 - 82.0' O/S (PS) N.502060.6 E.3659753.4 / Lift 1 Elev. 4.4'
Total Sample Weight: 171.09 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 3/26/2011
Done By: HU
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
03/26		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
03/27		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	132.61	124.06	8.55	5.00	95.00	
#230						
Pan						

Total Weight: 171.09 grams

Initial Water Content

462.02 Wet Wt. (grams)
380.26 Dry Wt. (grams)
81.8 Wt. H2O (grams)

380.26 Dry Wt. (grams)
124.06 Tare Wt.
171.09 Weight Sample

31.91 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-29
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 101+99 - 73.0' O/S (PS)
N.502556.5 E.3659865.2 / Lift 1 Elev. 4.60'

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 3/26/2011
Done By: HU
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Total Sample Weight: 163.99 gm (Dry)

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
03/26		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
03/27		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	135.17	123.55	11.62	7.09	92.91	
#230						
Pan						

Total Weight: 163.99 grams

Initial Water Content

422.25 Wet Wt. (grams)
352.62 Dry Wt. (grams)
69.6 Wt. H2O (grams)

352.62 Dry Wt. (grams)
123.55 Tare Wt.
163.99 Weight Sample

30.40 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-30A
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 96+99 - CL N.503059.6 E.3659914.6 / Lift 7 Elev. 11.50'
Total Sample Weight: 163.52 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 3/26/2011
Done By: HU
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
03/26		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
03/27		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	153.08	149.69	3.39	2.07	97.93	
#230						
Pan						

Total Weight: 163.52 grams

Initial Water Content

490.29 Wet Wt. (grams)
416.41 Dry Wt. (grams)
73.9 Wt. H2O (grams)

416.41 Dry Wt. (grams)
149.69 Tare Wt.
163.52 Weight Sample

27.70 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-30B
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 96+99 - CL N.503059.6 E.3659914.6 / Lift 7 Elev. 11.50' (SAND CONE TEST LOCATION)
Total Sample Weight: 177.49 gm (Dry)

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 3/26/2011
Done By: HU
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
03/26		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
03/27		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	124.54	120.17	4.37	2.46	97.54	
#230						
Pan						

Total Weight: 177.49 grams

Initial Water Content

381.36 Wet Wt. (grams)
323.08 Dry Wt. (grams)
58.3 Wt. H2O (grams)

323.08 Dry Wt. (grams)
120.17 Tare Wt.
177.49 Weight Sample

28.72 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-31
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 102+00 - CL N.502573.4 E.3659790.6 / Lift 7 Elev. 11.40'
Total Sample Weight: 188.82 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 3/26/2011
Done By: HU
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
03/26		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
03/27		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	159.81	153.71	6.10	3.23	96.77	
#230						
Pan						

Total Weight: 188.82 grams

Initial Water Content

514.46 Wet Wt. (grams)
451.3 Dry Wt. (grams)
63.2 Wt. H2O (grams)

451.3 Dry Wt. (grams)
153.71 Tare Wt.
188.82 Weight Sample

21.22 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-32
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 107+02 - CL N.502084.9 E.3659674.6 / Lift 7 Elev. 11.40'
Total Sample Weight: 208.47 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 3/26/2011
Done By: HU
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
03/26		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
03/27		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	127.43	120.37	7.06	3.39	96.61	
#230						
Pan						

Total Weight: 208.47 grams

Initial Water Content

469.57 Wet Wt. (grams)
406.26 Dry Wt. (grams)
63.3 Wt. H2O (grams)

406.26 Dry Wt. (grams)
120.37 Tare Wt.
208.47 Weight Sample

22.14 H2O Content (%)

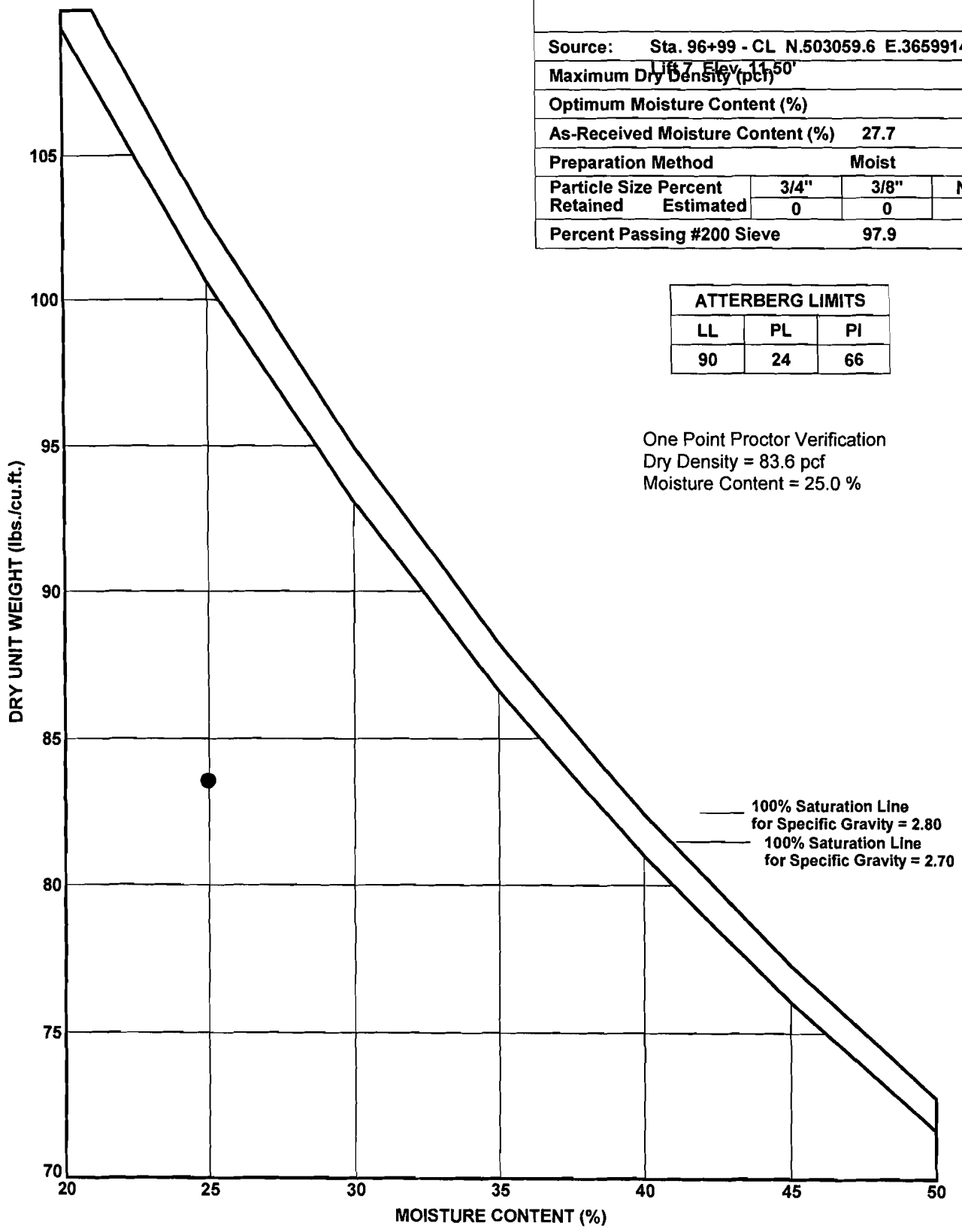
Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Material: Brown Clay (CH)			
Source: Sta. 96+99 - CL N.503059.6 E.3659914.6 / Lift 7 Elev. 11.50'			
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	27.7		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	97.9		

ATTERBERG LIMITS		
LL	PL	PI
90	24	66

One Point Proctor Verification
Dry Density = 83.6 pcf
Moisture Content = 25.0 %



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: T-30A
Date: 03/29/11
File No.: 10-81-3667

ARD CP110 10-81-3667.GPJ LOG01.GDT 03/29/11

SAND CONE DENSITY

ASTM D1556
Method A

Job No. 113-10-81-3667 Test No. T-30B Date: 3/24/2011

Technician: Clavin Hu Lift No. 7 Location New Westwego Levee PS to New Orleans

(1) Unit weight of sand	93.6	lbs/ft^3	Date Calibrated	3/18/2011	
(2)Weight of sand in cone	3.87	lbs	Date Calibrated	3/18/2011	
(3) Original weight of sand and Jar	13.77	lbs	Note: See attached work sheets for unit weight of sand and weight of sand in cone.		
(4) Final weight of sand and Jar	4.45	lbs			
(5) Weight of sand in cone and hole	9.32	lbs (3)-(4)	(8) Wet weight of soil	6.44	lbs
(6) Weight of sand in hole	5.45	lbs (5)-(2)	(9) Wet density of soil	110.6	lbs/ft^3 (8) / (7)
(7) Volume of hole	0.0582	ft^3 (6) / (1)			

MOISTURE CONTENT

OVEN DRY ASTM D2216			MICROWAVE ASTM D4643			
Tare no. Z-5			Tare No.			
						Trial dry weights
(10) Wet weight of soil & tare	490.29g		(16) Wet weight of soil & tare		g	
(11) Dry weight of soil & tare	416.41g		(17) Dry weight of soil & tare (Final)		g	#1-
(12) Weight of water	73.88g	(10) - (11)	(18) Weight of water	(16) - (17)	g	#2-
(13)Tare weight	149.69g		(19)Tare weight		g	#3-
(14) Dry weight of soil	266.72g	(11) - (13)	(20) Dry weight of soil	(17) - (19)	g	#4-
(15) Moisture %	27.7	(12) / (14)x100	(21) Moisture %			(18) / (20) *100

(22) Wet density of soil	110.6	lbs/ft^3 (9)	(25) Maximum Dry density	86.6	Proctor No. 3555-353
(23) Dry density of soil	86.6	lbs/ft^3 (22)/1+(24)x100	Optimum Moisture	30	
(24)Moisture %	27.7	Moisture content used in dry density calculation circle one		Oven	Microwave
% Compaction	100	(23)/(25)		X	

REMARKS: Nuclear WD 107.9

Sand Cone WD 110.6

2.7 2.44% difference

225-752-4878

QA TESTING REQUEST FORM

Lab: **Ardaman**
BPA# **09-A-0004**
Submit invoice to:
ATTN: S. Bennie Benson (smith.b.benson@us.army.mil)
United States Corp of Engineers - MVN District
P.O. Box 60267
New Orleans, LA 70160

Authorization to complete the following testing services as indicated below:

Call Officer: Gremillion, Glenn
Signature: JOHN T. TRAYLOR
Date: 3/21/11
BLOCK CALL #: **032G**

Project Name: New Westwego PS to Orleans Village
CD Contract #: **W912P8-09-D-0046-0008**
USACE POC: Jeremy George
POC Phone: 985.209.8530
Order Date: 3/21/2011
Test Date: 3/24/11 ~~3/23/2011~~ 3/24/11
Test Time: ~~9:00~~ 1:30
QA Lab Rep:
QA Lab Phone: 225-752-4790
Is the requested services estimated to be over $2,500? (NO) | YES **(if yes follow FAR 13.303-5)**
Distribution List: Jeremy George: jeremy.m.george@usace.army.mil
or Comments: Steven Montjoy
John Thompson

# ORDERED	UNIT	DESCRIPTION	ASTM	# COMPLETE
		CONCRETE (estimated placement size cu. yds.)		
	HR	ACI TECH - PERFORM FIELD TESTS (Cyls, Slump, %Air, Temp, Unit Wt.)	C1077+	
	EACH	CONCRETE CURING AND COMPRESSIVE STRENGTH	C39	
		VIBRATION MONITORING		
	HR	VIBRATION TECH & EQUIP		
		SOILS FIELD TESTING		
8	HR	SOILS FIELD TECH - PERFORM TESTS	D3740	7
5	EACH	SOIL DENSITY - NUCLEAR METHOD	D6938*	5
1	EACH	SOIL DENSITY - SAND CONE METHOD	D1556	1
5	EACH	MOISTURE CONTENT TEST (OVEN/MICROWAVE)	D2216/D4643*	5
5	EACH	SOILS CLASSIFICATION	D2487*	5
5	EACH	ATTERBERG LIMITS DETERMINATION	D4318*	5
5	EACH	SOILS FINER - NO 200 SIEVE, WASH	C117/D1140*	5
5	EACH	SOILS ORGANIC CONTENT - METHOD 'C'	D2974	5
	EACH	STANDARD PROCTOR	D698*	
1	EACH	STANDARD PROCTOR - 1 POINT	D698	1
	EACH	RELATIVE DENSITY MIN / MAX	D4253/D4254*	
		SPECIAL TESTING REQUIREMENTS		
	EACH	TENSION TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
	EACH	BEND TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
		WELD INSPECTION & TESTING		
	HR	CERTIFIED WELDING INSPECTOR	AWS D1.1/D1.1M	
	EACH	LIQUID PENETRANT TESTING	ASTM E165	
	EACH	ULTRASONIC TESTING	ASTM E 164	
	EACH	RADIOGRAPHIC TESTING	ASTM E94	
	EACH	MAGNETIC TESTING	ASTM E709	

**Note that where applicable, testing procedures should follow USACE EM 1110-2-1906 Lab Testing manual and/or in accordance with project specifications.*

Testing Services have been completed as authorized and as indicated:

Start Time: 11:30 Stop Time: 6:30 Travel Time: 4 Mile: 160
USACE Representative: Jeremy George
USACE Signature: Jeremy George
Date: 3/24/11

TRANSMITTAL

AAI

Ardaman & Associates, Inc.

To: USACE-MVN District
P O Box 60267
New Orleans, LA 70160

Date: April 14, 2011
Job No.: 113-10-81-3667
Project: New Westwego PS
CD Contract # W912P8-09-0046-0008
BPA # 09-A-0004
Block Call # 036G

Attention: Glenn Gremillion

From: Eric A. Paille EAP

COPIES	DESCRIPTION
1	Daily Field Report 05165
1	Chain of Custody
1	Atterberg Limit, Moisture Content, Organic Content , -200
1	Curves 05, 06 and One Point Proctor T-35
1	Signed QA Testing Request Form

THESE ARE TRANSMITTED:

■ **FOR YOUR USE** ☐ **FOR REVIEW & COMMENT** ■ **AS REQUESTED**

☐ **REVISE AS NOTED** ☐ **TO BE DISTRIBUTED**

REMARKS: Email: Jeremy George jeremy.m.george@usace.army.mil

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated Laboratory

316 HIGHLANDIA DRIVE
BATON ROUGE, LA 7 0810
PHONE: (225) 752-4790
FAX: (225) 752-4878

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 05164
DATE OF SERVICE: 04/07/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 04/13/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 617 PREVIOUS: 616
DENSITY - CURRENT: 2139 PREVIOUS: 2135
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(Curve 3824-389)	Dark Gray Clay (CH)	33.7	82.9	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
33.	Station 6+03 Centerline Levee N.507044.2 E.3654558.6	12	3/7.5'	1	27.1 *	33.7	104.0	81.8	82.9	98.7
34.	Station 96+10 Centerline Levee N.503144.8 E.3659939.2	12	8/12'	1	34.8	33.7	107.6	79.8	82.9	96.3
35.	Station 100+98 Centerline Levee N.502675.7 E.3659814.5	12	8/12.2'	1	30.4 *	33.7	108.0	82.8	82.9	99.9

Report of Tests continued on page 2

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PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 04/07/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
36.	Station 106+00 Centerline Levee N.50219.8 E.3659695.4	12	8/12'	1	32.1	33.7	109.2	82.7	82.9	99.8

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted above.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric A. Paille

Eric Paille
CMT Supervisor

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AAI

Ardaman and Associates, Inc.

CHAIN OF CUSTODY RECORD

Job No.: 113-10-81-3667 Date: 4-7-11

Project Name : New Westwego PS

Project Location: Jefferson Parish

Collectors Name: Bill Singleton

Type of Sample: Clay No. of Containers: 6

SAMPLE ID	SAMPLE LOCATION	PURPOSE
T-33	6+03	AH, ORG, -200, M%
T-34	96+10	
T-35	100+98	1pt proctor
T-36	106+00	
C-5	12+00	Std proctor
C-6	145+00	std proctor

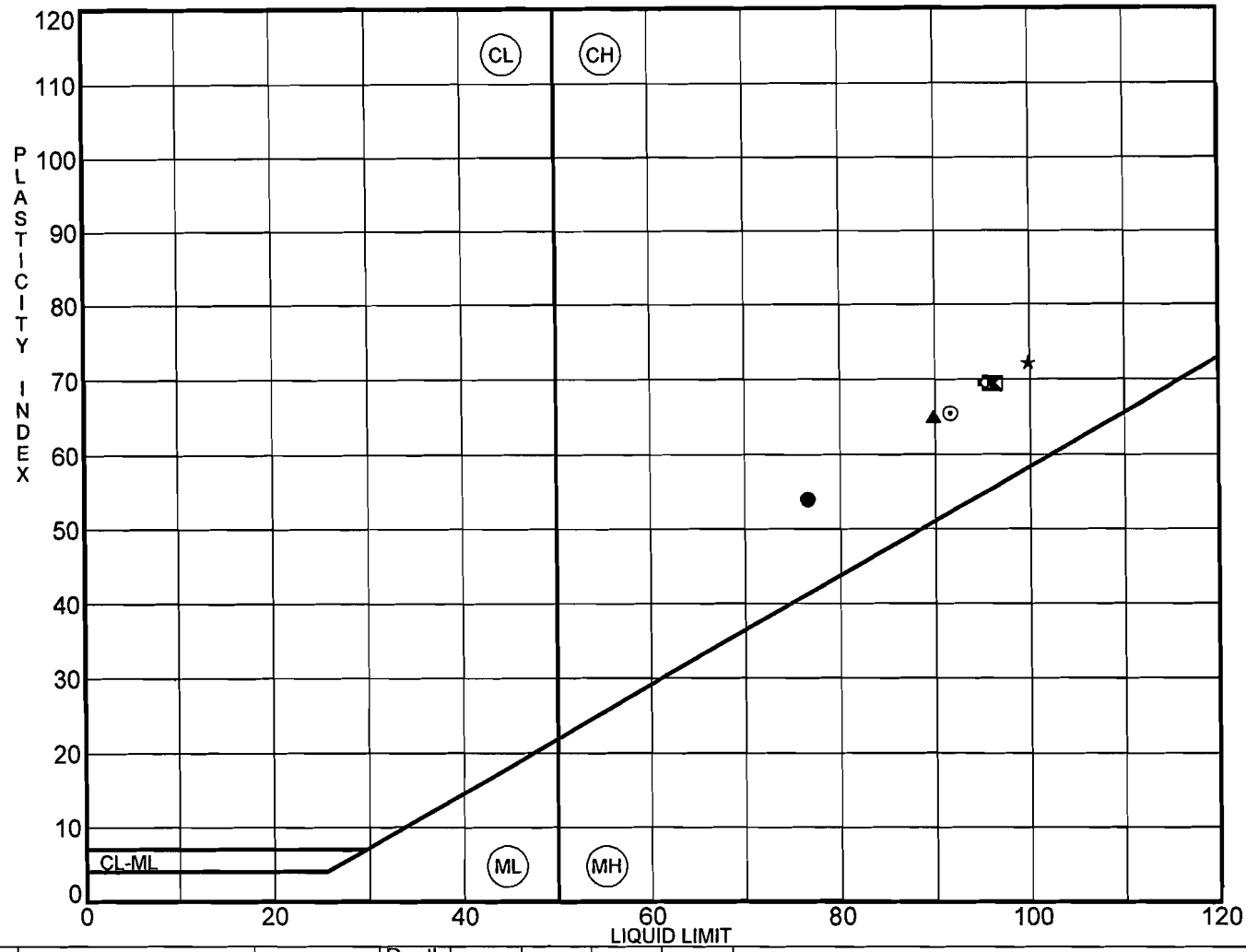
Sample Shipped by : Ardaman & Associates Date: 4-7-11

Custodian: Bill Singleton

Sample Received by: Eric A. Pattle Date: 4-7-11

Company Name: Ardaman & Associates

Remarks:



	Sample Number	Sample ID	Depth (ft.)	LL	PL	PI	Fines	Visual Classification
●	05		0.0	77	23	54	96.1	Dark Gray Clay (CH)
⊠	06		0.0	96	27	69	94.9	Dark Gray Clay (CH)
▲	T-33		0.0	90	25	65	95.9	Dark Gray Clay (CH)
★	T-34		0.0	100	28	72	93.8	Dark Gray Clay (CH)
⊙	T-35		0.0	92	26	66	92.9	Dark Gray Clay (CH)
✿	T-36		0.0	95	26	69	90.9	Dark Gray Clay (CH)

Remarks: All tests were performed in general accordance with ASTM Standards D4318, D421, D2217, and D1140.

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

Ardaman & Associates, Inc.

Ardaman and Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Telephone: 225-752-4790
Fax: 225-785-4878

ATTERBERG LIMITS' RESULTS

Project: New Westwego PS to Orleans Village

Client: USACE

AAI Project Number: 10-81-3667

ORGANIC CONTENT (ASTM D2974)

Ardaman & Associates, Inc.

Project: New Westwego PS to Orleans Village

File No.: 10-81-3667

Client: USACE

Date: 4/13/2011

Sample ID	Depth (feet)	Bowl No.	Tare Weight (gm)	Oven-dried Weight (w/tare)	Muffle-dried Weight (w/tare)	Muffle-dried Weight (w/o tare)	Ash Content (%)	Organic Content (%)
05	0 - 0	MM	54.35	85.6	84.15	29.80	95.36	4.6
06	0 - 0	RS	58.01	88.71	86.68	28.67	93.39	6.6
T-33	0 - 0	206	66.05	96.73	94.6	28.55	93.06	6.9
T-34	0 - 0	PP	64.31	95.48	92.98	28.67	91.98	8.0
T-35	0 - 0	202	53.8	84.46	82.24	28.44	92.76	7.2
T-36	0 - 0	BB	51.57	83	80.61	29.04	92.40	7.6

Note: FOC = Organic Content divided by 174.

MOISTURE CONTENTS

Ardaman & Associates, Inc.

File No.: 10-81-3667

Date: 4/13/2011

Boring No.	Depth (ft.)	Moisture Content (%)	Classification	Can No.	Wet Wt. w/Can (grams)	Dry Wt. w/Can (grams)	Wt. of Can (grams)
05	0 - 0	26.96	Dark Gray Clay (CH)		446.54	377.23	120.14
06	0 - 0	35.98	Dark Gray Clay (CH)		399.32	325.52	120.4
T-33	0 - 0	27.11	Dark Gray Clay (CH)		458.73	386.32	119.26
T-34	0 - 0	34.75	Dark Gray Clay (CH)		419.84	342.31	119.19
T-35	0 - 0	30.36	Dark Gray Clay (CH)		451.25	374.94	123.63
T-36	0 - 0	32.06	Dark Gray Clay (CH)		470.24	385.31	120.38

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: 05
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 12+00
Total Sample Weight: 122.9 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 4/8/2011
Done By: BS
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
04/08		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
04/09		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	124.97	120.14	4.83	3.93	96.07	
#230						
Pan						

Total Weight: 122.9 grams

Initial Water Content

446.54 Wet Wt. (grams)
377.23 Dry Wt. (grams)
69.3 Wt. H2O (grams)

377.23 Dry Wt. (grams)
120.14 Tare Wt.
122.9 Weight Sample

26.96 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: 06
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 145+00
Total Sample Weight: 129.5 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 4/8/2011
Done By: BS
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
04/08		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
04/09		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	127.01	120.4	6.61	5.10	94.90	
#230						
Pan						

Total Weight: 129.5 grams

Initial Water Content

399.32 Wet Wt. (grams)
325.52 Dry Wt. (grams)
73.8 Wt. H2O (grams)

325.52 Dry Wt. (grams)
120.4 Tare Wt.
129.5 Weight Sample

35.98 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-33
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 6+03 CL Levee N.507044.2 E.3654558.6 / Lift 3 Elev. 7.50'
Total Sample Weight: 112.7 gm (Dry)
Hydrometer Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 4/8/2011
Done By: BS
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
04/08		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
04/09		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	123.91	119.26	4.65	4.13	95.87	
#230						
Pan						

Total Weight: 112.7 grams

Initial Water Content

458.73 Wet Wt. (grams)
386.32 Dry Wt. (grams)
72.4 Wt. H2O (grams)

386.32 Dry Wt. (grams)
119.26 Tare Wt.
112.7 Weight Sample

27.11 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-34
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 96+10 CL Levee N.503144.8 E.3659939.2 / Lift 8 Elev. 12.00'
Total Sample Weight: 134.3 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 4/8/2011
Done By: BS
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
04/08		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
04/09		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	128.18	119.9	8.28	6.17	93.83	
#230						
Pan						

Total Weight: 134.3 grams

Initial Water Content

419.84 Wet Wt. (grams)
342.31 Dry Wt. (grams)
77.5 Wt. H2O (grams)

342.31 Dry Wt. (grams)
119.19 Tare Wt.
134.3 Weight Sample

34.75 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-35
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 100+98 CL Levee N.502675.7 E.3659814.5 / Lift 8 Elev. 12.20'
Total Sample Weight: 120.18 gm (Dry)

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 4/8/2011
Done By: BS
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
04/08		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
04/09		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	132.14	123.63	8.51	7.08	92.92	
#230						
Pan						

Total Weight: 120.18 grams

Initial Water Content

451.25 Wet Wt. (grams)
374.94 Dry Wt. (grams)
76.3 Wt. H2O (grams)

374.94 Dry Wt. (grams)
123.63 Tare Wt.
120.18 Weight Sample

30.36 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-36
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 106+00 CL Levee N.502190.8 E.3659695.4 / Lift 8 Elev. 12.00'
Total Sample Weight: 145.12 gm (Dry)

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 4/8/2011
Done By: BS
Calc by: EP

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
04/08		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
04/09		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	133.53	120.38	13.15	9.06	90.94	
#230						
Pan						

Total Weight: 145.12 grams

Initial Water Content

470.24 Wet Wt. (grams)
385.31 Dry Wt. (grams)
84.9 Wt. H2O (grams)

385.31 Dry Wt. (grams)
120.38 Tare Wt.
145.12 Weight Sample

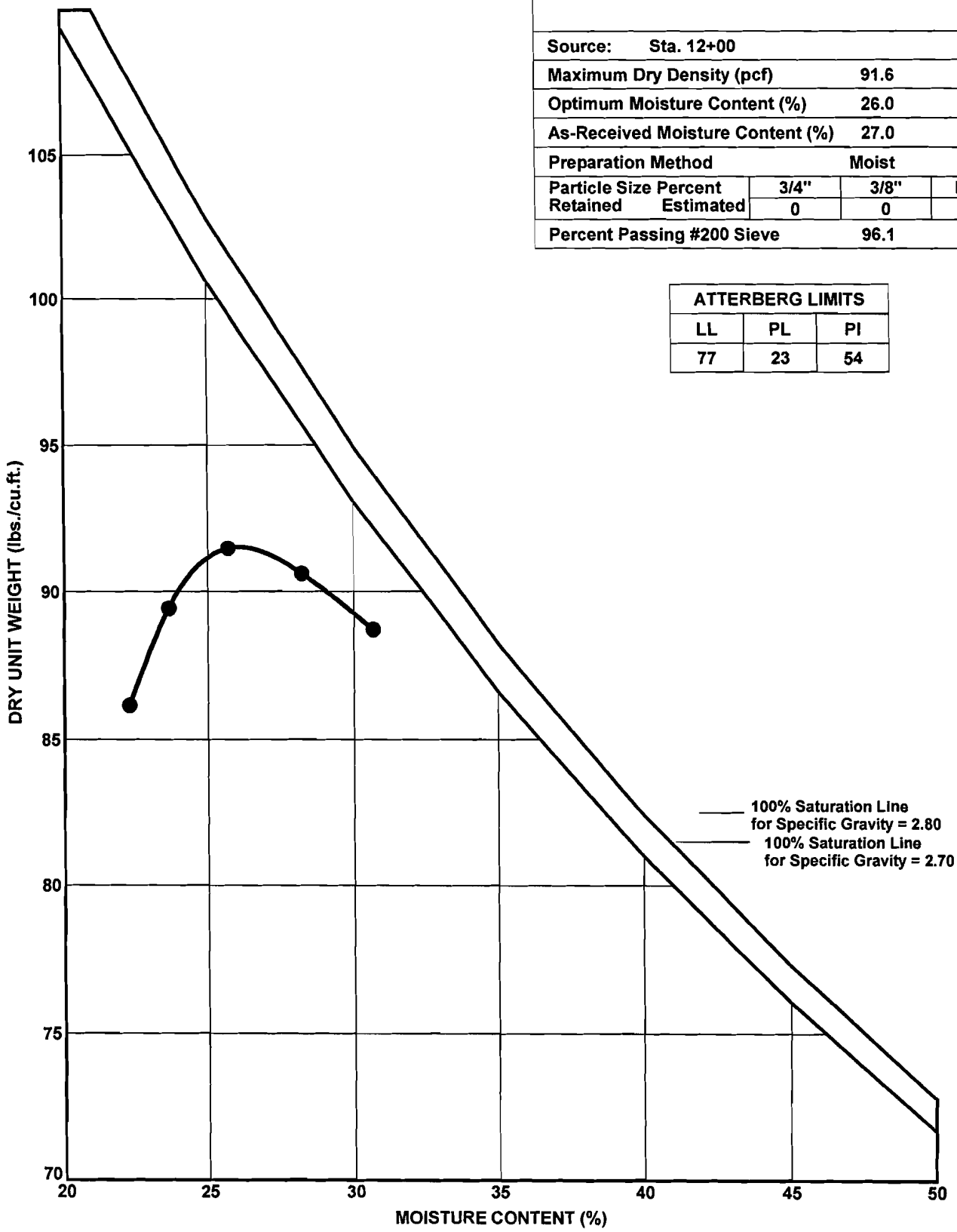
32.06 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Material: Dark Gray Clay (CH)			
Source: Sta. 12+00			
Maximum Dry Density (pcf)	91.6		
Optimum Moisture Content (%)	26.0		
As-Received Moisture Content (%)	27.0		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	96.1		

ATTERBERG LIMITS		
LL	PL	PI
77	23	54



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: 05

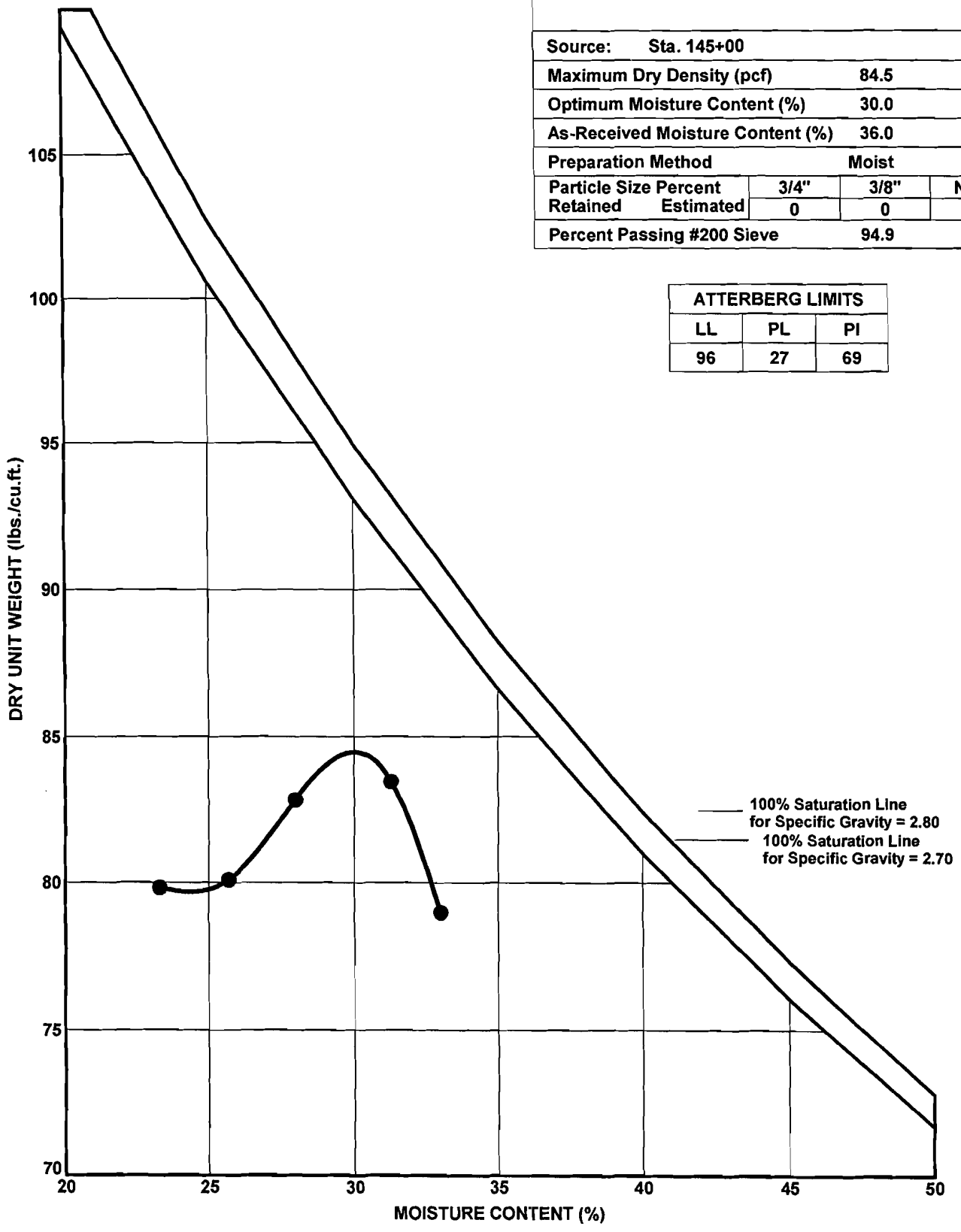
Date: 04/12/11

File No.: 10-81-3667

ARD CP110 10-81-3667.GPJ LOG01.GDT 04/13/11

Material: Dark Gray Clay (CH)			
Source: Sta. 145+00			
Maximum Dry Density (pcf)	84.5		
Optimum Moisture Content (%)	30.0		
As-Received Moisture Content (%)	36.0		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	94.9		

ATTERBERG LIMITS		
LL	PL	PI
96	27	69



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: 06

Date: 04/12/11

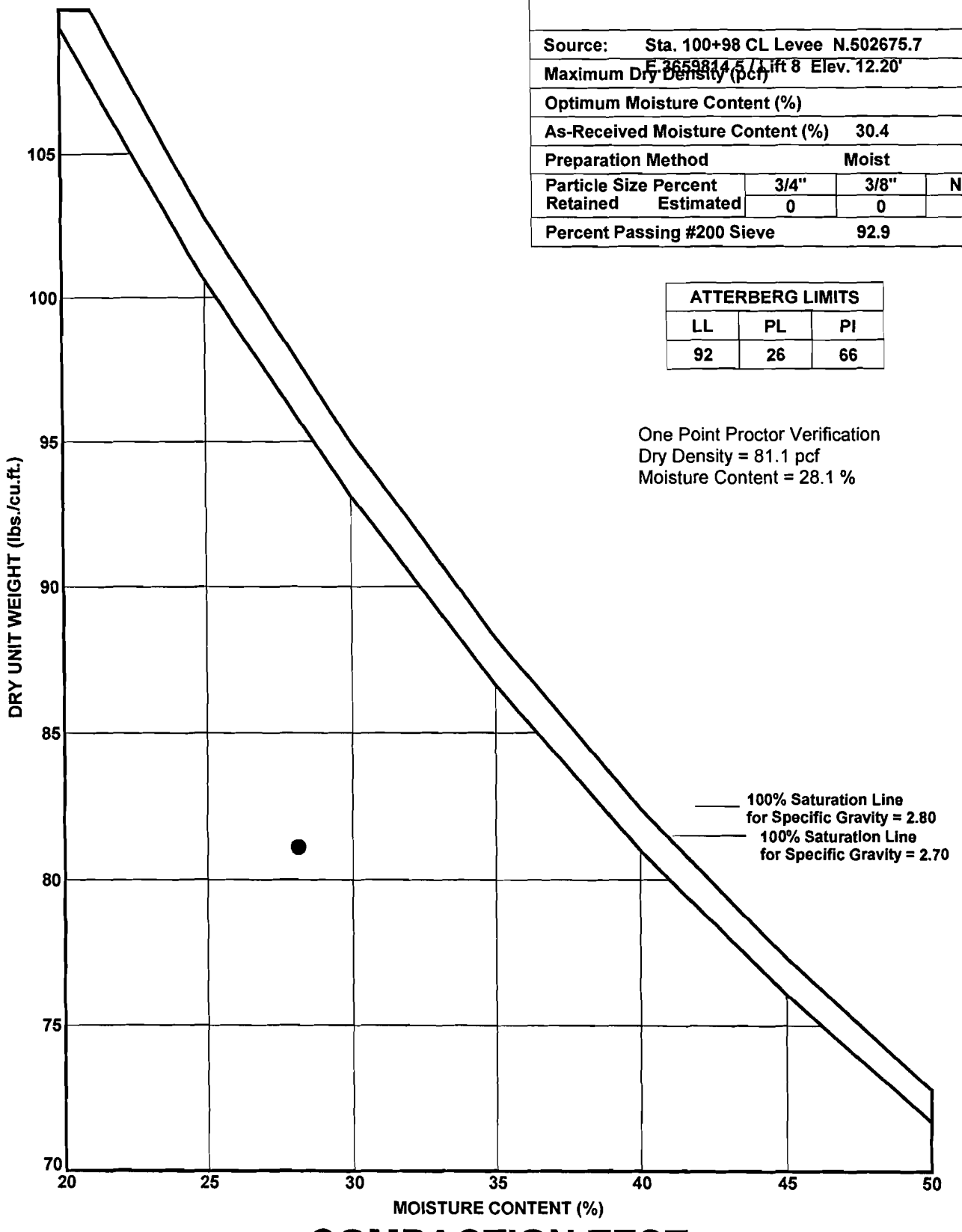
File No.: 10-81-3667

ARD CP110 10-81-3667.GPJ LOG01.GDT 04/13/11

Material:	Dark Gray Clay (CH)		
Source:	Sta. 100+98 CL Levee N.502675.7 E.3659814.5 / Lift 8 Elev. 12.20'		
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	30.4		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	92.9		

ATTERBERG LIMITS		
LL	PL	PI
92	26	66

One Point Proctor Verification
Dry Density = 81.1 pcf
Moisture Content = 28.1 %



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: T-35
Date: 04/12/11
File No.: 10-81-3667

ARD CP110 10-81-3667.GPJ LOG01.GDT 04/13/11

QA TESTING REQUEST FORM

Lab: Ardaman
BPA# 09-A-0004
Submit Invoice to:
ATTN: S. Bennie Benson (smith.b.benson@us.army.mil)
United States Corp of Engineers - MVN District
P.O. Box 60267
New Orleans, LA 70160

Authorization to complete the following testing services as indicated below:
Call Officer: Gremillion, Glenn
Signature:
Date: 4/7/2011
BLOCK CALL #: 036G

Project Name: New Westwego PS to Orleans Village
CD Contract #: W912P8-09-D-0046-0008
USACE POC: Jeremy George
POC Phone: 985.209.8530
Order Date: 4/5/2011
Test Date: 4/7/2011
Test Time: 13:30
QA Lab Rep:
QA Lab Phone: 225.752.4790
Is the requested services estimated to be over $2,500? (NO) | YES (If yes follow FAR 13.303-5)
Distribution List: Jeremy George jeremy.m.george@usace.army.mil
or Comments: Steven Montjoy
John Thompson

# ORDERED	UNIT	DESCRIPTION	ASTM	# COMPLETE
		CONCRETE (estimated placement size cu. yds.)		
	HR	ACI TECH - PERFORM FIELD TESTS (Cyls, Slump, %Air, Temp, Unit Wt.)	C1077+	
	EACH	CONCRETE CURING AND COMPRESSIVE STRENGTH	C39	
		VIBRATION MONITORING		
	HR	VIBRATION TECH & EQUIP		
		SOILS FIELD TESTING		
8	HR	SOILS FIELD TECH - PERFORM TESTS	D3740	5 ✓
5	EACH	SOIL DENSITY - NUCLEAR METHOD	D6938*	4 ✓
	EACH	SOIL DENSITY - SAND CONE METHOD	D1556	
7	EACH	MOISTURE CONTENT TEST (OVEN/MICROWAVE)	D2216/D4643*	6 ✓
7	EACH	SOILS CLASSIFICATION	D2487*	6 ✓
7	EACH	ATTERBERG LIMITS DETERMINATION	D4318*	6 ✓
7	EACH	SOILS FINER - NO 200 SIEVE, WASH	C117/D1140*	6 ✓
7	EACH	SOILS ORGANIC CONTENT - METHOD 'C'	D2974	6 ✓
2	EACH	STANDARD PROCTOR	D698*	2 ✓
1	EACH	STANDARD PROCTOR - 1 POINT	D698	1 ✓
	EACH	RELATIVE DENSITY MIN / MAX	D4253/D4254*	
		SPECIAL TESTING REQUIREMENTS		
	EACH	TENSION TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
	EACH	BEND TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
		WELD INSPECTION & TESTING		
	HR	CERTIFIED WELDING INSPECTOR	AWS D1.1/D1.1M	
	EACH	LIQUID PENETRANT TESTING	ASTM E165	
	EACH	ULTRASONIC TESTING	ASTM E 164	
	EACH	RADIOGRAPHIC TESTING	ASTM E94	
	EACH	MAGNETIC TESTING	ASTM E709	

*Note that where applicable, testing procedures should follow USACE EM 1110-2-1906 Lab Testing manual and/or in accordance with project specifications.

Testing Services have been completed as authorized and as indicated:

Start Time: 1130Am Stop Time: 1630 hrs Travel Time: 3.50 Mile: 160 ✓
USACE Representative: Jeremy George
USACE Signature: Jeremy George
Date: 4-7-11

Rev: Oct 2009 MVN BPA QA Test Order Form.xls

TRANSMITTAL

AAI

Ardaman & Associates, Inc.

To: USACE-MVN District
P O Box 60267
New Orleans, LA 70160

Date: May 31, 2011
Job No.: 113-10-81-3667
Project: New Westwego PS
CD Contract # W912P8-09-0046-0008
BPA # 09-A-0004
Block Call # 049G

Attention: Glenn Gremillion

From: Eric A. Paille

COPIES	DESCRIPTION
1	Daily Field Report 05494
1	Chain of Custody
1	Atterberg Limit, Organic Content, Moisture Content, -200
1	One Point Proctor Verification (T-55)
1	Signed QA Testing Request Form

THESE ARE TRANSMITTED:

■ **FOR YOUR USE** ☐ **FOR REVIEW & COMMENT** ■ **AS REQUESTED**

☐ **REVISE AS NOTED** ☐ **TO BE DISTRIBUTED**

REMARKS: Email: Jeremy George jeremy.m.george@usace.army.mil

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated Laboratory

316 HIGHLANDIA DRIVE
BATON ROUGE, LA 7 0810
PHONE: (225) 752-4790
FAX: (225) 752-4878

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 05494
DATE OF SERVICE: 05/26/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 05/31/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 623 PREVIOUS: 623
DENSITY - CURRENT: 2094 PREVIOUS: 2083
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(Curve 3815-388)	Brown Clay (CH)	29.6	88.9	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
53.	Station 68+99 136' (PS) N.505857.4 E.3660674.2	6	3/2.8'	1	27.5	29.6	114.8	90.0	88.9	101.2
54.	Station 108+75 Centerline Crown N.501917.9 E.3659367.3	12	8/12.6'	1	25.1 *	29.6	109.7	87.7	88.9	98.7

Report of Tests continued on page 2

Our letters and reports are for the exclusive use of the client to whom they are addressed and shall not be reproduced except in full without the approval of the testing laboratory. The use of our name must receive our written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not indicative of the quantities of apparently identical or similar products.

Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 05/26/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
55.	Station 101+00 Centerline Crown N.502670.4 E.3659816.6	6	11/13.7'	1	22.7 *	29.6	107.2	87.4	88.9	98.3

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted on page 1.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist
Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric A. Paille

Eric Paille
CMT Supervisor

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AAI

Ardaman and Associates, Inc.

CHAIN OF CUSTODY RECORD

Job No.: 113-10-81-3667 Date: 5-26-11

Project Name : New Westwego PS to Orleans Village

Project Location: Jefferson Parish

Collectors Name: Bill Singleton

Type of Sample: Clay No. of Containers: 3

SAMPLE ID	SAMPLE LOCATION	PURPOSE
T-53	68+99	Att, ORG, -200, ~~AGGS~~ MC 5-26-11
T-54	108+75	
T-55	101+00	1pt Proctor

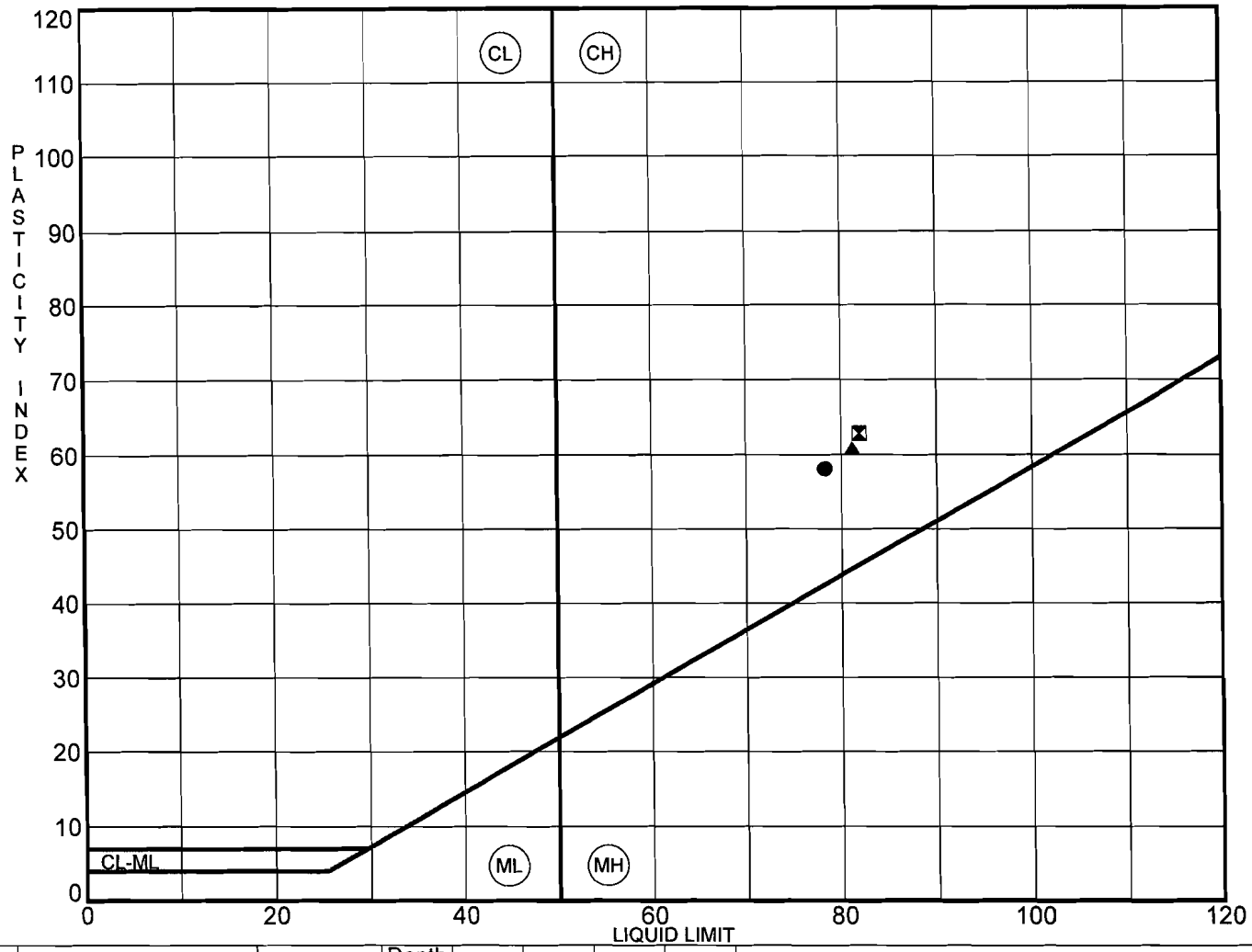
Sample Shipped by : Ardaman & Associates Date: 5-26-11

Custodian: Bill Singleton

Sample Received by: James Jones Date: 5/26/11

Company Name: Ardaman & Associates

Remarks:



	Sample Number	Sample ID	Depth (ft.)	LL	PL	PI	Fines	Visual Classification
●	**T-53**		**0.0**	**78**	**20**	**58**	**96.4**	Brown Clay (CH)
⧗	**T-54**		**0.0**	**82**	**19**	**63**	**96.2**	Brown Clay (CH)
▲	**T-55**		**0.0**	**81**	**20**	**61**	**97.8**	Brown Clay (CH)

Remarks: All tests were performed in general accordance with ASTM Standards D4318, D421, D2217, and D1140.

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

Ardaman & Associates, Inc.

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Telephone: 225-752-4790
Fax: 225-752-4878

ATTERBERG LIMITS' RESULTS

Project: New Westwego PS to Orleans Village

Client: USACE

AAI Project Number: 10-81-3667

ORGANIC CONTENT (ASTM D2974)

Ardaman & Associates, Inc.

Project: New Westwego PS to Orleans Village

File No.: 10-81-3667

Client: USACE

Date: 6/1/2011

Sample ID	Depth (feet)	Bowl No.	Tare Weight (gm)	Oven-dried Weight (w/tare)	Muffle-dried Weight (w/tare)	Muffle-dried Weight (w/o tare)	Ash Content (%)	Organic Content (%)
T-53	0 - 0	PP	64.31	94.96	93.41	29.10	94.94	5.1
T-54	0 - 0	TC	52.4	83.55	82.01	29.61	95.06	4.9
T-55	0 - 0	204	63.68	94.33	92.85	29.17	95.17	4.8

Note: FOC = Organic Content divided by 174.

MOISTURE CONTENTS

Ardaman & Associates, Inc.

File No.: 10-81-3667

Date: 6/1/2011

Boring No.	Depth (ft.)	Moisture Content (%)	Classification	Can No.	Wet Wt. w/Can (grams)	Dry Wt. w/Can (grams)	Wt. of Can (grams)
T-53	0 - 0	27.48	Brown Clay (CH)		420.55	356.49	123.38
T-54	0 - 0	25.12	Brown Clay (CH)		465.71	396.12	119.14
T-55	0 - 0	22.65	Brown Clay (CH)		476.28	416.46	152.39

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-53
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 68+99 136' (PS) N 505857.4 E 3660674.2 Lift 3 Elev. 2.8'
Total Sample Weight: 102.66 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 5/27/2011
Done By: BS
Calc by: JT

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
05/27		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
05/28		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	127.12	123.38	3.74	3.64	96.36	
#230						
Pan						

Total Weight: 102.66 grams

Initial Water Content

420.55 Wet Wt. (grams)
356.49 Dry Wt. (grams)
64.1 Wt. H2O (grams)

356.49 Dry Wt. (grams)
123.38 Tare Wt.
102.66 Weight Sample

27.48 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-54
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 108+75 Centerline Crown N 501917.9 E 3659367.3 Lift 8 Elev. 12.6'
Total Sample Weight: 129.69 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 5/27/2011
Done By: BS
Calc by: JT

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
05/27		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
05/28		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	124.01	119.14	4.87	3.76	96.24	
#230						
Pan						

Total Weight: 129.69 grams

Initial Water Content

465.71 Wet Wt. (grams)
396.12 Dry Wt. (grams)
69.6 Wt. H2O (grams)

396.12 Dry Wt. (grams)
119.14 Tare Wt.
129.69 Weight Sample

25.12 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-55
Depth: 0-0
Material: Brown Clay (CH)
Source: Sta. 101+00 Centerline Crown N 502670.4 E 3659816.6 Lift 11 Elev. 13.7'
Total Sample Weight: 108.84 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 5/27/2011
Done By: BS
Calc by: JT

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
05/27		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
05/28		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	154.81	152.39	2.42	2.22	97.78	
#230						
Pan						

Total Weight: 108.84 grams

Initial Water Content

476.28 Wet Wt. (grams)
416.46 Dry Wt. (grams)
59.8 Wt. H2O (grams)

416.46 Dry Wt. (grams)
152.39 Tare Wt.
108.84 Weight Sample

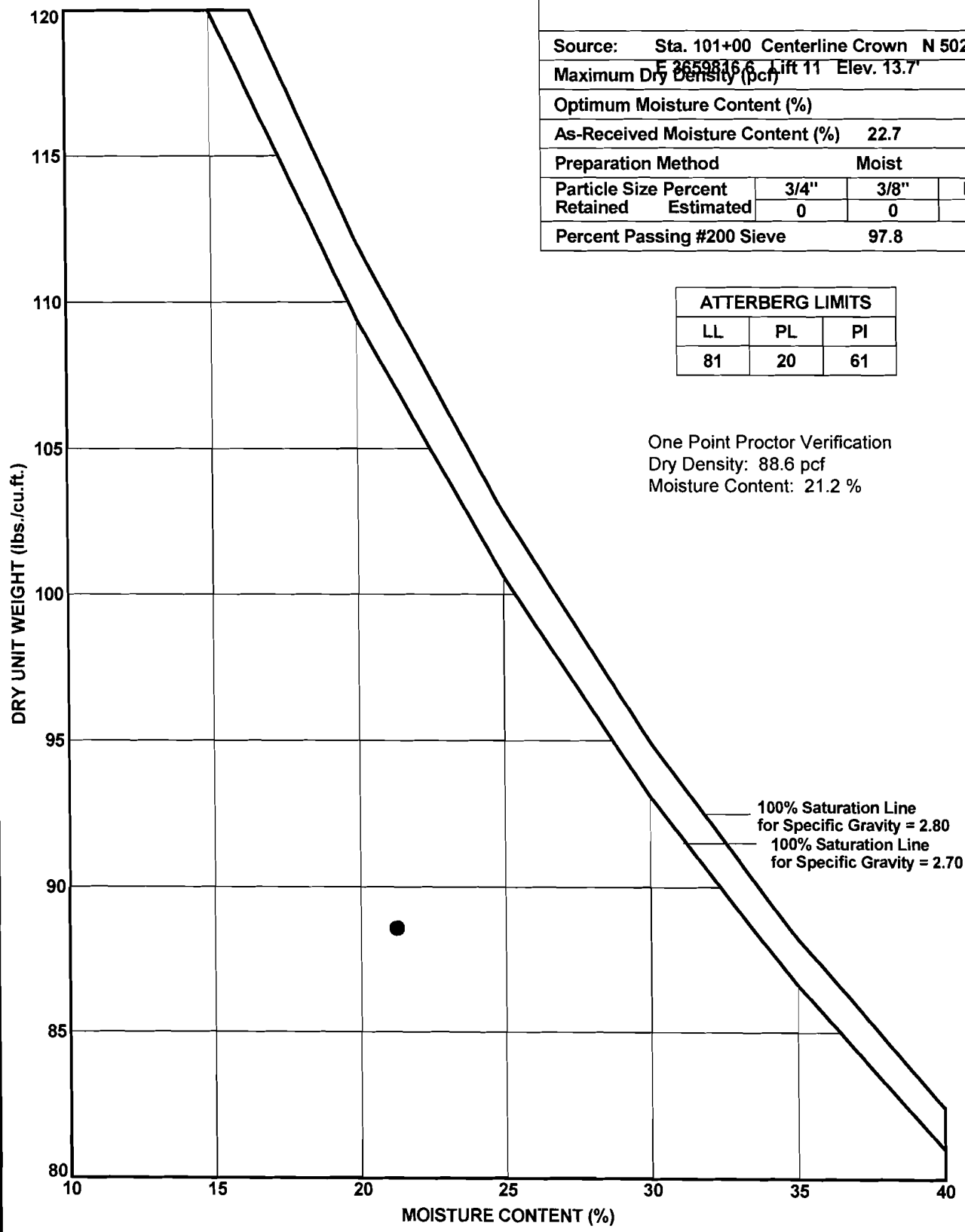
22.65 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Material: Brown Clay (CH)			
Source: Sta. 101+00 Centerline Crown N 502670.4 E 3659816.6 Lift 11 Elev. 13.7'			
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%) 22.7			
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	97.8		

ATTERBERG LIMITS		
LL	PL	PI
81	20	61



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: T-55
Date: 05/27/11
File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 06/01/11

225-752-4870

QA TESTING REQUEST FORM

Lab: **Ardaman**

BPA# **09-A-0004**

Submit invoice to:

ATTN: S. Bennie Benson (smith.b.benson@us.army.mil)
United States Corp of Engineers - MVN District
P.O. Box 60267
New Orleans, LA 70160

Authorization to complete the following testing services as indicated below:

Call Officer: Gremillion, Glenn

Signature: [signature]

Date: 5/25/2011

BLOCK CALL #: **049G**

Project Name	New Westwego PS to Orleans Village Levee	CD Contract #:	**W912P8-09-D-0046-0008**
USACE POC:	Jeremy George	POC Phone:	985.209.8530
Order Date:	5/24/2011	Test Date: 5/26/2011	Test Time: ~~9:00~~ 1:00pm
QA Lab Rep:	Bill	QA Lab Phone:	225-752-4790

Is the requested services estimated to be over $2,500? **NO** | **(if yes follow FAR 13.303-5)**

Distribution List: Jeremy George; jeremy.m.george@usace.army.mil
or Comments: Steven Montjoy
John Thompson

# ORDERED	UNIT	DESCRIPTION	ASTM	# COMPLETE
		CONCRETE (estimated placement size cu. yds.)		
	HR	ACI TECH - PERFORM FIELD TESTS (Cyls, Slump, %Air, Temp, Unit Wt.)	C1077+	
	EACH	CONCRETE CURING AND COMPRESSIVE STRENGTH	C39	
		VIBRATION MONITORING		
	HR	VIBRATION TECH & EQUIP		
		SOILS FIELD TESTING		
10	HR	SOILS FIELD TECH - PERFORM TESTS	D3740	4.5
8	EACH	SOIL DENSITY - NUCLEAR METHOD	D6938*	3
1	EACH	SOIL DENSITY - SAND CONE METHOD	D1556	0
8	EACH	MOISTURE CONTENT TEST (OVEN/MICROWAVE)	D2216/D4643*	3
8	EACH	SOILS CLASSIFICATION	D2487*	3
8	EACH	ATTERBERG LIMITS DETERMINATION	D4318*	3
8	EACH	SOILS FINER - NO 200 SIEVE, WASH	C117/D1140*	3
8	EACH	SOILS ORGANIC CONTENT - METHOD 'C'	D2974	3
	EACH	STANDARD PROCTOR	D698*	
2	EACH	STANDARD PROCTOR - 1 POINT	D698	01
	EACH	RELATIVE DENSITY MIN / MAX	D4253/D4254*	
		SPECIAL TESTING REQUIREMENTS		
	EACH	TENSION TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
	EACH	BEND TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
		WELD INSPECTION & TESTING		
	HR	CERTIFIED WELDING INSPECTOR	AWS D1.1/D1.1M	
	EACH	LIQUID PENETRANT TESTING	ASTM E165	
	EACH	ULTRASONIC TESTING	ASTM E 164	
	EACH	RADIOGRAPHIC TESTING	ASTM E94	
	EACH	MAGNETIC TESTING	ASTM E709	

*Note that where applicable, testing procedures should follow USACE EM 1110-2-1906 Lab Testing manual and/or in accordance with project specifications.

Testing Services have been completed as authorized and as indicated: 160 (E) 6-1-11

Start Time: 1200hrs Stop Time: 1630hrs Travel Time: 3.0 Mile: 5-26-11

USACE Representative: Jeremy George

USACE Signature: [signature] Date: 5/26/11

Remarks:

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 04074
DATE OF SERVICE: 09/30/2010
AUTHORIZATION:
REPORT DATE: 10/04/2010

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: United States Corps Engineers

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 23202
STANDARD COUNTS
MOISTURE - CURRENT: 640 PREVIOUS: 632
DENSITY - CURRENT: 2594 PREVIOUS: 2603
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(Curve 40)	Br Cl (CH)	23.9	95.9	
2.	(Curve 1/2)	Br & G Cl (CH)	30.6	87.9	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
7.	93+17 o/s 16' FS N.503429.4 E.3660009.5	6	1/4.5'	1	23.2	23.9	116.3	94.4	95.9	98.4
8.	103+06 (RETEST T-5) N.502470.2 E.3659766.5	6	1/5.8'	2	28.3	30.6	107.6	83.9	87.9	95.4
9.	154+88 o/s 37' FS N.500770.7 E.3663434.3	12	2/5.5'	1	23.0	23.9	109.7	89.2	95.9	93.0

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 04074

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 09/30/2010

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)

Test results on this report meet project specifications as noted above.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric A. Paille

Eric Paille
CMT Supervisor

1007

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Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF
USACE- NEW WESTWEGO LEVEE

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 04075
DATE OF SERVICE: 09/29/2010
AUTHORIZATION:
REPORT DATE: 10/05/2010

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform testing and/or inspection services as requested by the client.

REPORT OF TESTS

I met with Jeremy George with the COE to direct me where to secure two proctor samples for standard proctors. I secured two samples of the clay from station 99+25. The contractor quality control also secured two samples for proctors. I transported the samples to our laboratory for the proper testing.

Technician: Billy Singleton, Field Tech/Geologist
Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric A. Paille

Eric Paille
CMT Supervisor

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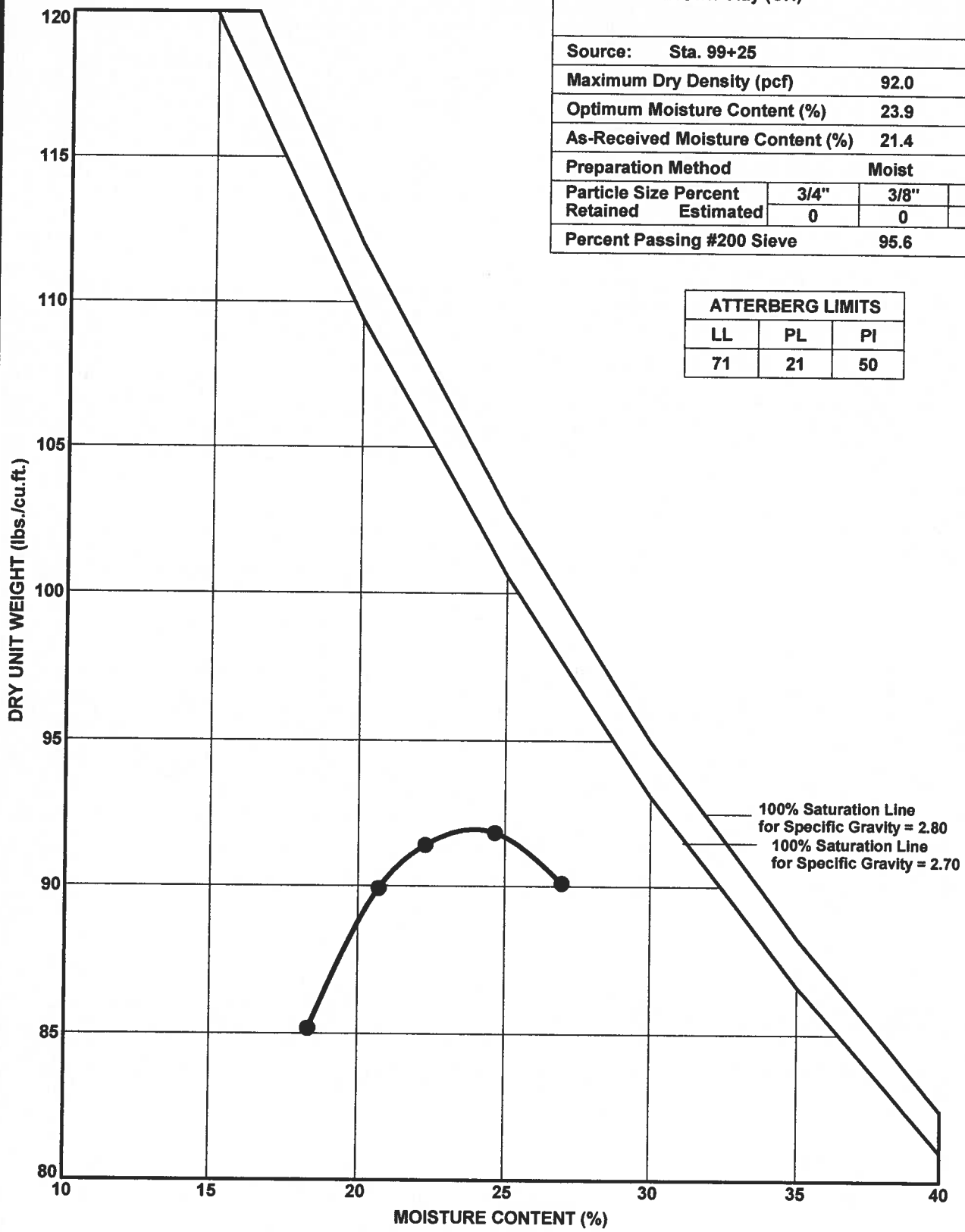
Material:	Brown Clay (CH)		
Source:	Sta. 99+25		
Maximum Dry Density (pcf)	92.0		
Optimum Moisture Content (%)	23.9		
As-Received Moisture Content (%)	21.4		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	95.6		

ATTERBERG LIMITS		
LL	PL	PI
71	21	50



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: 03

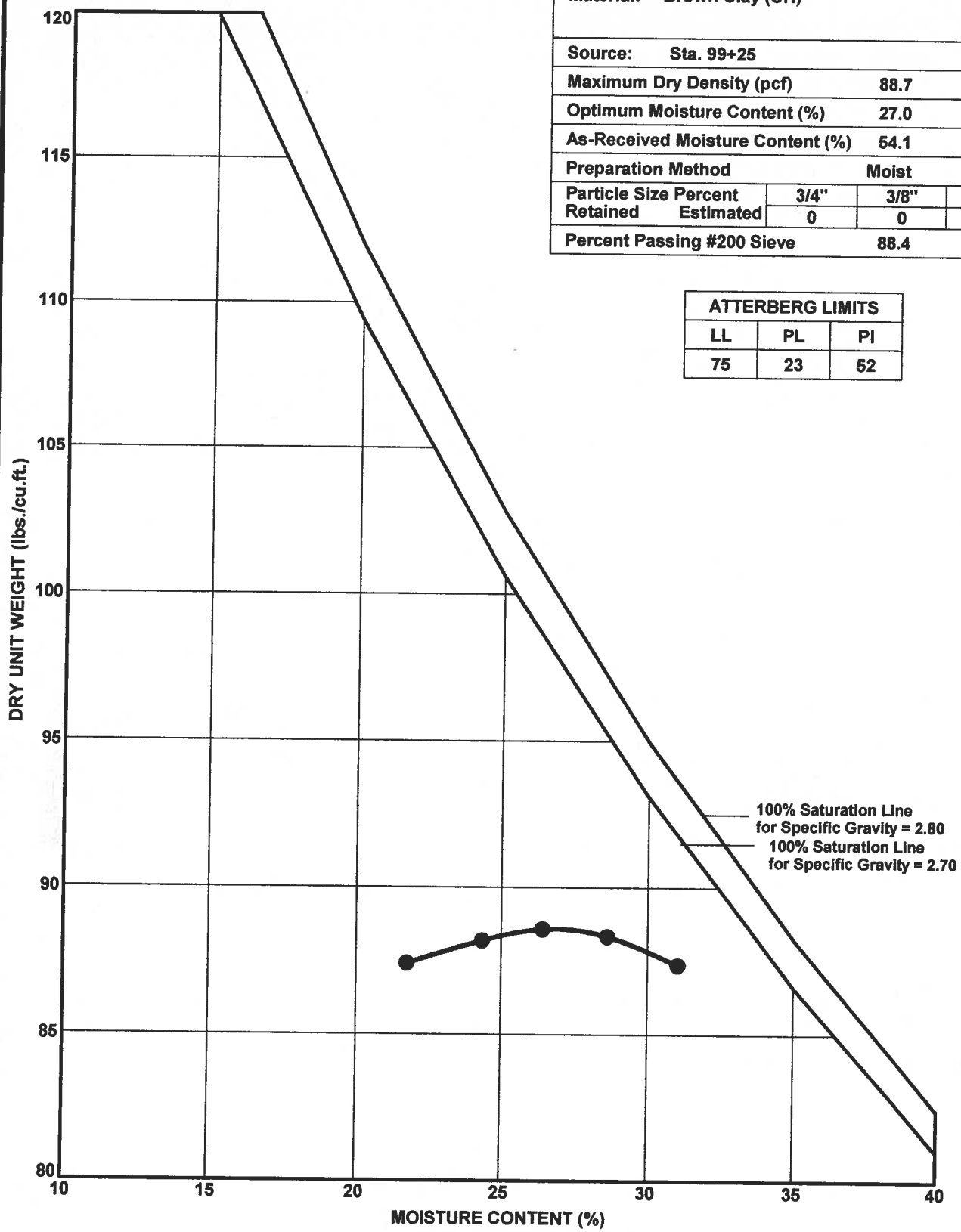
Date: 10/05/10

File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 10/05/10

Material:	Brown Clay (CH)		
Source:	Sta. 99+25		
Maximum Dry Density (pcf)	88.7		
Optimum Moisture Content (%)	27.0		
As-Received Moisture Content (%)	54.1		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	88.4		

ATTERBERG LIMITS		
LL	PL	PI
75	23	52



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: 04
Date: 10/05/10
File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 10/05/10

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 04501
DATE OF SERVICE: 11/23/2010
AUTHORIZATION:
REPORT DATE: 12/01/2010

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: USACE

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 617 PREVIOUS: 617
DENSITY - CURRENT: 2140 PREVIOUS: 2140
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(Curve 132)	Brown Clay (CH)	28.5	90.0	
2.	(Curve 130)	Brown Clay (CH)	27.6	87.5	
3.	(Curve 129)	Brown Clay (CH)	29.4	88.2	
4.	(Curve 133)	Brown Clay (CH)	26.5	91.6	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
13.	Station 87+54 12' o/s (PS) N.503963.4 E.3660191.1	12	4/8.0'	1	29.9	28.5	115.1	88.6	90.0	98.4
14.	Station 82+90 centerline crown N.504410.6 E.3660317.4	12	3/7.2'	2	34.9 *	27.6	113.5	84.1	87.5	96.1
15.	Station 79+00 9' o/s (FS) N.504288.9 E.3660404.8	12	3/8.1'	2	29.9	27.6	116.7	89.8	87.5	102.6

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 04501

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 11/23/2010

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
16.	Station 76+53 centerline crown N.505027.0 E.3660382.1	12	3/7.8'	3	37.3 *	29.4	113.0	82.3	88.2	93.3
17.	Station 69+06 39' o/s (FS) N.505699.3 E.3660597.2	12	4/6.3'	4	28.4	26.5	117.0	91.1	91.6	99.5

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted above.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric A. Paille

Eric Paille
CMT Supervisor

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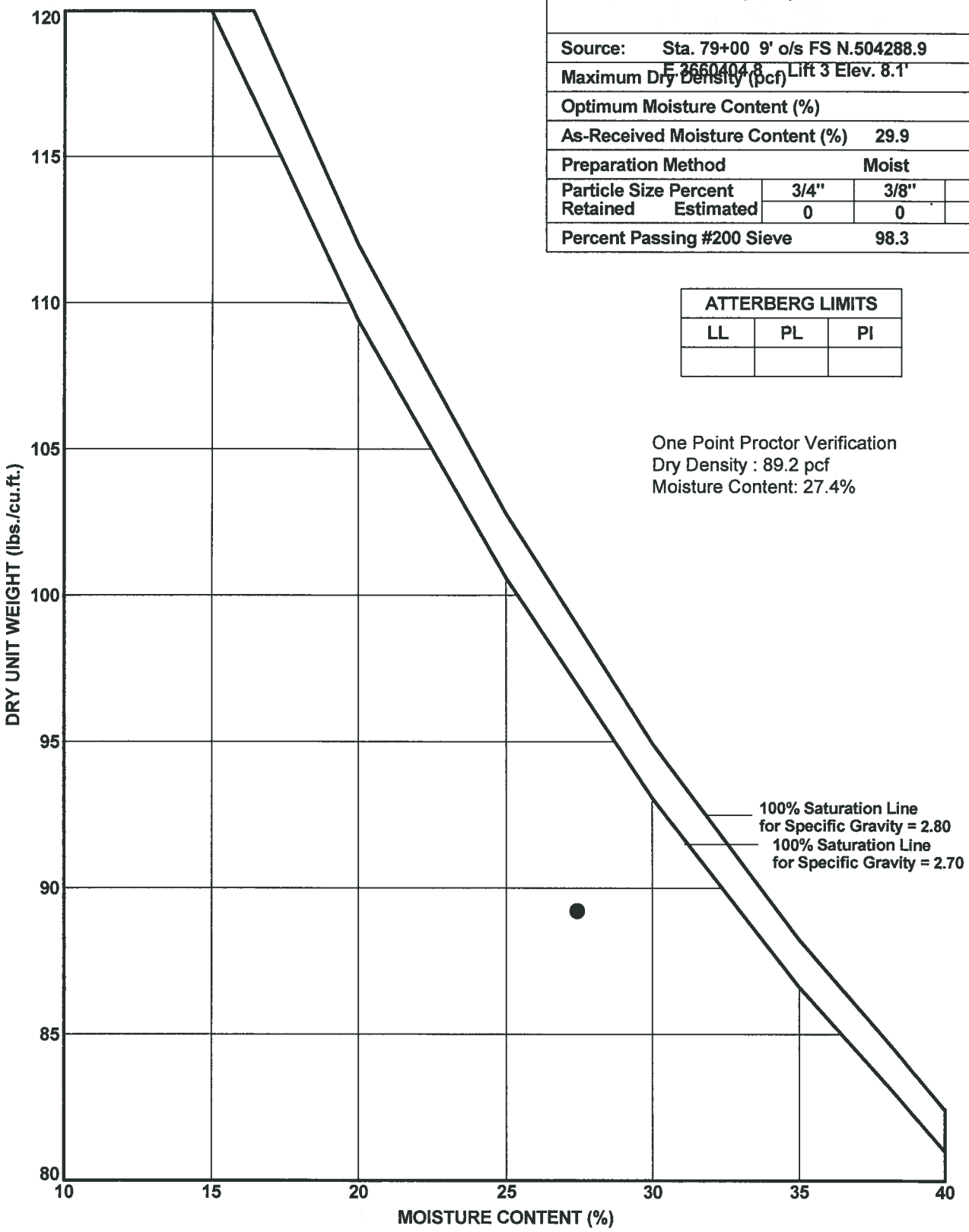
Material: Brown Clay (CH)			
Source: Sta. 79+00 9' o/s FS N.504288.9 E.3660404.8 Lift 3 Elev. 8.1'			
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	29.9		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	98.3		

ATTERBERG LIMITS		
LL	PL	PI

One Point Proctor Verification
Dry Density : 89.2 pcf
Moisture Content: 27.4%



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: T-15
Date: 11/29/10
File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 11/29/10

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 04527
DATE OF SERVICE: 12/07/2010
AUTHORIZATION:
REPORT DATE: 12/13/2010

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: USACE

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 619 PREVIOUS: 626
DENSITY - CURRENT: 2139 PREVIOUS: 2154
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(Curve 132)	Brown Clay (CH)	28.5	90.0	
2.	(Curve 129)	Brown Clay (CH)	29.4	88.2	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
18.	Station 92+72 148' o/s (PS) N.503427.7 E.3660179.3	12	2/-0.8'	2	35.9 *	29.4	112.1	82.5	88.2	93.5
19.	Station 87+00 143' o/s (PS) N.503979.2 E.3660332.8	12	2/.2'	1	31.4	28.5	112.0	85.2	90.0	94.7
20.	Station 82+03 140' o/s (PS) N.504457.1 E.3660466.2	12	2/.5'	1	26.6	28.5	108.4	85.6	90.0	95.1

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 04527

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 12/07/2010

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
21.	Station 77+00 138' o/s (PS) N.504942.2 E.3660603.1	12	2/.6'	1	27.8	28.5	107.1	83.8	90.0	93.1
22.	Station 72+03 141' o/s (PS) N.505418.5 E.3660741.9	12	2/.4'	1	28.8	28.5	111.0	86.2	90.0	95.8

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted above.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric G. Paille

Eric Paille
CMT Supervisor

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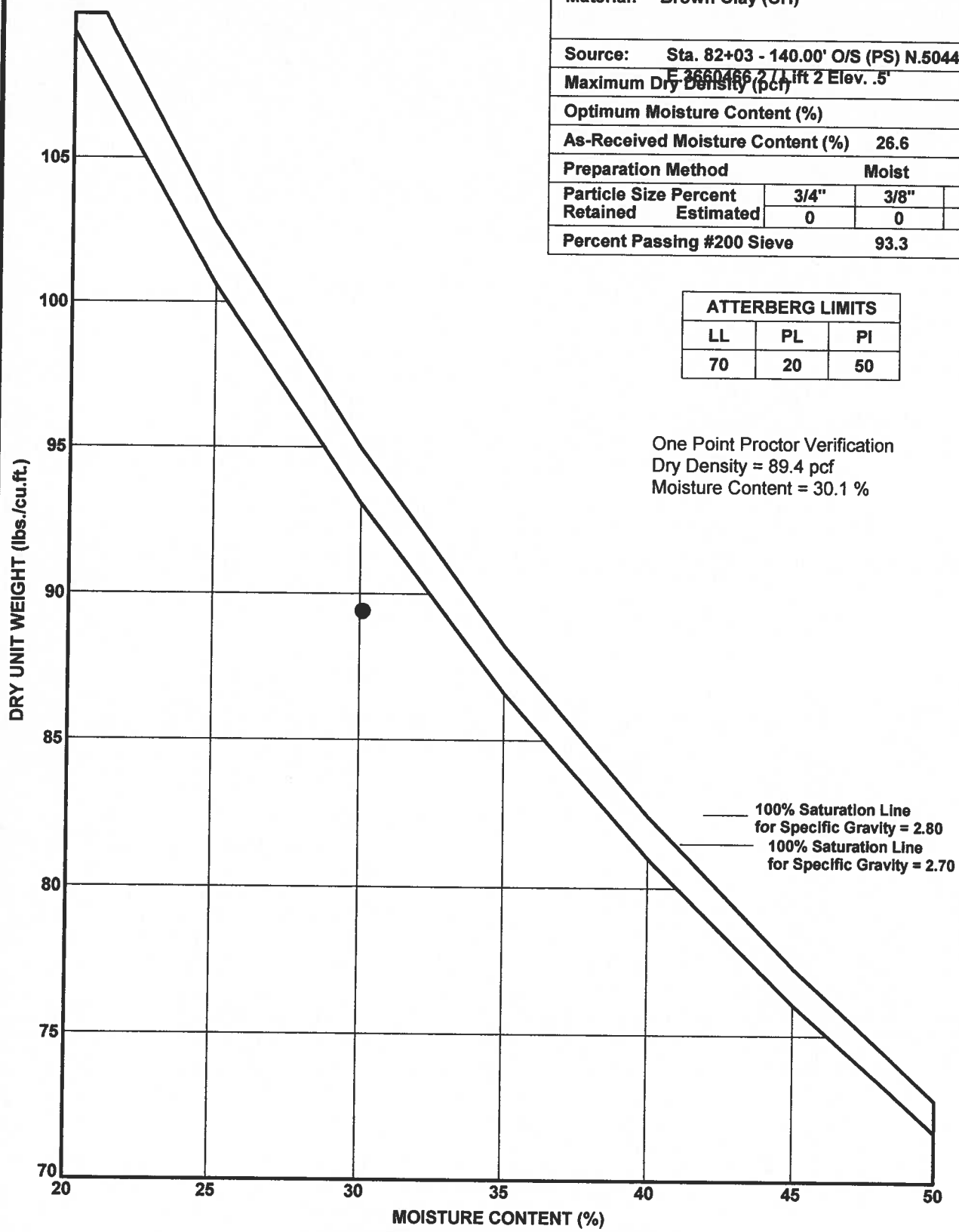
Material:	Brown Clay (CH)		
Source:	Sta. 82+03 - 140.00' O/S (PS) N.504457.1 E.2660466.2 / Lift 2 Elev. .5'		
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	26.6		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	93.3		

ATTERBERG LIMITS		
LL	PL	PI
70	20	50

One Point Proctor Verification
Dry Density = 89.4 pcf
Moisture Content = 30.1 %



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: T-20
Date: 12/13/10
File No.: 10-81-3667

ARD CP110 10-81-3667.GPJ LOG01.GDT 12/13/10

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 04957
DATE OF SERVICE: 03/02/2011
AUTHORIZATION:
REPORT DATE: 03/08/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: USACE

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D4643
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3411-B
GAUGE SERIAL NO.: 25913
STANDARD COUNTS
MOISTURE - CURRENT: 558 PREVIOUS: 562
DENSITY - CURRENT: 1716 PREVIOUS: 1739
TEST MODE: Direct Transmission
0

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(2609-001)	Brown Clay (CH)	26.4	95.1	
2.	(3178-125)	Brown Clay (CH)	26.2	91.7	
3.	(3462-307)	Brown Clay (CH)	28.8	89.1	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
23.	Station 143+96 16'o/s(FS) N.500864.7 E.3662345.49	12	3/6.8'	1	29.1	26.4	115.4	89.4	95.1	94.0
24.	Station 145+97 16'o/s(FS) N.500850.9 E.3662548.3	12	3/6.8'	2	28.5	26.2	115.8	90.1	91.7	98.3
25.	Station 148+24 Centerline N.500846.7 E.3662773.7	12	3/7.0'	1	25.2	26.4	109.8	87.7	95.1	92.2

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 04957

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 03/02/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
26.	Station 150+72 11' o/s(FS) N.500824.6 E.3663021.2	12	3/6.8'	3	31.7	28.8	115.8	87.9	89.1	98.7
27.	Station 153+22 19' o/s(FS) N.500799.6 E.3663269.5	12	3/6.7'	2	30.3	26.2	113.0	86.7	91.7	94.5

Test results on this report meet project specifications as noted above.

ADDITIONAL COMMENTS:

Technician: Jami Harpole, Field Technician

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric A. Paille

Eric Paille
CMT Supervisor

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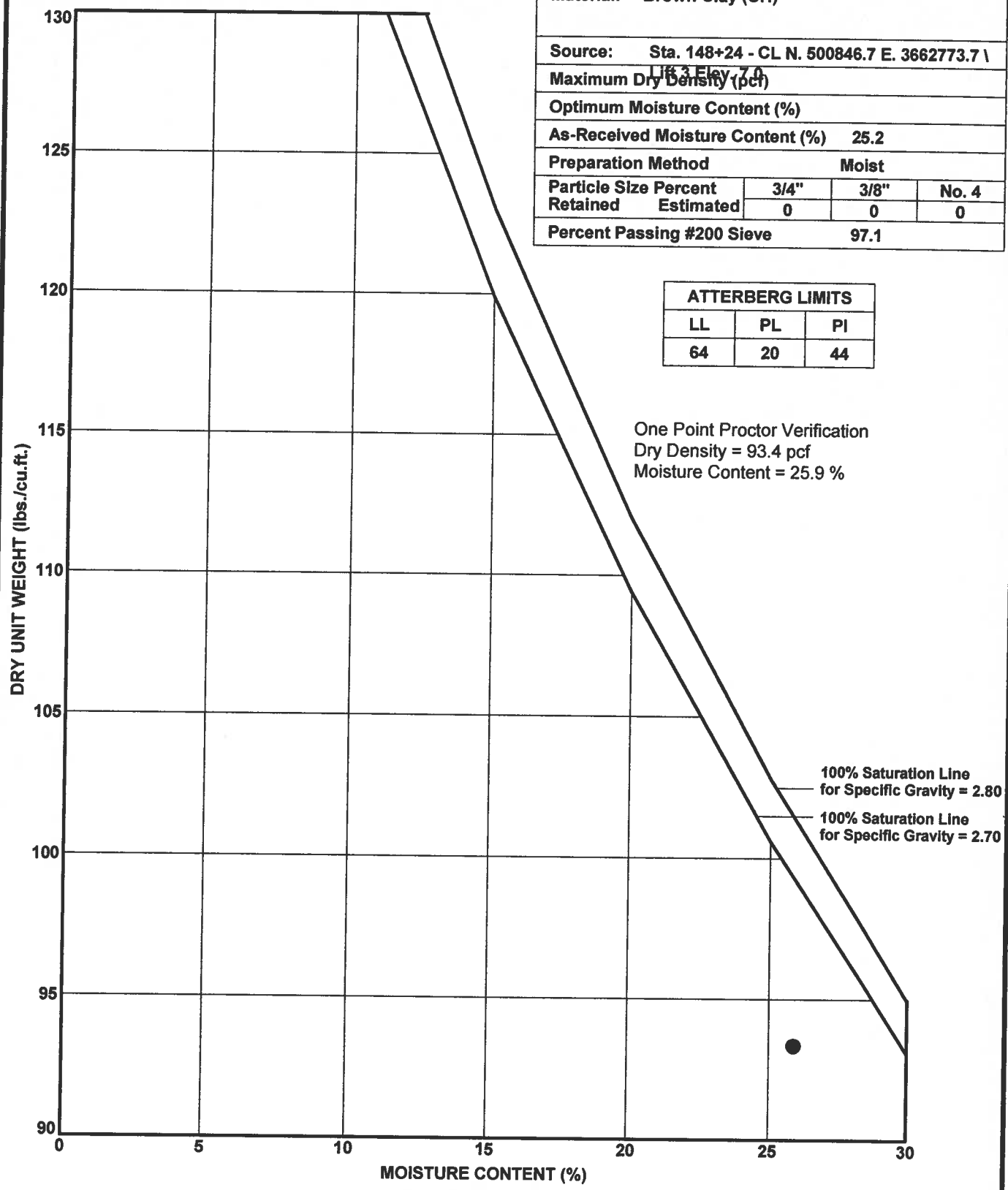
Material:	Brown Clay (CH)		
Source:	Sta. 148+24 - CL N. 500846.7 E. 3662773.7 \ Lift 3 Elev. 7.0		
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	25.2		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	97.1		

ATTERBERG LIMITS		
LL	PL	PI
64	20	44



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: T-25
Date: 03/07/11
File No.: 10-81-3667

ARD CP130 REV 10-81-3667.GPJ LOG01.GDT 03/07/11

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 05075
DATE OF SERVICE: 03/24/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 03/29/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway Construction

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3411-B
GAUGE SERIAL NO.: 25913
STANDARD COUNTS
MOISTURE - CURRENT: 574 PREVIOUS: 569
DENSITY - CURRENT: 1687 PREVIOUS: 1733
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(3182-129)	Brown Clay (CH)	29.4	88.2	
2.	(3555-353)	Brown Clay (CH)	30.0	86.6	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
28.	Station 107+07 o/s 82' (PS) N.502060.6 E.3659753.4	6	1/4.4'	1	31.9	29.4	115.1	87.3	88.2	99.0
29.	Station 101+99 o/s 73'(PS) N.502556.5 E.3659865.2	6	1/4.6'	1	30.4	29.4	114.2	87.6	88.2	99.3
30A	Station 96+99 centerline N.503059.6 E.3659914.6	12	7/11.5'	2	27.7	30.0	102.3	80.1	86.6	92.5

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 05075

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 03/24/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
30B	Station 96+99 Centerline N.503059.6 E.3659914.6	6	7/11.5'	2	28.7	30.0	107.9	83.8	86.6	96.8
31.	Station 102+00 Centerline N.502573.4 E.3659790.6	12	7/11.4'	2	21.2 *	30.0	101.6	83.8	86.6	96.8
32.	Station 107+02 Centerline N.503084.9 E.3659674.6	12	7/11.4'	2	22.1 *	30.0	99.3	81.3	86.6	93.9

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted on page 1.

ADDITIONAL COMMENTS:

Technician: Calvin Hu, Field Technician

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric Paille

Eric Paille
CMT Supervisor

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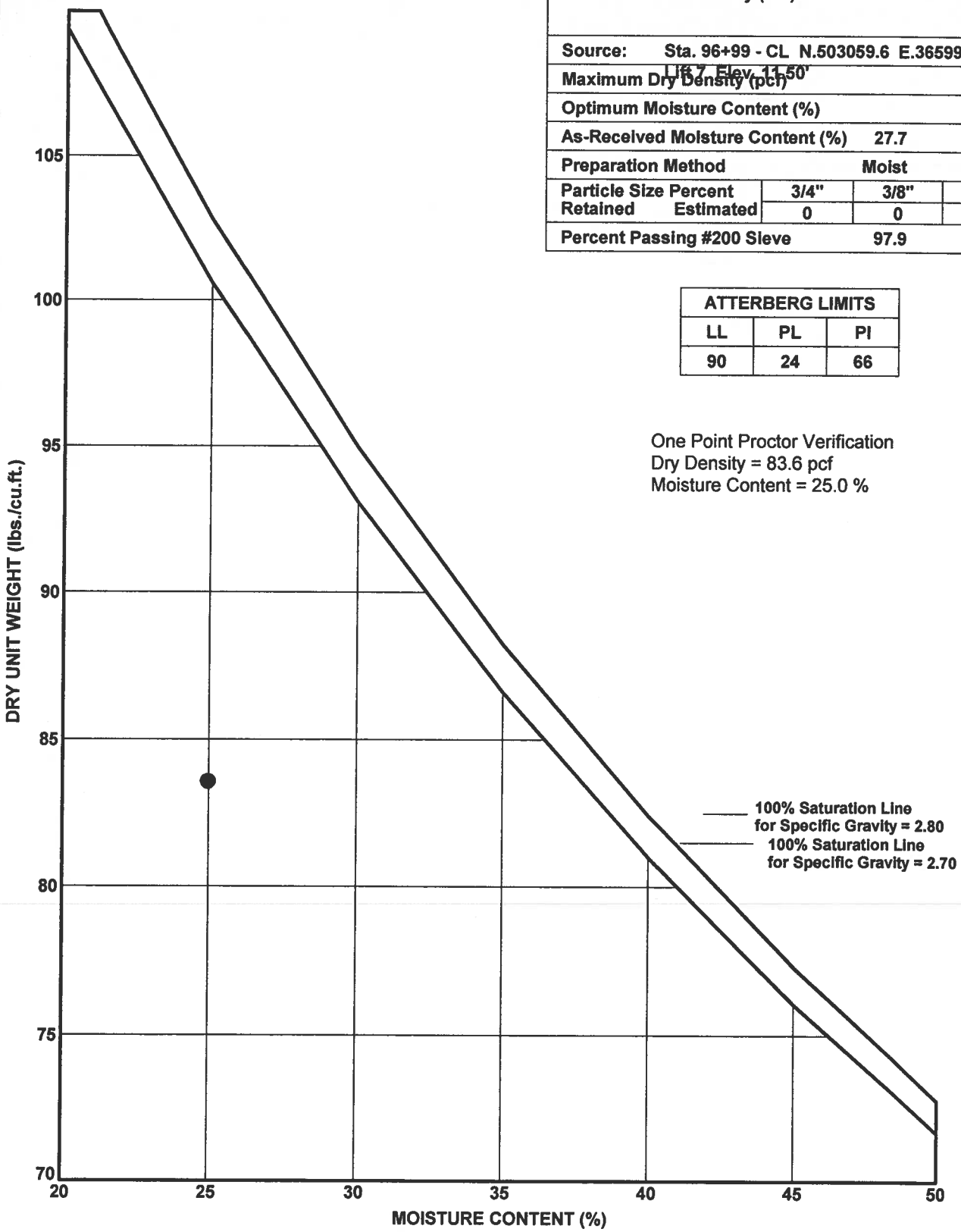
Material:	Brown Clay (CH)		
Source:	Sta. 96+99 - CL N.503059.6 E.3659914.6 / Lift 7 Elev. 11.50'		
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	27.7		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	97.9		

ATTERBERG LIMITS		
LL	PL	PI
90	24	66

One Point Proctor Verification
Dry Density = 83.6 pcf
Moisture Content = 25.0 %



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: T-30A
Date: 03/29/11
File No.: 10-81-3667

ARD CP110 10-81-3667.GPJ LOG01.GDT 03/29/11

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 05164
DATE OF SERVICE: 04/07/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 04/13/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 617 PREVIOUS: 616
DENSITY - CURRENT: 2139 PREVIOUS: 2135
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(Curve 3824-389)	Dark Gray Clay (CH)	33.7	82.9	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
33.	Station 6+03 Centerline Levee N.507044.2 E.3654558.6	12	3/7.5'	1	27.1 *	33.7	104.0	81.8	82.9	98.7
34.	Station 96+10 Centerline Levee N.503144.8 E.3659939.2	12	8/12'	1	34.8	33.7	107.6	79.8	82.9	96.3
35.	Station 100+98 Centerline Levee N.502675.7 E.3659814.5	12	8/12.2'	1	30.4 *	33.7	108.0	82.8	82.9	99.9

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 05164

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 04/07/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
36.	Station 106+00 Centerline Levee N.50219.8 E.3659695.4	12	8/12'	1	32.1	33.7	109.2	82.7	82.9	99.8

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted above.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric A. Paille

Eric Paille
CMT Supervisor

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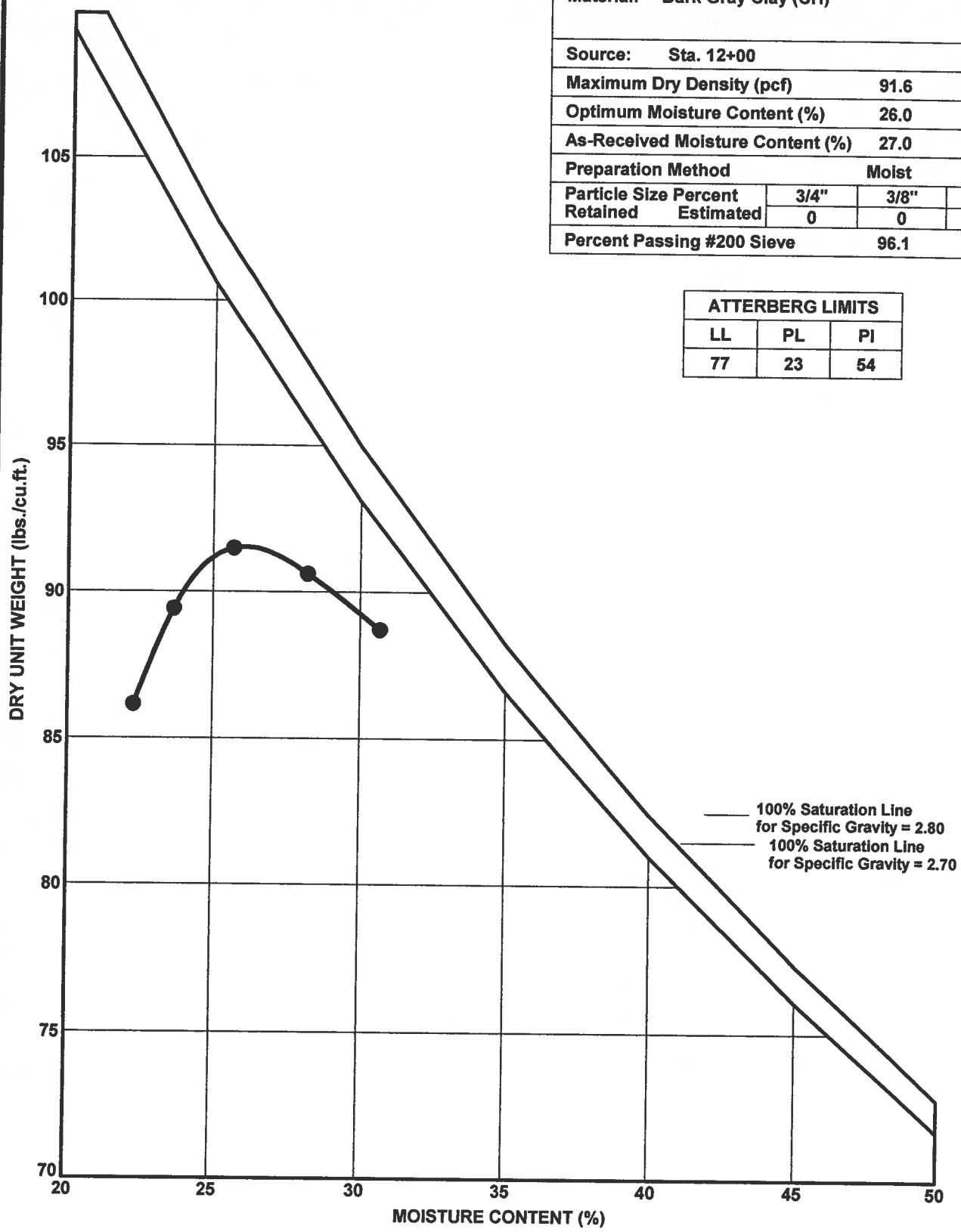
Material:	Dark Gray Clay (CH)		
Source:	Sta. 12+00		
Maximum Dry Density (pcf)		91.6	
Optimum Moisture Content (%)		26.0	
As-Received Moisture Content (%)		27.0	
Preparation Method		Moist	
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve		96.1	

ATTERBERG LIMITS		
LL	PL	PI
77	23	54



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: 05

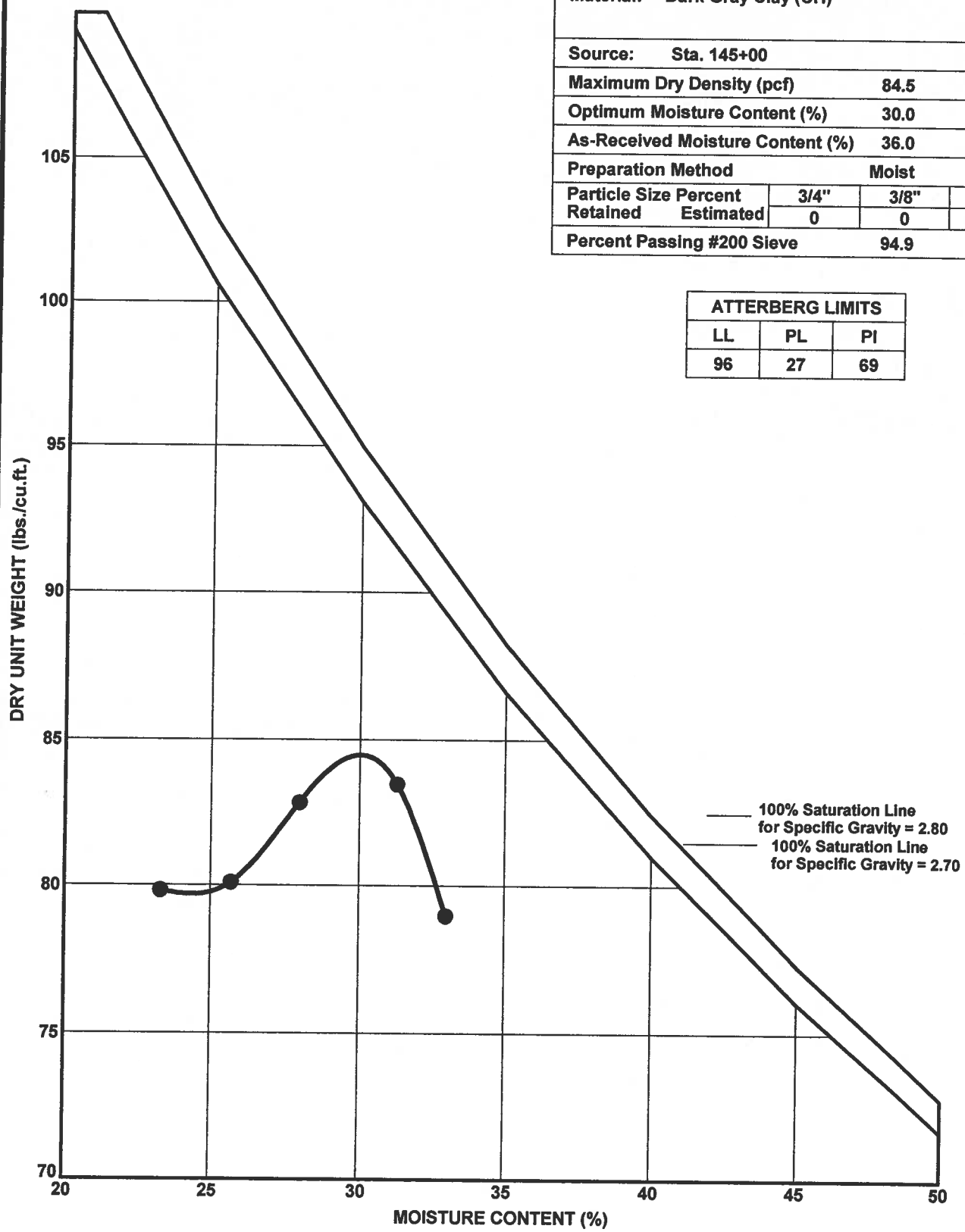
Date: 04/12/11

File No.: 10-81-3667

ARD CP110 10-81-3667.GPJ LOG01.GDT 04/13/11

Material:	Dark Gray Clay (CH)		
Source:	Sta. 145+00		
Maximum Dry Density (pcf)		84.5	
Optimum Moisture Content (%)		30.0	
As-Received Moisture Content (%)		36.0	
Preparation Method		Moist	
Particle Size Percent Retained	3/4"	3/8"	No. 4
Estimated	0	0	0
Percent Passing #200 Sieve		94.9	

ATTERBERG LIMITS		
LL	PL	PI
96	27	69



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: 06

Date: 04/12/11

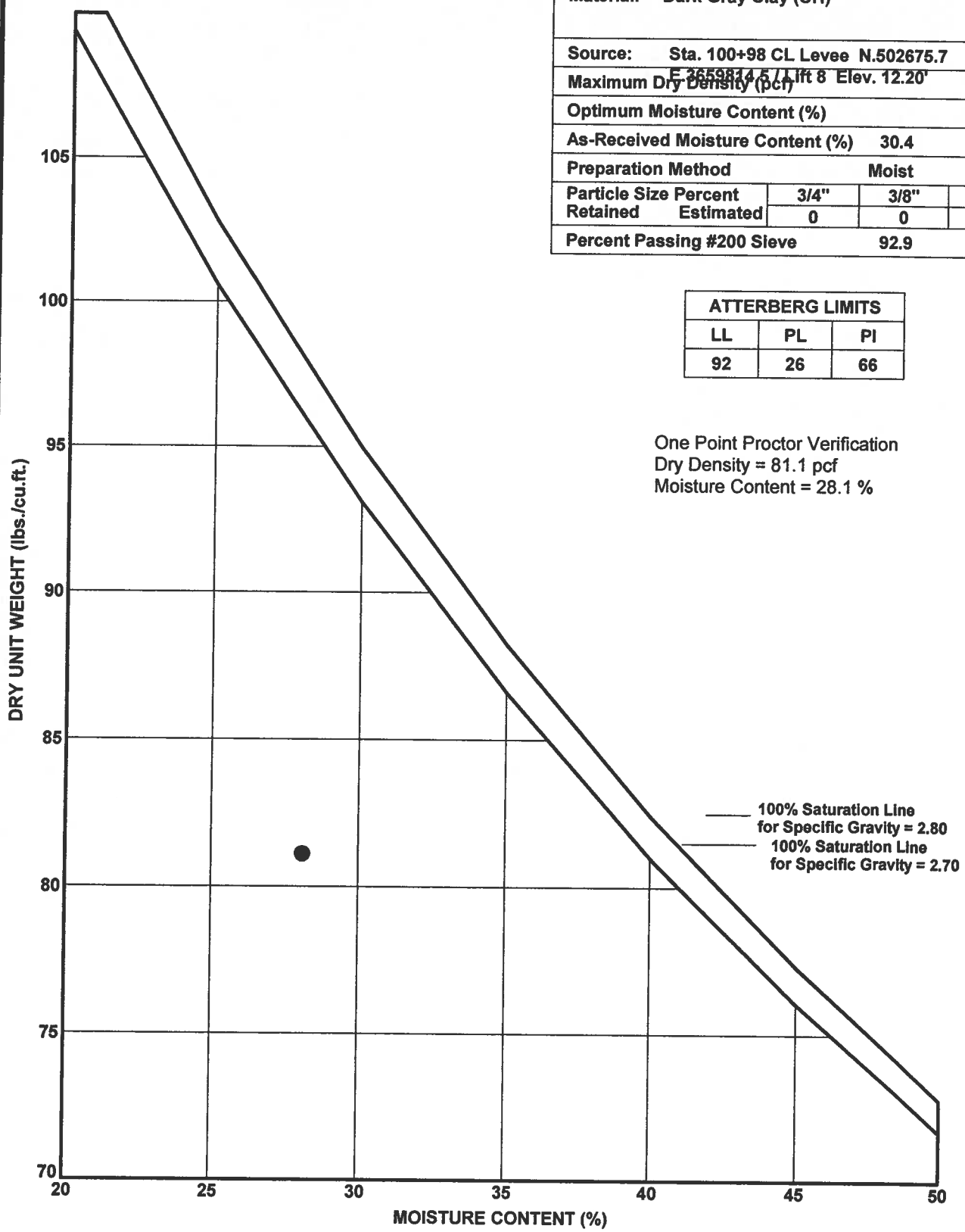
File No.: 10-81-3667

ARD CP110 10-81-3667.GPJ LOG01.GDT 04/13/11

Material:	Dark Gray Clay (CH)		
Source:	Sta. 100+98 CL Levee N.502675.7 E.3659814.5 / Lift 8 Elev. 12.20'		
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	30.4		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	92.9		

ATTERBERG LIMITS		
LL	PL	PI
92	26	66

One Point Proctor Verification
Dry Density = 81.1 pcf
Moisture Content = 28.1 %



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: T-35
Date: 04/12/11
File No.: 10-81-3667

ARD CP110 10-81-3667.GPJ LOG01.GDT 04/13/11

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 05381
DATE OF SERVICE: 05/11/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 05/16/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 611 PREVIOUS: 619
DENSITY - CURRENT: 2111 PREVIOUS: 2120
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(3815-388)	Dark Gray Clay (CH)	29.6	88.9	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
37.	Station 127+00 (PS) o/s -64' N.501069.5 E.3660659.8	12	3/6.8'	1	29.5	29.6	112.9	87.2	88.9	98.1
38.	Station 128+97 (PS) o/s -92' N.501083.1 E.3660858.8	12	3/5.9'	1	26.1 *	29.6	112.4	89.1	88.9	100.2

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 05/11/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
39.	Station 130+91 -104' o/s (PS) N.501081.1 E.3661053.1	12	3/5.6'	1	27.8	29.6	112.0	87.6	88.9	98.5
40.	Station 133+14 o/s -63' (PS) N.501023.2 E.3661272.6	12	3/6.8'	1	22.2 *	29.6	111.3	91.1	88.9	102.5
41.	Station 135+19 o/s -73' (PS) N.501018.0 E.3661478.3	12	3/6.6'	1	25.3 *	29.6	109.6	87.5	88.9	98.4
42.	Station 137+09 o/s -88' (PS) N.501018.3 E.3661668.4	12	3/6.0'	1	27.7	29.6	107.3	84.0	88.9	94.5

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted on page 1.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist
Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric A. Paille

Eric Paille
CMT Supervisor

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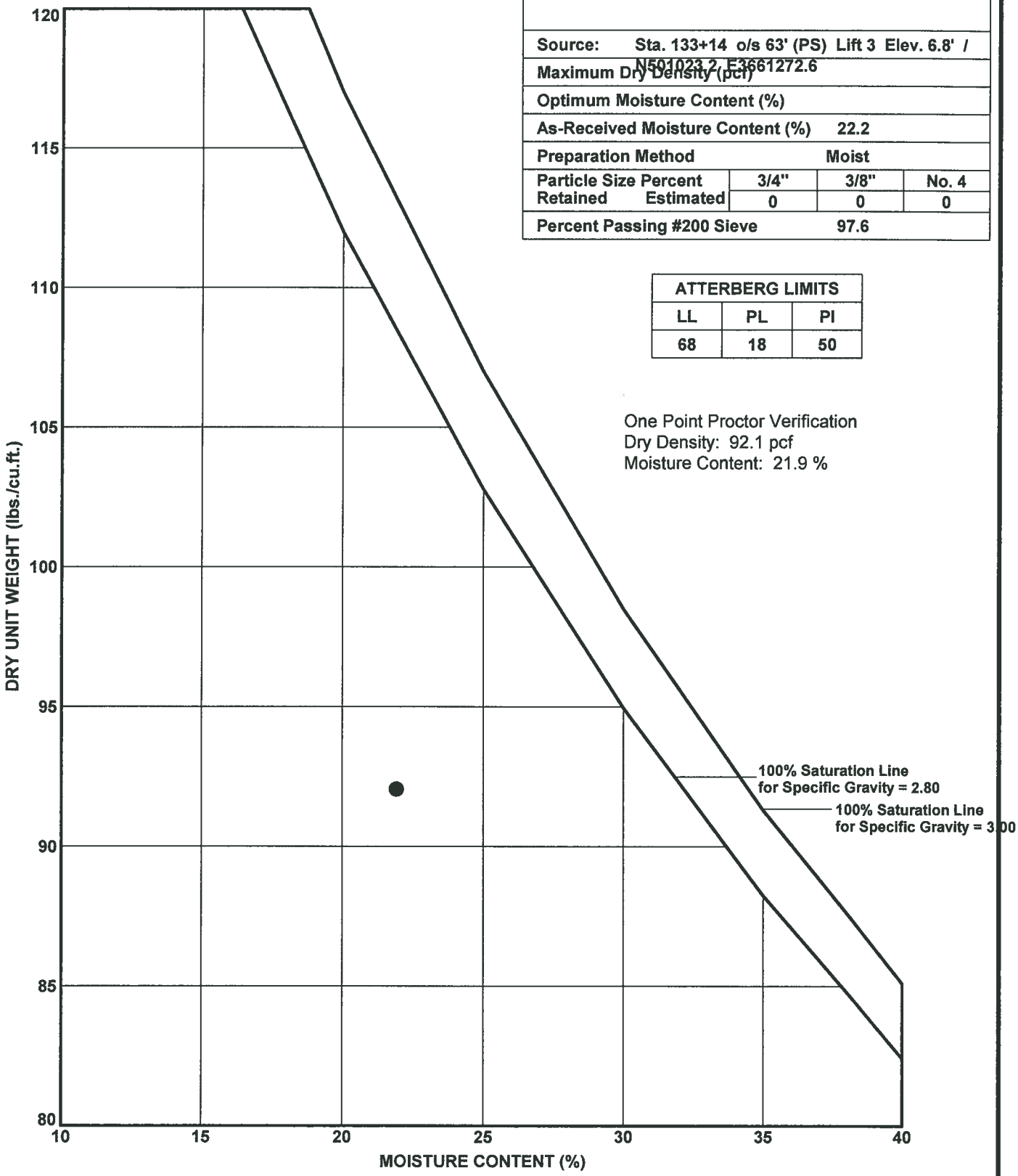
Material:	Dark Gray Clay (CH)		
Source:	Sta. 133+14 o/s 63' (PS) Lift 3 Elev. 6.8' / N501023.2, E3661272.6		
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	22.2		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	97.6		

ATTERBERG LIMITS		
LL	PL	PI
68	18	50

One Point Proctor Verification
Dry Density: 92.1 pcf
Moisture Content: 21.9 %



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: T-40
Date: 5/16/11
File No.: 10-81-3667

ARD CP120 WITH SG=3.0 10-81-3667.GPJ LOG01.GDT 5/16/11

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 05382
DATE OF SERVICE: 05/12/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 05/16/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 610 PREVIOUS: 622
DENSITY - CURRENT: 2114 PREVIOUS: 2111
TEST MODE: Direct Transmission
PROBE DEPTH: 6

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(3815-388)	Dark Gray Clay (CH)	29.6	88.9	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
43.	Station 68+45 o/s -137' (PS) N.505884.7 E.3660608.3	6	1/1.0'	1	26.8	29.6	114.2	90.1	88.9	101.3
44.	Station 63+22 o/s -135' (PS) N.506068.4 E.3660161.6	6	1/2.0'	1	21.4 *	29.6	110.4	90.9	88.9	102.2

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 05382

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 05/12/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted on page 1.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric A. Paille

Eric Paille
CMT Supervisor

1007

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Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 05382
DATE OF SERVICE: 05/12/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 05/16/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 610 PREVIOUS: 622
DENSITY - CURRENT: 2114 PREVIOUS: 2111
TEST MODE: Direct Transmission
PROBE DEPTH: 6

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(3815-388)	Dark Gray Clay (CH)	29.6	88.9	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
43.	Station 68+45 o/s -137' (PS) N.505884.7 E.3660608.3	6	1/1.0'	1	26.8	29.6	114.2	90.1	88.9	101.3
44.	Station 63+22 o/s -135' (PS) N.506068.4 E.3660161.6	6	2/2.0'	1	21.4 *	29.6	110.4	90.9	88.9	102.2

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 05382

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 05/12/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted on page 1.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric A. Paille

Eric Paille
CMT Supervisor

1007

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Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 05444
DATE OF SERVICE: 05/19/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 05/23/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway Construction

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 615 PREVIOUS: 622
DENSITY - CURRENT: 2093 PREVIOUS: 2103
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(Curve 2762-24)	Dark Gray Clay (CH)	26.6	92.1	
2.	(Curve 3555-353)	Dark Gray Clay (CH)	30.0	86.6	
3.	(Curve 3815-388)	Dark Gray Clay (CH)	29.6	88.9	
4.	(Curve 4502-642)	Dark Gray Clay (CH)	28.2	91.6	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
45.	Station 77+49 Centerline Crown N.504931.7 E.3660458.9	6	10/13.2'	1	22.2 *	26.6	118.2	96.7	92.1	105.0
46.	Station 82+44 Centerline Crown N.504457.3 E.3660318.6	6	10/13.1'	2	28.1	30.0	111.4	87.0	86.6	100.5

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 05444

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 05/19/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
47.	Station 87+48 o/s Centerline Crown N.503491.3 E.3660040.7	6	10/13.2'	3	21.4 *	29.6	112.4	92.6	88.9	104.2
48.	Station 92+49 Centerline Crown N.503491.3 E.3660040.7	6	10/13.2'	3	27.2	29.6	113.1	88.9	88.9	100.0
49.	Station 82+94 151' (PS) N.504367.4 E.3660451.4	12	6/2.4'	4	16.6 *	28.2	112.1	96.1	91.6	104.9
50.	Station 77+92 131' (PS) N.504854.6 E.3660570.3	12	5/2.6'	3	21.1 *	29.6	102.7	84.8	88.9	95.4
51.	Station 59+40 o/s Centerline Crown N.506167.2 E.3659781.7	12	6/9.1	3	27.5	29.6	108.5	85.1	88.9	95.7
52.	Station 55+90 o/s -9' (PS) N.506237.8 E.3659439.4	12	5/8.0'	3	22.2 *	29.6	107.0	87.6	88.9	98.5

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted on page 1.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric Paille

Eric Paille
CMT Supervisor

1007

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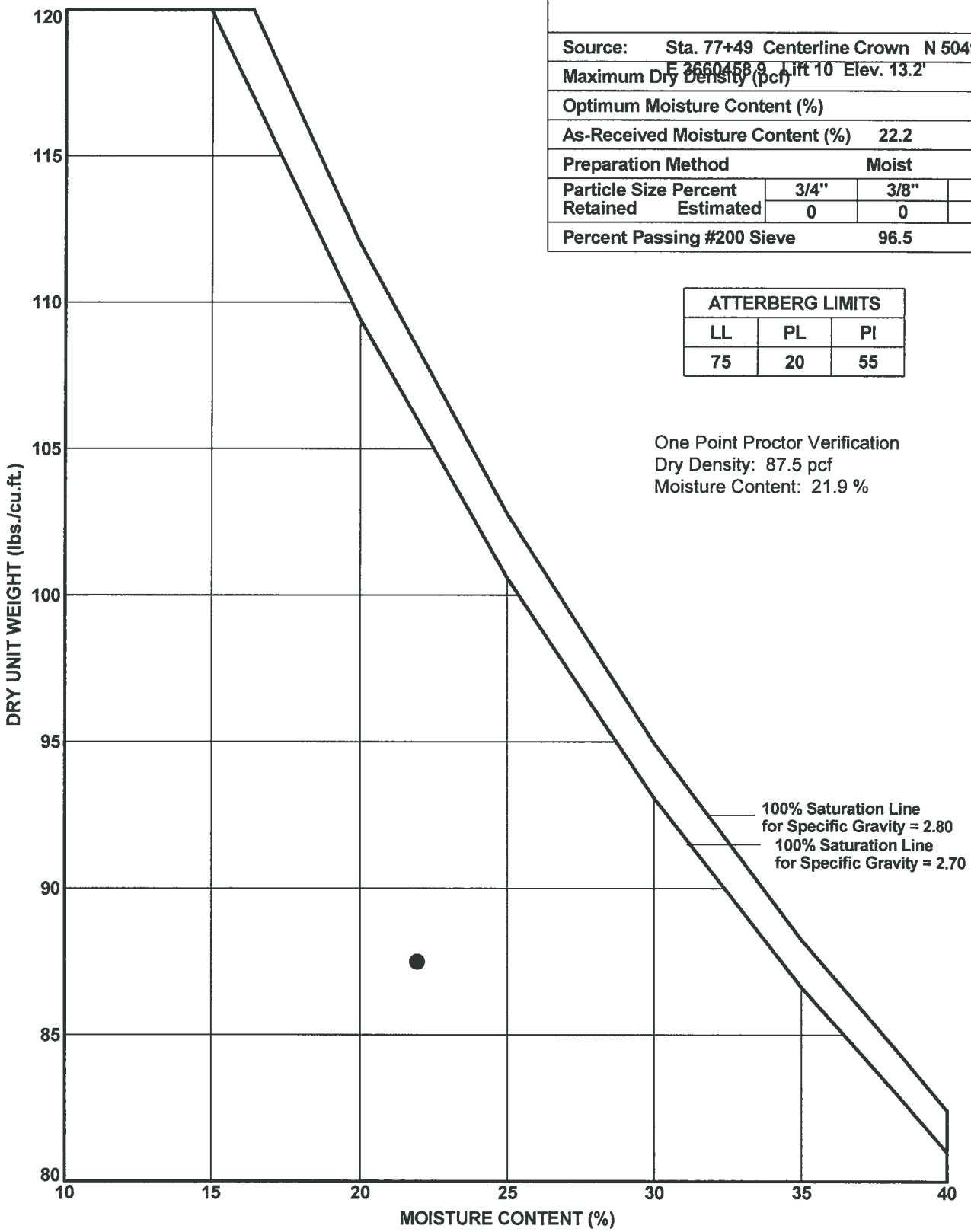
Material: Dark Gray Clay (CH)			
Source: Sta. 77+49 Centerline Crown N 504931.7 E 3660458.9 Lift 10 Elev. 13.2'			
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%) 22.2			
Preparation Method Moist			
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve 96.5			

ATTERBERG LIMITS		
LL	PL	PI
75	20	55

One Point Proctor Verification
Dry Density: 87.5 pcf
Moisture Content: 21.9 %



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

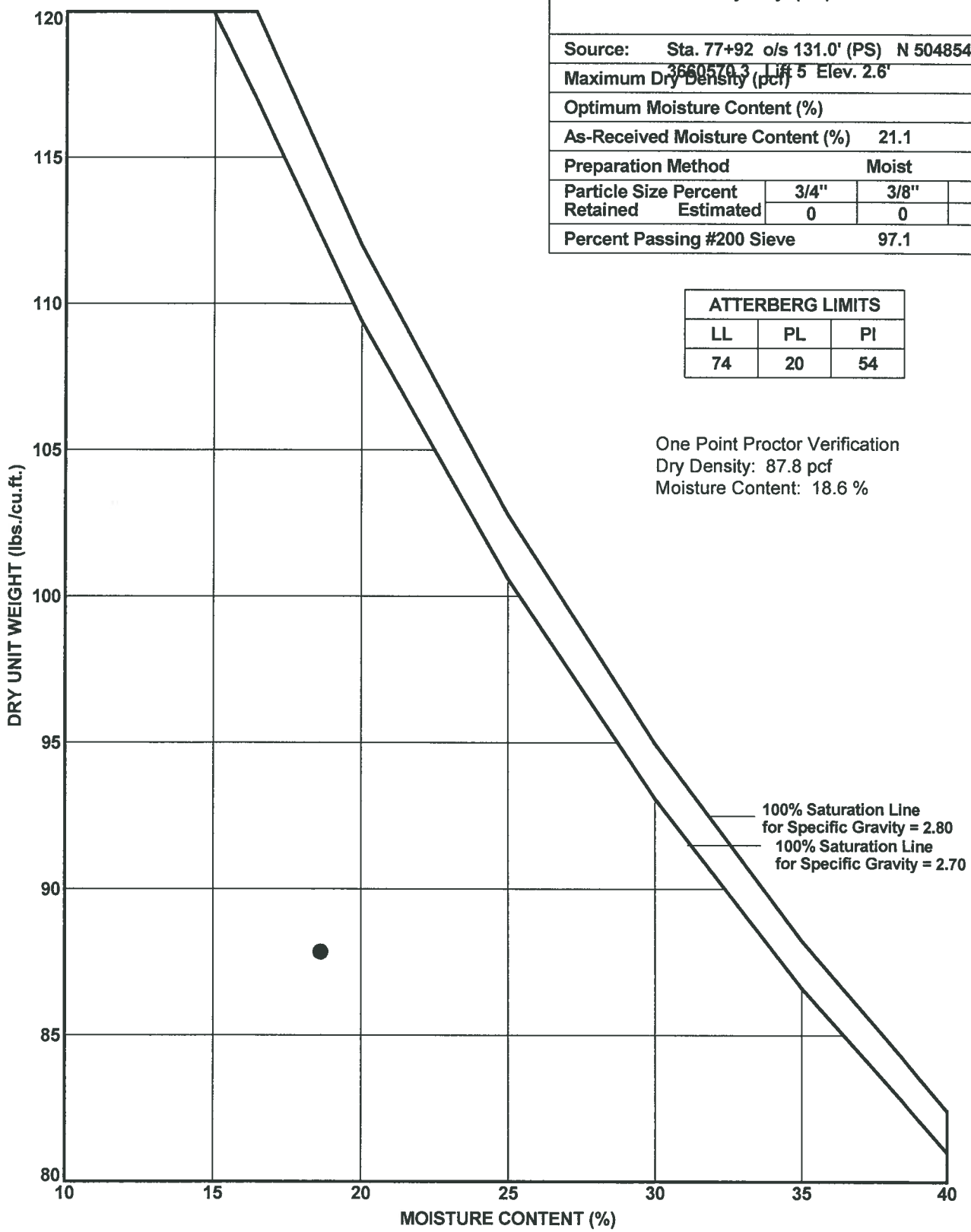
Curve No.: T-45
Date: 05/20/11
File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 05/23/11

Material:	Dark Gray Clay (CH)		
Source:	Sta. 77+92 o/s 131.0' (PS) N 504854.6 E 3660570.3 Lift 5 Elev. 2.6'		
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	21.1		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	97.1		

ATTERBERG LIMITS		
LL	PL	PI
74	20	54

One Point Proctor Verification
Dry Density: 87.8 pcf
Moisture Content: 18.6 %



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: T-50
Date: 05/20/11
File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 05/23/11

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 05494
DATE OF SERVICE: 05/26/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 05/31/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 623 PREVIOUS: 623
DENSITY - CURRENT: 2094 PREVIOUS: 2083
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(Curve 3815-388)	Brown Clay (CH)	29.6	88.9	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
53.	Station 68+99 136' (PS) N.505857.4 E.3660674.2	6	3/2.8'	1	27.5	29.6	114.8	90.0	88.9	101.2
54.	Station 108+75 Centerline Crown N.501917.9 E.3659367.3	12	8/12.6'	1	25.1 *	29.6	109.7	87.7	88.9	98.7

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 05494

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 05/26/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
55.	Station 101+00 Centerline Crown N.502670.4 E.3659816.6	6	11/13.7'	1	22.7 *	29.6	107.2	87.4	88.9	98.3

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted on page 1.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric A. Paille

Eric Paille
CMT Supervisor

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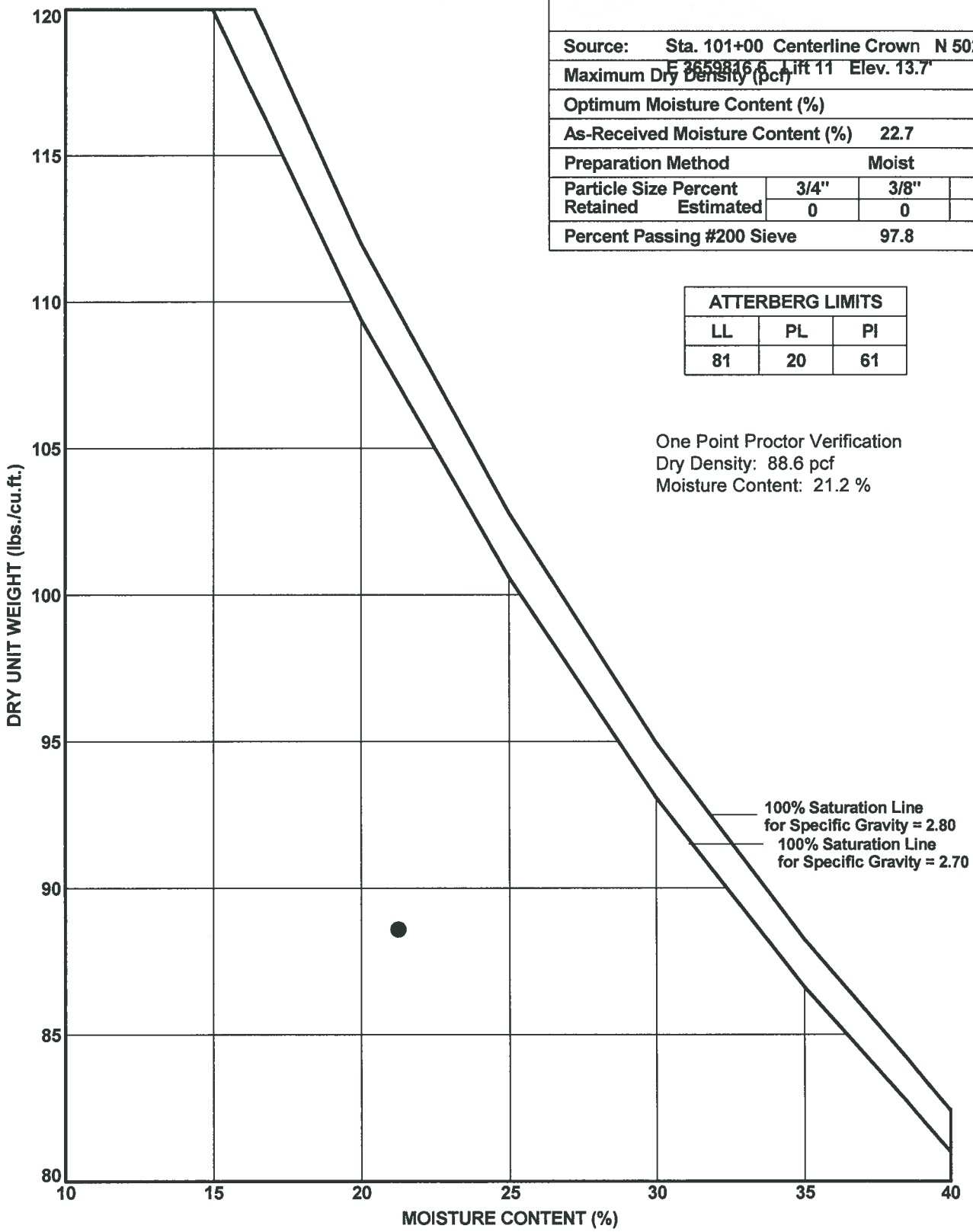
Material:	Brown Clay (CH)		
Source:	Sta. 101+00 Centerline Crown N 502670.4 E 3659816.6 Lift 11 Elev. 13.7'		
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	22.7		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	97.8		

ATTERBERG LIMITS		
LL	PL	PI
81	20	61

One Point Proctor Verification
Dry Density: 88.6 pcf
Moisture Content: 21.2 %



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: T-55
Date: 05/27/11
File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 06/01/11

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 05528
DATE OF SERVICE: 06/02/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 06/06/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 614 PREVIOUS: 614
DENSITY - CURRENT: 2094 PREVIOUS: 2094
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(Curve 3550-352)	Dark Gray Clay (CH)	26.0	92.3	
2.	(Curve 4171-498)	Dark Gray Clay (CH)	22.8	96.6	
3.	(Curve 2762-24)	Dark Gray Clay (CH)	26.6	92.1	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
56.	(RETEST 49) 82+94 o/s 151.0' (PS) N.504367.4 E.3660451.4	12	6/2.4'	1	25.3	26.0	114.3	91.2	92.3	98.8
57.	(RETEST 40) 133+14 o/s 63' (PS) N.501023.2 E.3661272.6	12	3/6.8'	2	25.1	22.8	118.5	94.7	96.6	98.0

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 05528

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 06/02/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
58.	(RETEST 41) 135+19 o/s 73' (PS) N.501018.0 E.3661478.3	12	3/6.6'	1	24.0	26.0	112.8	91.0	92.3	98.6
59.	(RETEST 47) 87+48 Centerline Crown N.503970.9 E.3660186.2	6	10/13.2'	3	29.3	26.6	118.2	91.4	92.1	99.2
60.	(RETEST 45) 77+49 Centerline Crown N.504931.7 E.3660458.9	6	10/13.2'	3	29.2	26.6	116.8	90.4	92.1	98.2

Test results on this report meet project specifications as noted on page 1.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric Paille

Eric Paille
CMT Supervisor

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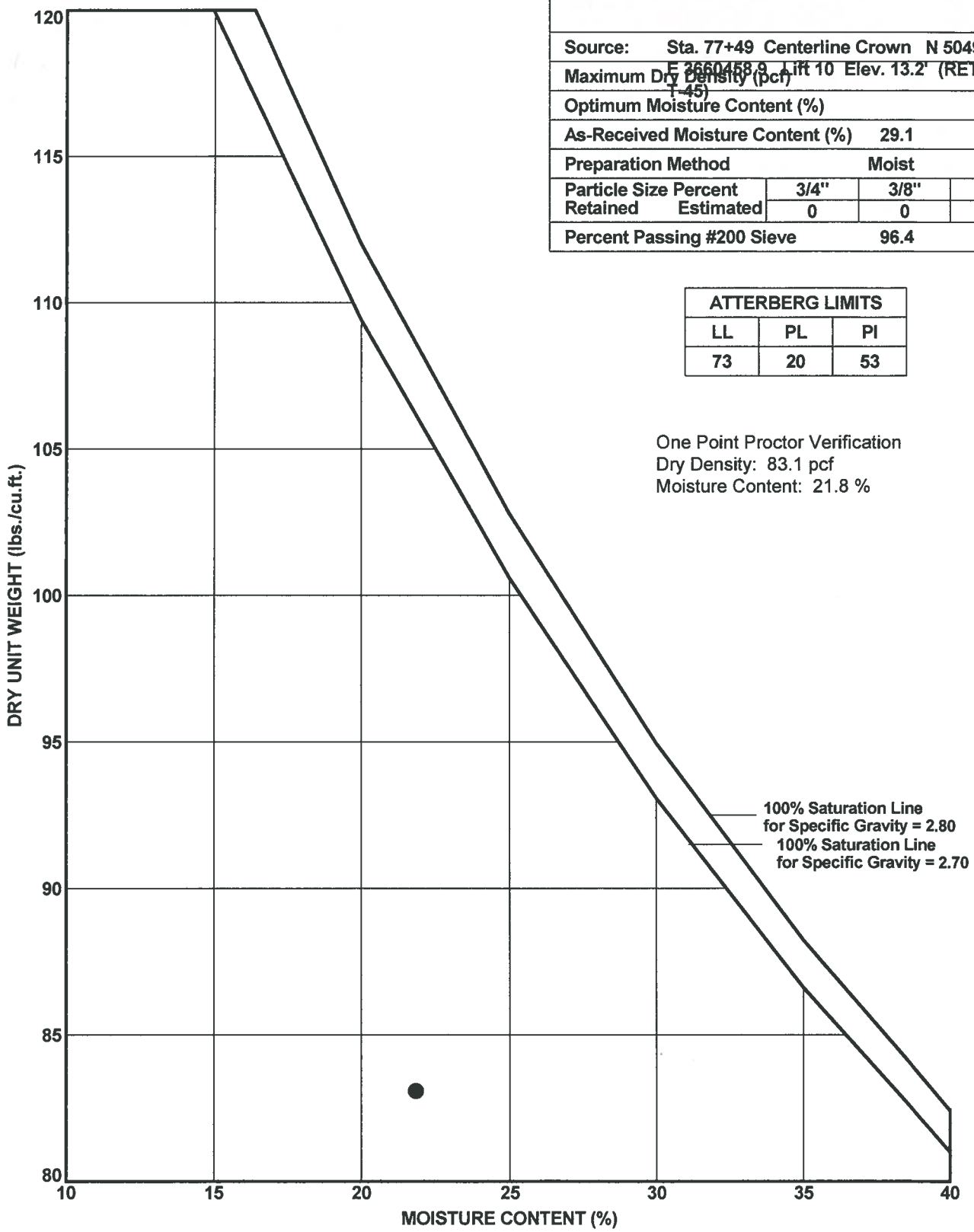
Material:	Dark Gray Clay (CH)		
Source:	Sta. 77+49 Centerline Crown N 504931.7 E 3660458.9 Lift 10 Elev. 13.2' (RETEST T-45)		
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	29.1		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	96.4		

ATTERBERG LIMITS		
LL	PL	PI
73	20	53

One Point Proctor Verification
Dry Density: 83.1 pcf
Moisture Content: 21.8 %



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: T-60
Date: 06/06/11
File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 06/07/11

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 05563
DATE OF SERVICE: 06/09/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 06/13/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 621 PREVIOUS: 616
DENSITY - CURRENT: 2088 PREVIOUS: 2094
TEST MODE: Direct Transmission
PROBE DEPTH: 12

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(Curve 3815-388)	Dark Gray Clay (CH)	29.6	88.9	
2.	(Curve 4502-642)	Dark Gray Clay (CH)	28.2	91.6	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
61.	(RETEST 50) 77+92 131' (PS) N.504854.6 E.3660570.3	12	5/2.6'	1	27.4	29.6	114.0	89.5	88.9	100.7
62.	Station 150+50 -52' (PS) N.500889.1 E.3663003.9	12	3/7.2'	2	31.5	28.2	116.9	88.9	91.6	97.1

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 05563

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 06/09/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
63.	Station 152+47 -84' (PS) N.500908.0 E.3663201.8	12	3/6.1'	2	26.8	28.2	117.7	92.8	91.6	101.3
64.	Station 154+38 -96' (PS) N.500906.9 E.3663392.8	12	3/5.9'	1	33.0	29.6	115.6	86.9	88.9	97.8

Test results on this report meet project specifications as noted above.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric Paille

Eric Paille
CMT Supervisor

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TRANSMITTAL

AAI

Ardaman & Associates, Inc.

To: USACE-MVN District
P O Box 60267
New Orleans, LA 70160

Date: May 20, 2011
Job No.: 113-10-81-3667
Project: New Westwego PS
CD Contract # W912P8-09-0046-0008
BPA # 09-A-0004
Block Call # 045G

Attention: Glenn Gremillion

From: Eric A. Paille

COPIES	DESCRIPTION
1	Daily Field Report 05382
1	Chain of Custody
1	Atterberg Limit, Organic Content,Moisture Content, -200
1	Signed QA Testing Request Form
	REVISED

THESE ARE TRANSMITTED:

■ **FOR YOUR USE** ☐ **FOR REVIEW & COMMENT** ■ **AS REQUESTED**

☐ **REVISE AS NOTED** ☐ **TO BE DISTRIBUTED**

REMARKS: Email: Jeremy George jeremy.m.george@usace.army.mil

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated Laboratory

316 HIGHLANDIA DRIVE
BATON ROUGE, LA 7 0810
PHONE: (225) 752-4790
FAX: (225) 752-4878

TRANSMITTAL

AAI

Ardaman & Associates, Inc.

To: USACE-MVN District
P O Box 60267
New Orleans, LA 70160

Date: May 20, 2011
Job No.: 113-10-81-3667
Project: New Westwego PS
CD Contract # W912P8-09-0046-0008
BPA # 09-A-0004
Block Call # 045G

Attention: Glenn Gremillion

From: Eric A. Paille

COPIES	DESCRIPTION
1	Daily Field Report 05382
1	Chain of Custody
1	Atterberg Limit, Organic Content,Moisture Content, -200
1	Signed QA Testing Request Form
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FAX: (225) 752-4878

TRANSMITTAL

AAI

Ardaman & Associates, Inc.

To: USACE-MVN District
P O Box 60267
New Orleans, LA 70160

Date: June 7, 2011
Job No.: 113-10-81-3667
Project: New Westwego PS
CD Contract # W912P8-09-0046-0008
BPA # 09-A-0004
Block Call # 049G

Attention: Glenn Gremillion

From: Eric A. Paille

COPIES	DESCRIPTION
1	Daily Field Report 05528
1	Chain of Custody
1	Atterberg Limit, Organic Content, Moisture Content, -200
1	Sand Cone Density (T-60)
1	One Point Proctor Verification (T-60)
1	Signed QA Testing Request Form

REVISED

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☐ **REVISE AS NOTED** ☐ **TO BE DISTRIBUTED**

REMARKS: Email: Jeremy George jeremy.m.george@usace.army.mil

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FAX: (225) 752-4878

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 05382
DATE OF SERVICE: 05/12/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 05/16/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 610 PREVIOUS: 622
DENSITY - CURRENT: 2114 PREVIOUS: 2111
TEST MODE: Direct Transmission
PROBE DEPTH: 6

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(3815-388)	Dark Gray Clay (CH)	29.6	88.9	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
43.	Station 68+45 o/s -137' (PS) N.505884.7 E.3660608.3	6	1/1.0'	1	26.8	29.6	114.2	90.1	88.9	101.3
44.	Station 63+22 o/s -135' (PS) N.506068.4 E.3660161.6	6	1/2.0'	1	21.4 *	29.6	110.4	90.9	88.9	102.2

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 05/12/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted on page 1.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist
Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric A. Paille

Eric Paille
CMT Supervisor

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AAI

Ardaman and Associates, Inc.

CHAIN OF CUSTODY RECORD

Job No.: 113-1081-3667 Date: 5-12-11

Project Name : New Westwego P.S. to Orleans Village

Project Location: Jefferson Parish

Collectors Name: Bill Singleton

Type of Sample: Clay No. of Containers: 2

SAMPLE ID	SAMPLE LOCATION	PURPOSE
T-43	68+45	AH, ORG, -200, MC
T-44	63+22	" " " "

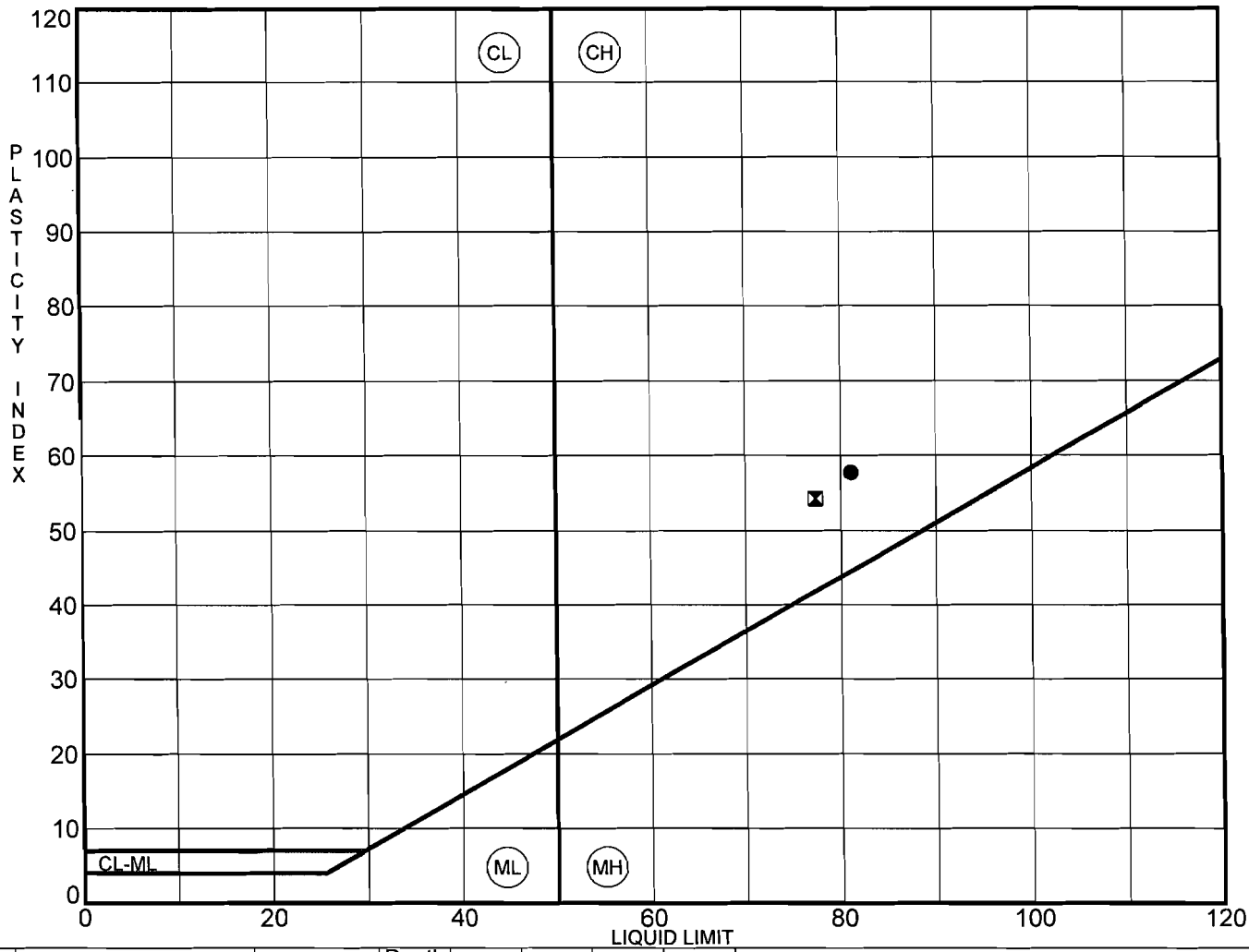
Sample Shipped by : Ardaman & Associates Date: 5-12-11

Custodian: Bill Singleton

Sample Received by: Emil G. Paulk Date: 5/13/11

Company Name: Ardaman & Associates

Remarks:



	Sample Number	Sample ID	Depth (ft.)	LL	PL	PI	Fines	Visual Classification
●	**T-43**		**0.0**	**81**	**23**	**58**	**96.4**	Dark Gray Clay (CH)
⊠	**T-44**		**0.0**	**77**	**23**	**54**	**95.5**	Dark Gray Clay (CH)

Remarks: All tests were performed in general accordance with ASTM Standards D4318, D421, D2217, and D1140.

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

AAI

Ardaman & Associates, Inc.

Telephone:
Fax:

ATTERBERG LIMITS' RESULTS

Project: New Westwego PS to Orleans Village

Client: USACE

AAI Project Number: 10-81-3667

ARD ATTERBERG LIMITS 10-81-3667.GPJ US LAB.GDT 5/16/11

ORGANIC CONTENT (ASTM D2974)

Ardaman & Associates, Inc.

Project: New Westwego PS to Orleans Village

File No.: 10-81-3667

Client: USACE

Date: 5/16/2011

Sample ID	Depth (feet)	Bowl No.	Tare Weight (gm)	Oven-dried Weight (w/tare)	Muffle-dried Weight (w/tare)	Muffle-dried Weight (w/o tare)	Ash Content (%)	Organic Content (%)
T-43	0 - 0	EE	51.54	91.31	89.17	37.63	94.62	5.4
T-44	0 - 0	204	63.68	104.89	102.65	38.97	94.56	5.4

Note: FOC = Organic Content divided by 174.

MOISTURE CONTENTS

Ardaman & Associates, Inc.

File No.: 10-81-3667

Date: 5/16/2011

Boring No.	Depth (ft.)	Moisture Content (%)	Classification	Can No.	Wet Wt. w/Can (grams)	Dry Wt. w/Can (grams)	Wt. of Can (grams)
T-43	0 - 0	26.81	Dark Gray Clay (CH)		407.75	354.01	153.55
T-44	0 - 0	21.37	Dark Gray Clay (CH)		429.23	374.69	119.51

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-43
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 68+45 o/s 137' (PS) Lift 1
Elev. 1.0' / N505884.7 E3660608.3
Total Sample Weight: 102.64 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 5/13/2011
Done By: CP
Calc by: DW

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
05/13		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
05/14		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	157.26	153.55	3.71	3.61	96.39	
#230						
Pan						

Total Weight: 102.64 grams

Initial Water Content

407.75 Wet Wt. (grams)
354.01 Dry Wt. (grams)
53.7 Wt. H2O (grams)

354.01 Dry Wt. (grams)
153.55 Tare Wt.
102.64 Weight Sample

26.81 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-44
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 63+22 o/s 135' (PS) Lift 1
Elev. 2.0' / N506068.4 E3660161.6
Total Sample Weight: 110.1 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 5/13/2011
Done By: CP
Calc by: DW

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
05/13		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
05/14		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	124.51	119.51	5.00	4.54	95.46	
#230						
Pan						

Total Weight: 110.1 grams

Initial Water Content

429.23 Wet Wt. (grams)
374.69 Dry Wt. (grams)
54.5 Wt. H2O (grams)

374.69 Dry Wt. (grams)
119.51 Tare Wt.
110.1 Weight Sample

21.37 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

QA TESTING REQUEST FORM

Lab: **Ardaman**

BPA# **09-A-0004**

Submit invoice to:

ATTN: S. Bennie Benson (smith.b.benson@us.army.mil)
United States Corp of Engineers - MVN District
P.O. Box 60267
New Orleans, LA 70160

Authorization to complete the following testing services as indicated below:

Call Officer: Gremillion, Glenn (John T.)

Signature: [signature]

Date: 5/9/11

BLOCK CALL #: **045G**

Project Name	New Westwego PS to Orleans Village	CD Contract #:	**W912P8-09-D-0046-0008**
USACE POC:	Jeremy George	POC Phone:	985-209-8530
Order Date:	5/9/2011	Test Date: 5/11/2011	Test Time: 13:00
QA Lab Rep:		QA Lab Phone:	225-752-4790

Is the requested services estimated to be over $2,500? (NO) | YES **(if yes follow FAR 13.303-5)**

Distribution List: Jeremy George; jeremy.m.george@usace.army.mil
or Comments: Steven Montjoy
John Thompson

# ORDERED	UNIT	DESCRIPTION	ASTM	# COMPLETE
		CONCRETE (estimated placement size cu. yds.)		
	HR	ACI TECH - PERFORM FIELD TESTS (Cyls, Slump, %Air, Temp, Unit Wt.)	C1077+	
	EACH	CONCRETE CURING AND COMPRESSIVE STRENGTH	C39	
		VIBRATION MONITORING		
	HR	VIBRATION TECH & EQUIP		
		SOILS FIELD TESTING		
10	HR	SOILS FIELD TECH - PERFORM TESTS	D3740	4.5
8	EACH	SOIL DENSITY - NUCLEAR METHOD	D6938*	8
1	EACH	SOIL DENSITY - SAND CONE METHOD	D1556	0
8	EACH	MOISTURE CONTENT TEST (OVEN/MICROWAVE)	D2216/D4643*	2
8	EACH	SOILS CLASSIFICATION	D2487*	2
8	EACH	ATTERBERG LIMITS DETERMINATION	D4318*	2
8	EACH	SOILS FINER - NO 200 SIEVE, WASH	C117/D1140*	2
8	EACH	SOILS ORGANIC CONTENT - METHOD 'C'	D2974	2
	EACH	STANDARD PROCTOR	D698*	
1	EACH	STANDARD PROCTOR - 1 POINT	D698	0
	EACH	RELATIVE DENSITY MIN / MAX	D4253/D4254*	
		SPECIAL TESTING REQUIREMENTS		
	EACH	TENSION TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
	EACH	BEND TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
		WELD INSPECTION & TESTING		
	HR	CERTIFIED WELDING INSPECTOR	AWS D1.1/D1.1M	
	EACH	LIQUID PENETRANT TESTING	ASTM E165	
	EACH	ULTRASONIC TESTING	ASTM E 164	
	EACH	RADIOGRAPHIC TESTING	ASTM E94	
1	EACH	MAGNETIC TESTING	ASTM E709	

**Note that where applicable, testing procedures should follow USACE EM 1110-2-1906 Lab Testing manual and/or in accordance with project specifications.*

Testing Services have been completed as authorized and as indicated:

Start Time: 1400 hrs Stop Time: 1830 hrs Travel Time: 3.0 Mile: 160

USACE Representative: Jeremy George

USACE Signature: Jeremy George

Date: 5-12-11

Rev: Oct 2009

MVN BPA QA Test Order Form.xls

TRANSMITTAL

AAI

Ardaman & Associates, Inc.

To: USACE-MVN District
P O Box 60267
New Orleans, LA 70160

Date: June 7, 2011
Job No.: 113-10-81-3667
Project: New Westwego PS
CD Contract # W912P8-09-0046-0008
BPA # 09-A-0004
Block Call # 049G

Attention: Glenn Gremillion

From: Eric A. Paille

COPIES	DESCRIPTION
1	Daily Field Report 05528
1	Chain of Custody
1	Atterberg Limit, Organic Content, Moisture Content, -200
1	Sand Cone Density (T-60)
1	One Point Proctor Verification (T-60)
1	Signed QA Testing Request Form

REVISED

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☐ **REVISE AS NOTED** ☐ **TO BE DISTRIBUTED**

REMARKS: Email: Jeremy George jeremy.m.george@usace.army.mil

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FAX: (225) 752-4878

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 05382
DATE OF SERVICE: 05/12/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 05/16/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3440
GAUGE SERIAL NO.: 21204
STANDARD COUNTS
MOISTURE - CURRENT: 610 PREVIOUS: 622
DENSITY - CURRENT: 2114 PREVIOUS: 2111
TEST MODE: Direct Transmission
PROBE DEPTH: 6

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(3815-388)	Dark Gray Clay (CH)	29.6	88.9	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
43.	Station 68+45 o/s -137' (PS) N.505884.7 E.3660608.3	6	1/1.0'	1	26.8	29.6	114.2	90.1	88.9	101.3
44.	Station 63+22 o/s -135' (PS) N.506068.4 E.3660161.6	6	1/2.0'	1	21.4 *	29.6	110.4	90.9	88.9	102.2

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 05/12/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)

An asterisk (*) appears next to test results which do NOT meet the project specifications as noted on page 1.

ADDITIONAL COMMENTS:

Technician: Billy Singleton, Field Tech/Geologist
Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Eric A. Paille

Eric Paille
CMT Supervisor

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AAI

Ardaman and Associates, Inc.

CHAIN OF CUSTODY RECORD

Job No.: 113-1081-3667 Date: 5-12-11

Project Name : New Westwego P.S. to Orleans Village

Project Location: Jefferson Parish

Collectors Name: Bill Singleton

Type of Sample: Clay No. of Containers: 2

SAMPLE ID	SAMPLE LOCATION	PURPOSE
T-43	68+45	AH, ORG, -200, MC
T-44	63+22	" " " "

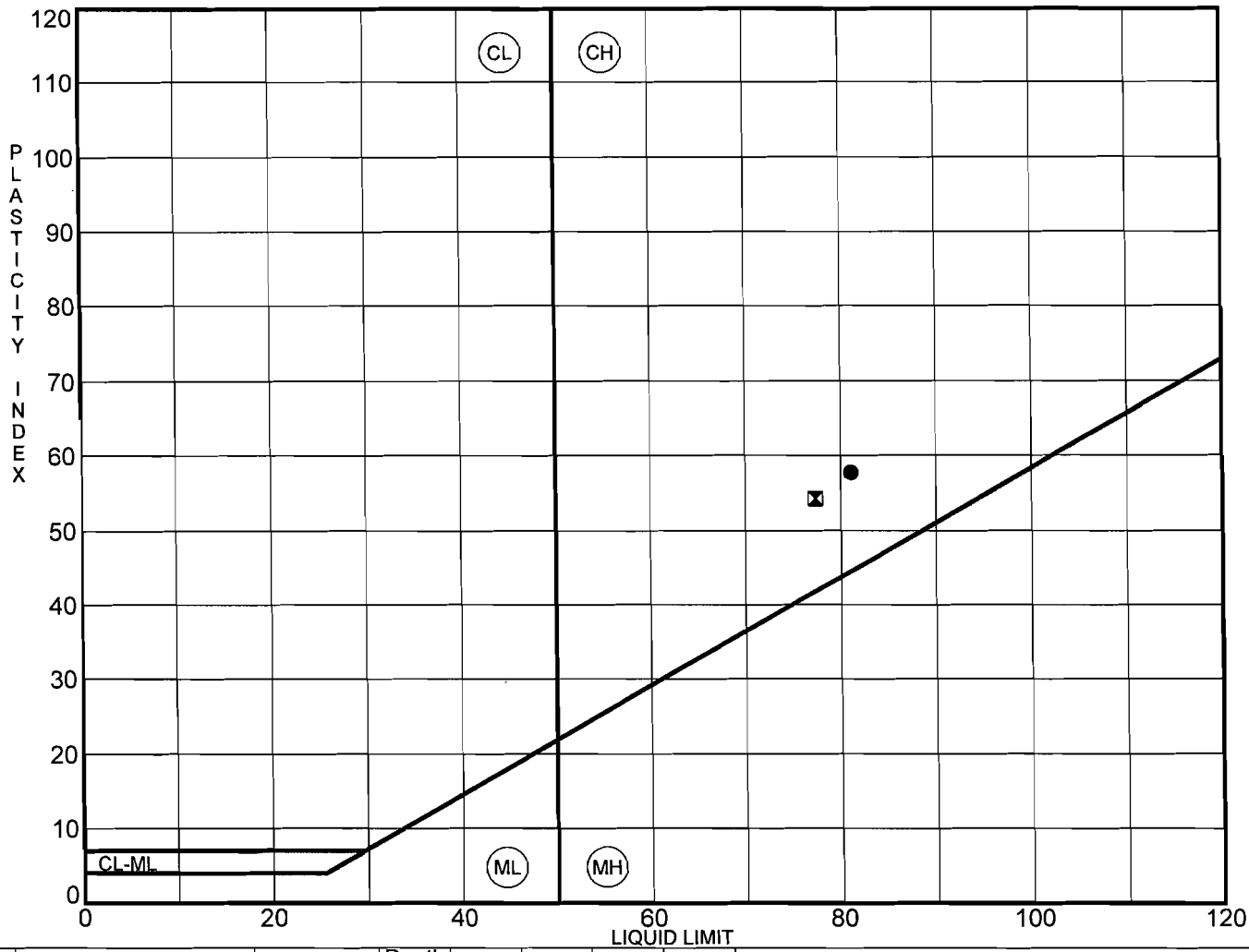
Sample Shipped by : Ardaman & Associates Date: 5-12-11

Custodian: Bill Singleton

Sample Received by: Emil G. Paulk Date: 5/13/11

Company Name: Ardaman & Associates

Remarks:



	Sample Number	Sample ID	Depth (ft.)	LL	PL	PI	Fines	Visual Classification
●	**T-43**		**0.0**	**81**	**23**	**58**	**96.4**	Dark Gray Clay (CH)
⊠	**T-44**		**0.0**	**77**	**23**	**54**	**95.5**	Dark Gray Clay (CH)

Remarks: All tests were performed in general accordance with ASTM Standards D4318, D421, D2217, and D1140.

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

AAI

Ardaman & Associates, Inc.

Telephone:
Fax:

ATTERBERG LIMITS' RESULTS

Project: New Westwego PS to Orleans Village

Client: USACE

AAI Project Number: 10-81-3667

ARD ATTERBERG LIMITS 10-81-3667.GPJ US LAB.GDT 5/16/11

ORGANIC CONTENT (ASTM D2974)

Ardaman & Associates, Inc.

Project: New Westwego PS to Orleans Village

File No.: 10-81-3667

Client: USACE

Date: 5/16/2011

Sample ID	Depth (feet)	Bowl No.	Tare Weight (gm)	Oven-dried Weight (w/tare)	Muffle-dried Weight (w/tare)	Muffle-dried Weight (w/o tare)	Ash Content (%)	Organic Content (%)
T-43	0 - 0	EE	51.54	91.31	89.17	37.63	94.62	5.4
T-44	0 - 0	204	63.68	104.89	102.65	38.97	94.56	5.4

Note: FOC = Organic Content divided by 174.

MOISTURE CONTENTS

Ardaman & Associates, Inc.

File No.: 10-81-3667

Date: 5/16/2011

Boring No.	Depth (ft.)	Moisture Content (%)	Classification	Can No.	Wet Wt. w/Can (grams)	Dry Wt. w/Can (grams)	Wt. of Can (grams)
T-43	0 - 0	26.81	Dark Gray Clay (CH)		407.75	354.01	153.55
T-44	0 - 0	21.37	Dark Gray Clay (CH)		429.23	374.69	119.51

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-43
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 68+45 o/s 137' (PS) Lift 1
Elev. 1.0' / N505884.7 E3660608.3
Total Sample Weight: 102.64 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 5/13/2011
Done By: CP
Calc by: DW

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
05/13		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
05/14		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	157.26	153.55	3.71	3.61	96.39	
#230						
Pan						

Total Weight: 102.64 grams

Initial Water Content

407.75 Wet Wt. (grams)
354.01 Dry Wt. (grams)
53.7 Wt. H2O (grams)

354.01 Dry Wt. (grams)
153.55 Tare Wt.
102.64 Weight Sample

26.81 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-44
Depth: 0-0
Material: Dark Gray Clay (CH)
Source: Sta. 63+22 o/s 135' (PS) Lift 1
Elev. 2.0' / N506068.4 E3660161.6
Total Sample Weight: 110.1 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 5/13/2011
Done By: CP
Calc by: DW

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
05/13		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
05/14		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	124.51	119.51	5.00	4.54	95.46	
#230						
Pan						

Total Weight: 110.1 grams

Initial Water Content

429.23 Wet Wt. (grams)
374.69 Dry Wt. (grams)
54.5 Wt. H2O (grams)

374.69 Dry Wt. (grams)
119.51 Tare Wt.
110.1 Weight Sample

21.37 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

QA TESTING REQUEST FORM

Lab: **Ardaman**

BPA# **09-A-0004**

Submit invoice to:

ATTN: S. Bennie Benson (smith.b.benson@us.army.mil)
United States Corp of Engineers - MVN District
P.O. Box 60267
New Orleans, LA 70160

Authorization to complete the following testing services as indicated below:

Call Officer: Gremillion, Glenn (John T.)

Signature: [signature]

Date: 5/9/11

BLOCK CALL #: **045G**

Project Name	New Westwego PS to Orleans Village	CD Contract #:	**W912P8-09-D-0046-0008**
USACE POC:	Jeremy George	POC Phone:	985-209-8530
Order Date:	5/9/2011	Test Date: 5/11/2011	Test Time: 13:00
QA Lab Rep:		QA Lab Phone:	225-752-4790

Is the requested services estimated to be over $2,500? (NO) | YES **(if yes follow FAR 13.303-5)**

Distribution List: Jeremy George; jeremy.m.george@usace.army.mil
or Comments: Steven Montjoy
John Thompson

# ORDERED	UNIT	DESCRIPTION	ASTM	# COMPLETE
		CONCRETE (estimated placement size cu. yds.)		
	HR	ACI TECH - PERFORM FIELD TESTS (Cyls, Slump, %Air, Temp, Unit Wt.)	C1077+	
	EACH	CONCRETE CURING AND COMPRESSIVE STRENGTH	C39	
		VIBRATION MONITORING		
	HR	VIBRATION TECH & EQUIP		
		SOILS FIELD TESTING		
10	HR	SOILS FIELD TECH - PERFORM TESTS	D3740	4.5
8	EACH	SOIL DENSITY - NUCLEAR METHOD	D6938*	8
1	EACH	SOIL DENSITY - SAND CONE METHOD	D1556	0
8	EACH	MOISTURE CONTENT TEST (OVEN/MICROWAVE)	D2216/D4643*	2
8	EACH	SOILS CLASSIFICATION	D2487*	2
8	EACH	ATTERBERG LIMITS DETERMINATION	D4318*	2
8	EACH	SOILS FINER - NO 200 SIEVE, WASH	C117/D1140*	2
8	EACH	SOILS ORGANIC CONTENT - METHOD 'C'	D2974	2
	EACH	STANDARD PROCTOR	D698*	
1	EACH	STANDARD PROCTOR - 1 POINT	D698	0
	EACH	RELATIVE DENSITY MIN / MAX	D4253/D4254*	
		SPECIAL TESTING REQUIREMENTS		
	EACH	TENSION TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
	EACH	BEND TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
		WELD INSPECTION & TESTING		
	HR	CERTIFIED WELDING INSPECTOR	AWS D1.1/D1.1M	
	EACH	LIQUID PENETRANT TESTING	ASTM E165	
	EACH	ULTRASONIC TESTING	ASTM E 164	
	EACH	RADIOGRAPHIC TESTING	ASTM E94	
1	EACH	MAGNETIC TESTING	ASTM E709	

**Note that where applicable, testing procedures should follow USACE EM 1110-2-1906 Lab Testing manual and/or in accordance with project specifications.*

Testing Services have been completed as authorized and as indicated:

Start Time: 1400 hrs Stop Time: 1830 hrs Travel Time: 3.0 Mile: 160

USACE Representative: Jeremy George

USACE Signature: Jeremy George

Date: 5-12-11

Rev: Oct 2009

MVN BPA QA Test Order Form.xls

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 05972
DATE OF SERVICE: 08/23/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 08/25/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D4643
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3411-B
GAUGE SERIAL NO.: 11234
STANDARD COUNTS
MOISTURE - CURRENT: 737 PREVIOUS: 744
DENSITY - CURRENT: 2131 PREVIOUS: 2147
TEST MODE: Direct Transmission
PROBE DEPTH: 6

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(Curve 07)	Brown & Gray Clay (CH)	23.5	99.5	
2.	(Curve 08)	Brown & Gray Clay (CH)	21.0	101.5	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
65.	Station 163+51 112' Right PS N.500682 4 E.36643056	6	5/5.7'	1	21.6	23.5	119.3	98.1	99.5	98.6
66.	Station 168+42 127' Right PS N.500844 8 E.3664796 3	6	5/5.5'	2	22.1	21.0	117.3	96.1	101.5	94.7

Test results on this report meet project specifications as noted above.

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 05972

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 08/23/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)

ADDITIONAL COMMENTS:

Technician: Adam Gregoire, Field Technician

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

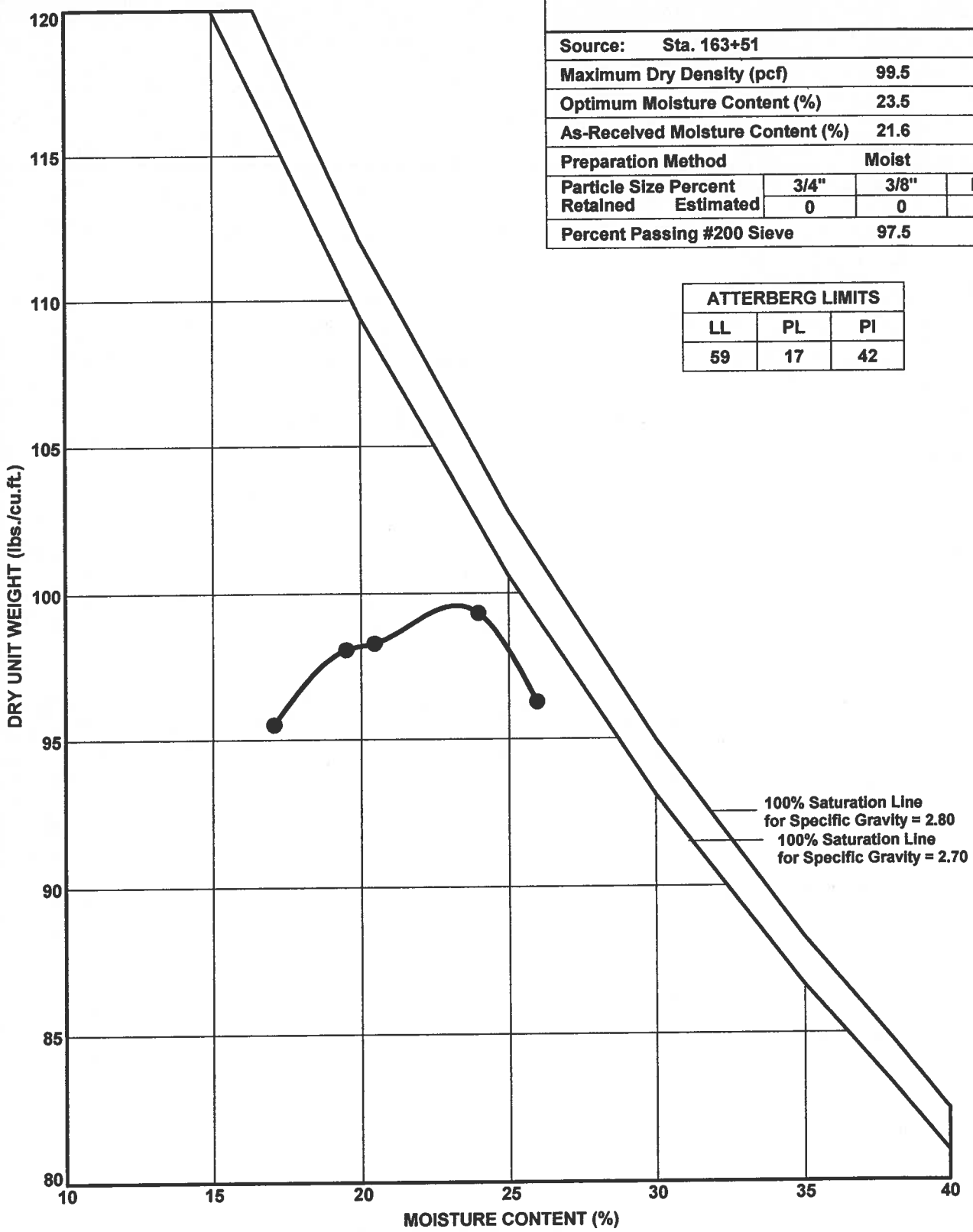
Billy Singleton
CMT Manager

1007AG

Our letters and reports are for the exclusive use of the client to whom they are addressed and shall not be reproduced except in full without the approval of the testing laboratory. The use of our name must receive our written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not indicative of the quantities of apparently identical or similar products.

Material: Brown and Gray Clay(CH)			
Source: Sta. 163+51			
Maximum Dry Density (pcf)	99.5		
Optimum Moisture Content (%)	23.5		
As-Received Moisture Content (%)	21.6		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	97.5		

ATTERBERG LIMITS		
LL	PL	PI
59	17	42



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: 07

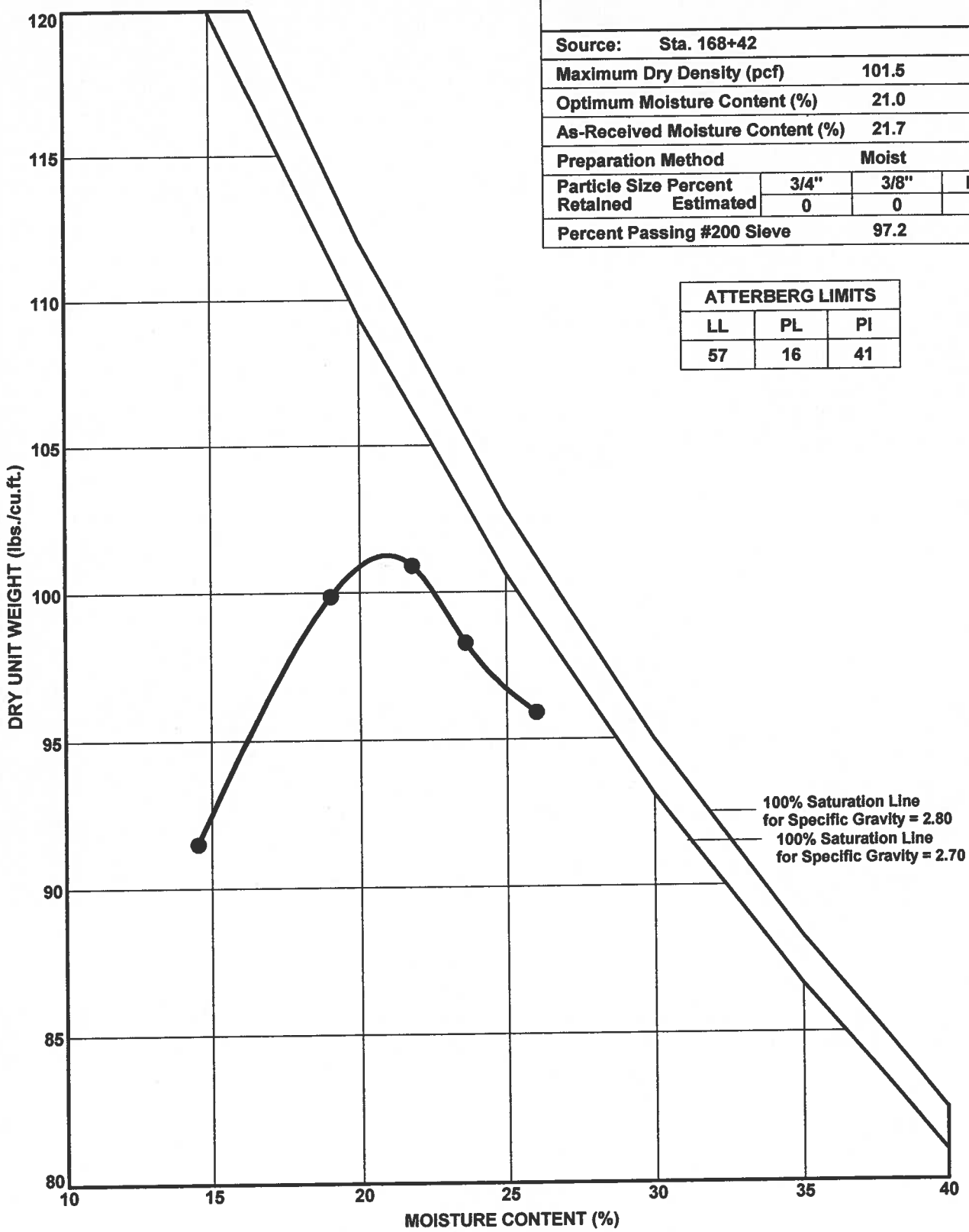
Date: 09/09/11

File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 09/13/11

Material:	Brown and Gray(CH)		
Source:	Sta. 168+42		
Maximum Dry Density (pcf)	101.5		
Optimum Moisture Content (%)	21.0		
As-Received Moisture Content (%)	21.7		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	97.2		

ATTERBERG LIMITS		
LL	PL	PI
57	16	41



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: 08

Date: 09/09/11

File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 09/13/11

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 06324
DATE OF SERVICE: 10/18/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 10/28/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3411-B
GAUGE SERIAL NO.: 25913
STANDARD COUNTS
MOISTURE - CURRENT: 562 PREVIOUS: 562
DENSITY - CURRENT: 1706 PREVIOUS: 1706
TEST MODE: Direct Transmission
PROBE DEPTH: 6

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(3094-108)	Dark Gray Clay (CH)	24.0	90.1	
2.	(3181-132)	Dark Gray Clay (CH)	28.5	90.0	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
69.	Station 22+20 Centerline N.506732 3 E.3656146 0	6	11/13.6'	1	23.7	24.0	113.9	92.1	90.1	102.2
70.	Station 32+17 Centerline N.506539 6 E.3657122 9	6	11/13.6'	1	28.1	24.0	121.1	94.5	90.1	104.9
71.	Station 37+26 Centerline N.506442 0 E.3657623 4	6	10/13.1'	1	23.4	24.0	114.0	92.4	90.1	102.6

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 06324

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 10/18/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
72.	Station 41+51 Centerline N.506361 7 E.3658042 5	6	10/13.1'	2	28.5	28.5	110.0	85.6	90.0	95.1
73.	Station 27+20 Centerline N.506633 2 E.3656641 4	6	11/13.6'	1	25.0	24.0	114.3	91.4	90.1	101.4

Test results on this report meet project specifications as noted above.

ADDITIONAL COMMENTS:

Technician: Dustin Wyble, Sr Lab Technician

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Billy Singleton
CMT Manager

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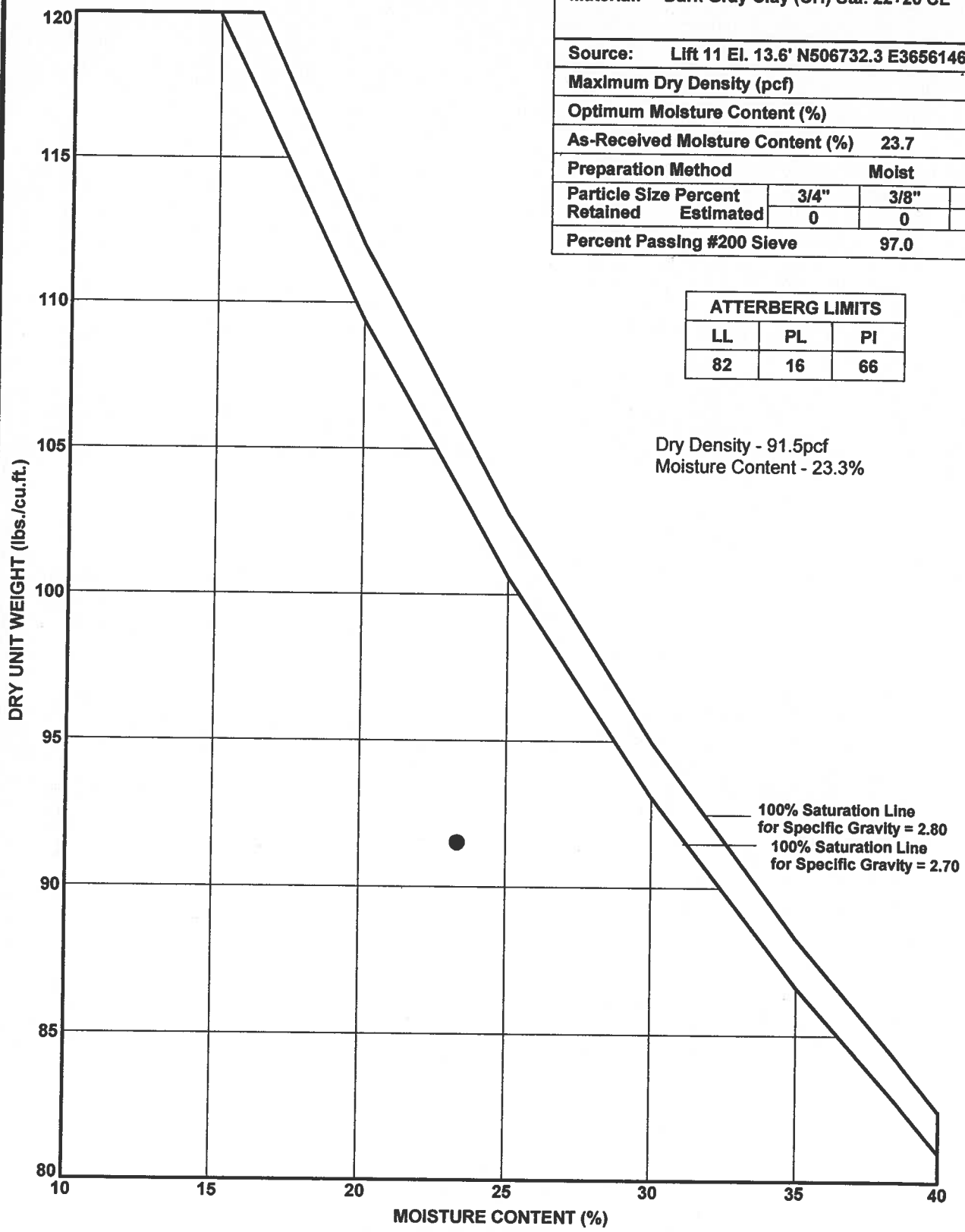
Material:	Dark Gray Clay (CH) Sta. 22+20 CL		
Source:	Lift 11 El. 13.6' N506732.3 E3656146.0		
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	23.7		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	97.0		

ATTERBERG LIMITS		
LL	PL	PI
82	16	66

Dry Density - 91.5pcf
Moisture Content - 23.3%



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: T-69
Date: 10/27/11
File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 10/28/11

TRANSMITTAL

AAI

Ardaman & Associates, Inc.

To: USACE-MVN District
P O Box 60267
New Orleans, LA 70160

Date: September 14, 2011
Job No.: 113-10-81-3667
Project: New Westwego PS
CD Contract # W912P8-09-0046-0008
BPA # 09-A-0004
Block Call # 060G

Attention: Glenn Gremillion

From: Bill Singleton

COPIES	DESCRIPTION
1	Daily Field Report 05972
1	Chain of Custody
1	Atterberg Limit, Organic Content, Moisture Content, -200
1	Curves 07 and 08
1	Signed QA Testing Request Form

THESE ARE TRANSMITTED:

■ **FOR YOUR USE** ☐ **FOR REVIEW & COMMENT** ■ **AS REQUESTED**

☐ **REVISE AS NOTED** ☐ **TO BE DISTRIBUTED**

REMARKS: Email: Jeremy George jeremy.m.george@usace.army.mil

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated Laboratory

316 HIGHLANDIA DRIVE
BATON ROUGE, LA 7 0810
PHONE: (225) 752-4790
FAX: (225) 752-4878

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 05972
DATE OF SERVICE: 08/23/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 08/25/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D4643
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3411-B
GAUGE SERIAL NO.: 11234
STANDARD COUNTS
MOISTURE - CURRENT: 737 PREVIOUS: 744
DENSITY - CURRENT: 2131 PREVIOUS: 2147
TEST MODE: Direct Transmission
PROBE DEPTH: 6

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(Curve 07)	Brown & Gray Clay (CH)	23.5	99.5	
2.	(Curve 08)	Brown & Gray Clay (CH)	21.0	101.5	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
65.	Station 163+51 112' Right PS N.500682 4 E.36643056	6	5/5.7'	1	21.6	23.5	119.3	98.1	99.5	98.6
66.	Station 168+42 127' Right PS N.500844 8 E.3664796 3	6	5/5.5'	2	22.1	21.0	117.3	96.1	101.5	94.7

Test results on this report meet project specifications as noted above.

Report of Tests continued on page 2

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Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 05972

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 08/23/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)

ADDITIONAL COMMENTS:

Technician: Adam Gregoire, Field Technician

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Billy Singleton
CMT Manager

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AAI
Ardaman and Associates, Inc.

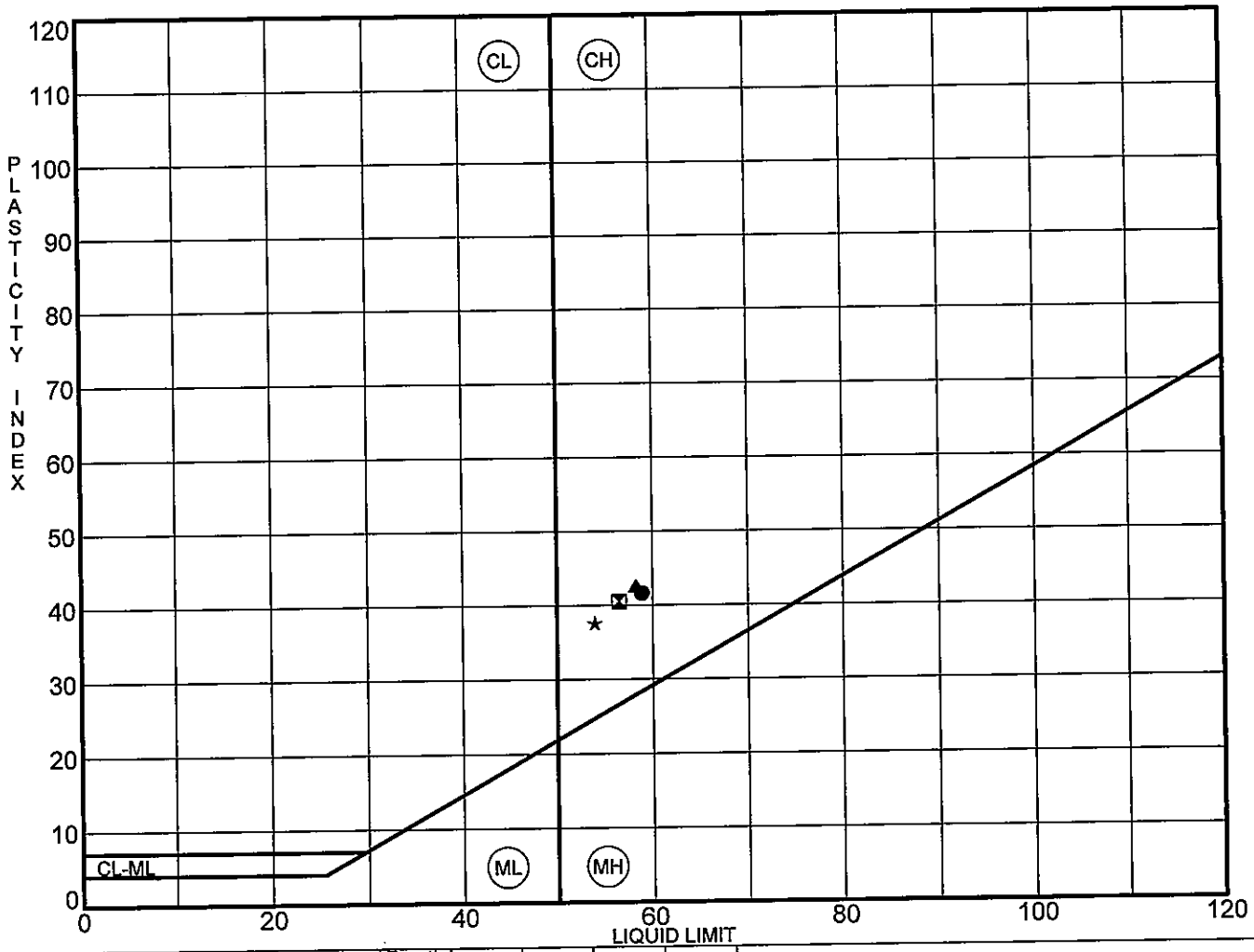
CHAIN OF CUSTODY RECORD

Job No.: 10-81-3667 Date: 8-23-11
Project Name : New Westwego
Project Location: Westwego
Collectors Name: Adam Gregoire
Type of Sample: Dr (EH) No. of Containers: 4

SAMPLE ID	SAMPLE LOCATION	PURPOSE
T-65	163+51 112' Rtps	MC, AH, org, -200
T-66	168+42 127' Rtps	↓ ↓ ↓ ↓
C-7	163+51 112' Rtps	
C-8	168+42 127' Rtps	standard Proctor

Sample Shipped by : AAI Date: 8-23-11
Custodian: Adam Gregoire
Sample Received by: Bill Singleton Date: 8-24-11
Company Name: AAI

Remarks:



	Sample Number	Sample ID	Depth (ft.)	LL	PL	PI	Fines	Visual Classification
●	07		0.0	59	17	42	97.5	Brown and Gray Clay(CH)
⊠	08		0.0	57	16	41	97.2	Brown and Gray(CH)
▲	T-65		0.0	58	16	42	97.5	Brown and Gray(CH)
★	T-66		0.0	54	16	38	97.2	Brown and Gray Clay(CH)

Remarks: All tests were performed in general accordance with ASTM Standards D4318, D421, D2217, and D1140.

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

Ardaman & Associates, Inc.

Ardaman and Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Telephone: 225-752-4790
Fax: 225-785-4878

ATTERBERG LIMITS' RESULTS

Project: New Westwego PS to Orleans Village

Client: USACE

AAI Project Number: 10-81-3667

ORGANIC CONTENT (ASTM D2974)

Ardaman & Associates, Inc.

Project: New Westwego PS to Orleans Village

Client: USACE

File No.: 10-81-3667

Date: 9/13/2011

Sample ID	Depth (feet)	Bowl No.	Tare Weight (gm)	Oven-dried Weight (w/tare)	Muffle-dried Weight (w/tare)	Muffle-dried Weight (w/o tare)	Ash Content (%)	Organic Content (%)
07	0 - 0	D	50.52	80.55	79.17	28.65	95.40	4.6
08	0 - 0	I	53.4	83.51	82.51	29.11	96.68	3.3
T-65	0 - 0	Z	53.4	73.52	72.6	19.20	95.43	4.6
T-66	0 - 0	B	61.98	82.06	81.33	19.35	96.36	3.6

Note: FOC = Organic Content divided by 174.

MOISTURE CONTENTS

Ardaman & Associates, Inc.

File No.: 10-81-3667

Date: 9/13/2011

Boring No.	Depth (ft.)	Moisture Content (%)	Classification	Can No.	Wet Wt. w/Can (grams)	Dry Wt. w/Can (grams)	Wt. of Can (grams)
T-65	0 - 0	21.63	Brown and Gray(CH)		273.02	226.24	9.92
T-66	0 - 0	22.14	Brown and Gray Clay(CH)		272.59	224.93	9.71

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: 07
Depth: 0-0
Material: Brown and Gray Clay(CH)
Source: Sta. 163+51
Total Sample Weight: 101.15 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 9/7/2011
Done By: CH
Calc by: BS

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
09/07		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
09/08		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	129.32	126.81	2.51	2.48	97.52	
#230						
Pan						

Total Weight: 101.15 grams

Initial Water Content

273.02 Wet Wt. (grams)
226.24 Dry Wt. (grams)
46.8 Wt. H2O (grams)

226.24 Dry Wt. (grams)
9.92 Tare Wt.
101.15 Weight Sample

21.63 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: 08
Depth: 0-0
Material: Brown and Gray(CH)
Source: Sta. 168+42
Total Sample Weight: 102.97 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 9/7/2011
Done By: CH
Calc by: BS

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
09/07		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
09/08		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	155.02	152.15	2.87	2.79	97.21	
#230						
Pan						

Total Weight: 102.97 grams

Initial Water Content

375.54 Wet Wt. (grams)
335.7 Dry Wt. (grams)
39.8 Wt. H2O (grams)

335.7 Dry Wt. (grams)
152.16 Tare Wt.
102.97 Weight Sample

21.71 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-65
Depth: 0-0
Material: Brown and Gray(CH)
Source: Sta. 163+51
Total Sample Weight: 102.62 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 8/25/2011
Done By: BS
Calc by: BS

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
08/25		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
08/26		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	126.15	123.58	2.57	2.50	97.50	
#230						
Pan						

Total Weight: 102.62 grams

Initial Water Content

273.02 Wet Wt. (grams)
226.24 Dry Wt. (grams)
46.8 Wt. H2O (grams)

226.24 Dry Wt. (grams)
9.92 Tare Wt.
102.62 Weight Sample

21.63 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-66
Depth: 0-0
Material: Brown and Gray Clay(CH)
Source: Sta. 168+42
Total Sample Weight: 103.06 gm (Dry)
Hydrometer Sample Weight: _ gm

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 8/25/2011
Done By: BS
Calc by: BS

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
08/25		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
08/26		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	122.11	119.19	2.92	2.83	97.17	
#230						
Pan						

Total Weight: 103.06 grams

Initial Water Content

272.59 Wet Wt. (grams)
224.93 Dry Wt. (grams)
47.7 Wt. H2O (grams)

224.93 Dry Wt. (grams)
9.71 Tare Wt.
103.06 Weight Sample

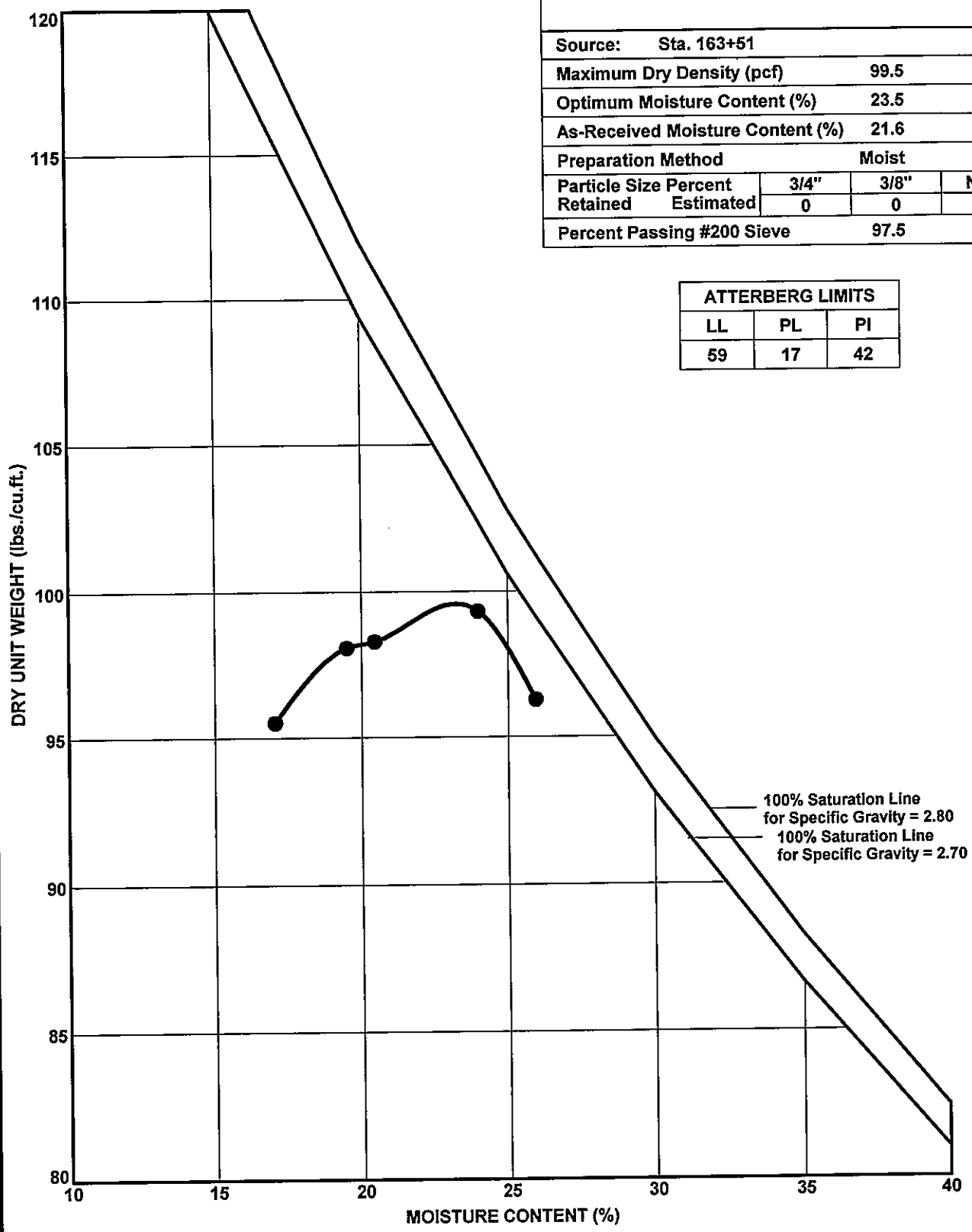
22.14 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Material: Brown and Gray Clay(CH)			
Source: Sta. 163+51			
Maximum Dry Density (pcf)	99.5		
Optimum Moisture Content (%)	23.5		
As-Received Moisture Content (%)	21.6		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	97.5		

ATTERBERG LIMITS		
LL	PL	PI
59	17	42



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans
Village
Westwego, LA.

Curve No.: 07

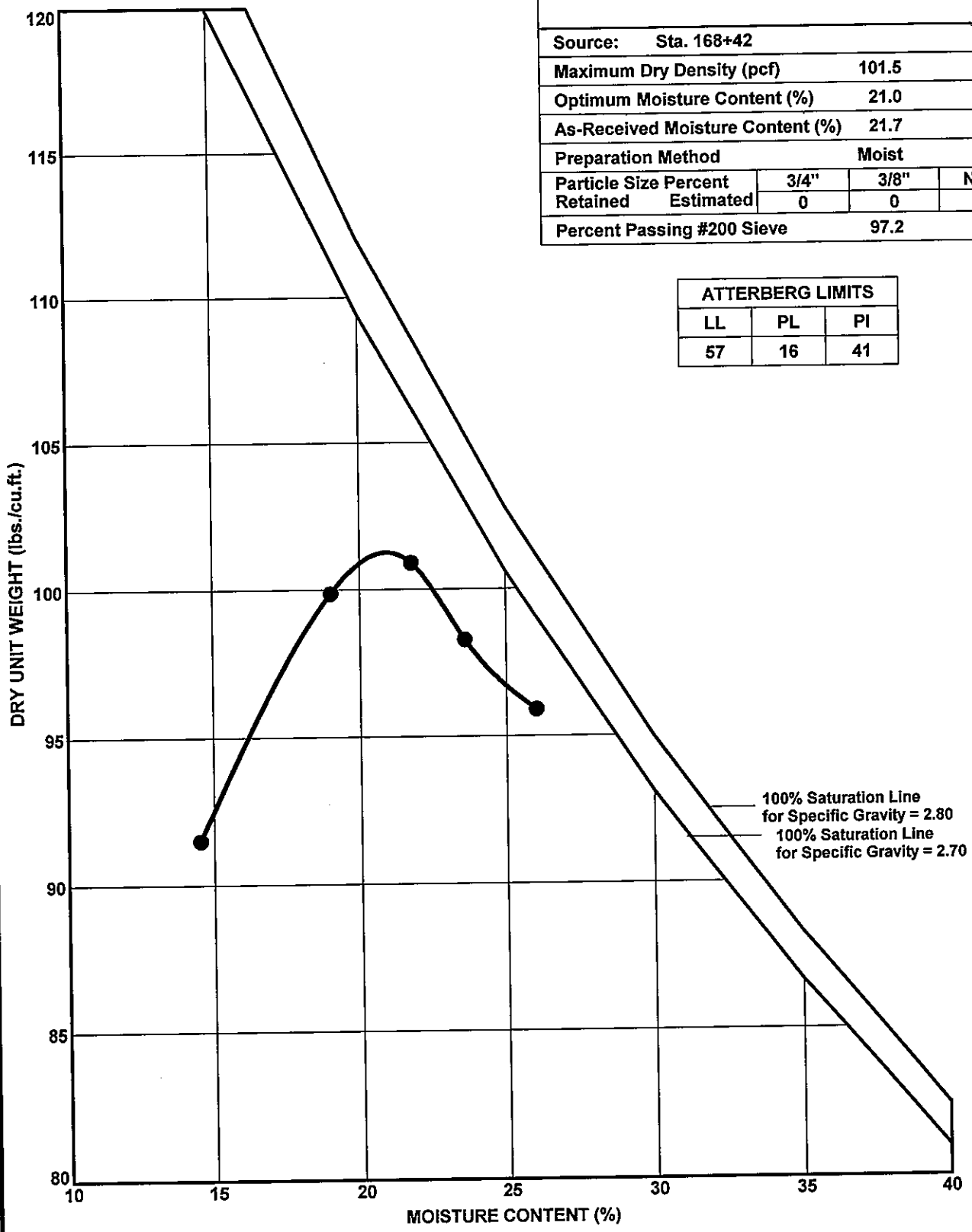
Date: 09/09/11

File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 09/13/11

Material:	Brown and Gray(CH)		
Source:	Sta. 168+42		
Maximum Dry Density (pcf)	101.5		
Optimum Moisture Content (%)	21.0		
As-Received Moisture Content (%)	21.7		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	97.2		

ATTERBERG LIMITS		
LL	PL	PI
57	16	41



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: 08
Date: 09/09/11
File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 09/13/11

Fax 225-752-4010

QA TESTING REQUEST FORM

Lab: **Ardaman**
BPA# **09-A-0004**
Submit invoice to:
ATTN: S. Bennie Benson (smith.b.benson@us.army.mil)
United States Corp of Engineers - MVN District
P.O. Box 60267
New Orleans, LA 70160

Authorization to complete the following testing services as indicated below:

Call Officer: Cremillion, Glenn
JOHN THOMPSON
Signature: TEAM LDR.
Date:
BLOCK CALL #: **060G**

Project Name: New Westwego PS to Orleans Village
CD Contract #: W912P8-09-D-0046-0008
USACE POC: Jeremy George
POC Phone: 985.209.8530
Order Date: 8/18/2011
Test Date: 8/23/11 ~~TBD~~
Test Time: 10:00 AM ~~TBD~~
QA Lab Rep:
QA Lab Phone: 225-752-4790
Is the requested services estimated to be over $2,500? NO | **(if yes follow FAR 13.303-5)**

Distribution List: Jeremy George; jeremy.m.george@usace.army.mil
or Comments: Steven Montjoy
John Thompson

# ORDERED	UNIT	DESCRIPTION	ASTM	# COMPLETE
		CONCRETE (estimated placement size cu. yds.)		
	HR	ACI TECH - PERFORM FIELD TESTS (Cyls, Slump, %Air, Temp, Unit Wt.)	C1077+	
	EACH	CONCRETE CURING AND COMPRESSIVE STRENGTH	C39	
		VIBRATION MONITORING		
	HR	VIBRATION TECH & EQUIP		
		SOILS FIELD TESTING		
8	HR	SOILS FIELD TECH - PERFORM TESTS	D3740	~~4 hrs~~ 4.5 hrs
4	EACH	SOIL DENSITY - NUCLEAR METHOD	D6938*	2
	EACH	SOIL DENSITY - SAND CONE METHOD	D1556	
6	EACH	MOISTURE CONTENT TEST (OVEN/MICROWAVE)	D2216/D4643*	~~2~~ 4
6	EACH	SOILS CLASSIFICATION	D2487*	~~2~~
6	EACH	ATTERBERG LIMITS DETERMINATION	D4318*	~~2~~
6	EACH	SOILS FINER - NO 200 SIEVE, WASH	C117/D1140*	2
6	EACH	SOILS ORGANIC CONTENT - METHOD 'C'	D2974	2
2	EACH	STANDARD PROCTOR	D698*	2
	EACH	STANDARD PROCTOR - 1 POINT	D698	
	EACH	RELATIVE DENSITY MIN / MAX	D4253/D4254*	
		SPECIAL TESTING REQUIREMENTS		
	EACH	TENSION TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
	EACH	BEND TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
		WELD INSPECTION & TESTING		
	HR	CERTIFIED WELDING INSPECTOR	AWS D1.1/D1.1M	
	EACH	LIQUID PENETRANT TESTING	ASTM E165	
	EACH	ULTRASONIC TESTING	ASTM E 164	
	EACH	RADIOGRAPHIC TESTING	ASTM E94	
	EACH	MAGNETIC TESTING	ASTM E709	

*Note that where applicable, testing procedures should follow USACE EM 1110-2-1906 Lab Testing manual and/or in accordance with project specifications.

Testing Services have been completed as authorized and as indicated:

Start Time: 8:00 am Stop Time: 12:30 pm Travel Time: 3 hrs. Mile: 160
USACE Representative: Jeremy George
USACE Signature: Jeremy George
Date: 8-23-11
Remarks:

TRANSMITTAL

AAI

Ardaman & Associates, Inc.

To: **USACE-MVN District**
P O Box 60267
New Orleans, LA 70160

Date: October 28, 2011
Job No.: 113-10-81-3667
Project: New Westwego PS
CD Contract # W912P8-09-0046-0008
BPA # 09-A-0004
Block Call # 065G

Attention: **Glenn Gremillion**

From: Bill Singleton BS

COPIES	DESCRIPTION
1	Daily Field Report 06324
1	Chain of Custody
1	Atterberg Limit, Organic Content, Moisture Content, -200
1	Sand Cone Density T-69
1	Signed QA Testing Request Form

THESE ARE TRANSMITTED:

■ **FOR YOUR USE** ☐ **FOR REVIEW & COMMENT** ■ **AS REQUESTED**

☐ **REVISE AS NOTED** ☐ **TO BE DISTRIBUTED**

REMARKS: Email: Jeremy George jeremy.m.george@usace.army.mil

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated Laboratory

316 HIGHLANDIA DRIVE
BATON ROUGE, LA 7 0810
PHONE: (225) 752-4790
FAX: (225) 752-4878

Ardaman & Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Phone (225) 752-4790
Fax (225) 752-4878

REPORT OF IN-PLACE DENSITY

CLIENT: USACE
PO BOX 60267
NEW ORLEANS LA 70160

PROJECT NO.: 113-10-81-3667
REPORT NO.: 06324
DATE OF SERVICE: 10/18/2011
AUTHORIZATION: Glenn Gremillion
REPORT DATE: 10/28/2011

PROJECT: NEW WESTWEGO PS TO ORLEANS VIL

SERVICES: Perform in-place density and moisture content tests to determine the degree of field compaction.

PROJECT DATA

CONTRACTOR: Phylway

	DENSITY	MOISTURE
METHOD OF TEST:	ASTM D6938	ASTM D2216
SPECIFICATION:	90%	-3/+5

GAUGE: Troxler 3411-B
GAUGE SERIAL NO.: 25913
STANDARD COUNTS
MOISTURE - CURRENT: 562 PREVIOUS: 562
DENSITY - CURRENT: 1706 PREVIOUS: 1706
TEST MODE: Direct Transmission
PROBE DEPTH: 6

M/D #	TEST OF	MATERIALS	MOISTURE/DENSITY RELATIONS OPTIMUM MOISTURE %	MAXIMUM DENSITY pcf	REFERENCE REPORT
1.	(3094-108)	Dark Gray Clay (CH)	24.0	90.1	
2.	(3181-132)	Dark Gray Clay (CH)	28.5	90.0	

REPORT OF TESTS

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
69.	Station 22+20 Centerline N.506732 3 E.3656146 0	6	11/13.6'	1	23.7	24.0	113.9	92.1	90.1	102.2
70.	Station 32+17 Centerline N.506539 6 E.3657122 9	6	11/13.6'	1	28.1	24.0	121.1	94.5	90.1	104.9
71.	Station 37+26 Centerline N.506442 0 E.3657623 4	6	10/13.1'	1	23.4	24.0	114.0	92.4	90.1	102.6

Report of Tests continued on page 2

Our letters and reports are for the exclusive use of the client to whom they are addressed and shall not be reproduced except in full without the approval of the testing laboratory. The use of our name must receive our written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not indicative of the quantities of apparently identical or similar products.

Ardaman & Associates, Inc.

REPORT OF TESTS (continued)

REPORT NO.: 06324

PROJECT NO.: 113-10-81-3667 USACE

DATE OF SERVICE: 10/18/2011

TEST NO	LOCATION	PROBE DEPTH	LIFT/ ELEV	M/D NO	FIELD MOISTURE (%)	OPTIMUM MOISTURE (%)	FIELD DENSITY (pcf) WET	FIELD DENSITY (pcf) DRY	MAXIMUM DENSITY (pcf)	DENSITY (% max)
72.	Station 41+51 Centerline N.506361 7 E.3658042 5	6	10/13.1'	2	28.5	28.5	110.0	85.6	90.0	95.1
73.	Station 27+20 Centerline N.506633 2 E.3656641 4	6	11/13.6'	1	25.0	24.0	114.3	91.4	90.1	101.4

Test results on this report meet project specifications as noted above.

ADDITIONAL COMMENTS:

Technician: Dustin Wyble, Sr Lab Technician

Report Distribution:

ARDAMAN & ASSOCIATES, INC.

Billy Singleton
CMT Manager

Our letters and reports are for the exclusive use of the client to whom they are addressed and shall not be reproduced except in full without the approval of the testing laboratory. The use of our name must receive our written approval. Our letters and reports apply only to the sample tested and/or inspected, and are not indicative of the quantities of apparently identical or similar products.

AAI
Ardaman and Associates, Inc.

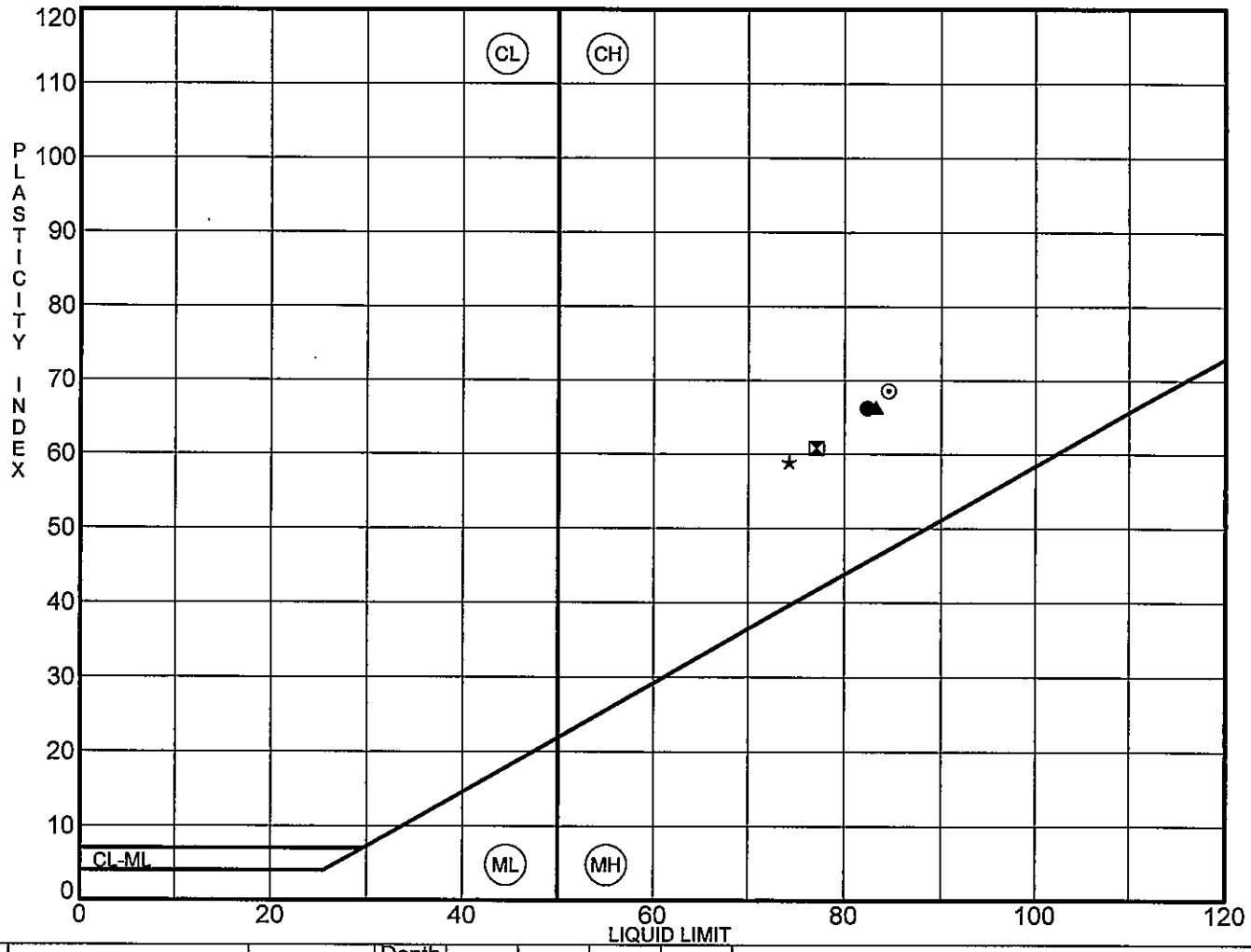
CHAIN OF CUSTODY RECORD

Job No.: 10-81-3667 Date: 10/18/11
Project Name : New Westwego PS
Project Location: Westwego, LA
Collectors Name: D. Wyble
Type of Sample: Soil No. of Containers: 6 bags

SAMPLE ID	SAMPLE LOCATION	PURPOSE
T-69	Sta. 22+20 Lift 11	Att, org, -200, m/c + lpt./s.c.
T-70	Sta. 32+17 Lift 11	↓
T-71	Sta. 37+26 Lift 10	
T-72	Sta. 41+51 Lift 10	
T-73	Sta. 27+20 Lift 11	

Sample Shipped by : AAI Date: 10/18/11
Custodian: D. Wyble
Sample Received by: Bill Singleton Date: 10/19/11
Company Name: Ardaman & Associates

Remarks:



	Sample Number	Sample ID	Depth (ft.)	LL	PL	PI	Fines	Visual Classification
●	T-69		0.0	82	16	66	97.0	Dark Gray Clay (CH) Sta. 22+20 CL
⊠	T-70		0.0	77	16	61	97.6	Dark Gray Clay (CH) Sta. 32+17 CL
▲	T-71		0.0	83	17	66	97.2	Dark Gray Clay (CH) Sta. 37 +26 CL
★	T-72		0.0	74	15	59	97.2	Dark Gray Clay (CH) Sta. 41+51 CL
⊙	T-73		0.0	85	16	69	97.2	Dark Gray Clay (CH) Sta. 27+20 CL

Remarks: All tests were performed in general accordance with ASTM Standards D4318, D421, D2217, and D1140.

AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

Ardaman & Associates, Inc.

Ardaman and Associates, Inc.
316 Highlandia Drive
Baton Rouge, LA 70810
Telephone: 225-752-4790
Fax: 225-785-4878

ATTERBERG LIMITS' RESULTS

Project: New Westwego PS to Orleans Village

Client: USACE

AAI Project Number: 10-81-3667

ORGANIC CONTENT (ASTM D2974)

Ardaman & Associates, Inc.

Project: New Westwego PS to Orleans Village

File No.: 10-81-3667

Client: USACE

Date: 10/28/2011

Sample ID	Depth (feet)	Bowl No.	Tare Weight (gm)	Oven-dried Weight (w/tare)	Muffle-dried Weight (w/tare)	Muffle-dried Weight (w/o tare)	Ash Content (%)	Organic Content (%)
T-69	0 - 0	PP	64.3	99.06	97.62	33.32	95.86	4.1
T-70	0 - 0	206	66.04	94.25	93.07	27.03	95.82	4.2
T-71	0 - 0	B	61.98	92.09	90.97	28.99	96.28	3.7
T-72	0 - 0	G	64.25	94.46	93.23	28.98	95.93	4.1
T-73	0 - 0	TT	56.36	85.21	83.89	27.53	95.42	4.6

Note: FOC = Organic Content divided by 174.

MOISTURE CONTENTS

Ardaman & Associates, Inc.

File No.: 10-81-3667

Date: 10/28/2011

Boring No.	Depth (ft.)	Moisture Content (%)	Classification	Can No.	Wet Wt. w/Can (grams)	Dry Wt. w/Can (grams)	Wt. of Can (grams)
T-69	0 - 0	23.65	Dark Gray Clay (CH) Sta. 22+20 CL		307.91	278.12	152.16
T-70	0 - 0	28.09	Dark Gray Clay (CH) Sta. 32+17 CL		280.27	244.76	118.34
T-71	0 - 0	23.44	Dark Gray Clay (CH) Sta. 37 +26 CL		305.41	270.26	120.33
T-72	0 - 0	28.54	Dark Gray Clay (CH) Sta. 41+51 CL		305.54	264.48	120.63
T-73	0 - 0	25.03	Dark Gray Clay (CH) Sta. 27+20 CL		311.26	279.72	153.69

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-69
Depth: 0-0
Material: Dark Gray Clay (CH) Sta. 22+20 CL
Source: Lift 11 El. 13.6' N506732.3 E3656146.0
Total Sample Weight: 67.58 gm (Dry)

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 10/26/2011
Done By: DW
Calc by: BS

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
10/26		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
10/27		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	154.22	152.16	2.06	3.05	96.95	
#230						
Pan						

Total Weight: 67.58 grams

Initial Water Content

307.91 Wet Wt. (grams)
278.12 Dry Wt. (grams)
29.8 Wt. H2O (grams)

278.12 Dry Wt. (grams)
152.16 Tare Wt.
67.58 Weight Sample

23.65 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-70
Depth: 0-0
Material: Dark Gray Clay (CH) Sta. 32+17 CL
Source: Lift 11 El. 13.6' N506539.6 E3657122.9
Total Sample Weight: 57.98 gm (Dry)

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 10/26/2011
Done By: DW
Calc by: BS

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
10/26		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
10/27		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	119.76	118.34	1.42	2.45	97.55	
#230						
Pan						

Total Weight: 57.98 grams

Initial Water Content

280.27 Wet Wt. (grams)
244.76 Dry Wt. (grams)
35.5 Wt. H2O (grams)

244.76 Dry Wt. (grams)
118.34 Tare Wt.
57.98 Weight Sample

28.09 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-71
Depth: 0-0
Material: Dark Gray Clay (CH) Sta. 37 +26 CL
Source: Lift 10 El. 13.1' N500442.0 E3657623.4
Total Sample Weight: 63.6 gm (Dry)

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 10/26/2011
Done By: DW
Calc by: BS

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
10/26		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
10/27		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	122.08	120.33	1.75	2.75	97.25	
#230						
Pan						

Total Weight: 63.6 grams

Initial Water Content

305.41 Wet Wt. (grams)
270.26 Dry Wt. (grams)
35.2 Wt. H2O (grams)

270.26 Dry Wt. (grams)
120.33 Tare Wt.
63.6 Weight Sample

23.44 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-72
Depth: 0-0
Material: Dark Gray Clay (CH) Sta. 41+51 CL
Source: Lift 10 El.13.1' N506361.7 E3658042.5
Total Sample Weight: 73.13 gm (Dry)

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 10/26/2011
Done By: DW
Calc by: BS

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
10/26		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
10/27		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	122.66	120.63	2.03	2.78	97.22	
#230						
Pan						

Total Weight: 73.13 grams

Initial Water Content

305.54 Wet Wt. (grams)
264.48 Dry Wt. (grams)
41.1 Wt. H2O (grams)

264.48 Dry Wt. (grams)
120.63 Tare Wt.
73.13 Weight Sample

28.54 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

Project Title: New Westwego PS to Orleans Village
Project Number: 10-81-3667
Boring: T-73
Depth: 0-0
Material: Dark Gray Clay (CH) Sta. 27+20 CL
Source: Lift 11 El. 13.6' N506632.0 E3656641.4
Total Sample Weight: 51.19 gm (Dry)

GRAIN SIZE ANALYSIS

Ardaman & Associates, Inc.

Date: 10/26/2011
Done By: DW
Calc by: BS

Hydro No: __
Assumed Specific Gravity: _

Hydrometer

Hydrometer Sample Weight: _ gm

Date	True Time	Elapsed Time	Temp (°F)	Reading	Grain Size (mm)	Raw % Finer
10/26		start				
		.5 min				
		1 min				
		2 min				
		4 min				
		8 min				
		15 min				
		30 min				
		1 hr.				
		2 hr				
		4 hr				
		8 hr				
10/27		24 hr				

Sieves (Cumulative weights and percentages)

Sieve	Total Weight (gm)	Tare Weight (gm)	Soil Weight (gm)	Raw % Ret.	Raw % Finer	Hydro taken (X)
Gravel						
3						
2						
1 1/2						
1						
3/4						
1/2						
3/8						
1/4						
#4						
Sand						
#8						
#10						
#16						
#20						
#30						
#40						
#50						
#60						
#80						
#100						
#140						
#200	155.12	153.69	1.43	2.79	97.21	
#230						
Pan						

Total Weight: 51.19 grams

Initial Water Content

311.26 Wet Wt. (grams)
279.72 Dry Wt. (grams)
31.5 Wt. H2O (grams)

279.72 Dry Wt. (grams)
153.69 Tare Wt.
51.19 Weight Sample

25.03 H2O Content (%)

Oversize Correction
Corr. % Finer = Raw % Finer x F
F = Ret. on last Sieve

Last Sieve = mm
F = %

SAND CONE DENSITY

ASTM D1556
Method A

Job No. 113-10-81-3667 Test No. T-69 Date: 10/18/2011

Technician: Dustin Wyble Lift No. 11 Location Station 22+20 Centerline

(1) Unit weight of sand	94.2	lbs/ft^3	Date Calibrated	10/5/2011	
(2)Weight of sand in cone	3.82	lbs	Date Calibrated	10/5/2011	
(3) Original weight of sand and Jar	13.01	lbs	Note: See attached work sheets for unit weight of sand and weight of sand in cone.		
(4) Final weight of sand and Jar	4.44	lbs			
(5) Weight of sand in cone and hole	8.57	lbs (3)-(4)	(8) Wet weight of soil	5.90	lbs
(6) Weight of sand in hole	4.75	lbs (5)-(2)	(9) Wet density of soil	117.0	lbs/ft^3 (8) / (7)
(7) Volume of hole	0.0504	ft^3 (6) / (1)			

MOISTURE CONTENT

OVEN DRY ASTM D2216			MICROWAVE ASTM D4643			
Tare no.			Tare No.			
(10) Wet weight of soil & tare	307.91g		(16) Wet weight of soil & tare		g	Trial dry weights
(11) Dry weight of soil & tare	278.12g		(17) Dry weight of soil & tare (Final)		g	#1-
(12) Weight of water	29.79g	(10) - (11)	(18) Weight of water	(16) - (17)	g	#2-
(13)Tare weight	152.16g		(19)Tare weight		g	#3-
(14) Dry weight of soil	125.96g	(11) - (13)	(20) Dry weight of soil	(17) - (19)	g	#4-
(15) Moisture %	23.7	(12) / (14)x100	(21) Moisture %		(18) / (20) *100	

(22) Wet density of soil	117.0	lbs/ft^3 (9)	(25) Maximum Dry density	87.5	Proctor No. 1-Jan
(23) Dry density of soil	94.6	lbs/ft^3 (22)/1+(24)x100	Optimum Moisture	27.6	
(24)Moisture %	23.7	Moisture content used in dry density calculation circle one			Oven / Microwave
% Compaction	7.1	(23)/(25)			X

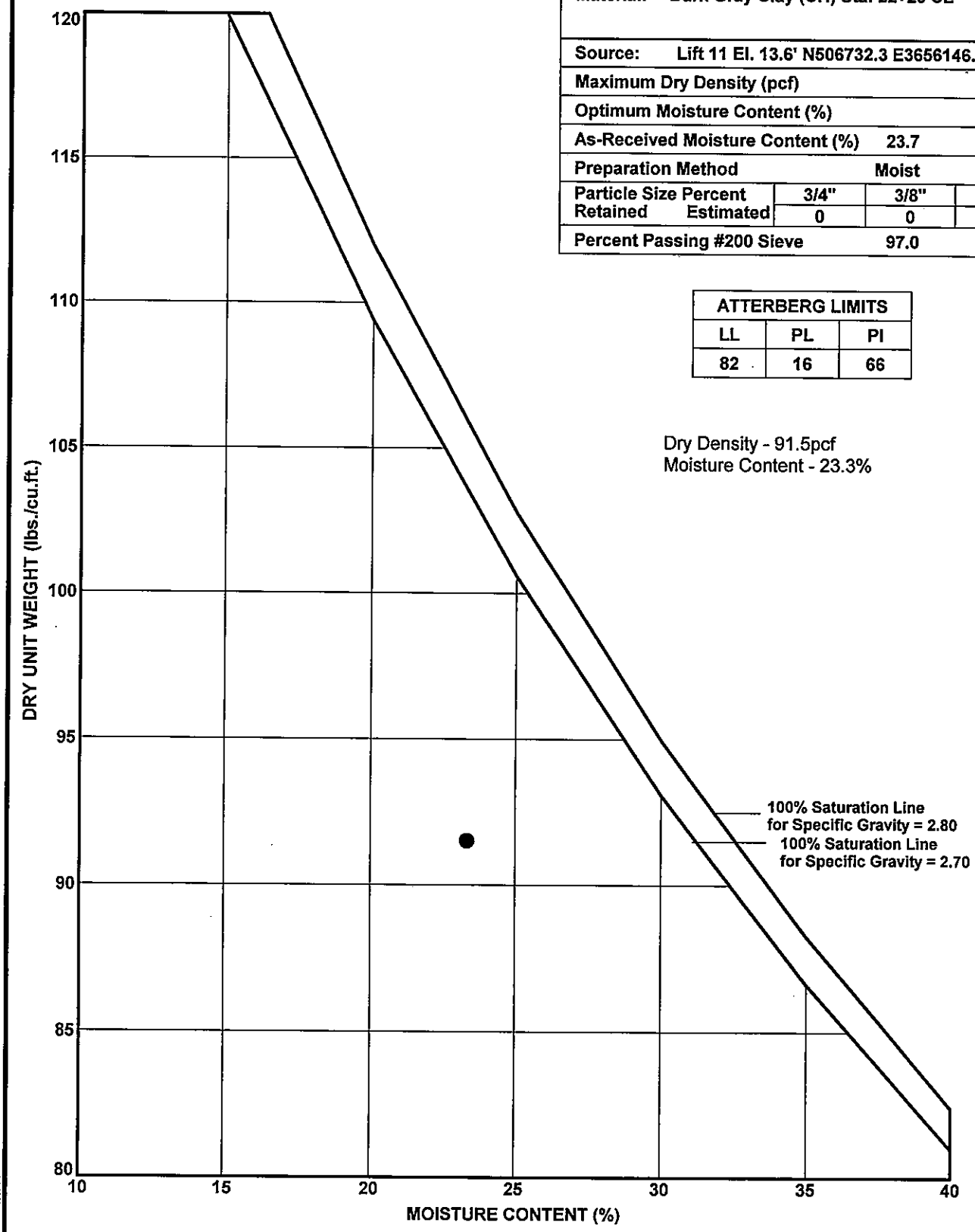
REMARKS: Nuclear WD 113.9

Sand Cone WD 117.0

3.1 2.60% difference

Material: Dark Gray Clay (CH) Sta. 22+20 CL			
Source: Lift 11 El. 13.6' N506732.3 E3656146.0			
Maximum Dry Density (pcf)			
Optimum Moisture Content (%)			
As-Received Moisture Content (%)	23.7		
Preparation Method	Moist		
Particle Size Percent Retained Estimated	3/4"	3/8"	No. 4
	0	0	0
Percent Passing #200 Sieve	97.0		

ATTERBERG LIMITS		
LL	PL	PI
82	16	66



COMPACTION TEST

Standard Proctor ASTM D 698 Method A

Ardaman & Associates, Inc.

Baton Rouge Geotechnical Laboratory
AASHTO Accredited Laboratory
LELAP Certificate No. 02052
USACE Validated

USACE
New Westwego PS to Orleans Village
Westwego, LA.

Curve No.: T-69
Date: 10/27/11
File No.: 10-81-3667

ARD CP120 10-81-3667.GPJ LOG01.GDT 10/28/11

225-752-4818

QA TESTING REQUEST FORM

Lab: Ardaman
BPA# 09-A-0004
Submit invoice to:
ATTN: S. Bennie Benson (smith.b.benson@us.army.mil)
United States Corp of Engineers - MVN District
P.O. Box 60267
New Orleans, LA 70160

Authorization to complete the following testing services as indicated below:
Call Officer: Gremillion, Glenn
Signature: [signature]
Date: 10/15/11
BLOCK CALL #: 065G

Project Name: New Westego PS to Orleans Village Levee
CD Contract #: W912P8-09-D-0046-0008
USACE POC: Jeremy George
POC Phone: 985.209.8530
Order Date: 10/13/2011
Test Date: 10/18 ~~10/17~~/2011
Test Time: 10:00
QA Lab Rep:
QA Lab Phone: 225-752-4790
Is the requested services estimated to be over $2,500? (NO) | YES **(if yes follow FAR 13.303-5)**
Distribution List: Jeremy George; jeremy.m.george@usace.army.mil
or Comments: Steven Montjoy
John Thompson

# ORDERED	UNIT	DESCRIPTION	ASTM	# COMPLETE
		CONCRETE (estimated placement size cu. yds.)		
	HR	ACI TECH - PERFORM FIELD TESTS (Cyls, Slump, %Air, Temp, Unit Wt.)	C1077+	
	EACH	CONCRETE CURING AND COMPRESSIVE STRENGTH	C39	
		VIBRATION MONITORING		
	HR	VIBRATION TECH & EQUIP		
		SOILS FIELD TESTING		
10	HR	SOILS FIELD TECH - PERFORM TESTS	D3740	8.D
5	EACH	SOIL DENSITY - NUCLEAR METHOD	D6938*	5
1	EACH	SOIL DENSITY - SAND CONE METHOD	D1556	1
5	EACH	MOISTURE CONTENT TEST (OVEN/MICROWAVE)	D2216/D4643*	5
5	EACH	SOILS CLASSIFICATION	D2487*	5
5	EACH	ATTERBERG LIMITS DETERMINATION	D4318*	5
5	EACH	SOILS FINER - NO 200 SIEVE, WASH	C117/D1140*	5
5	EACH	SOILS ORGANIC CONTENT - METHOD 'C'	D2974	5
	EACH	STANDARD PROCTOR	D698*	
1	EACH	STANDARD PROCTOR - 1 POINT	D698	1
	EACH	RELATIVE DENSITY MIN / MAX	D4253/D4254*	
		SPECIAL TESTING REQUIREMENTS		
	EACH	TENSION TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
	EACH	BEND TEST OF METALLIC MATERIALS (REINFORCING BARS)	A370, A615	
		WELD INSPECTION & TESTING		
	HR	CERTIFIED WELDING INSPECTOR	AWS D1.1/D1.1M	
	EACH	LIQUID PENETRANT TESTING	ASTM E165	
	EACH	ULTRASONIC TESTING	ASTM E 164	
	EACH	RADIOGRAPHIC TESTING	ASTM E94	
	EACH	MAGNETIC TESTING	ASTM E709	

**Note that where applicable, testing procedures should follow USACE EM 1110-2-1906 Lab Testing manual and/or in accordance with project specifications.*

Testing Services have been completed as authorized and as indicated:

Start Time: 8:30 Stop Time: 14:30 Travel Time: 3.0 Mile: 165
USACE Representative: Jeremy George
USACE Signature: Jeremy George
Date: 10/18/11
Remarks: