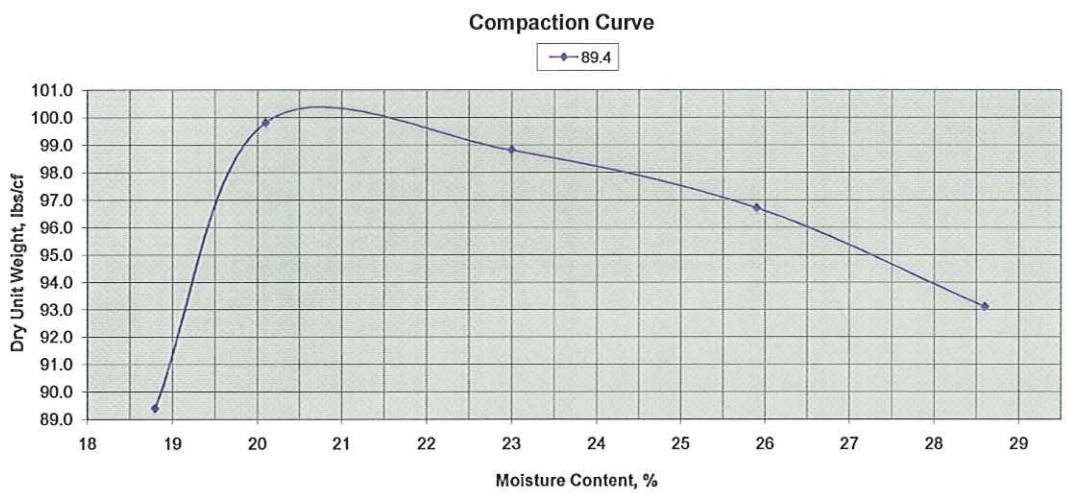
TOLUNAY-WONG ENGINEERS, INC.

Compaction - Moisture Density Relationship - ASTM D 698

Laboratory	Tolunay-Wong Engineers, Inc.		Test ID	2653-008	
USACE Contract Number	W912P8-09-D-0046 0008		Contractor	Phylway, Inc.	
Project	WBV-14c.2 Phase 2, First Lift		Date	8/2/2010	
Source of Material	WILLOW BEND PIT	Feature	EMBANKMENT	Visual Description (ASTM D 2488)	BR CLAY
Station	FLOOD SIDE 177+00	Offset		Lift Number	1
X-Coordinate		Y-Coordinate		Elevation (ft)	
Test Method		Preparation Method	WET	As-Received Moisture Content	
Hand / Mechanical Rammer	HAND	Specific Gravity		Specific Gravity Method: As Tested or Estimated	ESTIMATED
Percent Retained - No. 4 Sieve		Percent Retained - 3/8" Sieve			
Percent Retained - 3/4" Sieve		Oversize Fraction		ASTM D 3718 Correction - Yes/No	NO
Tested By	B. LANDERS	Checked By	G. LECOQ	Submitted By	G. LECOQ
Test Sequence Number	1	2	3	4	5
a. Mold Number					
b. Mass of Mold (g)	2017.2	2017.2	2017.2	2017.2	2017.2
c. Volume of Mold (cf)	0.0333	0.0333	0.0333	0.0333	0.0333
d. Mass of Wet Soil+Mold (g)	3614.2	3820.7	3844.5	3848.9	3819.0
e. Mass of Wet Soil (g)	1597.0	1803.5	1827.3	1831.7	1801.8
f. Wet Unit Weight (lbs/cf)	105.7	119.4	121.0	121.0	119.3
g. Container No.	DT47	DT01	DT20	DT40	DT42
h. Mass of Tare (g)	177.80	171.80	212.60	176.20	178.10
i. Mass of Wet Soil+Tare (g)	401.20	463.50	425.60	398.80	382.80
j. Mass of Dry Soil+Tare (g)	366.67	415.60	386.50	353.67	337.86
k. Mass of Water (g)	34.53	47.90	39.10	45.13	44.94
l. Mass of Dry Soil (g)	188.87	243.80	173.90	177.47	159.76
m. Moisture Content %	18.3	19.6	22.5	25.4	28.1
n. Dry Unit Weight (lbs/cf)	89.4	99.8	98.8	96.7	93.1



Test Results	
Compaction Curve Control No.	2653-008 CURVE 1
Optimum Moisture Content (%)	23.1
Max. Dry Unit Weight (lbs/cf)	99.7
Classification of Sample	FAT CLAY
Liquid And Plastic Limits	
Liquid Limit	59
Plastic Limit	24
Plasticity Index	35
Symbol From Plastic Chart:	CH
% Passing 200	96.3
% Passing No. 4	100

Dry Unit Weight Scale

Min 85 Max 95

Moisture Content % Scale

Min 15 Max 22

Change Graph Scale

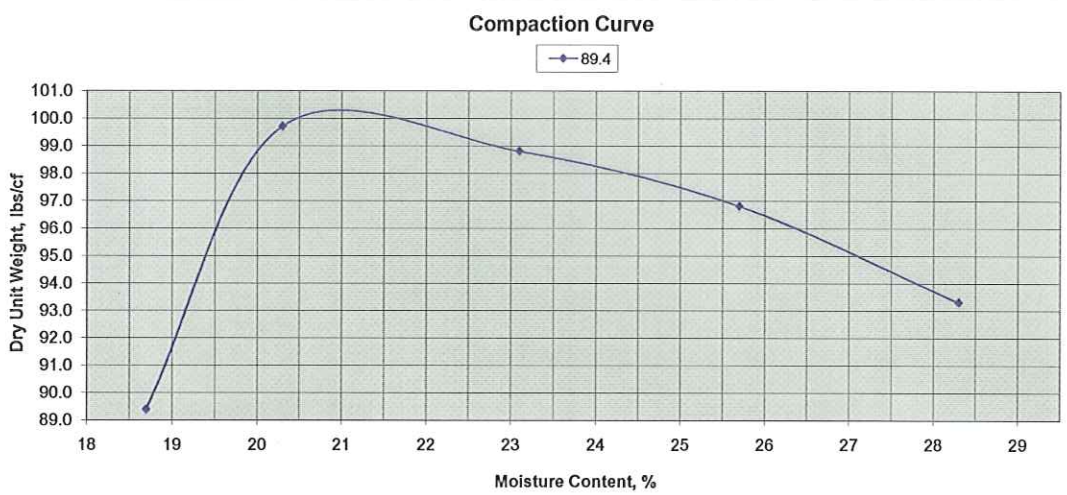
Remarks: AVG CURVE 1 & 2; MAX DRY UNIT WEIGHT = 99.7LBS/CF, OPT. MOISTURE = 23.1

TOLUNAY-WONG ENGINEERS, INC.

Compaction - Moisture Density Relationship - ASTM D 698

Laboratory	Tolunay-Wong Engineers, Inc.		Test ID	2653-008	
USACE Contract Number	W912P8-09-D-0046 0008		Contractor	Phylway, Inc.	
Project	WBV-14c.2 Phase 2, First Lift		Date	8/2/2010	
Source of Material	WILLOW BEND PIT	Feature	EMBANKMENT	Visual Description (ASTM D 2488)	BR FAT CLAY
Station	FLOOD SIDE 177+00	Offset		Lift Number	1
X-Coordinate		Y-Coordinate		Elevation (ft)	
Test Method		Preparation Method	WET	As-Received Moisture Content	
Hand / Mechanical Rammer	HAND	Specific Gravity		Specific Gravity Method: As Tested or Estimated	ESTIMATED
Percent Retained - No. 4 Sieve		Percent Retained - 3/8" Sieve			
Percent Retained - 3/4" Sieve		Oversize Fraction		ASTM D 3718 Correction - Yes/No	NO
Tested By	B. LANDERS	Checked By	G. LECOQ	Submitted By	G. LECOQ

Test Sequence Number	1	2	3	4	5
a. Mold Number					
b. Mass of Mold (g)	2017.2	2017.2	2017.2	2017.2	2017.2
c. Volume of Mold (cf)	0.0333	0.0333	0.0333	0.0333	0.0333
d. Mass of Wet Soil+Mold (g)	3613.4	3821.7	3846.9	3847.1	3817.5
e. Mass of Wet Soil (g)	1596.2	1804.5	1829.7	1829.9	1800.3
f. Wet Unit Weight (lbs/cf)	105.7	119.5	121.1	121.1	119.2
g. Container No.	DT46	DT21	DT24	DT41	DT43
h. Mass of Tare (g)	178.10	211.60	206.40	177.80	179.80
i. Mass of Wet Soil+Tare (g)	423.30	463.00	451.30	411.10	402.20
j. Mass of Dry Soil+Tare (g)	385.50	421.50	406.20	364.18	353.89
k. Mass of Water (g)	37.80	41.50	45.10	46.92	48.31
l. Mass of Dry Soil (g)	207.40	209.90	199.80	186.38	174.09
m. Moisture Content %	18.2	19.8	22.6	25.2	27.8
n. Dry Unit Weight (lbs/cf)	89.4	99.7	98.8	96.8	93.3



Test Results	
Compaction Curve Control No.	2653-008 CURVE 2
Optimum Moisture Content (%)	23.2
Max. Dry Unit Weight (lbs/cf)	99.7
Classification of Sample	FAT CLAY

Liquid And Plastic Limits	
Liquid Limit	59
Plastic Limit	24
Plasticity Index	35
Symbol From Plastic Chart:	CH
% Passing 200	96.3
% Passing No. 4	100

Dry Unit Weight Scale			
Min	85	Max	95

Moisture Content % Scale			
Min	15	Max	22

Change Graph Scale

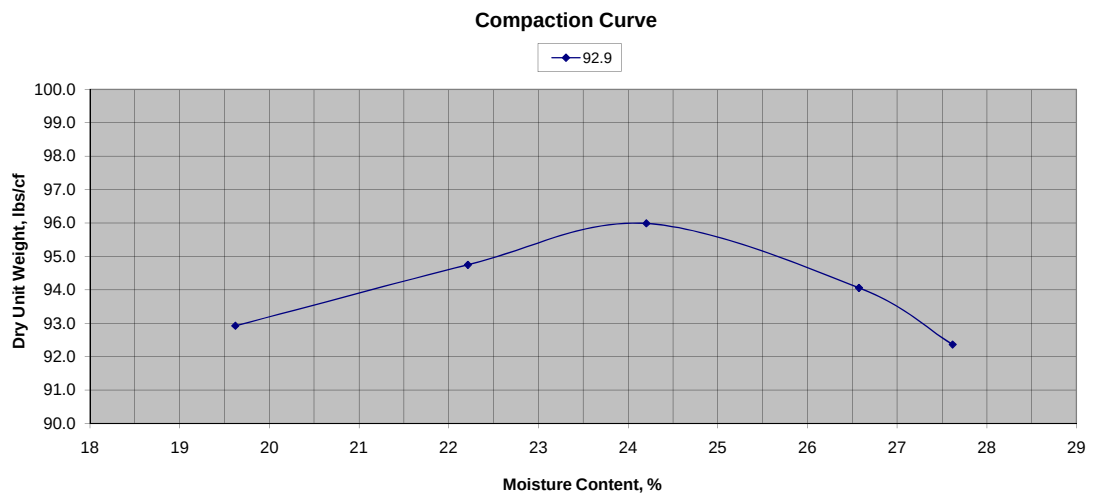
Remarks: AVG CURVE 1 & 2; MAX DRY UNIT WEIGHT = 99.7LBS/CF, OPT. MOISTURE = 23.1

TOLUNAY-WONG ENGINEERS, INC.

Compaction - Moisture Density Relationship - ASTM D 698

Laboratory	Tolunay-Wong Engineers, Inc.		**Test ID**	2854-040A	
USACE Contract Number	W912P8-09-D-0046 0008		**Contractor**	Phylway, Inc.	
Project	WBV-14c.2 Phase 2, First Lift		**Date**	9/8/2010	
Source of Material	WILLOW BEND PIT	Feature	EMBANKMENT	Visual Description (ASTM D 2488)	G-Br. Clay
Station	WILLOW BEND PIT PHASE 2	Offset		Lift Number	
X-Coordinate		Y-Coordinate		Elevation (ft)	
Test Method	D698	Preparation Method	WET	As-Received Moisture Content	30.01
Hand / Mechanical Rammer	HAND	Specific Gravity	2.65	Specific Gravity Method: As Tested or Estimated	ESTIMATED
Percent Retained - No. 4 Sieve	0	Percent Retained - 3/8" Sieve	0		
Percent Retained - 3/4" Sieve	0	Oversize Fraction		ASTM D 3718 Correction - Yes/No	NO
Tested By	B. LANDERS	Checked By	G. LeCoq	Submitted By	G. LeCoq

Test Sequence Number	1	2	3	4	5
a. Mold Number	GZL-ML-03-PM	GZL-ML-03-PM	GZL-ML-03-PM	GZL-ML-03-PM	GZL-ML-03-PM
b. Mass of Mold (g)	2016.6	2016.6	2016.6	2016.6	2016.6
c. Volume of Mold (cf)	0.0333	0.0333	0.0333	0.0333	0.0333
d. Mass of Wet Soil+Mold (g)	3695.6	3765.7	3817.4	3814.9	3797.1
e. Mass of Wet Soil (g)	1679.0	1749.1	1800.8	1798.3	1780.5
f. Wet Unit Weight (lbs/cf)	111.2	115.8	119.2	119.1	117.9
g. Container No.	DT49	DT48	DT42	DT50	DT27
h. Mass of Tare (g)	176.30	183.50	178.10	180.70	209.60
i. Mass of Wet Soil+Tare (g)	377.30	419.30	433.80	454.90	437.40
j. Mass of Dry Soil+Tare (g)	344.33	376.44	383.97	397.33	388.10
k. Mass of Water (g)	32.97	42.86	49.83	57.57	49.30
l. Mass of Dry Soil (g)	168.03	192.94	205.87	216.63	178.50
m. Moisture Content %	19.6	22.2	24.2	26.6	27.6
n. Dry Unit Weight (lbs/cf)	92.9	94.7	96.0	94.1	92.4



Test Results	
Compaction Curve Control No.	2854 CURVE 1
Optimum Moisture Content (%)	23.5
Max. Dry Unit Weight (lbs/cf)	95.7
Classification of Sample	FAT CLAY
Liquid And Plastic Limits	
Liquid Limit	64
Plastic Limit	24
Plasticity Index	40
Symbol From Plastic Chart:	CH
% Passing 200	97
% Passing No. 4	100

Dry Unit Weight Scale

Min 85 Max 95

Moisture Content % Scale

Min 15 Max 22

Change Graph Scale

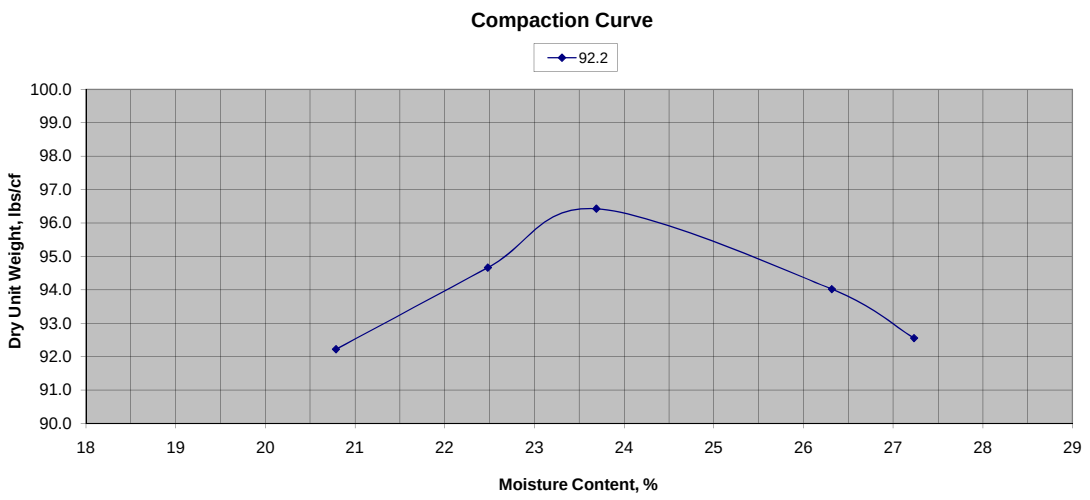
Remarks: Avg. Curves 1 & 2; Max. Dry Unit Weight= 95.9 lbs/cf, Optimum Moisture = 23.9 %

TOLUNAY-WONG ENGINEERS, INC.

Compaction - Moisture Density Relationship - ASTM D 698

Laboratory	Tolunay-Wong Engineers, Inc.		**Test ID**	2854-040B	
USACE Contract Number	W912P8-09-D-0046 0008		**Contractor**	Phylway, Inc.	
Project	WBV-14c.2 Phase 2, First Lift		**Date**	9/8/2010	
Source of Material	WILLOW BEND PIT	Feature	EMBANKMENT	Visual Description (ASTM D 2488)	G-Br. Clay
Station	WILLOW BEND PIT PHASE 2	Offset		Lift Number	
X-Coordinate		Y-Coordinate		Elevation (ft)	
Test Method	D698	Preparation Method	WET	As-Received Moisture Content	30.01
Hand / Mechanical Rammer	HAND	Specific Gravity	2.65	Specific Gravity Method: As Tested or Estimated	ESTIMATED
Percent Retained - No. 4 Sieve	0	Percent Retained - 3/8" Sieve	0		
Percent Retained - 3/4" Sieve	0	Oversize Fraction		ASTM D 3718 Correction - Yes/No	NO
Tested By	B. LANDERS	Checked By	G. LeCoq	Submitted By	G. LeCoq

Test Sequence Number	1	2	3	4	5
a. Mold Number	GZL-ML-03-PM	GZL-ML-03-PM	GZL-ML-03-PM	GZL-ML-03-PM	GZL-ML-03-PM
b. Mass of Mold (g)	2016.6	2016.6	2016.6	2016.6	2016.6
c. Volume of Mold (cf)	0.0333	0.0333	0.0333	0.0333	0.0333
d. Mass of Wet Soil+Mold (g)	3699.2	3767.9	3818.1	3810.5	3795.4
e. Mass of Wet Soil (g)	1682.6	1751.3	1801.5	1793.9	1778.8
f. Wet Unit Weight (lbs/cf)	111.4	115.9	119.3	118.8	117.8
g. Container No.	DT02	DT11	DT14	DT04	DT20
h. Mass of Tare (g)	178.80	180.90	245.10	233.40	212.60
i. Mass of Wet Soil+Tare (g)	359.80	466.40	507.20	487.80	496.20
j. Mass of Dry Soil+Tare (g)	328.65	414.00	457.00	434.80	435.50
k. Mass of Water (g)	31.15	52.40	50.20	53.00	60.70
l. Mass of Dry Soil (g)	149.85	233.10	211.90	201.40	222.90
m. Moisture Content %	20.8	22.5	23.7	26.3	27.2
n. Dry Unit Weight (lbs/cf)	92.2	94.7	96.4	94.0	92.6



Test Results	
Compaction Curve Control No.	2854 CURVE 2
Optimum Moisture Content (%)	24.2
Max. Dry Unit Weight (lbs/cf)	96.0
Classification of Sample	FAT CLAY
Liquid And Plastic Limits	
Liquid Limit	64
Plastic Limit	24
Plasticity Index	40
Symbol From Plastic Chart:	CH
% Passing 200	97
% Passing No. 4	100

Dry Unit Weight Scale

Min 85 Max 95

Moisture Content % Scale

Min 15 Max 22

Change Graph Scale

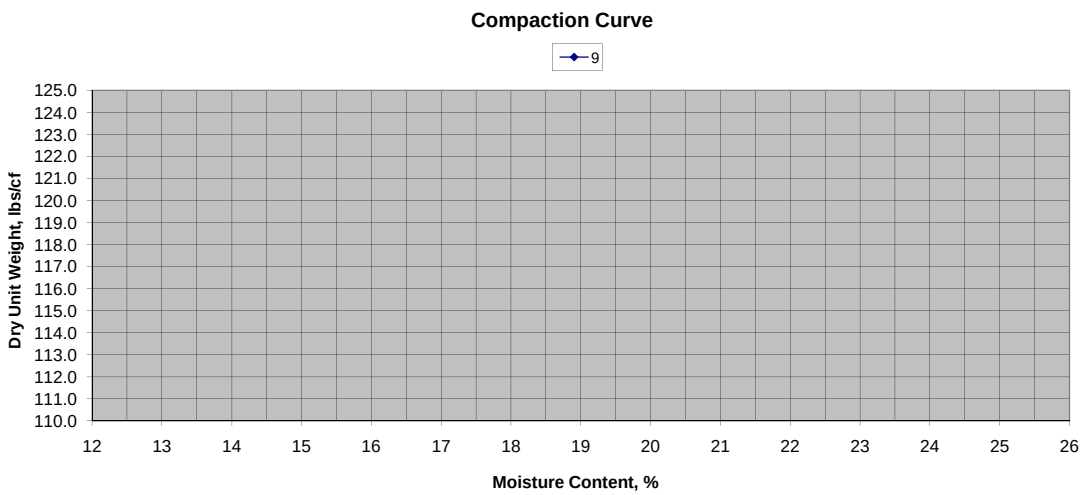
Remarks: Avg. Curves 1 & 2; Max. Dry Unit Weight= 95.9 lbs/cf, Optimum Moisture = 23.9 %

TOLUNAY-WONG ENGINEERS, INC.

Compaction - Moisture Density Relationship - ASTM D 698

Laboratory	TOLUNAY-WONG ENGINEERS		**Test ID**	2609-001A	
USACE Contract Number	W912P8-09-D-0046 0008		**Contractor**	PHYLWAY	
Project	WBV-14c.2 PHASE 2, FIRST LIFT		**Date**	7/16/2010	
Source of Material	NE STOCKPILE	Feature		Visual Description (ASTM D 2488)	BR. CL.
Station		Offset		Lift Number	
X-Coordinate		Y-Coordinate		Elevation (ft)	
Test Method	D698	Preparation Method	WET	As-Received Moisture Content	
Hand / Mechanical Rammer	HAND	Specific Gravity	2.65	Specific Gravity Method: As Tested or Estimated	ESTIMATED
Percent Retained - No. 4 Sieve	0	Percent Retained - 3/8" Sieve			
Percent Retained - 3/4" Sieve	0	Oversize Fraction		ASTM D 3718 Correction - Yes/No	NO
Tested By	B. LANDERS	Checked By	G. LECOQ	Submitted By	G. LECOQ

Test Sequence Number	1	2	3	4	5
a. Mold Number					
b. Mass of Mold (g)	2017.3	2017.3	2017.3	2017.3	2017.3
c. Volume of Mold (cf)	0.0333	0.0333	0.0333	0.0333	0.0333
d. Mass of Wet Soil+Mold (g)	3777.5	3828.5	3829.7	3794.1	3759.9
e. Mass of Wet Soil (g)	1760.2	1811.2	1812.4	1776.8	1742.6
f. Wet Unit Weight (lbs/cf)	116.5	119.9	120.0	117.6	115.4
g. Container No.	DT30	DT04	DT27	DT14	DT25
h. Mass of Tare (g)	203.30	233.50	209.70	245.10	205.80
i. Mass of Wet Soil+Tare (g)	390.40	408.30	375.00	407.40	415.00
j. Mass of Dry Soil+Tare (g)	353.60	371.80	338.40	370.00	364.60
k. Mass of Water (g)	36.80	36.50	36.60	37.40	50.40
l. Mass of Dry Soil (g)	150.30	138.30	128.70	124.90	158.80
m. Moisture Content %	24.5	26.4	28.4	29.9	31.7
n. Dry Unit Weight (lbs/cf)	93.6	94.9	93.4	90.5	87.6



Test Results	
Compaction Curve Control No.	2609 CURVE 1
Optimum Moisture Content (%)	26.2
Max. Dry Unit Weight (lbs/cf)	94.5
Classification of Sample	FAT CLAY
Liquid And Plastic Limits	
Liquid Limit	64
Plastic Limit	23
Plasticity Index	41
Symbol From Plastic Chart:	CL
% Passing 200	98.2
% Passing No. 4	100

Dry Unit Weight Scale

Min 85 Max 95

Moisture Content % Scale

Min 15 Max 22

Change Graph Scale

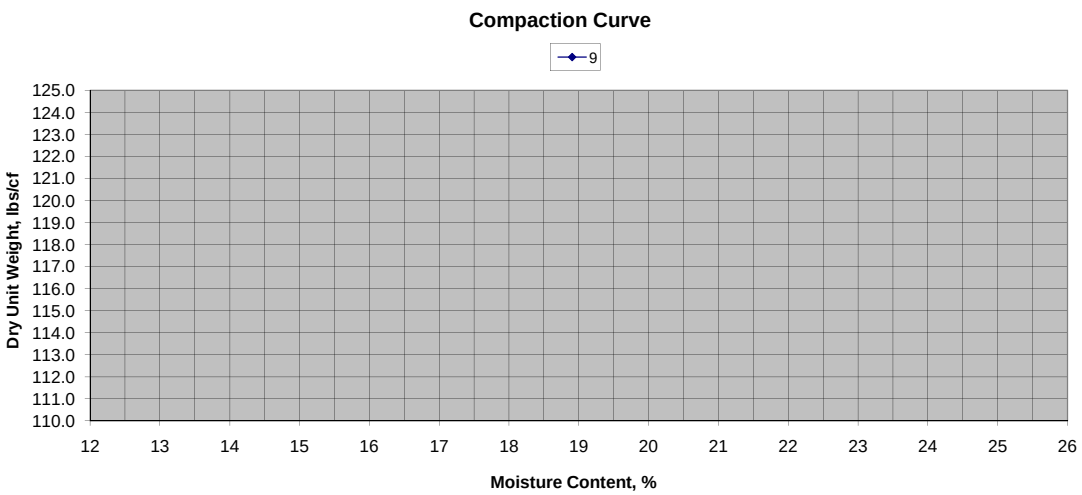
Remarks: Average Curve 1 & 2, Maximum Dry Unit Weight = 95.1, Optimum Moisture = 26.4%

TOLUNAY-WONG ENGINEERS, INC.

Compaction - Moisture Density Relationship - ASTM D 698

Laboratory	TOLUNAY-WONG ENGINEERS		**Test ID**	2609-001B	
USACE Contract Number	W912P8-09-D-0046 0008		**Contractor**	PHYLWAY	
Project	WBV-14c.2 PHASE 2, FIRST LIFT		**Date**	7/16/2010	
Source of Material	NE STOCKPILE	Feature		Visual Description (ASTM D 2488)	BR. CL.
Station		Offset		Lift Number	
X-Coordinate		Y-Coordinate		Elevation (ft)	
Test Method	D698	Preparation Method	WET	As-Received Moisture Content	
Hand / Mechanical Rammer	HAND	Specific Gravity	2.65	Specific Gravity Method: As Tested or Estimated	ESTIMATED
Percent Retained - No. 4 Sieve	0	Percent Retained - 3/8" Sieve	0		
Percent Retained - 3/4" Sieve	0	Oversize Fraction		ASTM D 3718 Correction - Yes/No	NO
Tested By	B. LANDERS	Checked By	G. LECOQ	Submitted By	G. LECOQ

Test Sequence Number	1	2	3	4	5
a. Mold Number					
b. Mass of Mold (g)	2017.3	2017.3	2017.3	2017.3	2017.3
c. Volume of Mold (cf)	0.0333	0.0333	0.0333	0.0333	0.0333
d. Mass of Wet Soil+Mold (g)	3775.9	3825.3	3828.1	3794.4	3761.1
e. Mass of Wet Soil (g)	1758.6	1808.0	1810.8	1777.1	1743.8
f. Wet Unit Weight (lbs/cf)	116.4	119.7	119.9	117.7	115.4
g. Container No.	DT21	DT02	DT20	DT11	DT24
h. Mass of Tare (g)	211.50	178.90	212.50	181.00	206.50
i. Mass of Wet Soil+Tare (g)	462.70	376.00	410.80	412.10	525.60
j. Mass of Dry Soil+Tare (g)	413.50	335.40	365.80	358.70	450.60
k. Mass of Water (g)	49.20	40.60	45.00	53.40	75.00
l. Mass of Dry Soil (g)	202.00	156.50	153.30	177.70	244.10
m. Moisture Content %	24.4	25.9	29.4	30.1	30.7
n. Dry Unit Weight (lbs/cf)	93.6	95.0	92.7	90.5	88.3



Test Results	
Compaction Curve Control No.	2609 CURVE 2
Optimum Moisture Content (%)	26.6
Max. Dry Unit Weight (lbs/cf)	95.6
Classification of Sample	LEAN CLAY
Liquid And Plastic Limits	
Liquid Limit	64
Plastic Limit	23
Plasticity Index	41
Symbol From Plastic Chart:	CL
% Passing 200	98.2
% Passing No. 4	100

Dry Unit Weight Scale

Min 85 Max 95

Moisture Content % Scale

Min 15 Max 22

Change Graph Scale

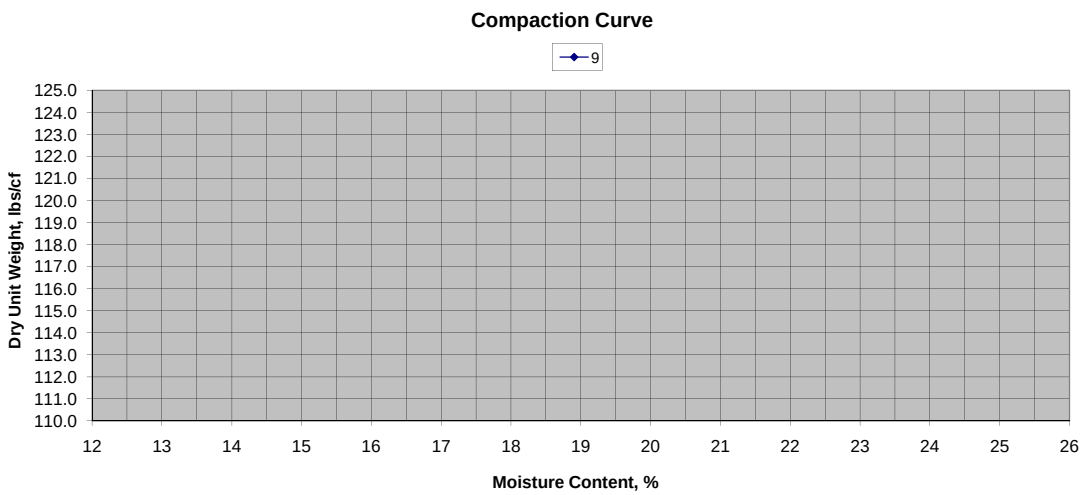
Remarks: Average Curve 1 & 2, Maximum Dry Unit Weight = 95.1 Optimum Moisture = 26.4%

TOLUNAY-WONG ENGINEERS, INC.

Compaction - Moisture Density Relationship - ASTM D 698

Laboratory	TOLUNAY-WONG ENGINEERS		**Test ID**	2610-002A	
USACE Contract Number	W912P8-09-D-0046 0008		**Contractor**	PHYLWAY	
Project	WBV-14c.2 PHASE 2, FIRST LIFT		**Date**	7/16/2010	
Source of Material	NE NEW PIT	Feature		Visual Description (ASTM D 2488)	BR. CL.
Station		Offset		Lift Number	
X-Coordinate		Y-Coordinate		Elevation (ft)	
Test Method	D698	Preparation Method	WET	As-Received Moisture Content	
Hand / Mechanical Rammer	HAND	Specific Gravity	2.65	Specific Gravity Method: As Tested or Estimated	ESTIMATED
Percent Retained - No. 4 Sieve	0	Percent Retained - 3/8" Sieve			
Percent Retained - 3/4" Sieve	0	Oversize Fraction		ASTM D 3718 Correction - Yes/No	NO
Tested By	B. LANDERS	Checked By	G. LECOQ	Submitted By	G. LECOQ

Test Sequence Number	1	2	3	4	5
a. Mold Number					
b. Mass of Mold (g)	2017.3	2017.3	2017.3	2017.3	2017.3
c. Volume of Mold (cf)	0.0333	0.0333	0.0333	0.0333	0.0333
d. Mass of Wet Soil+Mold (g)	3765.9	3866.2	3821.4	3776.3	3743.4
e. Mass of Wet Soil (g)	1748.6	1848.9	1804.1	1759.0	1726.1
f. Wet Unit Weight (lbs/cf)	115.8	122.4	119.4	116.5	114.3
g. Container No.	DT04	ML04	ML08	ML07	DT08
h. Mass of Tare (g)	233.50	233.00	265.10	258.30	187.40
i. Mass of Wet Soil+Tare (g)	430.40	458.70	415.30	466.10	459.50
j. Mass of Dry Soil+Tare (g)	393.30	413.70	383.84	416.70	392.70
k. Mass of Water (g)	37.10	45.00	31.46	49.40	66.80
l. Mass of Dry Soil (g)	159.80	180.70	118.74	158.40	205.30
m. Moisture Content %	23.2	24.9	26.5	31.2	32.5
n. Dry Unit Weight (lbs/cf)	94.0	98.0	94.4	88.8	86.2



Test Results	
Compaction Curve Control No.	2610 CURVE 1
Optimum Moisture Content (%)	25.1
Max. Dry Unit Weight (lbs/cf)	94.7
Classification of Sample	FAT CLAY
Liquid And Plastic Limits	
Liquid Limit	53
Plastic Limit	25
Plasticity Index	28
Symbol From Plastic Chart:	CL
% Passing 200	97.2
% Passing No. 4	100

Dry Unit Weight Scale

Min 85 Max 95

Moisture Content % Scale

Min 15 Max 22

Change Graph Scale

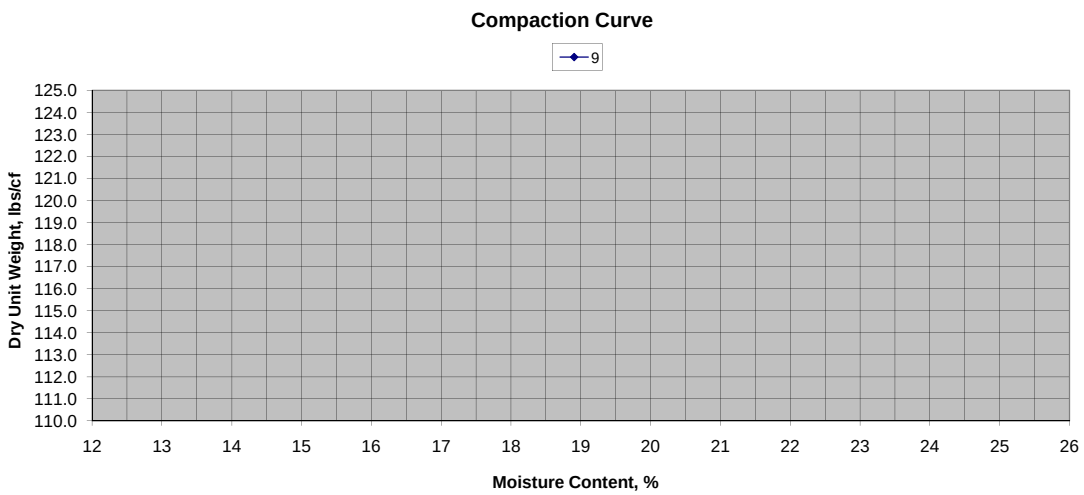
Remarks: Average Curve 1 & 2, Maximum Dry Unit Weight = 94.6, Optimum Moisture = 25.0%

TOLUNAY-WONG ENGINEERS, INC.

Compaction - Moisture Density Relationship - ASTM D 698

Laboratory	TOLUNAY-WONG ENGINEERS		**Test ID**	2610-002B	
USACE Contract Number	W912P8-09-D-0046 0008		**Contractor**	PHYLWAY	
Project	WBV-14c.2 PHASE 2, FIRST LIFT		**Date**	7/16/2010	
Source of Material	NE NEW PIT	Feature		Visual Description (ASTM D 2488)	BR. CL.
Station		Offset		Lift Number	
X-Coordinate		Y-Coordinate		Elevation (ft)	
Test Method	D698	Preparation Method	WET	As-Received Moisture Content	
Hand / Mechanical Rammer	HAND	Specific Gravity	2.65	Specific Gravity Method: As Tested or Estimated	ESTIMATED
Percent Retained - No. 4 Sieve	0	Percent Retained - 3/8" Sieve	0		
Percent Retained - 3/4" Sieve	0	Oversize Fraction		ASTM D 3718 Correction - Yes/No	NO
Tested By	B. LANDERS	Checked By	G. LECOQ	Submitted By	G. LECOQ

Test Sequence Number	1	2	3	4	5
a. Mold Number					
b. Mass of Mold (g)	2017.3	2017.3	2017.3	2017.3	2017.3
c. Volume of Mold (cf)	0.0333	0.0333	0.0333	0.0333	0.0333
d. Mass of Wet Soil+Mold (g)	3785.7	3805.9	3820.0	3777.6	3741.9
e. Mass of Wet Soil (g)	1768.4	1788.6	1802.7	1760.3	1724.6
f. Wet Unit Weight (lbs/cf)	117.1	118.4	119.3	116.5	114.2
g. Container No.	V4	ML02	ML11	ML01	ML12
h. Mass of Tare (g)	64.50	255.00	222.00	244.70	265.30
i. Mass of Wet Soil+Tare (g)	242.10	411.70	376.60	505.70	489.50
j. Mass of Dry Soil+Tare (g)	207.20	380.20	343.00	445.10	435.10
k. Mass of Water (g)	34.90	31.50	33.60	60.60	54.40
l. Mass of Dry Soil (g)	142.70	125.20	121.00	200.40	169.80
m. Moisture Content %	24.5	25.2	27.8	30.2	32.0
n. Dry Unit Weight (lbs/cf)	94.1	94.6	93.4	89.5	86.5



Test Results	
Compaction Curve Control No.	2610 CURVE 2
Optimum Moisture Content (%)	24.9
Max. Dry Unit Weight (lbs/cf)	94.4
Classification of Sample	FAT CLAY
Liquid And Plastic Limits	
Liquid Limit	53
Plastic Limit	25
Plasticity Index	28
Symbol From Plastic Chart:	CL
% Passing 200	97.2
% Passing No. 4	100

Dry Unit Weight Scale

Min 85 Max 95

Moisture Content % Scale

Min 15 Max 22

Change Graph Scale

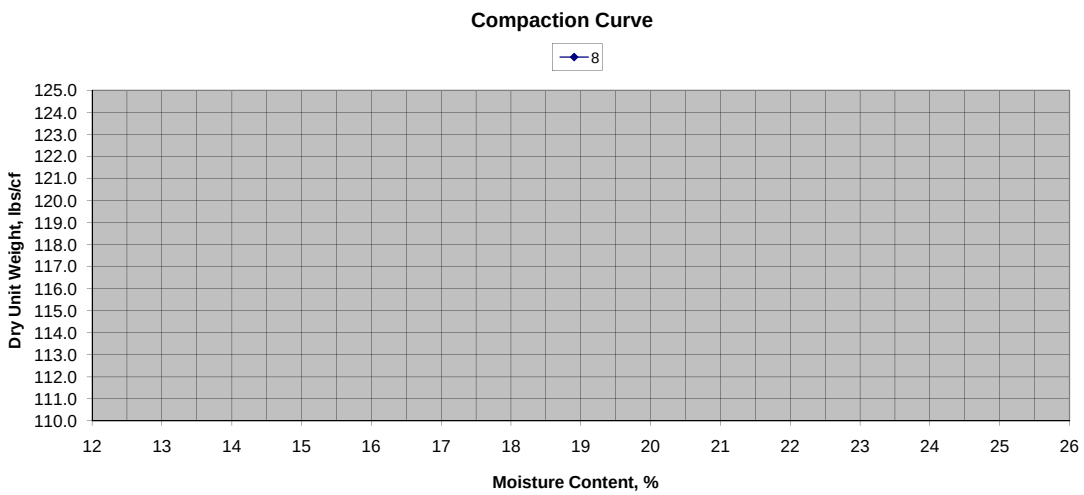
Remarks: Average Curve 1 & 2, Maximum Dry Unit Weight = 94.6 Optimum Moisture = 25.0%

TOLUNAY-WONG ENGINEERS, INC.

Compaction - Moisture Density Relationship - ASTM D 698

Laboratory	TOLUNAY-WONG ENGINEERS		**Test ID**	2611-003A	
USACE Contract Number	W912P8-09-D-0046 0008		**Contractor**	PHYLWAY	
Project	WBV-14c.2 PHASE 2, FIRST LIFT		**Date**	7/16/2010	
Source of Material	Sample B S.E. Corner of Stock Pile	Feature		Visual Description (ASTM D 2488)	BR. CL.
Station		Offset		Lift Number	
X-Coordinate		Y-Coordinate		Elevation (ft)	
Test Method	D698	Preparation Method	WET	As-Received Moisture Content	
Hand / Mechanical Rammer	HAND	Specific Gravity	2.65	Specific Gravity Method: As Tested or Estimated	ESTIMATED
Percent Retained - No. 4 Sieve	0	Percent Retained - 3/8" Sieve			
Percent Retained - 3/4" Sieve	0	Oversize Fraction		ASTM D 3718 Correction - Yes/No	NO
Tested By	B. LANDERS	Checked By	G. LECOQ	Submitted By	G. LECOQ

Test Sequence Number	1	2	3	4	5
a. Mold Number					
b. Mass of Mold (g)	2017.3	2017.3	2017.3	2017.3	2017.3
c. Volume of Mold (cf)	0.0333	0.0333	0.0333	0.0333	0.0333
d. Mass of Wet Soil+Mold (g)	3703.1	3756.6	3783.8	3728.7	3683.7
e. Mass of Wet Soil (g)	1685.8	1739.3	1766.5	1711.4	1666.4
f. Wet Unit Weight (lbs/cf)	111.6	115.1	116.9	113.3	110.3
g. Container No.	DT20	DT14	DT25	DT30	ML10
h. Mass of Tare (g)	212.60	244.70	205.70	203.30	251.50
i. Mass of Wet Soil+Tare (g)	422.20	441.10	407.40	400.80	436.90
j. Mass of Dry Soil+Tare (g)	375.50	395.60	357.80	350.30	386.00
k. Mass of Water (g)	46.70	45.50	49.60	50.50	50.90
l. Mass of Dry Soil (g)	162.90	150.90	152.10	147.00	134.50
m. Moisture Content %	28.7	30.2	32.6	34.4	37.8
n. Dry Unit Weight (lbs/cf)	86.7	88.5	88.2	84.3	80.0



Test Results	
Compaction Curve Control No.	2611 CURVE 1
Optimum Moisture Content (%)	30.7
Max. Dry Unit Weight (lbs/cf)	87.9
Classification of Sample	FAT CLAY
Liquid And Plastic Limits	
Liquid Limit	78
Plastic Limit	28
Plasticity Index	50
Symbol From Plastic Chart:	CL
% Passing 200	97.5
% Passing No. 4	100

Dry Unit Weight Scale

Min 85 Max 95

Moisture Content % Scale

Min 15 Max 22

Change Graph Scale

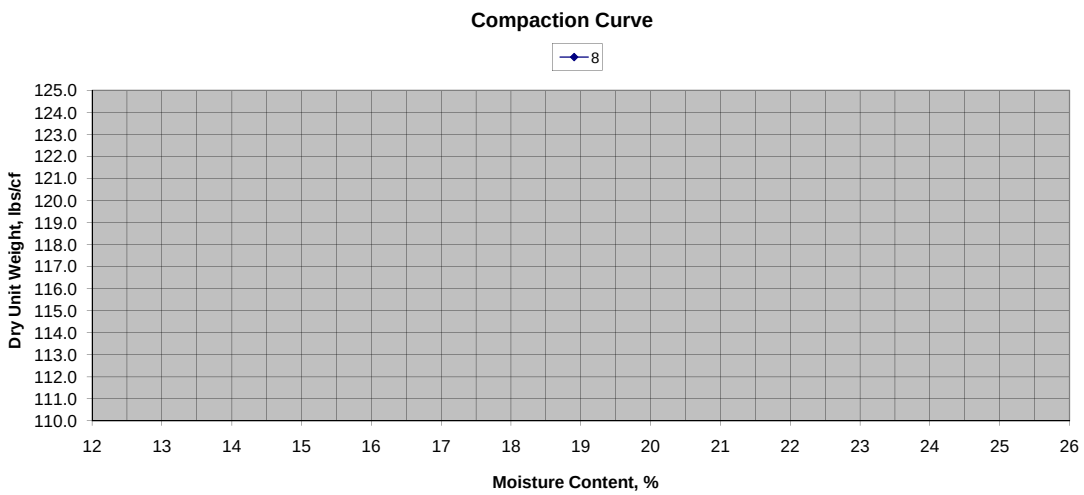
Remarks: Average Curve 1 & 2, Maximum Dry Unit Weight = 87.9, Optimum Moisture = 30.6%

TOLUNAY-WONG ENGINEERS, INC.

Compaction - Moisture Density Relationship - ASTM D 698

Laboratory	TOLUNAY-WONG ENGINEERS		**Test ID**	2611-003B	
USACE Contract Number	W912P8-09-D-0046 0008		**Contractor**	PHYLWAY	
Project	WBV-14c.2 PHASE 2, FIRST LIFT		**Date**	7/16/2010	
Source of Material	Sample B S.E. Corner of Stock Pile	Feature		Visual Description (ASTM D 2488)	BR. CL.
Station		Offset		Lift Number	
X-Coordinate		Y-Coordinate		Elevation (ft)	
Test Method	D698	Preparation Method	WET	As-Received Moisture Content	
Hand / Mechanical Rammer	HAND	Specific Gravity	2.65	Specific Gravity Method: As Tested or Estimated	ESTIMATED
Percent Retained - No. 4 Sieve	0	Percent Retained - 3/8" Sieve	0		
Percent Retained - 3/4" Sieve	0	Oversize Fraction		ASTM D 3718 Correction - Yes/No	NO
Tested By	B. LANDERS	Checked By	G. LECOQ	Submitted By	G. LECOQ

Test Sequence Number	1	2	3	4	5
a. Mold Number					
b. Mass of Mold (g)	2017.3	2017.3	2017.3	2017.3	2017.3
c. Volume of Mold (cf)	0.0333	0.0333	0.0333	0.0333	0.0333
d. Mass of Wet Soil+Mold (g)	3702.9	3756.4	3781.8	3726.1	3682.1
e. Mass of Wet Soil (g)	1685.6	1739.1	1764.5	1708.8	1664.8
f. Wet Unit Weight (lbs/cf)	111.6	115.1	116.8	113.1	110.2
g. Container No.	DT27	DT01	DT08	DT21	ML06
h. Mass of Tare (g)	209.50	171.60	187.50	211.50	258.20
i. Mass of Wet Soil+Tare (g)	561.70	505.30	460.60	353.20	442.70
j. Mass of Dry Soil+Tare (g)	483.50	427.90	394.90	316.70	391.90
k. Mass of Water (g)	78.20	77.40	65.70	36.50	50.80
l. Mass of Dry Soil (g)	274.00	256.30	207.40	105.20	133.70
m. Moisture Content %	28.5	30.2	31.7	34.7	38.0
n. Dry Unit Weight (lbs/cf)	86.8	88.4	88.7	84.0	79.9



Test Results	
Compaction Curve Control No.	2611 CURVE 2
Optimum Moisture Content (%)	30.4
Max. Dry Unit Weight (lbs/cf)	87.9
Classification of Sample	FAT CLAY
Liquid And Plastic Limits	
Liquid Limit	78
Plastic Limit	28
Plasticity Index	50
Symbol From Plastic Chart:	CL
% Passing 200	97.5
% Passing No. 4	100

Dry Unit Weight Scale

Min 85 Max 95

Moisture Content % Scale

Min 15 Max 22

Change Graph Scale

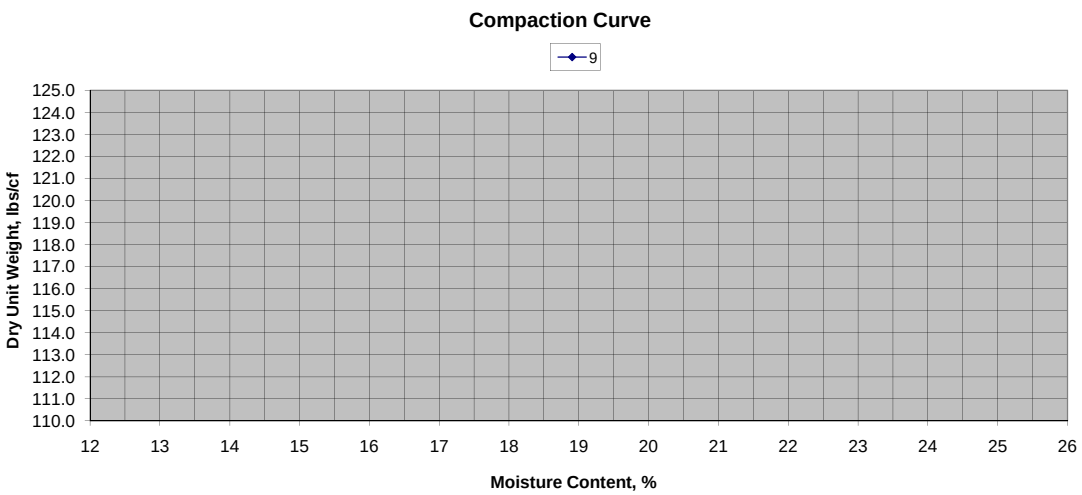
Remarks: Average Curve 1 & 2, Maximum Dry Unit Weight = 87.9, Optimum Moisture = 30.6%

TOLUNAY-WONG ENGINEERS, INC.

Compaction - Moisture Density Relationship - ASTM D 698

Laboratory	TOLUNAY-WONG ENGINEERS		**Test ID**	2641-004B	
USACE Contract Number	W912P8-09-D-0046 0008		**Contractor**	PHYLWAY	
Project	WBV-14c.2 PHASE 2, FIRST LIFT		**Date**	7/27/2010	
Source of Material	SOUTH END NEW PIT	Feature		Visual Description (ASTM D 2488)	BR. SA. CL.
Station		Offset		Lift Number	
X-Coordinate		Y-Coordinate		Elevation (ft)	
Test Method	D698	Preparation Method	WET	As-Received Moisture Content	
Hand / Mechanical Rammer	HAND	Specific Gravity	2.65	Specific Gravity Method: As Tested or Estimated	ESTIMATED
Percent Retained - No. 4 Sieve	0	Percent Retained - 3/8" Sieve	0		
Percent Retained - 3/4" Sieve	0	Oversize Fraction		ASTM D 3718 Correction - Yes/No	NO
Tested By	B. LANDERS	Checked By	G. LECOQ	Submitted By	G. LECOQ

Test Sequence Number	1	2	3	4	5
a. Mold Number					
b. Mass of Mold (g)	2017.3	2017.3	2017.3	2017.3	2017.3
c. Volume of Mold (cf)	0.0333	0.0333	0.0333	0.0333	0.0333
d. Mass of Wet Soil+Mold (g)	3727.1	3865.9	3917.1	3874.0	3865.2
e. Mass of Wet Soil (g)	1709.8	1848.6	1899.8	1856.7	1847.9
f. Wet Unit Weight (lbs/cf)	113.2	122.4	125.8	122.9	122.3
g. Container No.	ML09	DT20	DT14	DT21	DT25
h. Mass of Tare (g)	257.40	212.90	245.20	211.60	205.70
i. Mass of Wet Soil+Tare (g)	361.70	398.10	478.80	476.50	434.20
j. Mass of Dry Soil+Tare (g)	348.80	371.70	440.50	428.50	389.80
k. Mass of Water (g)	12.90	26.40	38.30	48.00	44.40
l. Mass of Dry Soil (g)	91.40	158.80	195.30	216.90	184.10
m. Moisture Content %	14.1	16.6	19.6	22.1	24.1
n. Dry Unit Weight (lbs/cf)	99.2	104.9	105.2	100.6	98.6



Test Results	
Compaction Curve Control No.	2641 Curve 2
Optimum Moisture Content (%)	18.7
Max. Dry Unit Weight (lbs/cf)	105.2
Classification of Sample	LEAN CLAY
Liquid And Plastic Limits	
Liquid Limit	35
Plastic Limit	22
Plasticity Index	13
Symbol From Plastic Chart:	CL
% Passing 200	93.7
% Passing No. 4	100

Dry Unit Weight Scale

Min 85 Max 95

Moisture Content % Scale

Min 15 Max 22

Change Graph Scale

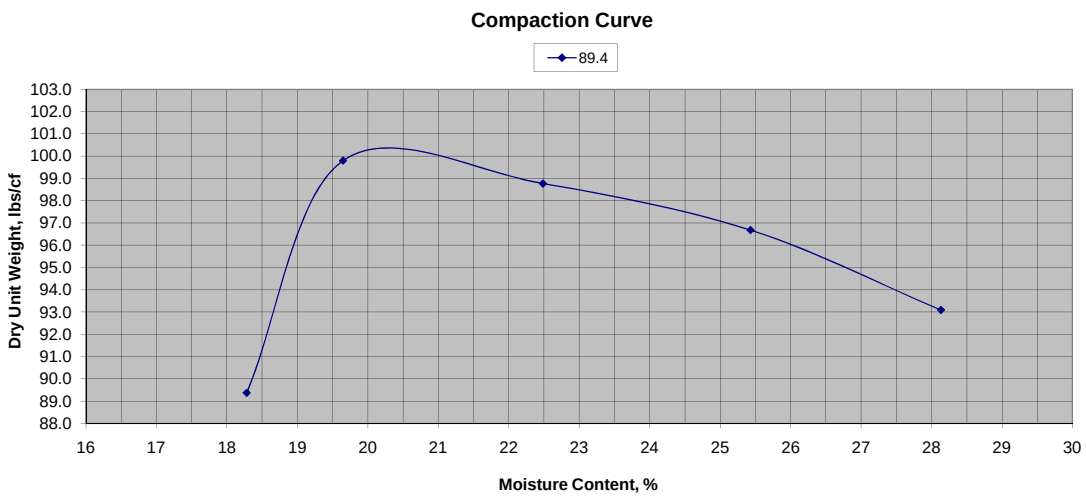
Remarks: Average Curve 1 & 2, Maximum Dry Unit Weight = 105.3, Optimum Moisture = 18.8%

TOLUNAY-WONG ENGINEERS, INC.

Compaction - Moisture Density Relationship - ASTM D 698

Laboratory	TOLUNAY-WONG ENGINEERS		**Test ID**	2653-008A	
USACE Contract Number	W912P8-09-D-0046 0008		**Contractor**	PHYLWAY	
Project	WBV-14c.2 PHASE 2, FIRST LIFT		**Date**	8/2/2010	
Source of Material	WILLOW BEND PIT	Feature	EMBANKMENT	Visual Description (ASTM D 2488)	BR. CALY
Station	FLOOD SIDE 177+00	Offset		Lift Number	1
X-Coordinate		Y-Coordinate		Elevation (ft)	
Test Method	Method A	Preparation Method	WET	As-Received Moisture Content	24.7
Hand / Mechanical Rammer	Hand	Specific Gravity	2.65	Specific Gravity Method: As Tested or Estimated	ESTIMATED
Percent Retained - No. 4 Sieve	0	Percent Retained - 3/8" Sieve	0		
Percent Retained - 3/4" Sieve	0	Oversize Fraction		ASTM D 3718 Correction - Yes/No	No
Tested By	B. LANDERS	Checked By	G. LeCoq	Submitted By	G. LeCoq

Test Sequence Number	1	2	3	4	5
a. Mold Number					
b. Mass of Mold (g)	2017.2	2017.2	2017.2	2017.2	2017.2
c. Volume of Mold (cf)	0.0333	0.0333	0.0333	0.0333	0.0333
d. Mass of Wet Soil+Mold (g)	3614.2	3820.7	3844.5	3848.9	3819.0
e. Mass of Wet Soil (g)	1597.0	1803.5	1827.3	1831.7	1801.8
f. Wet Unit Weight (lbs/cf)	105.7	119.4	121.0	121.3	119.3
g. Container No.	DT47	DT01	DT20	DT40	DT42
h. Mass of Tare (g)	177.80	171.80	212.60	176.20	178.10
i. Mass of Wet Soil+Tare (g)	401.20	463.50	425.60	398.80	382.80
j. Mass of Dry Soil+Tare (g)	366.67	415.60	386.50	353.67	337.86
k. Mass of Water (g)	34.53	47.90	39.10	45.13	44.94
l. Mass of Dry Soil (g)	188.87	243.80	173.90	177.47	159.76
m. Moisture Content %	18.3	19.6	22.5	25.4	28.1
n. Dry Unit Weight (lbs/cf)	89.4	99.8	98.8	96.7	93.1



Test Results	
Compaction Curve Control No.	2653-008 CURVE 1
Optimum Moisture Content (%)	23.1
Max. Dry Unit Weight (lbs/cf)	99.7
Classification of Sample	FAT CLAY
Liquid And Plastic Limits	
Liquid Limit	59
Plastic Limit	24
Plasticity Index	35
Symbol From Plastic Chart:	CH
% Passing 200	96.3
% Passing No. 4	100

Dry Unit Weight Scale

Min 85 Max 95

Moisture Content % Scale

Min 15 Max 22

Change Graph Scale

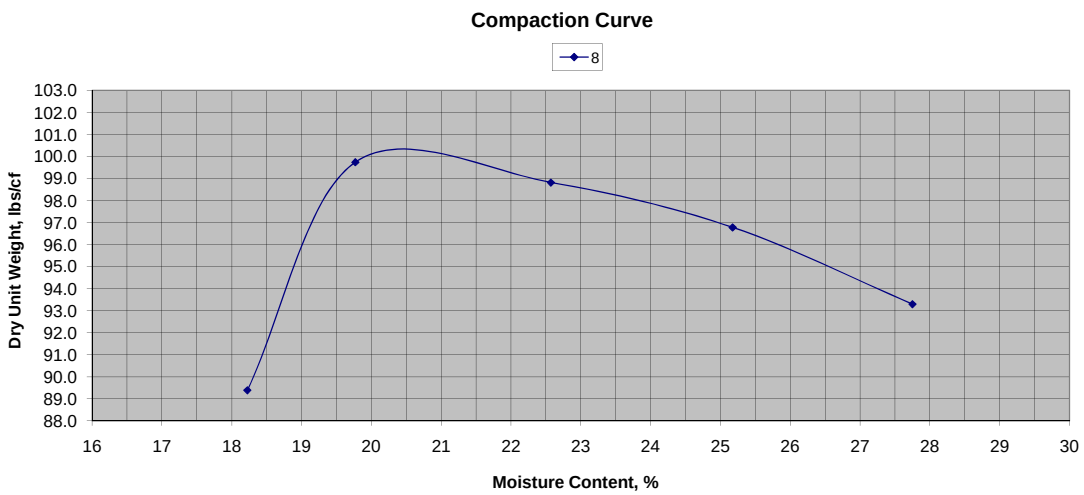
Remarks: AVG CURVE 1 & 2; MAX DRY UNIT WEIGHT = 99.7LBS/CF, OPT. MOISTURE = 23.1

TOLUNAY-WONG ENGINEERS, INC.

Compaction - Moisture Density Relationship - ASTM D 698

Laboratory	TOLUNAY-WONG ENGINEERS		Test ID	2653-008B	
USACE Contract Number	W912P8-09-D-0046 0008		Contractor	PHYLWAY	
Project	WBV-14c.2 PHASE 2, FIRST LIFT		Date	8/2/2010	
Source of Material	WILLOW BEND PIT	Feature	EMBANKMENT	Visual Description (ASTM D 2488)	BR. FAT CLAY
Station	FLOOD SIDE 177+00	Offset		Lift Number	1
X-Coordinate		Y-Coordinate		Elevation (ft)	
Test Method	Method A	Preparation Method	WET	As-Received Moisture Content	24.7
Hand / Mechanical Rammer	HAND	Specific Gravity	2.65	Specific Gravity Method: As Tested or Estimated	ESTIMATED
Percent Retained - No. 4 Sieve	0	Percent Retained - 3/8" Sieve	0		
Percent Retained - 3/4" Sieve	0	Oversize Fraction		ASTM D 3718 Correction - Yes/No	NO
Tested By	B. LANDERS	Checked By	G. LECOQ	Submitted By	G. LECOQ

Test Sequence Number	1	2	3	4	5
a. Mold Number					
b. Mass of Mold (g)	2017.2	2017.2	2017.2	2017.2	2017.2
c. Volume of Mold (cf)	0.0333	0.0333	0.0333	0.0333	0.0333
d. Mass of Wet Soil+Mold (g)	3613.4	3821.7	3846.9	3847.1	3817.5
e. Mass of Wet Soil (g)	1596.2	1804.5	1829.7	1829.9	1800.3
f. Wet Unit Weight (lbs/cf)	105.7	119.5	121.1	121.1	119.2
g. Container No.	DT46	DT21	DT24	DT41	DT43
h. Mass of Tare (g)	178.10	211.60	206.40	177.80	179.80
i. Mass of Wet Soil+Tare (g)	423.30	463.00	451.30	411.10	402.20
j. Mass of Dry Soil+Tare (g)	385.50	421.50	406.20	364.18	353.89
k. Mass of Water (g)	37.80	41.50	45.10	46.92	48.31
l. Mass of Dry Soil (g)	207.40	209.90	199.80	186.38	174.09
m. Moisture Content %	18.2	19.8	22.6	25.2	27.8
n. Dry Unit Weight (lbs/cf)	89.4	99.7	98.8	96.8	93.3



Test Results	
Compaction Curve Control No.	2653-008 CURVE 2
Optimum Moisture Content (%)	23.2
Max. Dry Unit Weight (lbs/cf)	99.7
Classification of Sample	FAT CLAY
Liquid And Plastic Limits	
Liquid Limit	59
Plastic Limit	24
Plasticity Index	35
Symbol From Plastic Chart:	CH
% Passing 200	96.3
% Passing No. 4	100

Dry Unit Weight Scale

Min 85 Max 95

Moisture Content % Scale

Min 15 Max 22

Change Graph Scale

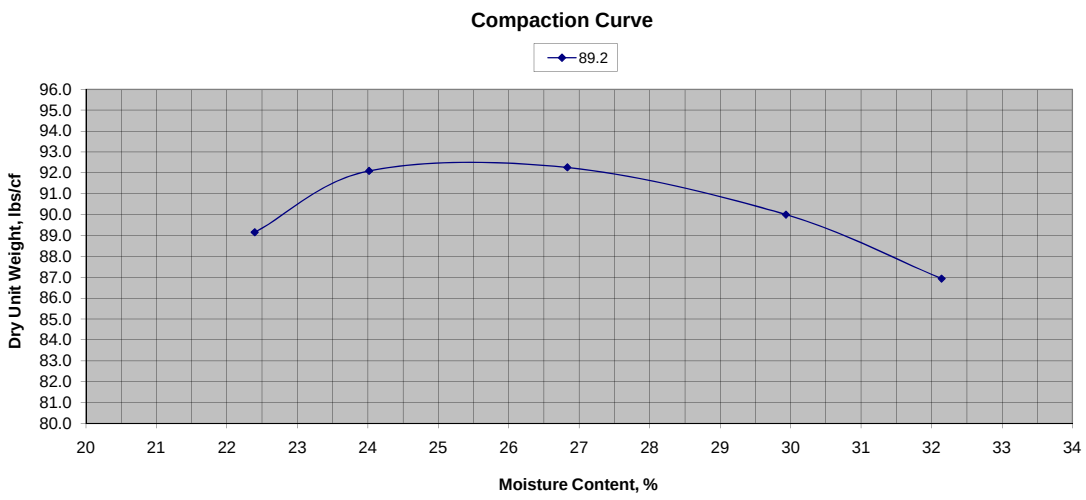
Remarks: AVG CURVE 1 & 2; MAX DRY UNIT WEIGHT = 99.7LBS/CF, OPT. MOISTURE = 23.1

TOLUNAY-WONG ENGINEERS, INC.

Compaction - Moisture Density Relationship - ASTM D 698

Laboratory	TOLUNAY-WONG ENGINEERS		**Test ID**	2762-024A	
USACE Contract Number	W912P8-09-D-0046 0008		**Contractor**	PHYLWAY	
Project	WBV-14c.2 PHASE 2, FIRST LIFT		**Date**	8/20/2010	
Source of Material	Material of Existing Levee	Feature	EMBANKMENT	Visual Description (ASTM D 2488)	BR. CALY
Station	120+50	Offset		Lift Number	1
X-Coordinate		Y-Coordinate		Elevation (ft)	
Test Method	Method A	Preparation Method	WET	As-Received Moisture Content	34.9
Hand / Mechanical Rammer	Hand	Specific Gravity	2.65	Specific Gravity Method: As Tested or Estimated	ESTIMATED
Percent Retained - No. 4 Sieve	0	Percent Retained - 3/8" Sieve	0		
Percent Retained - 3/4" Sieve	0	Oversize Fraction		ASTM D 3718 Correction - Yes/No	No
Tested By	B. LANDERS	Checked By	G. LeCoq	Submitted By	G. LeCoq

Test Sequence Number	1	2	3	4	5
a. Mold Number					
b. Mass of Mold (g)	2017.2	2017.2	2017.2	2017.2	2017.2
c. Volume of Mold (cf)	0.0333	0.0333	0.0333	0.0333	0.0333
d. Mass of Wet Soil+Mold (g)	3665.5	3742.4	3784.7	3783.6	3752.5
e. Mass of Wet Soil (g)	1648.3	1725.2	1767.5	1766.4	1735.3
f. Wet Unit Weight (lbs/cf)	109.1	114.2	117.0	116.9	114.9
g. Container No.	DT42	DT27	DT44	DT20	DT45
h. Mass of Tare (g)	178.10	209.60	176.00	212.70	177.20
i. Mass of Wet Soil+Tare (g)	389.60	402.20	432.20	461.00	391.40
j. Mass of Dry Soil+Tare (g)	350.90	364.90	378.00	403.80	339.30
k. Mass of Water (g)	38.70	37.30	54.20	57.20	52.10
l. Mass of Dry Soil (g)	172.80	155.30	202.00	191.10	162.10
m. Moisture Content %	22.4	24.0	26.8	29.9	32.1
n. Dry Unit Weight (lbs/cf)	89.2	92.1	92.3	90.0	86.9



Test Results	
Compaction Curve Control No.	2762-024 Curve 1
Optimum Moisture Content (%)	26.5
Max. Dry Unit Weight (lbs/cf)	92.5
Classification of Sample	FAT CLAY
Liquid And Plastic Limits	
Liquid Limit	72
Plastic Limit	29
Plasticity Index	43
Symbol From Plastic Chart:	CH
% Passing 200	97.1
% Passing No. 4	100

Dry Unit Weight Scale

Min 85 Max 95

Moisture Content % Scale

Min 15 Max 22

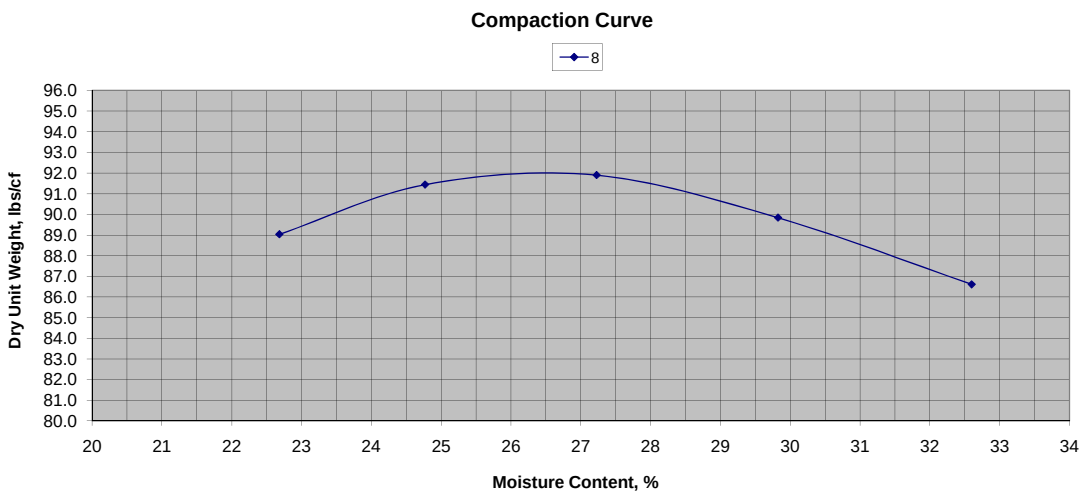
Change Graph Scale

Remarks: Avg. Curve 1 & 2; Max. Dry Unit Wt. = 92.1 lbs/cf; Optimum Moisture= 26.6%

TOLUNAY-WONG ENGINEERS, INC.

Compaction - Moisture Density Relationship - ASTM D 698

Laboratory	TOLUNAY-WONG ENGINEERS		**Test ID**	2762-024B	
USACE Contract Number	W912P8-09-D-0046 0008		**Contractor**	PHYLWAY	
Project	WBV-14c.2 PHASE 2, FIRST LIFT		**Date**	8/20/2010	
Source of Material	Material of Existing Levee	Feature	EMBANKMENT	Visual Description (ASTM D 2488)	BR. CLAY
Station	120+50	Offset		Lift Number	1
X-Coordinate		Y-Coordinate		Elevation (ft)	
Test Method	D698	Preparation Method	WET	As-Received Moisture Content	34.9
Hand / Mechanical Rammer	HAND	Specific Gravity		Specific Gravity Method: As Tested or Estimated	ESTIMATED
Percent Retained - No. 4 Sieve	0	Percent Retained - 3/8" Sieve			
Percent Retained - 3/4" Sieve	0	Oversize Fraction		ASTM D 3718 Correction - Yes/No	NO
Tested By	B. LANDERS	Checked By	G. LECOQ	Submitted By	G. LECOQ
Test Sequence Number	1	2	3	4	5
a. Mold Number					
b. Mass of Mold (g)	2017.2	2017.2	2017.2	2017.2	2017.2
c. Volume of Mold (cf)	0.0333	0.0333	0.0333	0.0333	0.0333
d. Mass of Wet Soil+Mold (g)	3667.1	3740.6	3783.3	3778.9	3751.8
e. Mass of Wet Soil (g)	1649.9	1723.4	1766.1	1761.7	1734.6
f. Wet Unit Weight (lbs/cf)	109.2	114.1	116.9	116.6	114.8
g. Container No.	DT40	DT08	DT41	DT43	DT14
h. Mass of Tare (g)	176.20	187.50	178.10	179.90	245.10
i. Mass of Wet Soil+Tare (g)	427.70	364.30	402.40	424.10	479.40
j. Mass of Dry Soil+Tare (g)	381.20	329.20	354.40	368.00	421.80
k. Mass of Water (g)	46.50	35.10	48.00	56.10	57.60
l. Mass of Dry Soil (g)	205.00	141.70	176.30	188.10	176.70
m. Moisture Content %	22.7	24.8	27.2	29.8	32.6
n. Dry Unit Weight (lbs/cf)	89.0	91.4	91.9	89.8	86.6



Test Results	
Compaction Curve Control No.	2762-024 Curve 2
Optimum Moisture Content (%)	26.7
Max. Dry Unit Weight (lbs/cf)	91.7
Classification of Sample	FAT CLAY
Liquid And Plastic Limits	
Liquid Limit	72
Plastic Limit	29
Plasticity Index	43
Symbol From Plastic Chart:	CH
% Passing 200	97.1
% Passing No. 4	100.0

Dry Unit Weight Scale

Min 85 Max 95

Moisture Content % Scale

Min 15 Max 22

Change Graph Scale

Remarks: Avg. Curve 1 & 2; Maximum Dry Unit Wt. = 92.1 lbs/cf; Optimum Moisture = 26.6%

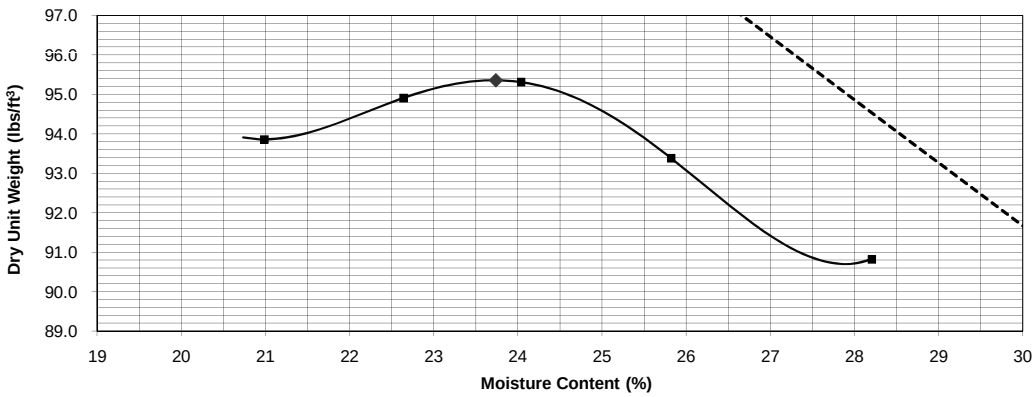
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Toulunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3616	**Test No**	361A
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/20/2010		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	BR. GR. CL.		
Station		**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	29.5		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	B. Landers	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	S03	S03	S03	S03	S03
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3760.7	3803.6	3831.2	3820.2	3804.2
Wet Soil Mass (g)	1715.2	1758.1	1785.7	1774.7	1758.7
Wet Unit Weight (lbs/ft³)	113.6	116.4	118.2	117.5	116.4
Tare No	53	35	31	26	78
Tare Mass (g)	249.5	237.4	251.3	244.5	251.5
Wet Soil + Tare Mass (g)	357.3	354.4	377.2	366.8	402.4
Dry Soil + Tare Mass (g)	338.6	332.8	352.8	341.7	369.2
Moisture Content (%)	**21.0**	**22.6**	**24.0**	**25.8**	**28.2**
Dry Unit Weight (lbs/ft³)	**93.9**	**94.9**	**95.3**	**93.4**	**90.8**

Compaction Curve



Proctor Test Results

Proctor No	3616
Optimum Moisture Content (%)	23.4
Max Dry Unit Weight (lbs/ft³)	95.0

Liquid And Plastic Limits

Liquid Limit	54
Plastic Limit	23
Plasticity Index	31
Group Symbol	CH
Sand Content (Retained No 200) (%)	5.2
Fines (Minus No 200) (%)	94.8

Remarks	Avergae Max DD: 95.5pcf / Average Optimum Moisture: 24.0%M	SAMPLE COLLECTED FROM RIVER BURCH PIT EAST STOCKPILE
Version	**MVNQS02-101130**	

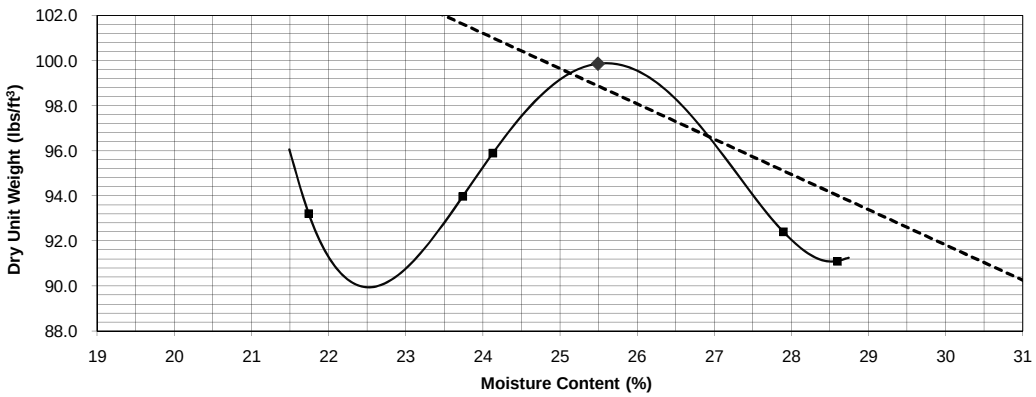
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Toulunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3616	**Test No**	361B
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/20/2010		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	BR. G. CL.		
Station		**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	29.5		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	B. Landers	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	S03	S03	S03	S03	S03
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3759.5	3801.8	3843.5	3830.5	3814.8
Wet Soil Mass (g)	1714.0	1756.3	1798.0	1785.0	1769.3
Wet Unit Weight (lbs/ft³)	113.5	116.3	119.0	118.2	117.1
Tare No	9	41	51	57	38
Tare Mass (g)	305.8	259.3	260.7	261.5	258.9
Wet Soil + Tare Mass (g)	444.1	359.9	385.7	421.5	394.7
Dry Soil + Tare Mass (g)	419.4	340.6	361.4	386.6	364.5
Moisture Content (%)	**21.7**	**23.7**	**24.1**	**27.9**	**28.6**
Dry Unit Weight (lbs/ft³)	**93.2**	**94.0**	**95.9**	**92.4**	**91.1**

Compaction Curve



Proctor Test Results	
Proctor No	3616
Optimum Moisture Content (%)	24.6
Max Dry Unit Weight (lbs/ft³)	96.0

Liquid And Plastic Limits	
Liquid Limit	54
Plastic Limit	23
Plasticity Index	31
Group Symbol	CH
Sand Content (Retained No 200) (%)	5.2
Fines (Minus No 200) (%)	94.8

Remarks	Avergae Max DD: 95.5pcf / Average Optimum Moisture: 24.0%M	SAMPLE COLLECTED FROM RIVER BURCH PIT EAST STOCKPILE
Version	**MVNQS02-101130**	

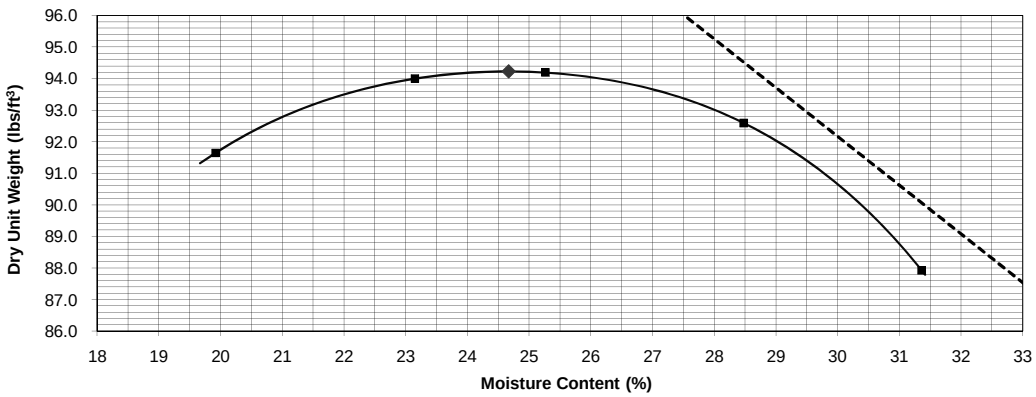
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Toulunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3649	**Test No**	362A
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/20/2010		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	G. BR. CL.		
Station		**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	27.5		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	B. Landers	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	S03	S03	S03	S03	S03
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3705.5	3794.0	3827.7	3842.4	3790.0
Wet Soil Mass (g)	1660.0	1748.5	1782.2	1796.9	1744.5
Wet Unit Weight (lbs/ft³)	109.9	115.8	118.0	119.0	115.5
Tare No	75	20	66	1	70
Tare Mass (g)	243.9	251.1	246.0	321.3	246.3
Wet Soil + Tare Mass (g)	422.7	342.6	399.7	461.6	406.3
Dry Soil + Tare Mass (g)	393.0	325.4	368.7	430.5	368.1
Moisture Content (%)	**19.9**	**23.1**	**25.3**	**28.5**	**31.4**
Dry Unit Weight (lbs/ft³)	**91.6**	**94.0**	**94.2**	**92.6**	**87.9**

Compaction Curve



Proctor Test Results

Proctor No	3649
Optimum Moisture Content (%)	24.5
Max Dry Unit Weight (lbs/ft³)	94.5

Liquid And Plastic Limits

Liquid Limit	59
Plastic Limit	23
Plasticity Index	36
Group Symbol	CH
Sand Content (Retained No 200) (%)	6
Fines (Minus No 200) (%)	94

Remarks	Avergae Max DD: 94.8pcf / Average Optimum Moisture: 24.1 %M	SAMPLE COLLECTED FROM RIVER BURCH PIT WEST STOCKPILE
Version	**MVNQS02-101130**	

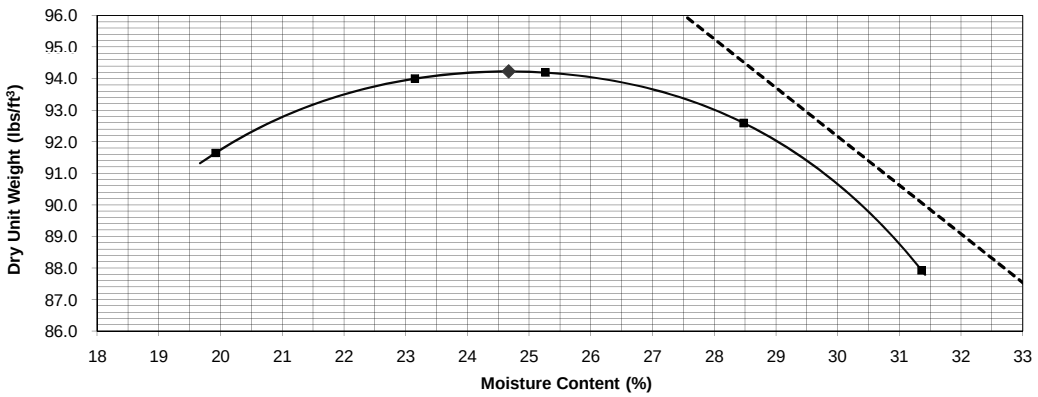
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Toulunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3649	**Test No**	362A
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**			
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	G. BR. CL.		
Station		**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	27.5		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	B. Landers	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	S03	S03	S03	S03	S03
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3705.5	3794.0	3827.7	3842.4	3790.0
Wet Soil Mass (g)	1660.0	1748.5	1782.2	1796.9	1744.5
Wet Unit Weight (lbs/ft³)	109.9	115.8	118.0	119.0	115.5
Tare No	75	20	66	1	70
Tare Mass (g)	243.9	251.1	246.0	321.3	246.3
Wet Soil + Tare Mass (g)	422.7	342.6	399.7	461.6	406.3
Dry Soil + Tare Mass (g)	393.0	325.4	368.7	430.5	368.1
Moisture Content (%)	**19.9**	**23.1**	**25.3**	**28.5**	**31.4**
Dry Unit Weight (lbs/ft³)	**91.6**	**94.0**	**94.2**	**92.6**	**87.9**

Compaction Curve



Proctor Test Results

Proctor No	3649
Optimum Moisture Content (%)	24.5
Max Dry Unit Weight (lbs/ft³)	94.5

Liquid And Plastic Limits

Liquid Limit	59
Plastic Limit	23
Plasticity Index	36
Group Symbol	CH
Sand Content (Retained No 200) (%)	6
Fines (Minus No 200) (%)	94

Remarks	Avergae Max DD: 94.8pcf / Average Optimum Moisture: 24.1 %M	SAMPLE COLLECTED FROM RIVER BURCH PIT WEST STOCKPILE
Version	**MVNQS02-101130**	

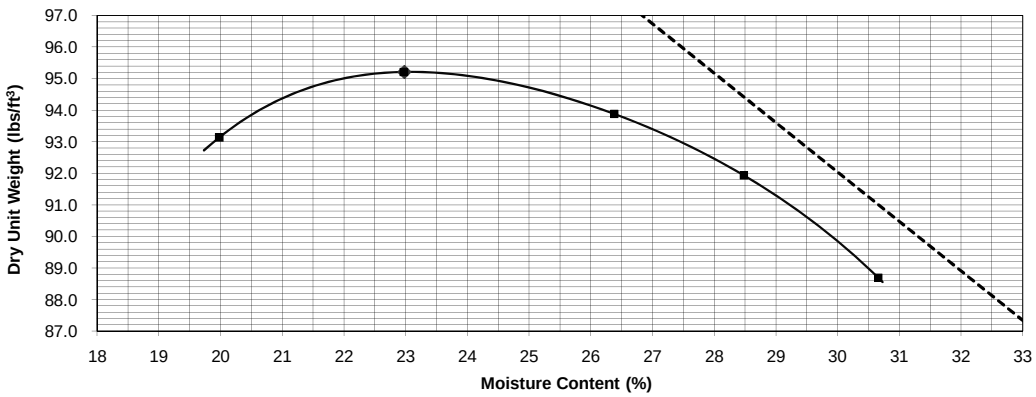
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Toulunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3649	**Test No**	362B
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/20/2010		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	G. BR. CL		
Station		**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	27.5		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	B. Landers	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	S03	S03	S03	S03	S03
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3733.3	3813.9	3837.6	3829.6	3795.8
Wet Soil Mass (g)	1687.8	1768.4	1792.1	1784.1	1750.3
Wet Unit Weight (lbs/ft³)	111.7	117.1	118.6	118.1	115.9
Tare No	16	18	8	60	55
Tare Mass (g)	249.1	254.8	313.3	256.8	252.8
Wet Soil + Tare Mass (g)	364.4	397.2	448.4	420.1	371.7
Dry Soil + Tare Mass (g)	345.2	370.6	420.2	383.9	343.8
Moisture Content (%)	**20.0**	**23.0**	**26.4**	**28.5**	**30.7**
Dry Unit Weight (lbs/ft³)	**93.1**	**95.2**	**93.9**	**91.9**	**88.7**

Compaction Curve



Proctor Test Results	
Proctor No	3649
Optimum Moisture Content (%)	23.7
Max Dry Unit Weight (lbs/ft³)	95.0

Liquid And Plastic Limits	
Liquid Limit	59
Plastic Limit	23
Plasticity Index	36
Group Symbol	CH
Sand Content (Retained No 200) (%)	6
Fines (Minus No 200) (%)	94

Remarks	Avergae Max DD: 94.8pcf / Average Optimum Moisture: 24.1 %M	SAMPLE COLLECTED FROM RIVER BURCH PIT WEST STOCKPILE
Version	**MVNQS02-101130**	

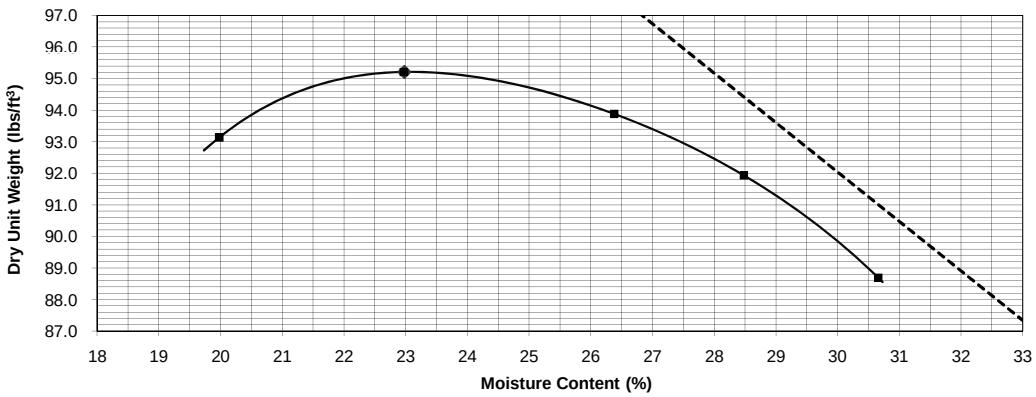
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Toulunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3649	**Test No**	362B
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**			
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	G. BR. CL		
Station		**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	27.5		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	B. Landers	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	S03	S03	S03	S03	S03
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3733.3	3813.9	3837.6	3829.6	3795.8
Wet Soil Mass (g)	1687.8	1768.4	1792.1	1784.1	1750.3
Wet Unit Weight (lbs/ft³)	111.7	117.1	118.6	118.1	115.9
Tare No	16	18	8	60	55
Tare Mass (g)	249.1	254.8	313.3	256.8	252.8
Wet Soil + Tare Mass (g)	364.4	397.2	448.4	420.1	371.7
Dry Soil + Tare Mass (g)	345.2	370.6	420.2	383.9	343.8
Moisture Content (%)	**20.0**	**23.0**	**26.4**	**28.5**	**30.7**
Dry Unit Weight (lbs/ft³)	**93.1**	**95.2**	**93.9**	**91.9**	**88.7**

Compaction Curve



Proctor Test Results

Proctor No	3649
Optimum Moisture Content (%)	23.7
Max Dry Unit Weight (lbs/ft³)	95.0

Liquid And Plastic Limits

Liquid Limit	59
Plastic Limit	23
Plasticity Index	36
Group Symbol	CH
Sand Content (Retained No 200) (%)	6
Fines (Minus No 200) (%)	94

Remarks	Avergae Max DD: 94.8pcf / Average Optimum Moisture: 24.1 %M	SAMPLE COLLECTED FROM RIVER BURCH PIT WEST STOCKPILE
Version	**MVNQS02-101130**	

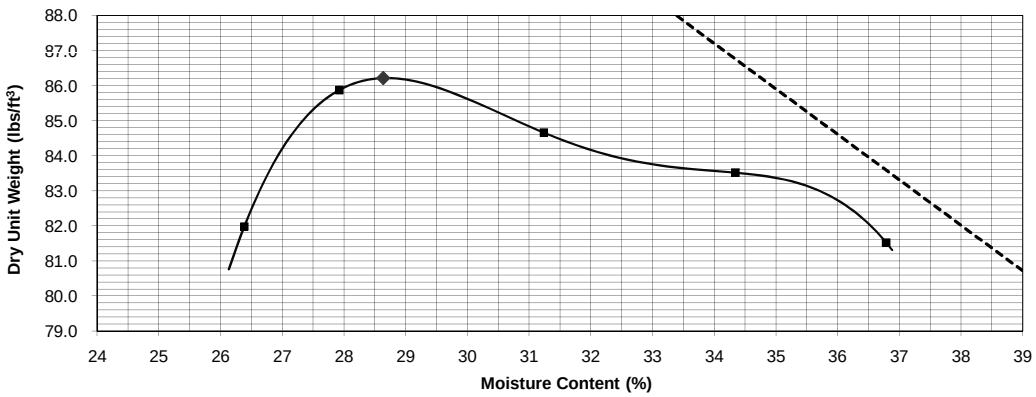
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Toulunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3804	**Test No**	387A
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	1/22/2011		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	GR. BR. CL.		
Station		**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	43.1		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	B. Landers	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.4	2016.4	2016.4	2016.4	2016.4
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3581.4	3675.7	3694.6	3711.1	3700.8
Wet Soil Mass (g)	1565.0	1659.3	1678.2	1694.7	1684.4
Wet Unit Weight (lbs/ft³)	103.6	109.9	111.1	112.2	111.5
Tare No	DT43	DT48	DT47	DT14	DT46
Tare Mass (g)	179.8	183.4	178.1	245.1	177.8
Wet Soil + Tare Mass (g)	407.8	404.2	403.7	542.4	451.1
Dry Soil + Tare Mass (g)	360.2	356.0	350.0	466.4	377.6
Moisture Content (%)	**26.4**	**27.9**	**31.2**	**34.3**	**36.8**
Dry Unit Weight (lbs/ft³)	**82.0**	**85.9**	**84.7**	**83.5**	**81.5**

Compaction Curve



Proctor Test Results	
Proctor No	3804
Optimum Moisture Content (%)	30.8
Max Dry Unit Weight (lbs/ft³)	85.2

Liquid And Plastic Limits	
Liquid Limit	84
Plastic Limit	27
Plasticity Index	57
Group Symbol	CH
Sand Content (Retained No 200) (%)	5.1
Fines (Minus No 200) (%)	94.9

Remarks	Avergae Max DD: 85.5pcf / Average Optimum Moisture: 31.1%M	Sample collected from River Burch Pit. South End of Stock Pile B.
Version	**MVNQS02-101130**	

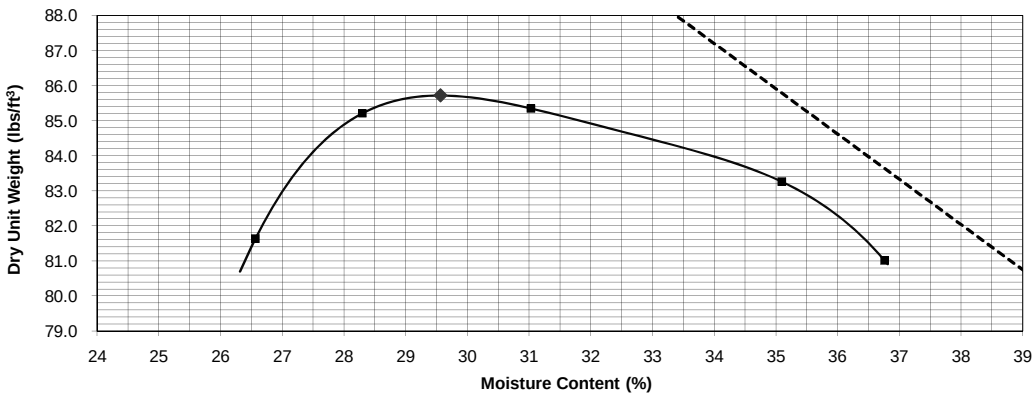
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Toulunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3804	**Test No**	387B
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	1/22/2011		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	GR. BR. CL.		
Station		**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	43.1		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	R. FISHER	**Reviewed By**	B. Landers	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.4	2016.4	2016.4	2016.4	2016.4
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3577.1	3667.7	3705.6	3715.4	3690.0
Wet Soil Mass (g)	1560.7	1651.3	1689.2	1699.0	1673.6
Wet Unit Weight (lbs/ft³)	103.3	109.3	111.8	112.5	110.8
Tare No	DT40	DT31	DT04	DT41	DT50
Tare Mass (g)	176.2	210.9	233.4	178.0	180.6
Wet Soil + Tare Mass (g)	406.8	492.9	499.0	466.7	458.5
Dry Soil + Tare Mass (g)	358.4	430.7	436.1	391.7	383.8
Moisture Content (%)	**26.6**	**28.3**	**31.0**	**35.1**	**36.8**
Dry Unit Weight (lbs/ft³)	**81.6**	**85.2**	**85.3**	**83.3**	**81.0**

Compaction Curve



Proctor Test Results

Proctor No	3804
Optimum Moisture Content (%)	31.3
Max Dry Unit Weight (lbs/ft³)	85.8

Liquid And Plastic Limits

Liquid Limit	84
Plastic Limit	27
Plasticity Index	57
Group Symbol	CH
Sand Content (Retained No 200) (%)	5.1
Fines (Minus No 200) (%)	94.9

Remarks	Avergae Max DD: 85.5pcf / Average Optimum Moisture: 31.1 %M	Sample collected from River Burch Pit. South End of Stock Pile B.
Version	**MVNQS02-101130**	

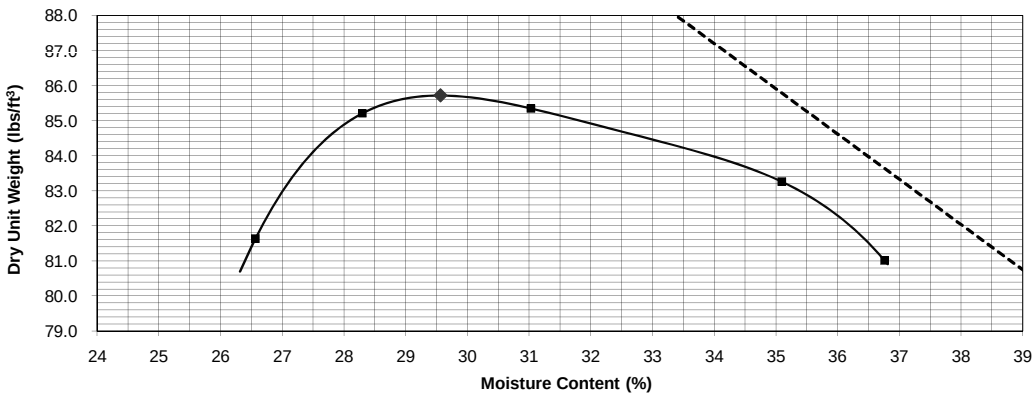
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Toulunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3804	**Test No**	387B
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	1/22/2011		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	GR. BR. CL.		
Station		**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	43.1		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	R. FISHER	**Reviewed By**	B. Landers	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.4	2016.4	2016.4	2016.4	2016.4
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3577.1	3667.7	3705.6	3715.4	3690.0
Wet Soil Mass (g)	1560.7	1651.3	1689.2	1699.0	1673.6
Wet Unit Weight (lbs/ft³)	103.3	109.3	111.8	112.5	110.8
Tare No	DT40	DT31	DT04	DT41	DT50
Tare Mass (g)	176.2	210.9	233.4	178.0	180.6
Wet Soil + Tare Mass (g)	406.8	492.9	499.0	466.7	458.5
Dry Soil + Tare Mass (g)	358.4	430.7	436.1	391.7	383.8
Moisture Content (%)	**26.6**	**28.3**	**31.0**	**35.1**	**36.8**
Dry Unit Weight (lbs/ft³)	**81.6**	**85.2**	**85.3**	**83.3**	**81.0**

Compaction Curve



Proctor Test Results	
Proctor No	3804
Optimum Moisture Content (%)	31.3
Max Dry Unit Weight (lbs/ft³)	85.8

Liquid And Plastic Limits	
Liquid Limit	84
Plastic Limit	27
Plasticity Index	57
Group Symbol	CH
Sand Content (Retained No 200) (%)	5.1
Fines (Minus No 200) (%)	91.9

Remarks	Avergae Max DD: 85.5pcf / Average Optimum Moisture: 31.1 %M	Sample collected from River Burch Pit. South End of Stock Pile B.
Version	**MVNQS02-101130**	

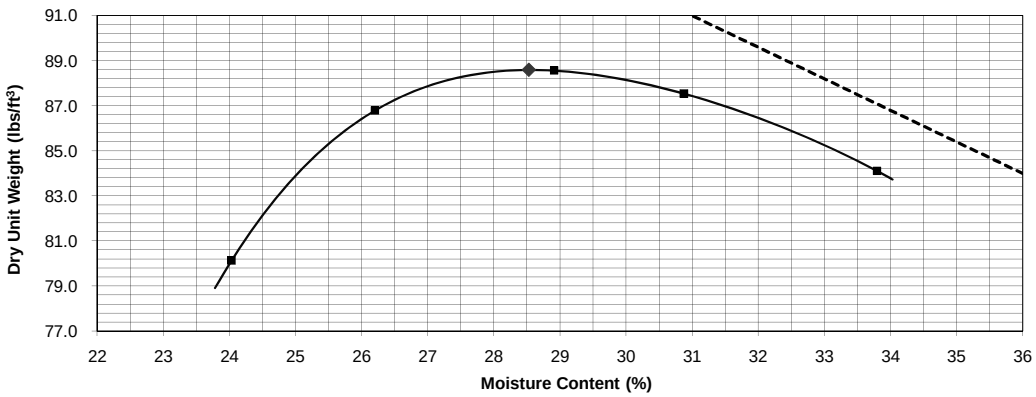
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Toulunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3815	**Test No**	388A
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	1/22/2011		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	GR. BR. CL.		
Station		**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	39.6		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	B. Landers	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.4	2016.4	2016.4	2016.4	2016.4
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3517.6	3670.8	3740.8	3746.8	3716.2
Wet Soil Mass (g)	1501.2	1654.4	1724.4	1730.4	1699.8
Wet Unit Weight (lbs/ft³)	99.4	109.5	114.2	114.6	112.5
Tare No	DT42	DT44	DT01	DT02	DT41
Tare Mass (g)	178.1	175.9	171.8	178.8	177.9
Wet Soil + Tare Mass (g)	443.9	441.3	393.0	452.2	476.4
Dry Soil + Tare Mass (g)	392.4	386.2	343.4	387.7	401.0
Moisture Content (%)	**24.0**	**26.2**	**28.9**	**30.9**	**33.8**
Dry Unit Weight (lbs/ft³)	**80.1**	**86.8**	**88.6**	**87.5**	**84.1**

Compaction Curve



Proctor Test Results	
Proctor No	3815
Optimum Moisture Content (%)	29.5
Max Dry Unit Weight (lbs/ft³)	88.8

Liquid And Plastic Limits	
Liquid Limit	75
Plastic Limit	21
Plasticity Index	54
Group Symbol	CH
Sand Content (Retained No 200) (%)	4.6
Fines (Minus No 200) (%)	95.4

Remarks	Avergae Max DD: 88.9 pcf / Average Optimum Moisture: 29.6 %M	Sample collected from River Burch Pit. Northeast Corner of Stock Pile B.
Version	**MVNQS02-101130**	

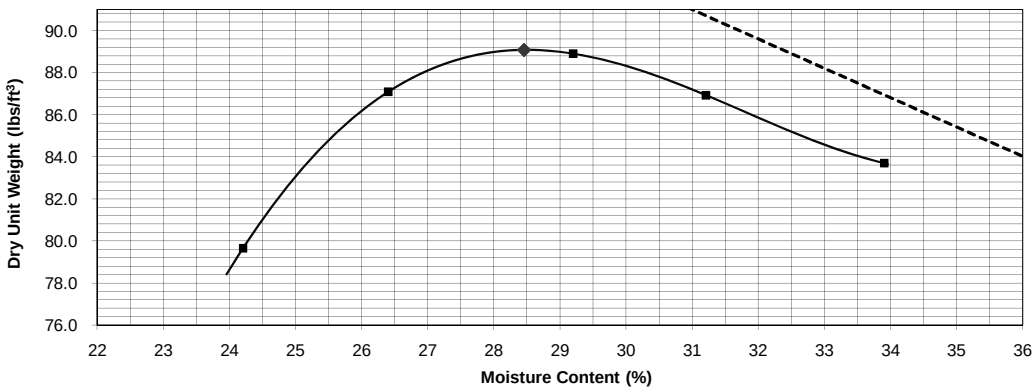
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Toulunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3815	**Test No**	388B
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	1/22/2011		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	GR. BR. CL.		
Station		**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	39.6		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	R. FISHER	**Reviewed By**	B. Landers	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.4	2016.4	2016.4	2016.4	2016.4
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3510.8	3679.2	3751.3	3739.1	3709.2
Wet Soil Mass (g)	1494.4	1662.8	1734.9	1722.7	1692.8
Wet Unit Weight (lbs/ft³)	98.9	110.1	114.9	114.1	112.1
Tare No	DT27	DT25	DT24	DT50	DT04
Tare Mass (g)	209.4	205.6	206.4	180.7	233.4
Wet Soil + Tare Mass (g)	510.6	426.3	482.5	516.2	466.8
Dry Soil + Tare Mass (g)	451.9	380.2	420.1	436.4	407.7
Moisture Content (%)	**24.2**	**26.4**	**29.2**	**31.2**	**33.9**
Dry Unit Weight (lbs/ft³)	**79.7**	**87.1**	**88.9**	**86.9**	**83.7**

Compaction Curve



Proctor Test Results	
Proctor No	3815
Optimum Moisture Content (%)	29.6
Max Dry Unit Weight (lbs/ft³)	88.9

Liquid And Plastic Limits	
Liquid Limit	75
Plastic Limit	21
Plasticity Index	54
Group Symbol	CH
Sand Content (Retained No 200) (%)	4.6
Fines (Minus No 200) (%)	95.4

Remarks	Avergae Max DD: 88.9 pcf / Average Optimum Moisture: 29.6 %M	Sample collected from River Burch Pit. Northeast Corner of Stock Pile B.
Version	**MVNQS02-101130**	

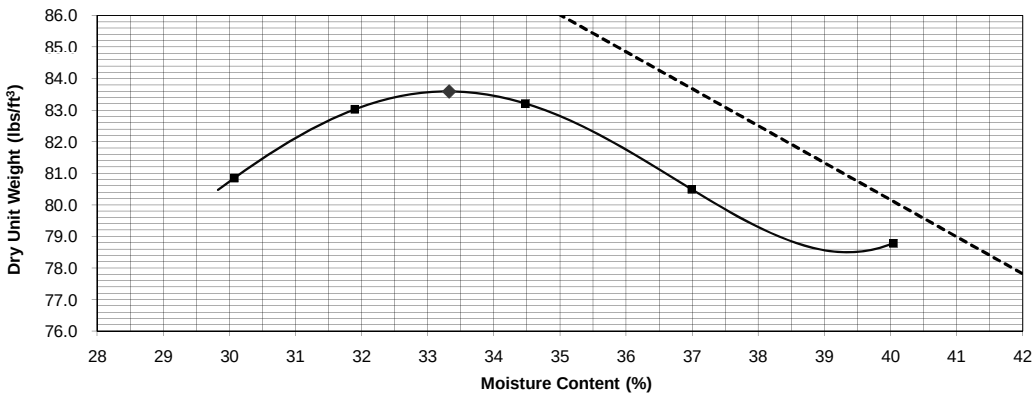
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Toulunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3824	**Test No**	389A
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	1/22/2011		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	GR. BR. CL.		
Station		**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	50.9		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	B. Landers	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.4	2016.4	2016.4	2016.4	2016.4
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3604.9	3670.5	3706.6	3681.9	3682.9
Wet Soil Mass (g)	1588.5	1654.1	1690.2	1665.5	1666.5
Wet Unit Weight (lbs/ft³)	105.2	109.5	111.9	110.3	110.3
Tare No	dt40	dt02	dt30	dt50	dt46
Tare Mass (g)	176.2	178.9	203.4	180.7	179.2
Wet Soil + Tare Mass (g)	467.7	390.2	492.8	475.1	421.9
Dry Soil + Tare Mass (g)	400.3	339.1	418.6	395.6	352.5
Moisture Content (%)	**30.1**	**31.9**	**34.5**	**37.0**	**40.0**
Dry Unit Weight (lbs/ft³)	**80.9**	**83.0**	**83.2**	**80.5**	**78.8**

Compaction Curve



Proctor Test Results	
Proctor No	3824
Optimum Moisture Content (%)	33.7
Max Dry Unit Weight (lbs/ft³)	82.7

Liquid And Plastic Limits	
Liquid Limit	92
Plastic Limit	31
Plasticity Index	61
Group Symbol	CH
Sand Content (Retained No 200) (%)	6.3
Fines (Minus No 200) (%)	93.7

Remarks	Avergae Max DD: 82.9 pcf / Average Optimum Moisture: 33.7 %M	Sample collected from River Burch Pit. Center of Stock Pile A.
Version	**MVNQS02-101130**	

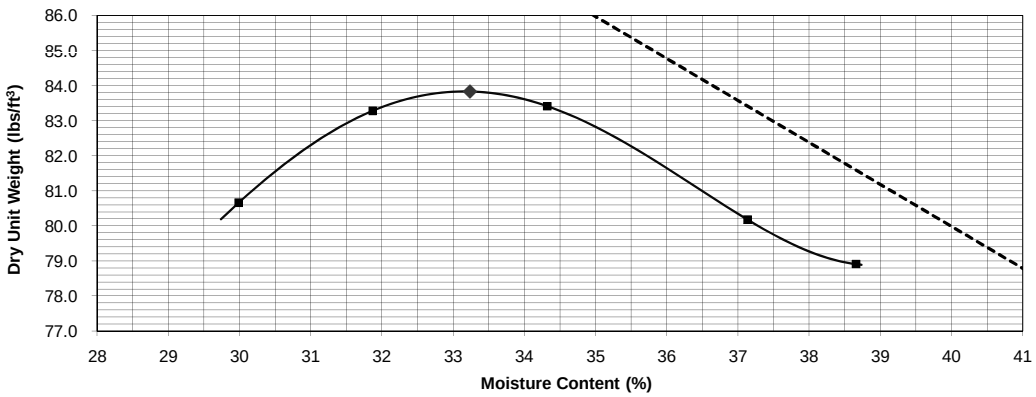
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Toulunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3824	**Test No**	389B
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	1/22/2011		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	GR. BR. CL.		
Station		**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	50.9		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	R. FISHER	**Reviewed By**	B. Landers	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.4	2016.4	2016.4	2016.4	2016.4
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3600.1	3675.2	3708.7	3677.2	3669.1
Wet Soil Mass (g)	1583.7	1658.8	1692.3	1660.8	1652.7
Wet Unit Weight (lbs/ft³)	104.8	109.8	112.0	110.0	109.4
Tare No	DT47	DT43	DT31	DT04	DT48
Tare Mass (g)	178.1	179.9	211.0	233.4	183.6
Wet Soil + Tare Mass (g)	373.6	477.4	491.6	548.4	475.2
Dry Soil + Tare Mass (g)	328.5	405.5	419.9	463.1	393.9
Moisture Content (%)	**30.0**	**31.9**	**34.3**	**37.1**	**38.7**
Dry Unit Weight (lbs/ft³)	**80.7**	**83.3**	**83.4**	**80.2**	**78.9**

Compaction Curve



Proctor Test Results	
Proctor No	3824
Optimum Moisture Content (%)	33.6
Max Dry Unit Weight (lbs/ft³)	83.0

Liquid And Plastic Limits	
Liquid Limit	92
Plastic Limit	31
Plasticity Index	61
Group Symbol	CH
Sand Content (Retained No 200) (%)	6.3
Fines (Minus No 200) (%)	93.7

Remarks	Avergae Max DD: 82.9pcf / Average Optimum Moisture: 33.7 %M	Sample collected from River Burch Pit. Center of Stock Pile A.
Version	**MVNQS02-101130**	

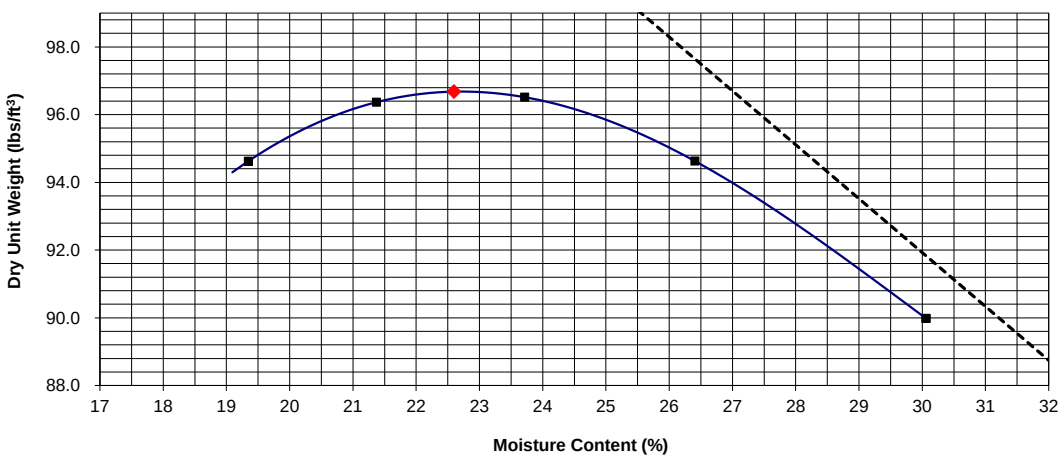
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Toulunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	4171	**Test No**	498A
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	3/14/2011		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	GR. BR. CL.		
Station	65+00	**Offset**	P.S. -131.2	**Lift No**	4		
Latitude (°N)	29.885679	**Longitude (°W)**	90.136025	**Elevation (ft)**	6.9		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	24.6		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	B. Landers	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.4	2016.4	2016.4	2016.4	2016.4
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3722.2	3783.1	3820.0	3823.2	3784.1
Wet Soil Mass (g)	1705.8	1766.7	1803.6	1806.8	1767.7
Wet Unit Weight (lbs/ft³)	112.9	117.0	119.4	119.6	117.0
Tare No	DT04	DT24	DT14	DT49	DT01
Tare Mass (g)	233.4	206.5	245.0	176.3	171.9
Wet Soil + Tare Mass (g)	518.4	495.0	668.6	477.4	434.1
Dry Soil + Tare Mass (g)	472.2	444.2	587.4	414.5	373.5
Moisture Content (%)	**19.3**	**21.4**	**23.7**	**26.4**	**30.1**
Dry Unit Weight (lbs/ft³)	**94.6**	**96.4**	**96.5**	**94.6**	**90.0**

Compaction Curve



Proctor Test Results	
Proctor No	4171
Optimum Moisture Content (%)	22.9
Max Dry Unit Weight (lbs/ft³)	96.5

Liquid And Plastic Limits	
Liquid Limit	60
Plastic Limit	22
Plasticity Index	38
Group Symbol	CH
Sand Content (Retained No 200) (%)	11.8
Fines (Minus No 200) (%)	88.2

Remarks	Avergae Max DD: 96.6 pcf / Average Optimum Moisture: 22.8 %M	MATERIAL SAMPLED FROM EXISITING SUBGRADE ON SITE (DE-GRADE)
Version	**MVNQS02-101130**	

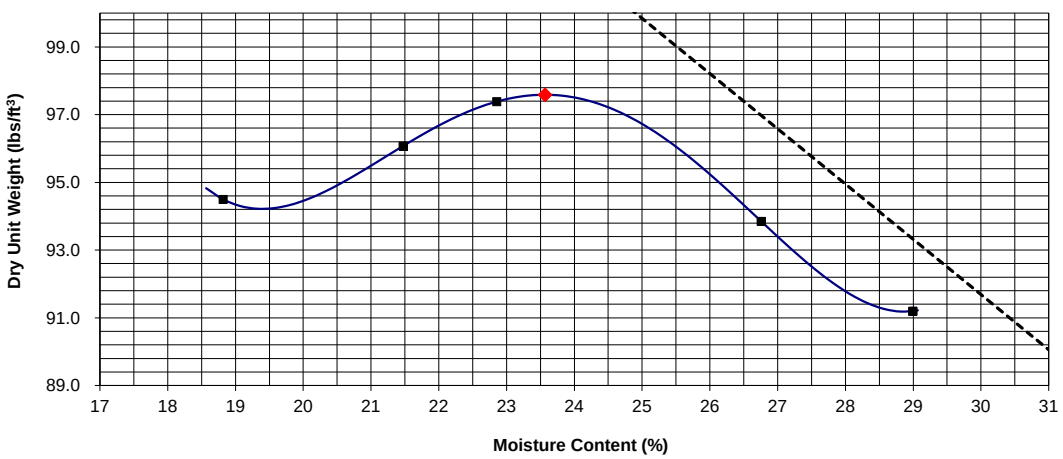
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Toulunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	4171	**Test No**	498B
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	3/14/2011		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	GR. BR. CL.		
Station	65+00	**Offset**	P.S. -131.2	**Lift No**	4		
Latitude (°N)	29.885679	**Longitude (°W)**	90.136025	**Elevation (ft)**	6.9		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	24.6		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	B. Landers	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.4	2016.4	2016.4	2016.4	2016.4
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3712.3	3779.1	3823.5	3813.2	3793.2
Wet Soil Mass (g)	1695.9	1762.7	1807.1	1796.8	1776.8
Wet Unit Weight (lbs/ft³)	112.3	116.7	119.6	119.0	117.6
Tare No	DT-11	DT31	DT08	DT47	DT02
Tare Mass (g)	181.0	211.0	187.4	178.1	178.9
Wet Soil + Tare Mass (g)	530.8	463.3	579.8	479.4	453.4
Dry Soil + Tare Mass (g)	475.4	418.7	506.8	415.8	391.7
Moisture Content (%)	**18.8**	**21.5**	**22.9**	**26.8**	**29.0**
Dry Unit Weight (lbs/ft³)	**94.5**	**96.1**	**97.4**	**93.8**	**91.2**

Compaction Curve



Proctor Test Results	
Proctor No	4171
Optimum Moisture Content (%)	22.7
Max Dry Unit Weight (lbs/ft³)	96.6

Liquid And Plastic Limits	
Liquid Limit	60
Plastic Limit	22
Plasticity Index	38
Group Symbol	CH
Sand Content (Retained No 200) (%)	11.8
Fines (Minus No 200) (%)	88.2

Remarks	Avergae Max DD: 96.6 pcf / Average Optimum Moisture: 22.8 %M	MATERIAL SAMPLED FROM ON SITE EXISITING SUBGRADE (DE-GRADE)	
Version	**MVNQS02-101130**		

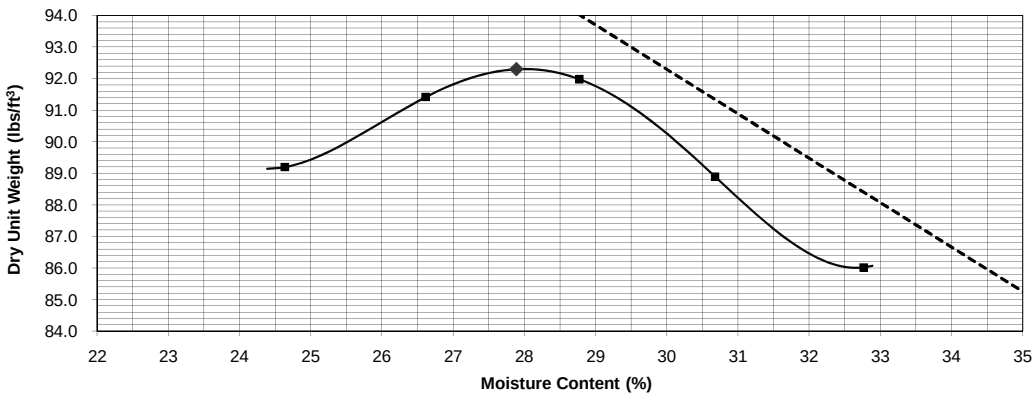
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Toulunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	4502	**Test No**	642A
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	4/27/2011		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	GR. BR. CL.		
Station	142+62	**Offset**	P.S. -90	**Lift No**	2		
Latitude (°N)	29.872090	**Longitude (°W)**	90.129965	**Elevation (ft)**	5.0		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	31.7		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	R. FISHER	**Reviewed By**	B. Landers	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.4	2016.4	2016.4	2016.4	2016.4
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3695.6	3764.7	3805.5	3771.0	3741.3
Wet Soil Mass (g)	1679.2	1748.3	1789.1	1754.6	1724.9
Wet Unit Weight (lbs/ft³)	111.2	115.7	118.4	116.2	114.2
Tare No	DT43	DT54	DT51	DT52	DT44
Tare Mass (g)	179.9	140.0	140.2	138.9	176.1
Wet Soil + Tare Mass (g)	385.8	334.1	331.3	404.7	363.3
Dry Soil + Tare Mass (g)	345.1	293.3	288.6	342.3	317.1
Moisture Content (%)	**24.6**	**26.6**	**28.8**	**30.7**	**32.8**
Dry Unit Weight (lbs/ft³)	**89.2**	**91.4**	**92.0**	**88.9**	**86.0**

Compaction Curve



Proctor Test Results	
Proctor No	4502
Optimum Moisture Content (%)	27.8
Max Dry Unit Weight (lbs/ft³)	91.6

Liquid And Plastic Limits	
Liquid Limit	68
Plastic Limit	23
Plasticity Index	45
Group Symbol	CH
Sand Content (Retained No 200) (%)	5
Fines (Minus No 200) (%)	95

Remarks	Avergae Max DD: 91.6 pcf / Average Optimum Moisture: 28.2 %M
Version	**MVNQS02-101130**

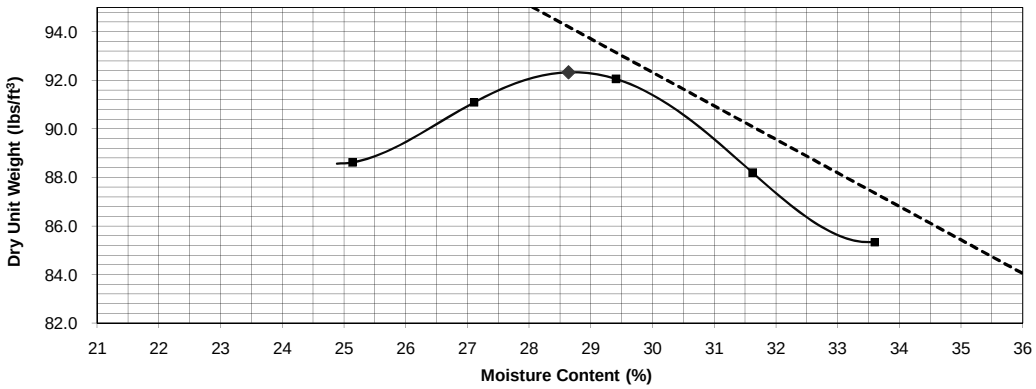
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Toulunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	4502	**Test No**	642B
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	4/27/2011		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	GR. BR. CL.		
Station	142+62	**Offset**	P.S. -90	**Lift No**	2		
Latitude (°N)	29.872090	**Longitude (°W)**	90.129965	**Elevation (ft)**	5.0		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	31.7		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	R. FISHER	**Reviewed By**	B. Landers	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.4	2016.4	2016.4	2016.4	2016.4
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3691.4	3765.3	3815.9	3769.8	3738.4
Wet Soil Mass (g)	1675.0	1748.9	1799.5	1753.4	1722.0
Wet Unit Weight (lbs/ft³)	110.9	115.8	119.1	116.1	114.0
Tare No	DT25	DT31	DT55	DT53	DT27
Tare Mass (g)	205.6	210.9	141.7	141.0	209.5
Wet Soil + Tare Mass (g)	387.8	445.8	367.9	394.9	458.8
Dry Soil + Tare Mass (g)	351.2	395.7	316.5	333.9	396.1
Moisture Content (%)	**25.1**	**27.1**	**29.4**	**31.6**	**33.6**
Dry Unit Weight (lbs/ft³)	**88.6**	**91.1**	**92.1**	**88.2**	**85.3**

Compaction Curve



Proctor Test Results	
Proctor No	4502
Optimum Moisture Content (%)	28.5
Max Dry Unit Weight (lbs/ft³)	91.6

Liquid And Plastic Limits	
Liquid Limit	68
Plastic Limit	23
Plasticity Index	45
Group Symbol	CH
Sand Content (Retained No 200) (%)	5
Fines (Minus No 200) (%)	95

Remarks	Avergae Max 91.6 DD: pcf / Average Optimum Moisture: 28.2 %M
Version	**MVNQS02-101130**

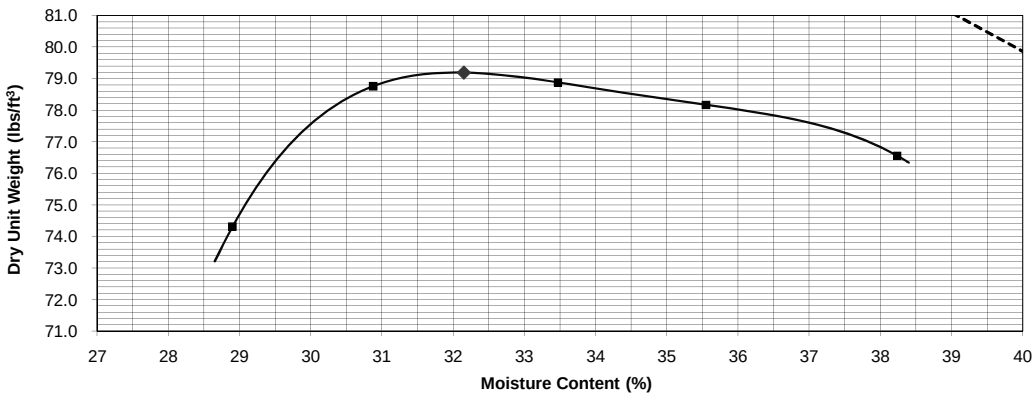
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Toulunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	4716	**Test No**	763A
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	5/23/2011		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	GR. BR. CL.		
Station	8+75	**Offset**	P.S. -26	**Lift No**	7		
Latitude (°N)	29.888899	**Longitude (°W)**	90.153081	**Elevation (ft)**	10.6		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	30.6		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	R. FISHER	**Reviewed By**	B. Landers	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.4	2016.4	2016.4	2016.4	2016.4
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3463.2	3573.3	3606.6	3616.8	3614.8
Wet Soil Mass (g)	1446.8	1556.9	1590.2	1600.4	1598.4
Wet Unit Weight (lbs/ft³)	95.8	103.1	105.3	106.0	105.8
Tare No	DT21	DT50	DT20	DT42	DT02
Tare Mass (g)	211.6	180.7	212.7	178.2	179.0
Wet Soil + Tare Mass (g)	441.3	574.9	435.2	439.0	453.4
Dry Soil + Tare Mass (g)	389.8	481.9	379.4	370.6	377.5
Moisture Content (%)	**28.9**	**30.9**	**33.5**	**35.6**	**38.2**
Dry Unit Weight (lbs/ft³)	**74.3**	**78.8**	**78.9**	**78.2**	**76.6**

Compaction Curve



Proctor Test Results	
Proctor No	4716
Optimum Moisture Content (%)	34.0
Max Dry Unit Weight (lbs/ft³)	79.2

Liquid And Plastic Limits	
Liquid Limit	90
Plastic Limit	29
Plasticity Index	61
Group Symbol	CH
Sand Content (Retained No 200) (%)	17.4
Fines (Minus No 200) (%)	82.6

Remarks	Avergae Max DD: 79.2 pcf / Average Optimum Moisture: 34.0 %M
Version	**MVNQS02-101130**

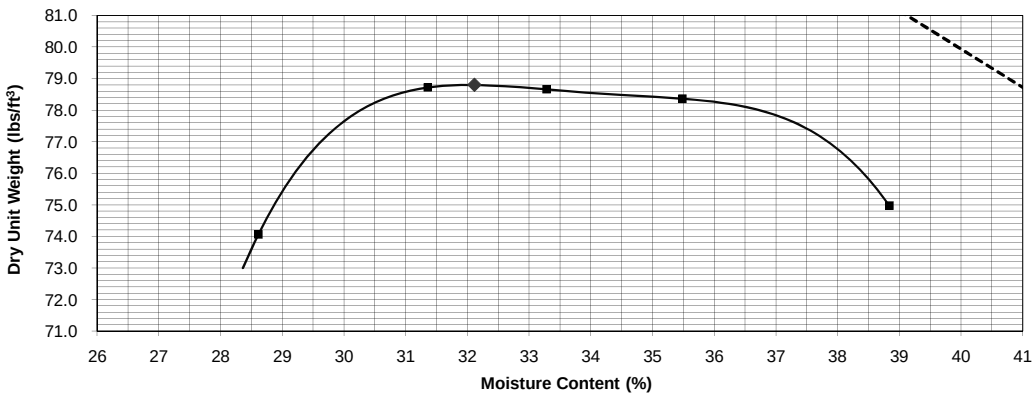
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Toulunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	4716	**Test No**	763B
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	5/23/2011		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	GR. BR. CL.		
Station	8+75	**Offset**	P.S. -26	**Lift No**	7		
Latitude (°N)	29.888899	**Longitude (°W)**	90.153081	**Elevation (ft)**	10.6		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	30.6		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	R. FISHER	**Reviewed By**	B. Landers	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.4	2016.4	2016.4	2016.4	2016.4
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3455.2	3578.3	3600.0	3620.1	3588.7
Wet Soil Mass (g)	1438.8	1561.9	1583.6	1603.7	1572.3
Wet Unit Weight (lbs/ft³)	95.3	103.4	104.8	106.2	104.1
Tare No	DT40	DT24	DT48	DT01	DT43
Tare Mass (g)	176.2	206.5	183.5	171.8	179.9
Wet Soil + Tare Mass (g)	387.9	496.8	449.8	476.1	438.0
Dry Soil + Tare Mass (g)	340.8	427.5	383.3	396.4	365.8
Moisture Content (%)	**28.6**	**31.4**	**33.3**	**35.5**	**38.8**
Dry Unit Weight (lbs/ft³)	**74.1**	**78.7**	**78.7**	**78.4**	**75.0**

Compaction Curve



Proctor Test Results	
Proctor No	4716
Optimum Moisture Content (%)	33.9
Max Dry Unit Weight (lbs/ft³)	79.1

Liquid And Plastic Limits	
Liquid Limit	90
Plastic Limit	29
Plasticity Index	61
Group Symbol	CH
Sand Content (Retained No 200) (%)	17.4
Fines (Minus No 200) (%)	82.6

Remarks	Avergae Max DD: 79.2 pcf / Average Optimum Moisture:34.0 %M
Version	**MVNQS02-101130**

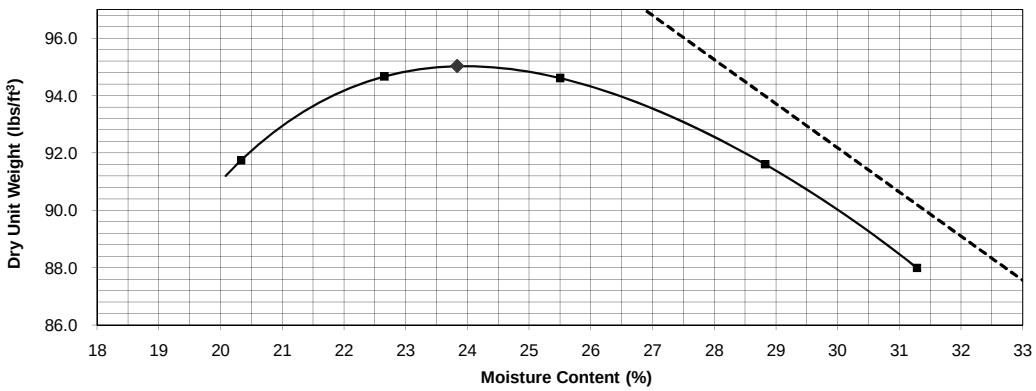
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3034	**Test No**	92A
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway, Inc.	**Revision**	1
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	9/29/2010		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	CR. CL. W/ SI.		
Station	99+25	**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	26.6		
Compaction Hammer	Manual	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.6	2016.6	2016.6	2016.6	2016.6
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3684.1	3770.5	3810.1	3799.1	3761.5
Wet Soil Mass (g)	1667.5	1753.9	1793.5	1782.5	1744.9
Wet Unit Weight (lbs/ft³)	110.4	116.1	118.7	118.0	115.5
Tare No	DT08	DT49	DT20	DT43	DT02
Tare Mass (g)	187.4	176.3	212.6	179.9	179.0
Wet Soil + Tare Mass (g)	439.5	487.6	486.7	381.9	440.0
Dry Soil + Tare Mass (g)	396.9	430.1	431.0	336.7	377.8
Moisture Content (%)	**20.3**	**22.7**	**25.5**	**28.8**	**31.3**
Dry Unit Weight (lbs/ft³)	**91.7**	**94.7**	**94.6**	**91.6**	**88.0**

Compaction Curve



Proctor Test Results	
Proctor No	3034-92 CURVE ONE
Optimum Moisture Content (%)	24.5
Max Dry Unit Weight (lbs/ft³)	94.7

Liquid And Plastic Limits	
Liquid Limit	67
Plastic Limit	24
Plasticity Index	43
Group Symbol	CH
Sand Content (Retained No 200) (%)	4.5
Fines (Minus No 200) (%)	95.5

Remarks	Average of Curve 1 & Curve 2: Opt. Moisture 24.8%, Max Dry Density 94.8 pcf
Version	**MVNQS02-100907**

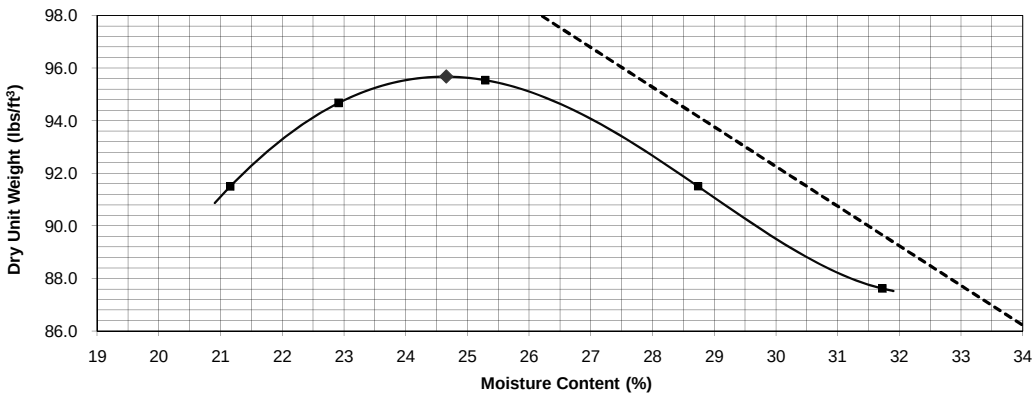
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3034	**Test No**	92B
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway, Inc.	**Revision**	1
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	9/29/2010		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	BR. CL. W/ SI.		
Station	99+25	**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	26.6		
Compaction Hammer	Manual	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.6	2016.6	2016.6	2016.6	2016.6
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3691.1	3774.3	3824.7	3796.0	3759.9
Wet Soil Mass (g)	1674.5	1757.7	1808.1	1779.4	1743.3
Wet Unit Weight (lbs/ft³)	110.9	116.4	119.7	117.8	115.4
Tare No	DT40	DT31	DT14	DT24	DT25
Tare Mass (g)	176.1	210.9	245.0	206.4	205.8
Wet Soil + Tare Mass (g)	408.6	446.4	461.0	457.7	383.5
Dry Soil + Tare Mass (g)	368.0	402.5	417.4	401.6	340.7
Moisture Content (%)	**21.2**	**22.9**	**25.3**	**28.7**	**31.7**
Dry Unit Weight (lbs/ft³)	**91.5**	**94.7**	**95.5**	**91.5**	**87.6**

Compaction Curve



Proctor Test Results	
Proctor No	3034-92 CURVE TWO
Optimum Moisture Content (%)	25.1
Max Dry Unit Weight (lbs/ft³)	94.9

Liquid And Plastic Limits	
Liquid Limit	67
Plastic Limit	24
Plasticity Index	43
Group Symbol	CH
Sand Content (Retained No 200) (%)	4.5
Fines (Minus No 200) (%)	95.5

Remarks	Average of Curve 1 & Curve 2: Opt. Moisture 24.8%, Max Dry Density 94.8 pcf
Version	**MVNQS02-100907**

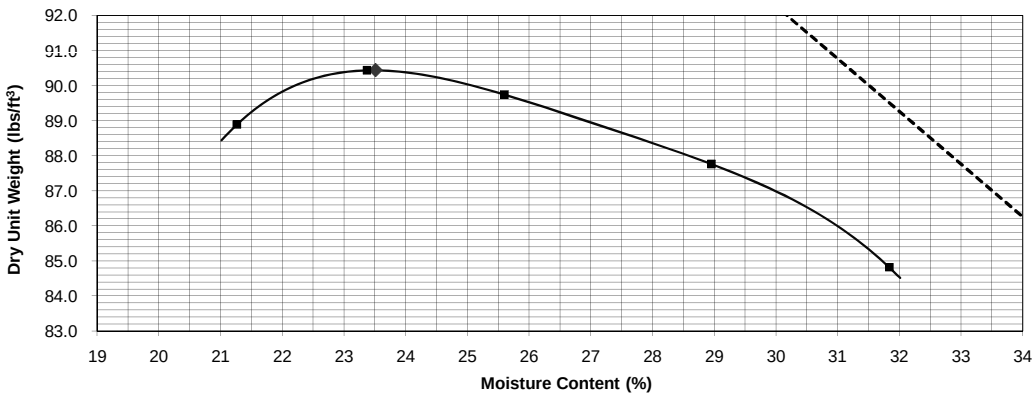
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3094	**Test No**	108A
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway, Inc.	**Revision**	1
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	10/2/2010		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	BR. FAT CLAY		
Station	77+00	**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	32.1		
Compaction Hammer	Manual	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.6	2016.6	2016.6	2016.6	2016.6
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3644.8	3701.9	3719.2	3726.1	3705.7
Wet Soil Mass (g)	1628.2	1685.3	1702.6	1709.5	1689.1
Wet Unit Weight (lbs/ft³)	107.8	111.6	112.7	113.2	111.8
Tare No	DT08	DT45	DT47	DT02	DT48
Tare Mass (g)	187.5	177.2	178.1	178.9	183.5
Wet Soil + Tare Mass (g)	401.3	402.6	361.1	451.9	427.4
Dry Soil + Tare Mass (g)	363.8	359.9	323.8	390.6	368.5
Moisture Content (%)	**21.3**	**23.4**	**25.6**	**29.0**	**31.8**
Dry Unit Weight (lbs/ft³)	**88.9**	**90.4**	**89.7**	**87.8**	**84.8**

Compaction Curve



Proctor Test Results

Proctor No	3094-108 CURVE ONE
Optimum Moisture Content (%)	24.4
Max Dry Unit Weight (lbs/ft³)	90.0

Liquid And Plastic Limits

Liquid Limit	78
Plastic Limit	26
Plasticity Index	52
Group Symbol	CH
Sand Content (Retained No 200) (%)	3.2
Fines (Minus No 200) (%)	96.8

Remarks	Average of Curve 1 & Curve 2: Opt. Moisture 24.0 %, Max Dry Density 90.1 pcf
Version	**MVNQS02-100907**

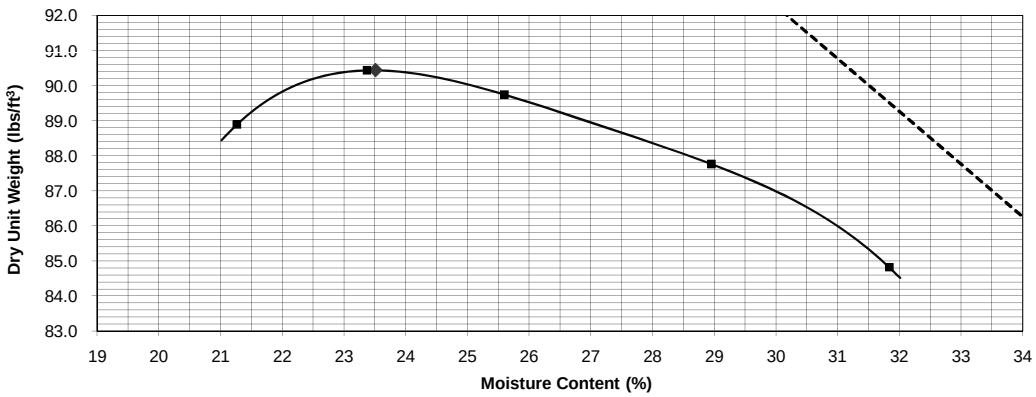
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3094	**Test No**	108
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	10/2/2010		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	BR. FAT CLAY		
Station	77+00	**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	32.1		
Compaction Hammer	Manual	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.6	2016.6	2016.6	2016.6	2016.6
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3644.8	3701.9	3719.2	3726.1	3705.7
Wet Soil Mass (g)	1628.2	1685.3	1702.6	1709.5	1689.1
Wet Unit Weight (lbs/ft³)	107.8	111.6	112.7	113.2	111.8
Tare No	DT08	DT45	DT47	DT02	DT48
Tare Mass (g)	187.5	177.2	178.1	178.9	183.5
Wet Soil + Tare Mass (g)	401.3	402.6	361.1	451.9	427.4
Dry Soil + Tare Mass (g)	363.8	359.9	323.8	390.6	368.5
Moisture Content (%)	**21.3**	**23.4**	**25.6**	**29.0**	**31.8**
Dry Unit Weight (lbs/ft³)	**88.9**	**90.4**	**89.7**	**87.8**	**84.8**

Compaction Curve



Proctor Test Results

Proctor No	3094-108 CURVE ONE
Optimum Moisture Content (%)	90.0
Max Dry Unit Weight (lbs/ft³)	24.4

Liquid And Plastic Limits

Liquid Limit	78
Plastic Limit	26
Plasticity Index	52
Group Symbol	CH
Sand Content (Retained No 200) (%)	3.2
Fines (Minus No 200) (%)	96.8

Remarks	Average of Curve 1 & Curve 2: Opt. Moisture 24.0 %, Max Dry Density 90.1 pcf
Version	**MVNQS02-100907**

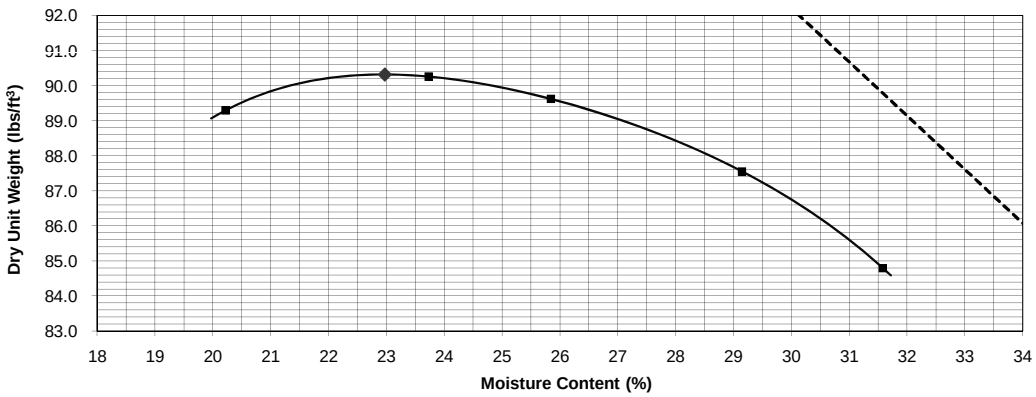
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3094	**Test No**	108B
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway, Inc.	**Revision**	1
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	10/2/2010		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	BR. FAT CLAY		
Station	77+00	**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	32.1		
Compaction Hammer	Manual	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.6	2016.6	2016.6	2016.6	2016.6
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3638.1	3703.4	3720.1	3724.5	3701.9
Wet Soil Mass (g)	1621.5	1686.8	1703.5	1707.9	1685.3
Wet Unit Weight (lbs/ft³)	107.4	111.7	112.8	113.1	111.6
Tare No	DT01	DT50	DT21	DT46	DT30
Tare Mass (g)	171.8	180.7	211.5	177.9	203.4
Wet Soil + Tare Mass (g)	467.9	441.4	375.6	465.9	446.3
Dry Soil + Tare Mass (g)	418.1	391.4	341.9	400.9	388.0
Moisture Content (%)	**20.2**	**23.7**	**25.8**	**29.1**	**31.6**
Dry Unit Weight (lbs/ft³)	**89.3**	**90.3**	**89.6**	**87.6**	**84.8**

Compaction Curve



Proctor Test Results	
Proctor No	3094-108 CURVE TWO
Optimum Moisture Content (%)	23.5
Max Dry Unit Weight (lbs/ft³)	90.2

Liquid And Plastic Limits	
Liquid Limit	78
Plastic Limit	26
Plasticity Index	52
Group Symbol	CH
Sand Content (Retained No 200) (%)	3.2
Fines (Minus No 200) (%)	96.8

Remarks	Average of Curve 1 & Curve 2: Opt. Moisture 24.0%, Max Dry Density 90.1 pcf
Version	**MVNQS02-100907**

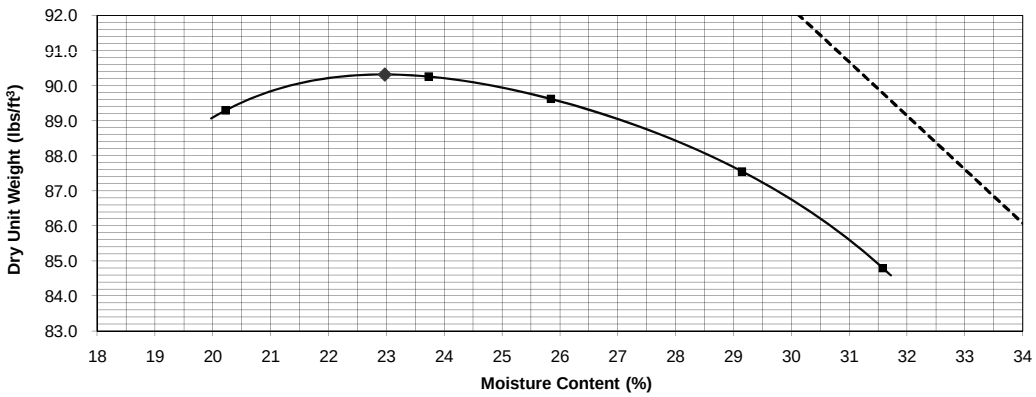
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3094	**Test No**	108
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	10/2/2010		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	BR. FAT CLAY		
Station	77+00	**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	32.1		
Compaction Hammer	Manual	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.6	2016.6	2016.6	2016.6	2016.6
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3638.1	3703.4	3720.1	3724.5	3701.9
Wet Soil Mass (g)	1621.5	1686.8	1703.5	1707.9	1685.3
Wet Unit Weight (lbs/ft³)	107.4	111.7	112.8	113.1	111.6
Tare No	DT01	DT50	DT21	DT46	DT30
Tare Mass (g)	171.8	180.7	211.5	177.9	203.4
Wet Soil + Tare Mass (g)	467.9	441.4	375.6	465.9	446.3
Dry Soil + Tare Mass (g)	418.1	391.4	341.9	400.9	388.0
Moisture Content (%)	**20.2**	**23.7**	**25.8**	**29.1**	**31.6**
Dry Unit Weight (lbs/ft³)	**89.3**	**90.3**	**89.6**	**87.6**	**84.8**

Compaction Curve



Proctor Test Results	
Proctor No	3094-108 CURVE TWO
Optimum Moisture Content (%)	23.5
Max Dry Unit Weight (lbs/ft³)	90.2

Liquid And Plastic Limits	
Liquid Limit	78
Plastic Limit	26
Plasticity Index	52
Group Symbol	CH
Sand Content (Retained No 200) (%)	3.2
Fines (Minus No 200) (%)	96.8

Remarks	Average of Curve 1 & Curve 2: Opt. Moisture 24.0%, Max Dry Density 90.1 pcf	
Version	**MVNQS02-100907**	

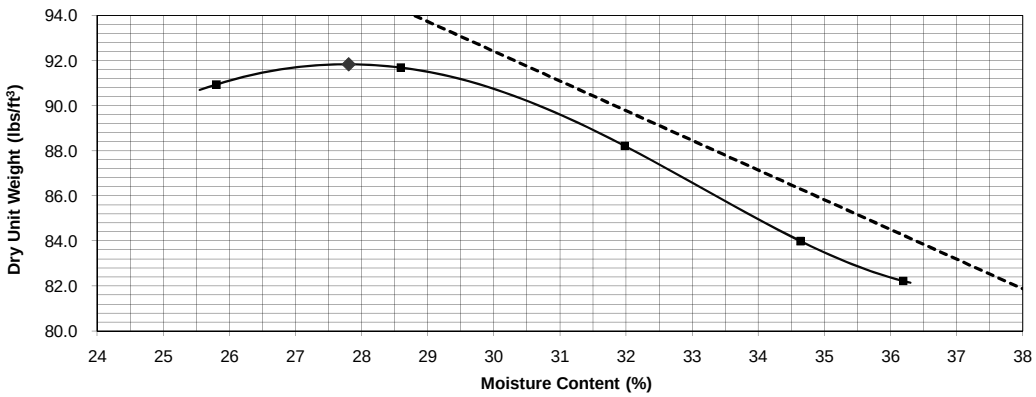
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3178.P-1	**Test No**	125
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	North End	**Offset**	500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02305	**Longitude (°W)**	90.605790	**Elevation (ft)**	2.6		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	30.66		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3773.4	3826.4	3804.0	3753.6	3736.9		
Wet Soil Mass (g)	1727.9	1780.9	1758.5	1708.1	1691.4		
Wet Unit Weight (lbs/ft³)	114.4	117.9	116.4	113.1	112.0		
Tare No	50	62	17	59	19		
Tare Mass (g)	253.5	242.1	241.8	255.5	251.5		
Wet Soil + Tare Mass (g)	398.3	404.9	388.3	386.1	375.3		
Dry Soil + Tare Mass (g)	368.6	368.7	352.8	352.5	342.4		
Moisture Content (%)	**25.8**	**28.6**	**32.0**	**34.6**	**36.2**		
Dry Unit Weight (lbs/ft³)	**90.9**	**91.7**	**88.2**	**84.0**	**82.2**		

Compaction Curve



Proctor Test Results	
Proctor No	3178-125 CURVE 1
Optimum Moisture Content (%)	26.8
Max Dry Unit Weight (lbs/ft³)	91.3

Liquid And Plastic Limits	
Liquid Limit	68
Plastic Limit	20
Plasticity Index	48
Group Symbol	CH
Sand Content (Retained No 200) (%)	1.94
Fines (Minus No 200) (%)	98.06

Remarks Sample Location: North End of Pit, 500' from North Pit Limit Avg. Curve 1 & 2; Max. Dry Unit Wt. = 91.7lbs/cf; Optimum Moisture= 26.2%

Version **MVNQS02-100907**

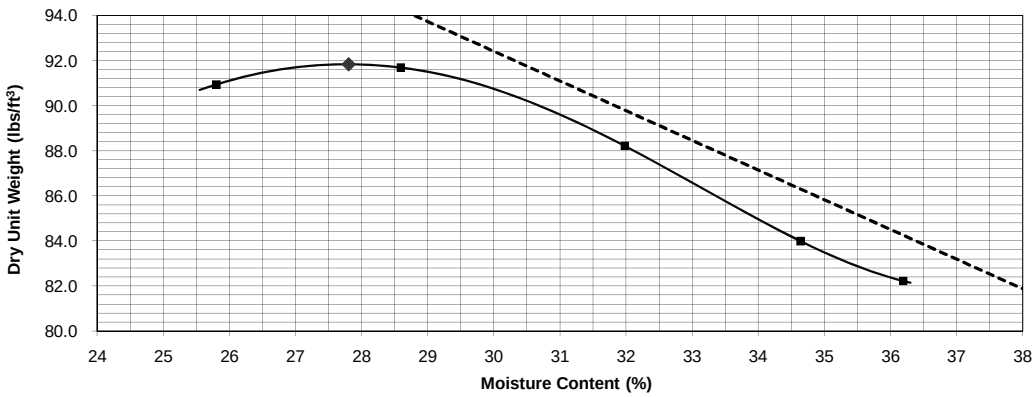
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3178.P-1	**Test No**	125
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	North End	**Offset**	500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02305	**Longitude (°W)**	90.605790	**Elevation (ft)**	2.6		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	30.66		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**			
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3773.4	3826.4	3804.0	3753.6	3736.9		
Wet Soil Mass (g)	1727.9	1780.9	1758.5	1708.1	1691.4		
Wet Unit Weight (lbs/ft³)	114.4	117.9	116.4	113.1	112.0		
Tare No	50	62	17	59	19		
Tare Mass (g)	253.5	242.1	241.8	255.5	251.5		
Wet Soil + Tare Mass (g)	398.3	404.9	388.3	386.1	375.3		
Dry Soil + Tare Mass (g)	368.6	368.7	352.8	352.5	342.4		
Moisture Content (%)	**25.8**	**28.6**	**32.0**	**34.6**	**36.2**		
Dry Unit Weight (lbs/ft³)	**90.9**	**91.7**	**88.2**	**84.0**	**82.2**		

Compaction Curve



Proctor Test Results	
Proctor No	3178-125 CURVE 1
Optimum Moisture Content (%)	26.8
Max Dry Unit Weight (lbs/ft³)	91.3

Liquid And Plastic Limits	
Liquid Limit	68
Plastic Limit	20
Plasticity Index	48
Group Symbol	CH
Sand Content (Retained No 200) (%)	1.94
Fines (Minus No 200) (%)	98.06

Remarks	Sample Location: North End of Pit, 500' from North Pit Limit	Avg. Curve 1 & 2; Max. Dry Unit Wt. = 91.7lbs/cf; Optimum Moisture= 26.2%
Version	**MVNQS02-100907**	

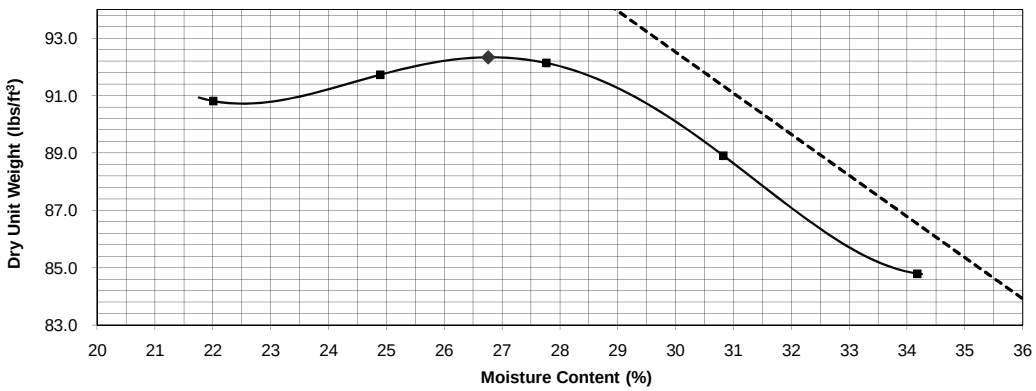
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3178-2	**Test No**	125
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	North End	**Offset**	500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02305	**Longitude (°W)**	90.605790	**Elevation (ft)**	2.6		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	30.66		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3719.0	3775.9	3823.6	3802.3	3763.9		
Wet Soil Mass (g)	1673.5	1730.4	1778.1	1756.8	1718.4		
Wet Unit Weight (lbs/ft³)	110.8	114.6	117.7	116.3	113.8		
Tare No	10	28	57	41	79		
Tare Mass (g)	304.5	252.4	261.3	259.6	245.1		
Wet Soil + Tare Mass (g)	475.8	433.5	474.8	437.0	435.9		
Dry Soil + Tare Mass (g)	444.9	397.4	428.4	395.2	387.3		
Moisture Content (%)	**22.0**	**24.9**	**27.8**	**30.8**	**34.2**		
Dry Unit Weight (lbs/ft³)	**90.8**	**91.7**	**92.1**	**88.9**	**84.8**		

Compaction Curve



Proctor Test Results	
Proctor No	3178-125 CURVE 2
Optimum Moisture Content (%)	25.6
Max Dry Unit Weight (lbs/ft³)	92.1

Liquid And Plastic Limits	
Liquid Limit	68
Plastic Limit	20
Plasticity Index	48
Group Symbol	CH
Sand Content (Retained No 200) (%)	1.94
Fines (Minus No 200) (%)	98.06

Remarks	Sample Location: North End of Pit, 500' from North Pit Limit	Avg. Curve 1 & 2; Max. Dry Unit Wt. = 91.7lbs/cf; Optimum Moisture= 26.2%
Version	**MVNQS02-100907**	

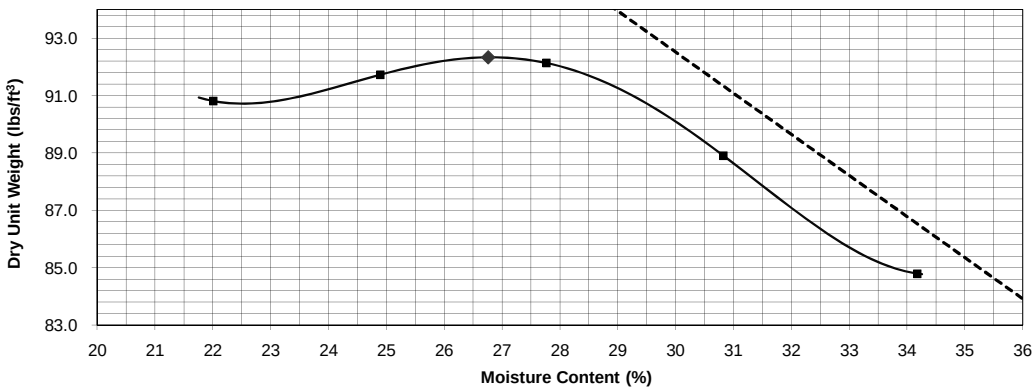
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3178-2	**Test No**	125
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	North End	**Offset**	500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02305	**Longitude (°W)**	90.605790	**Elevation (ft)**	2.6		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	30.66		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**			
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3719.0	3775.9	3823.6	3802.3	3763.9		
Wet Soil Mass (g)	1673.5	1730.4	1778.1	1756.8	1718.4		
Wet Unit Weight (lbs/ft³)	110.8	114.6	117.7	116.3	113.8		
Tare No	10	28	57	41	79		
Tare Mass (g)	304.5	252.4	261.3	259.6	245.1		
Wet Soil + Tare Mass (g)	475.8	433.5	474.8	437.0	435.9		
Dry Soil + Tare Mass (g)	444.9	397.4	428.4	395.2	387.3		
Moisture Content (%)	**22.0**	**24.9**	**27.8**	**30.8**	**34.2**		
Dry Unit Weight (lbs/ft³)	**90.8**	**91.7**	**92.1**	**88.9**	**84.8**		

Compaction Curve



Proctor Test Results	
Proctor No	3178-125 CURVE 2
Optimum Moisture Content (%)	25.6
Max Dry Unit Weight (lbs/ft³)	92.1

Liquid And Plastic Limits	
Liquid Limit	68
Plastic Limit	20
Plasticity Index	48
Group Symbol	CH
Sand Content (Retained No 200) (%)	1.94
Fines (Minus No 200) (%)	98.06

Remarks	Sample Location: North End of Pit, 500' from North Pit Limit	Avg. Curve 1 & 2; Max. Dry Unit Wt. = 91.7lbs/cf; Optimum Moisture= 26.2%
Version	**MVNQS02-100907**	

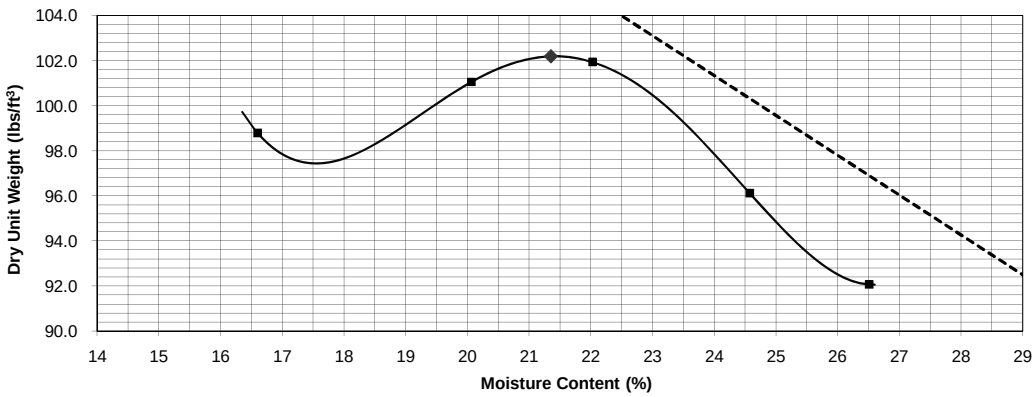
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3179-1	**Test No**	126
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Sandy Clay		
Station	North End	**Offset**	500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02029	**Longitude (°W)**	90.605590	**Elevation (ft)**	-4.0		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	32.5		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3785.4	3878.1	3924.4	3854.2	3804.8		
Wet Soil Mass (g)	1739.9	1832.6	1878.9	1808.7	1759.3		
Wet Unit Weight (lbs/ft³)	115.2	121.3	124.4	119.7	116.5		
Tare No	81	66	35	51	13		
Tare Mass (g)	253.1	259.2	251.8	245.6	237.6		
Wet Soil + Tare Mass (g)	403.4	445.3	439.6	414.9	421.8		
Dry Soil + Tare Mass (g)	382.0	414.2	405.7	381.5	383.2		
Moisture Content (%)	**16.6**	**20.1**	**22.0**	**24.6**	**26.5**		
Dry Unit Weight (lbs/ft³)	**98.8**	**101.1**	**101.9**	**96.1**	**92.1**		

Compaction Curve



Proctor Test Results	
Proctor No	3179-126 CURVE 1
Optimum Moisture Content (%)	20.1
Max Dry Unit Weight (lbs/ft³)	101.7

Liquid And Plastic Limits	
Liquid Limit	44
Plastic Limit	19
Plasticity Index	25
Group Symbol	CL
Sand Content (Retained No 200) (%)	2.94
Fines (Minus No 200) (%)	97.06

Remarks Sample Location: North End of Pit, 500' from North Pit Limit Avg. Curve 1 & 2; Max. Dry Unit Wt. = 100.9lbs/cf; Optimum Moisture= 19.6%

Version **MVNQS02-100907**

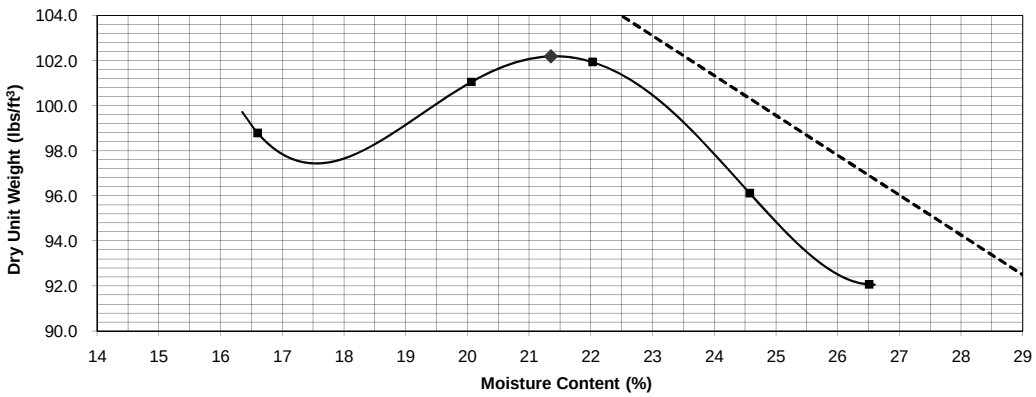
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3179-1	**Test No**	126
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Sandy Clay		
Station	North End	**Offset**	500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02029	**Longitude (°W)**	90.605590	**Elevation (ft)**	-4.0		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	32.5		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**			
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3785.4	3878.1	3924.4	3854.2	3804.8		
Wet Soil Mass (g)	1739.9	1832.6	1878.9	1808.7	1759.3		
Wet Unit Weight (lbs/ft³)	115.2	121.3	124.4	119.7	116.5		
Tare No	81	66	35	51	13		
Tare Mass (g)	253.1	259.2	251.8	245.6	237.6		
Wet Soil + Tare Mass (g)	403.4	445.3	439.6	414.9	421.8		
Dry Soil + Tare Mass (g)	382.0	414.2	405.7	381.5	383.2		
Moisture Content (%)	**16.6**	**20.1**	**22.0**	**24.6**	**26.5**		
Dry Unit Weight (lbs/ft³)	**98.8**	**101.1**	**101.9**	**96.1**	**92.1**		

Compaction Curve



Proctor Test Results	
Proctor No	3179-126 CURVE 1
Optimum Moisture Content (%)	20.1
Max Dry Unit Weight (lbs/ft³)	101.7

Liquid And Plastic Limits	
Liquid Limit	44
Plastic Limit	19
Plasticity Index	25
Group Symbol	CL
Sand Content (Retained No 200) (%)	2.94
Fines (Minus No 200) (%)	97.06

Remarks Sample Location: North End of Pit, 500' from North Pit Limit Avg. Curve 1 & 2; Max. Dry Unit Wt. = 100.9lbs/cf; Optimum Moisture= 19.6%

Version MVNQS02-100907

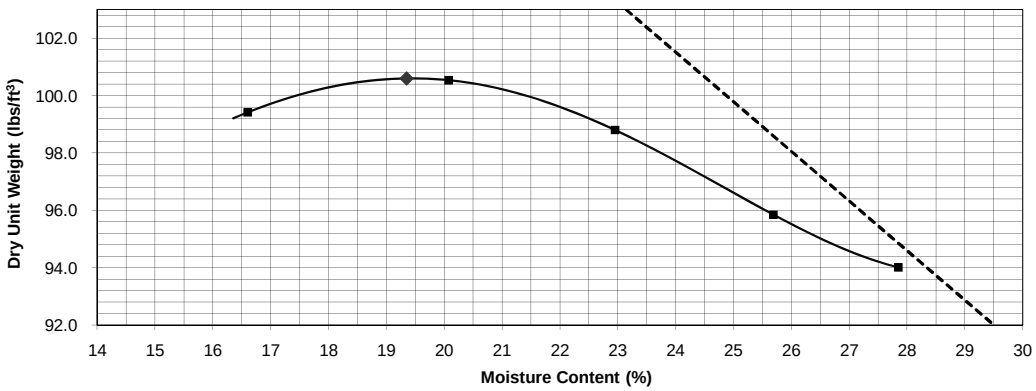
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3179-2	**Test No**	126
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Sandy Clay		
Station	North End	**Offset**	500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02029	**Longitude (°W)**	90.605590	**Elevation (ft)**	-4.0		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	32.5		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3796.4	3868.9	3880.3	3865.1	3860.9		
Wet Soil Mass (g)	1750.9	1823.4	1834.8	1819.6	1815.4		
Wet Unit Weight (lbs/ft³)	115.9	120.7	121.5	120.5	120.2		
Tare No	67	23	36	34	69		
Tare Mass (g)	253.1	259.3	248.6	248.1	245.5		
Wet Soil + Tare Mass (g)	403.4	445.3	400.2	430.1	428.2		
Dry Soil + Tare Mass (g)	382.0	414.2	371.9	392.9	388.4		
Moisture Content (%)	**16.6**	**20.1**	**23.0**	**25.7**	**27.9**		
Dry Unit Weight (lbs/ft³)	**99.4**	**100.5**	**98.8**	**95.8**	**94.0**		

Compaction Curve



Proctor Test Results

Proctor No	3179-126 CURVE 2
Optimum Moisture Content (%)	19.1
Max Dry Unit Weight (lbs/ft³)	100.1

Liquid And Plastic Limits

Liquid Limit	44
Plastic Limit	19
Plasticity Index	25
Group Symbol	CL
Sand Content (Retained No 200) (%)	2.94
Fines (Minus No 200) (%)	97.06

Remarks	Sample Location: North End of Pit, 500' from North Pit Limit	Avg. Curve 1 & 2; Max. Dry Unit Wt. = 100.9lbs/cf; Optimum Moisture= 19.6%
Version	**MVNQS02-100907**	

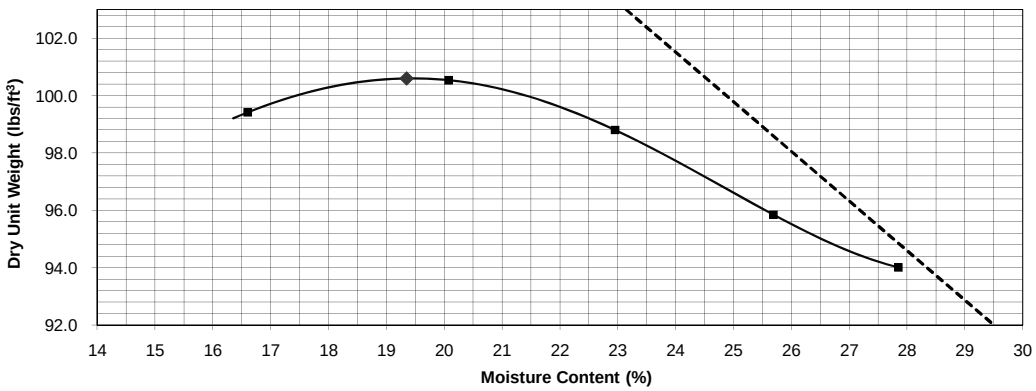
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3179-2	**Test No**	126
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Sandy Clay		
Station	North End	**Offset**	500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02029	**Longitude (°W)**	90.605590	**Elevation (ft)**	-4.0		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	32.5		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**			
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3796.4	3868.9	3880.3	3865.1	3860.9		
Wet Soil Mass (g)	1750.9	1823.4	1834.8	1819.6	1815.4		
Wet Unit Weight (lbs/ft³)	115.9	120.7	121.5	120.5	120.2		
Tare No	67	23	36	34	69		
Tare Mass (g)	253.1	259.3	248.6	248.1	245.5		
Wet Soil + Tare Mass (g)	403.4	445.3	400.2	430.1	428.2		
Dry Soil + Tare Mass (g)	382.0	414.2	371.9	392.9	388.4		
Moisture Content (%)	**16.6**	**20.1**	**23.0**	**25.7**	**27.9**		
Dry Unit Weight (lbs/ft³)	**99.4**	**100.5**	**98.8**	**95.8**	**94.0**		

Compaction Curve



Proctor Test Results	
Proctor No	3179-126 CURVE 2
Optimum Moisture Content (%)	19.1
Max Dry Unit Weight (lbs/ft³)	100.1

Liquid And Plastic Limits	
Liquid Limit	44
Plastic Limit	19
Plasticity Index	25
Group Symbol	CL
Sand Content (Retained No 200) (%)	2.94
Fines (Minus No 200) (%)	97.06

Remarks Sample Location: North End of Pit, 500' from North Pit Limit Avg. Curve 1 & 2; Max. Dry Unit Wt. = 100.9lbs/cf; Optimum Moisture= 19.6%

Version **MVNQS02-100907**

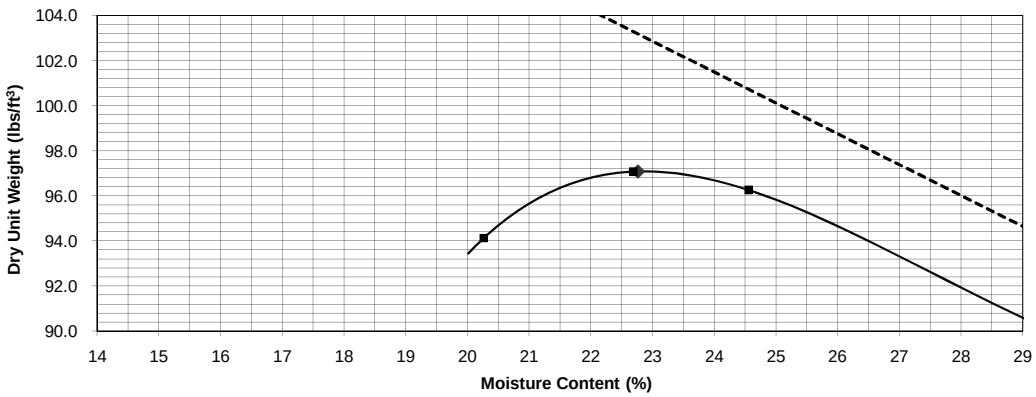
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3180-1	**Test No**	127
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	North End	**Offset**	500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02305	**Longitude (°W)**	90.605790	**Elevation (ft)**	2.6		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	36.57		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3755.3	3844.5	3856.6	3797.9	3840.2		
Wet Soil Mass (g)	1709.8	1799.0	1811.1	1752.4	1794.7		
Wet Unit Weight (lbs/ft³)	113.2	119.1	119.9	116.0	118.8		
Tare No	11	14	21	56	72		
Tare Mass (g)	244.9	245.1	320.7	254.2	284.8		
Wet Soil + Tare Mass (g)	426.5	303.5	503.8	421.1	410.2		
Dry Soil + Tare Mass (g)	395.9	292.7	467.7	382.2	375.0		
Moisture Content (%)	**20.3**	**22.7**	**24.6**	**30.4**	**39.0**		
Dry Unit Weight (lbs/ft³)	**94.1**	**97.1**	**96.3**	**89.0**	**85.5**		

Compaction Curve



Proctor Test Results	
Proctor No	3180-127 CURVE 1
Optimum Moisture Content (%)	23.7
Max Dry Unit Weight (lbs/ft³)	96.4

Liquid And Plastic Limits	
Liquid Limit	60
Plastic Limit	21
Plasticity Index	39
Group Symbol	CH
Sand Content (Retained No 200) (%)	2.2
Fines (Minus No 200) (%)	97.8

Remarks	Sample Location: North End of Pit, 500' from North Pit Limit	Avg. Curve 1 & 2; Max. Dry Unit Wt. = 95.8lbs/cf; Optimum Moisture= 24.0%
Version	**MVNQS02-100907**	

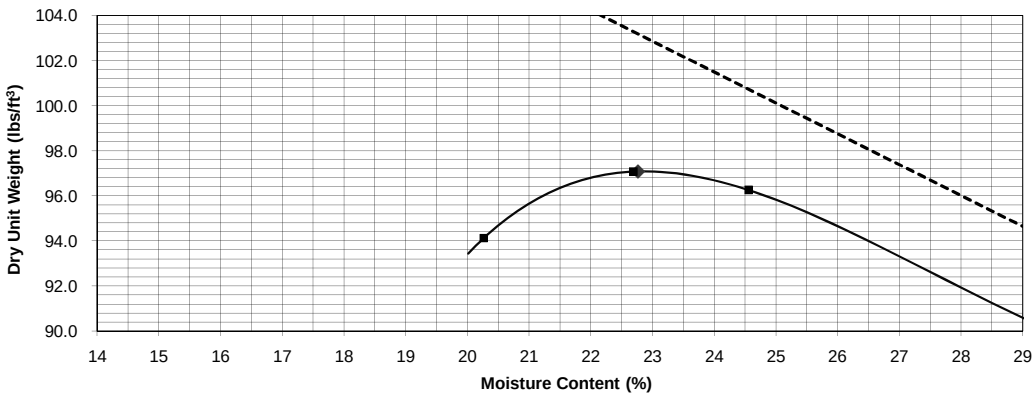
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3180-1	**Test No**	127
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	North End	**Offset**	500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02305	**Longitude (°W)**	90.605790	**Elevation (ft)**	2.6		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	36.57		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**			
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3755.3	3844.5	3856.6	3797.9	3840.2		
Wet Soil Mass (g)	1709.8	1799.0	1811.1	1752.4	1794.7		
Wet Unit Weight (lbs/ft³)	113.2	119.1	119.9	116.0	118.8		
Tare No	11	14	21	56	72		
Tare Mass (g)	244.9	245.1	320.7	254.2	284.8		
Wet Soil + Tare Mass (g)	426.5	303.5	503.8	421.1	410.2		
Dry Soil + Tare Mass (g)	395.9	292.7	467.7	382.2	375.0		
Moisture Content (%)	**20.3**	**22.7**	**24.6**	**30.4**	**39.0**		
Dry Unit Weight (lbs/ft³)	**94.1**	**97.1**	**96.3**	**89.0**	**85.5**		

Compaction Curve



Proctor Test Results	
Proctor No	3180-127 CURVE 1
Optimum Moisture Content (%)	23.7
Max Dry Unit Weight (lbs/ft³)	96.4

Liquid And Plastic Limits	
Liquid Limit	60
Plastic Limit	21
Plasticity Index	39
Group Symbol	CH
Sand Content (Retained No 200) (%)	2.2
Fines (Minus No 200) (%)	97.8

Remarks	Sample Location: North End of Pit, 500' from North Pit Limit	Avg. Curve 1 & 2; Max. Dry Unit Wt. = 95.8lbs/cf; Optimum Moisture= 24.0%
Version	**MVNQS02-100907**	

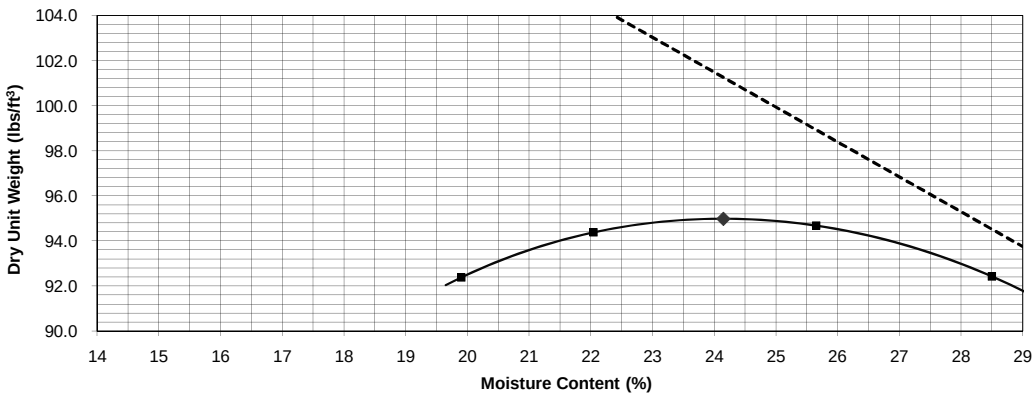
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3180-2	**Test No**	127
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	North End	**Offset**	500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02305	**Longitude (°W)**	90.605790	**Elevation (ft)**	2.6		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	36.57		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3718.5	3785.3	3842.4	3839.5	3779.9		
Wet Soil Mass (g)	1673.0	1739.8	1796.9	1794.0	1734.4		
Wet Unit Weight (lbs/ft³)	110.8	115.2	119.0	118.8	114.8		
Tare No	1	42	18	77	70		
Tare Mass (g)	245.1	253.7	300.6	248.9	256.4		
Wet Soil + Tare Mass (g)	440.3	444.7	498.0	454.5	428.7		
Dry Soil + Tare Mass (g)	407.9	410.2	457.7	408.9	387.4		
Moisture Content (%)	**19.9**	**22.0**	**25.7**	**28.5**	**31.5**		
Dry Unit Weight (lbs/ft³)	**92.4**	**94.4**	**94.7**	**92.4**	**87.3**		

Compaction Curve



Proctor Test Results	
Proctor No	3180-127 CURVE 2
Optimum Moisture Content (%)	24.2
Max Dry Unit Weight (lbs/ft³)	95.1

Liquid And Plastic Limits	
Liquid Limit	60
Plastic Limit	21
Plasticity Index	39
Group Symbol	CH
Sand Content (Retained No 200) (%)	2.2
Fines (Minus No 200) (%)	97.8

Remarks	Sample Location: North End of Pit, 500' from North Pit Limit	Avg. Curve 1 & 2; Max. Dry Unit Wt. = 95.8lbs/cf; Optimum Moisture= 24.0%
Version	**MVNQS02-100907**	

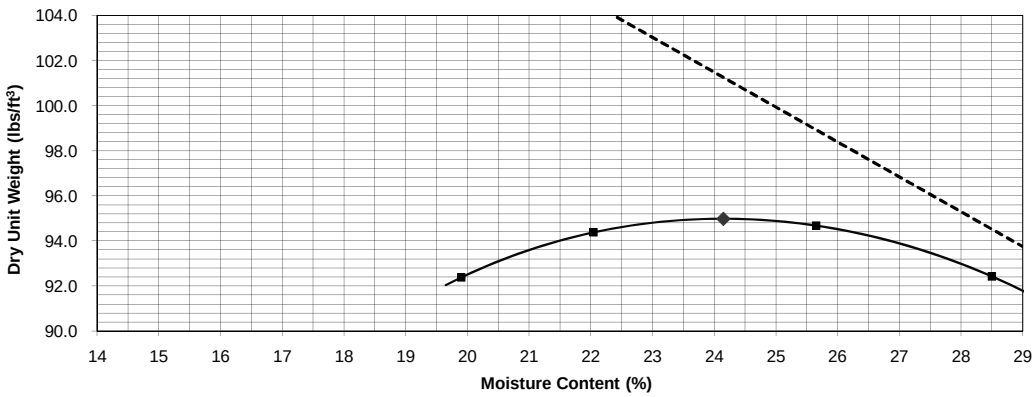
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3180-2	**Test No**	127
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	North End	**Offset**	500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02305	**Longitude (°W)**	90.605790	**Elevation (ft)**	2.6		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	36.57		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**			
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3718.5	3785.3	3842.4	3839.5	3779.9		
Wet Soil Mass (g)	1673.0	1739.8	1796.9	1794.0	1734.4		
Wet Unit Weight (lbs/ft³)	110.8	115.2	119.0	118.8	114.8		
Tare No	1	42	18	77	70		
Tare Mass (g)	245.1	253.7	300.6	248.9	256.4		
Wet Soil + Tare Mass (g)	440.3	444.7	498.0	454.5	428.7		
Dry Soil + Tare Mass (g)	407.9	410.2	457.7	408.9	387.4		
Moisture Content (%)	**19.9**	**22.0**	**25.7**	**28.5**	**31.5**		
Dry Unit Weight (lbs/ft³)	**92.4**	**94.4**	**94.7**	**92.4**	**87.3**		

Compaction Curve



Proctor Test Results	
Proctor No	3180-127 CURVE 2
Optimum Moisture Content (%)	24.2
Max Dry Unit Weight (lbs/ft³)	95.1

Liquid And Plastic Limits	
Liquid Limit	60
Plastic Limit	21
Plasticity Index	39
Group Symbol	CH
Sand Content (Retained No 200) (%)	2.2
Fines (Minus No 200) (%)	97.8

Remarks	Sample Location: North End of Pit, 500' from North Pit Limit	Avg. Curve 1 & 2; Max. Dry Unit Wt. = 95.8lbs/cf; Optimum Moisture= 24.0%
Version	**MVNQS02-100907**	

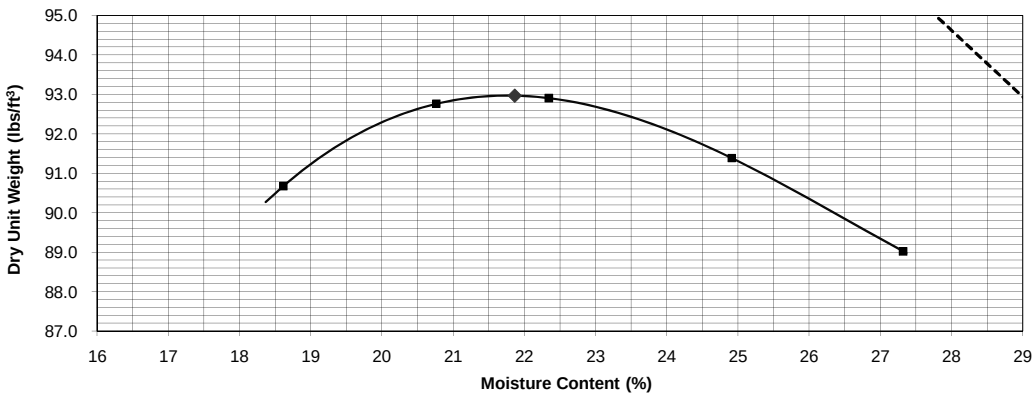
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3181-1	**Test No**	128
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	Middle	**Offset**	1500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.020299	**Longitude (°W)**	90.605593	**Elevation (ft)**	2.1		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	42.85		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3670.1	3737.6	3762.4	3769.7	3757.5		
Wet Soil Mass (g)	1624.6	1692.1	1716.9	1724.2	1712.0		
Wet Unit Weight (lbs/ft³)	107.6	112.0	113.7	114.2	113.3		
Tare No	76	26	12	2	8		
Tare Mass (g)	314.1	260.2	251.2	252.4	244.0		
Wet Soil + Tare Mass (g)	523.1	471.9	417.1	429.9	388.0		
Dry Soil + Tare Mass (g)	490.3	435.5	386.8	394.5	357.1		
Moisture Content (%)	**18.6**	**20.8**	**22.3**	**24.9**	**27.3**		
Dry Unit Weight (lbs/ft³)	**90.7**	**92.8**	**92.9**	**91.4**	**89.0**		

Compaction Curve



Proctor Test Results	
Proctor No	3181-128 CURVE A
Optimum Moisture Content (%)	22.3
Max Dry Unit Weight (lbs/ft³)	92.9

Liquid And Plastic Limits	
Liquid Limit	78
Plastic Limit	23
Plasticity Index	55
Group Symbol	CH
Sand Content (Retained No 200) (%)	0.38
Fines (Minus No 200) (%)	99.62

Remarks	Sample Location: Middle of Pit, 1500' from North Pit Limit	Avg. Curve 1 & 2; Max. Dry Unit Wt. = 92.8lbs/cf; Optimum Moisture= 22.5%
Version	**MVNQS02-100907**	

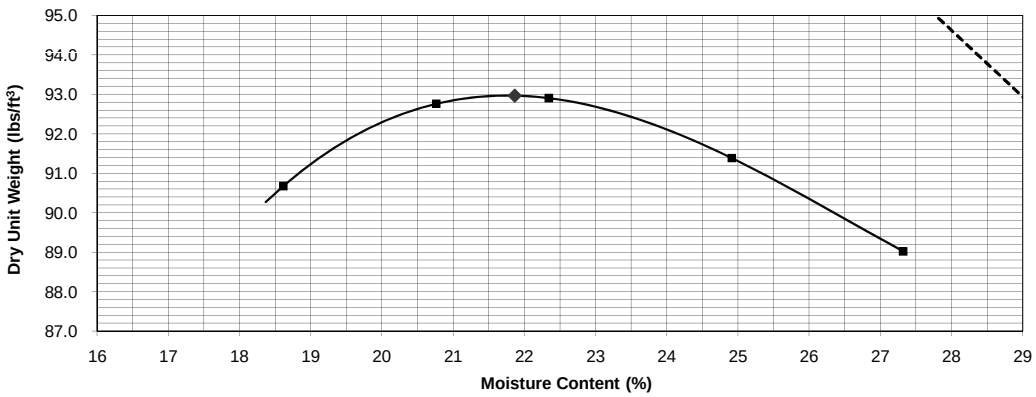
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3181-1	**Test No**	128
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	Middle	**Offset**	1500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.020299	**Longitude (°W)**	90.605593	**Elevation (ft)**	2.1		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	42.85		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**			
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3670.1	3737.6	3762.4	3769.7	3757.5		
Wet Soil Mass (g)	1624.6	1692.1	1716.9	1724.2	1712.0		
Wet Unit Weight (lbs/ft³)	107.6	112.0	113.7	114.2	113.3		
Tare No	76	26	12	2	8		
Tare Mass (g)	314.1	260.2	251.2	252.4	244.0		
Wet Soil + Tare Mass (g)	523.1	471.9	417.1	429.9	388.0		
Dry Soil + Tare Mass (g)	490.3	435.5	386.8	394.5	357.1		
Moisture Content (%)	**18.6**	**20.8**	**22.3**	**24.9**	**27.3**		
Dry Unit Weight (lbs/ft³)	**90.7**	**92.8**	**92.9**	**91.4**	**89.0**		

Compaction Curve



Proctor Test Results	
Proctor No	3181-128 CURVE A
Optimum Moisture Content (%)	22.3
Max Dry Unit Weight (lbs/ft³)	92.9

Liquid And Plastic Limits	
Liquid Limit	78
Plastic Limit	23
Plasticity Index	55
Group Symbol	CH
Sand Content (Retained No 200) (%)	0.38
Fines (Minus No 200) (%)	99.62

Remarks	Sample Location: Middle of Pit, 1500' from North Pit Limit	Avg. Curve 1 & 2; Max. Dry Unit Wt. = 92.8lbs/cf; Optimum Moisture= 22.5%
Version	**MVNQS02-100907**	

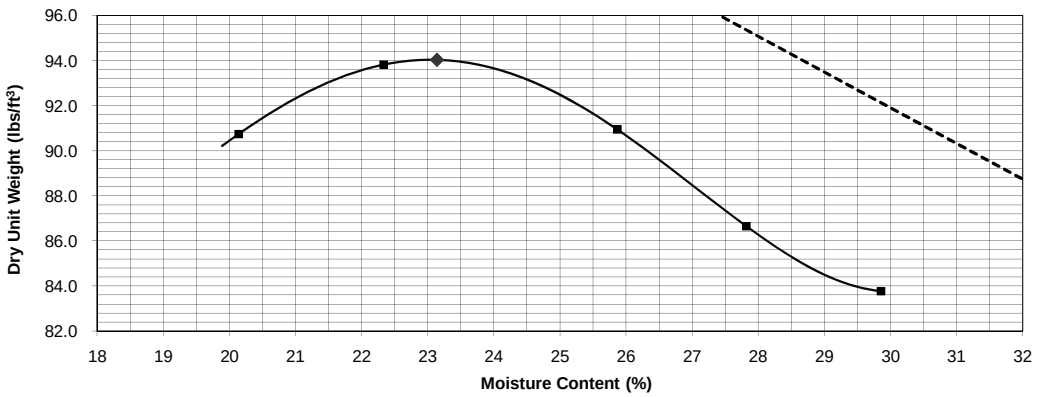
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3181-2	**Test No**	128
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	Middle	**Offset**	1500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.020299	**Longitude (°W)**	90.605593	**Elevation (ft)**	2.1		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	42.85		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3692.1	3779.1	3774.5	3718.4	3688.5		
Wet Soil Mass (g)	1646.6	1733.6	1729.0	1672.9	1643.0		
Wet Unit Weight (lbs/ft³)	109.0	114.8	114.5	110.8	108.8		
Tare No	27	29	71	53	31		
Tare Mass (g)	252.5	247.8	255.7	249.3	251.2		
Wet Soil + Tare Mass (g)	303.8	297.1	440.6	470.3	457.8		
Dry Soil + Tare Mass (g)	295.2	288.1	402.6	422.2	410.3		
Moisture Content (%)	**20.1**	**22.3**	**25.9**	**27.8**	**29.9**		
Dry Unit Weight (lbs/ft³)	**90.7**	**93.8**	**90.9**	**86.6**	**83.8**		

Compaction Curve



Proctor Test Results	
Proctor No	3181-128 CURVE 2
Optimum Moisture Content (%)	22.7
Max Dry Unit Weight (lbs/ft³)	92.7

Liquid And Plastic Limits	
Liquid Limit	78
Plastic Limit	23
Plasticity Index	55
Group Symbol	CH
Sand Content (Retained No 200) (%)	0.38
Fines (Minus No 200) (%)	99.62

Remarks	Sample Location: Middle of Pit, 1500' from North Pit Limit	Avg. Curve 1 & 2; Max. Dry Unit Wt. = 92.8lbs/cf; Optimum Moisture= 22.5%
Version	**MVNQS02-100907**	

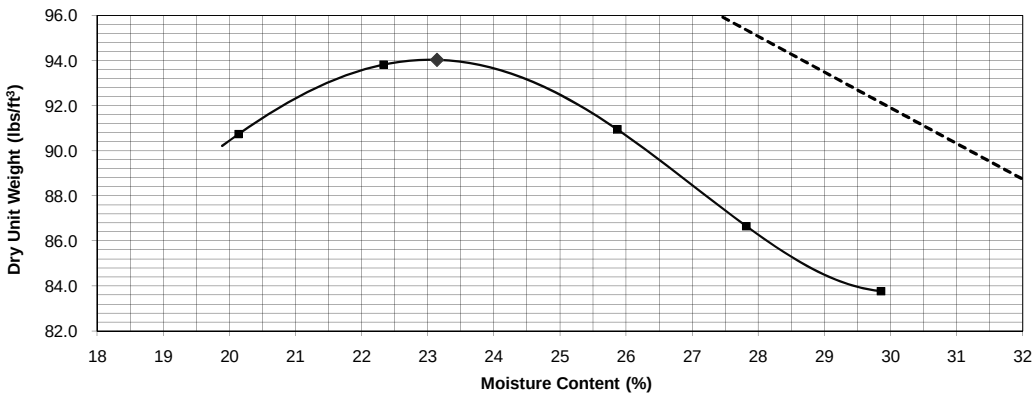
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3181-2	**Test No**	128
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	Middle	**Offset**	1500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.020299	**Longitude (°W)**	90.605593	**Elevation (ft)**	2.1		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	42.85		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**			
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3692.1	3779.1	3774.5	3718.4	3688.5		
Wet Soil Mass (g)	1646.6	1733.6	1729.0	1672.9	1643.0		
Wet Unit Weight (lbs/ft³)	109.0	114.8	114.5	110.8	108.8		
Tare No	27	29	71	53	31		
Tare Mass (g)	252.5	247.8	255.7	249.3	251.2		
Wet Soil + Tare Mass (g)	303.8	297.1	440.6	470.3	457.8		
Dry Soil + Tare Mass (g)	295.2	288.1	402.6	422.2	410.3		
Moisture Content (%)	**20.1**	**22.3**	**25.9**	**27.8**	**29.9**		
Dry Unit Weight (lbs/ft³)	**90.7**	**93.8**	**90.9**	**86.6**	**83.8**		

Compaction Curve



Proctor Test Results	
Proctor No	3181-128 CURVE 2
Optimum Moisture Content (%)	22.7
Max Dry Unit Weight (lbs/ft³)	92.7

Liquid And Plastic Limits	
Liquid Limit	78
Plastic Limit	23
Plasticity Index	55
Group Symbol	CH
Sand Content (Retained No 200) (%)	0.38
Fines (Minus No 200) (%)	99.62

Remarks	Sample Location: Middle of Pit, 1500' from North Pit Limit	Avg. Curve 1 & 2; Max. Dry Unit Wt. = 92.8lbs/cf; Optimum Moisture= 22.5%
Version	**MVNQS02-100907**	

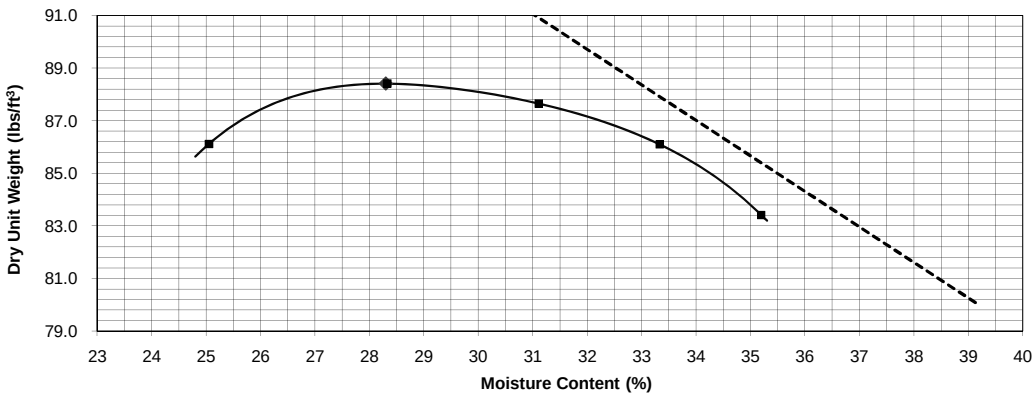
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3182-1	**Test No**	129
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	Middle	**Offset**	1500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02029	**Longitude (°W)**	90.605590	**Elevation (ft)**	-5.0		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	41.4		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3672.1	3759.2	3781.3	3779.5	3748.9		
Wet Soil Mass (g)	1626.6	1713.7	1735.8	1734.0	1703.4		
Wet Unit Weight (lbs/ft³)	107.7	113.5	114.9	114.8	112.8		
Tare No	28	79	59	57	77		
Tare Mass (g)	251.8	253.3	252.3	244.8	225.0		
Wet Soil + Tare Mass (g)	310.2	298.6	405.7	414.8	452.4		
Dry Soil + Tare Mass (g)	298.5	288.6	369.3	372.3	393.2		
Moisture Content (%)	**25.1**	**28.3**	**31.1**	**33.3**	**35.2**		
Dry Unit Weight (lbs/ft³)	**86.1**	**88.4**	**87.6**	**86.1**	**83.4**		

Compaction Curve



Proctor Test Results	
Proctor No	3182-129 CURVE 1
Optimum Moisture Content (%)	29.1
Max Dry Unit Weight (lbs/ft³)	88.3

Liquid And Plastic Limits	
Liquid Limit	
Plastic Limit	
Plasticity Index	
Group Symbol	
Sand Content (Retained No 200) (%)	
Fines (Minus No 200) (%)	

Remarks	Sample Location: Middle of Pit, 1500' from North Pit Limit	Avg. Curve 1 & 2; Max. Dry Unit Wt. = 88.2Lbs/cf; Optimum Moisture= 29.4%
Version	**MVNQS02-100907**	

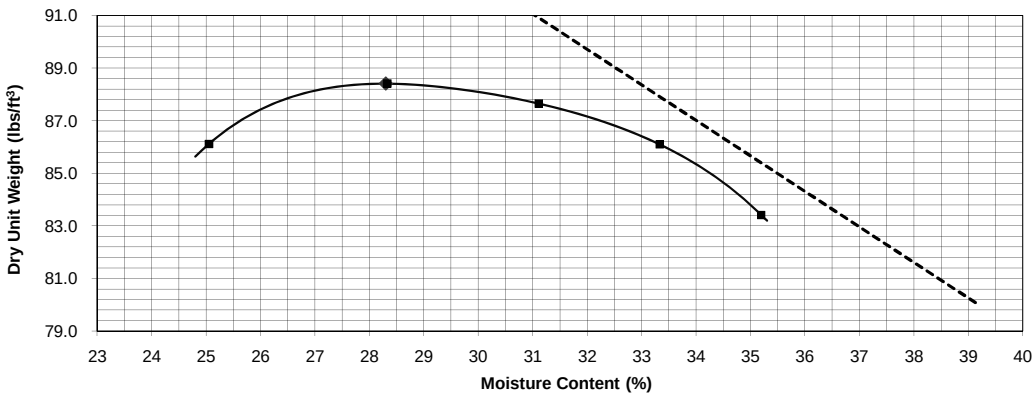
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3182-1	**Test No**	129
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	Middle	**Offset**	1500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02029	**Longitude (°W)**	90.605590	**Elevation (ft)**	-5.0		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	41.4		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**			
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3672.1	3759.2	3781.3	3779.5	3748.9		
Wet Soil Mass (g)	1626.6	1713.7	1735.8	1734.0	1703.4		
Wet Unit Weight (lbs/ft³)	107.7	113.5	114.9	114.8	112.8		
Tare No	28	79	59	57	77		
Tare Mass (g)	251.8	253.3	252.3	244.8	225.0		
Wet Soil + Tare Mass (g)	310.2	298.6	405.7	414.8	452.4		
Dry Soil + Tare Mass (g)	298.5	288.6	369.3	372.3	393.2		
Moisture Content (%)	**25.1**	**28.3**	**31.1**	**33.3**	**35.2**		
Dry Unit Weight (lbs/ft³)	**86.1**	**88.4**	**87.6**	**86.1**	**83.4**		

Compaction Curve



Proctor Test Results	
Proctor No	3182-129 CURVE 1
Optimum Moisture Content (%)	29.1
Max Dry Unit Weight (lbs/ft³)	88.3

Liquid And Plastic Limits	
Liquid Limit	
Plastic Limit	
Plasticity Index	
Group Symbol	
Sand Content (Retained No 200) (%)	
Fines (Minus No 200) (%)	

Remarks	Sample Location: Middle of Pit, 1500' from North Pit Limit	Avg. Curve 1 & 2; Max. Dry Unit Wt. = 88.2Lbs/cf; Optimum Moisture= 29.4%
Version	**MVNQS02-100907**	

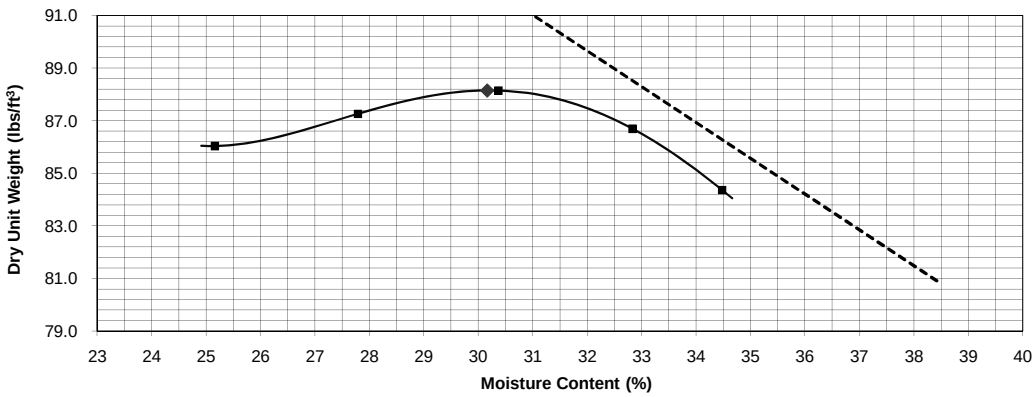
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3182-2	**Test No**	129
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	Middle	**Offset**	1500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02029	**Longitude (°W)**	90.605590	**Elevation (ft)**	-5.0		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	41.4		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3672.0	3729.8	3781.2	3784.9	3759.1		
Wet Soil Mass (g)	1626.5	1684.3	1735.7	1739.4	1713.6		
Wet Unit Weight (lbs/ft³)	107.7	111.5	114.9	115.2	113.4		
Tare No	67	17	62	26	76		
Tare Mass (g)	253.3	251.8	248.8	241.5	241.5		
Wet Soil + Tare Mass (g)	311.0	310.2	417.5	365.3	421.3		
Dry Soil + Tare Mass (g)	299.4	297.5	378.2	334.7	375.2		
Moisture Content (%)	**25.2**	**27.8**	**30.4**	**32.8**	**34.5**		
Dry Unit Weight (lbs/ft³)	**86.0**	**87.3**	**88.1**	**86.7**	**84.4**		

Compaction Curve



Proctor Test Results	
Proctor No	3182-129 CURVE 2
Optimum Moisture Content (%)	29.7
Max Dry Unit Weight (lbs/ft³)	88.0

Liquid And Plastic Limits	
Liquid Limit	87
Plastic Limit	25
Plasticity Index	62
Group Symbol	CH
Sand Content (Retained No 200) (%)	0.24
Fines (Minus No 200) (%)	99.76

Remarks Sample Location: Middle of Pit, 1500' from North Pit Limit Avg. Curve 1 & 2; Max. Dry Unit Wt. = 88.2Lbs/cf; Optimum Moisture= 29.4%

Version **MVNQS02-100907**

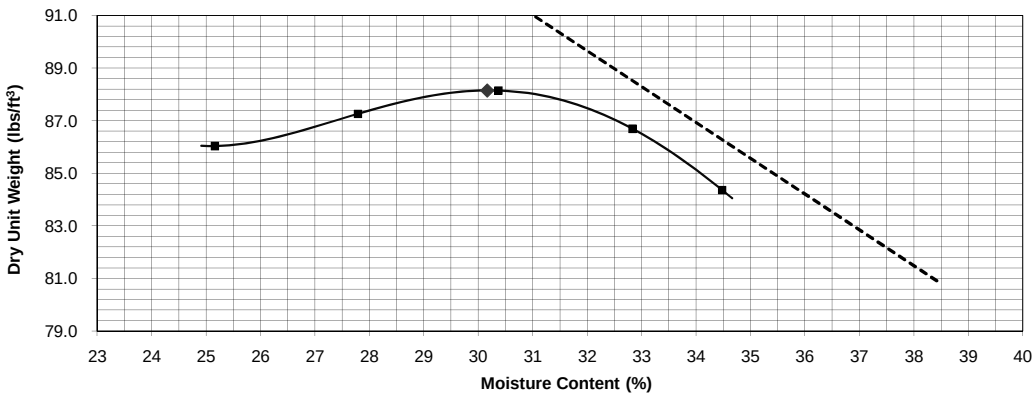
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3182-2	**Test No**	129
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	Middle	**Offset**	1500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02029	**Longitude (°W)**	90.605590	**Elevation (ft)**	-5.0		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	41.4		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**			
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3672.0	3729.8	3781.2	3784.9	3759.1		
Wet Soil Mass (g)	1626.5	1684.3	1735.7	1739.4	1713.6		
Wet Unit Weight (lbs/ft³)	107.7	111.5	114.9	115.2	113.4		
Tare No	67	17	62	26	76		
Tare Mass (g)	253.3	251.8	248.8	241.5	241.5		
Wet Soil + Tare Mass (g)	311.0	310.2	417.5	365.3	421.3		
Dry Soil + Tare Mass (g)	299.4	297.5	378.2	334.7	375.2		
Moisture Content (%)	**25.2**	**27.8**	**30.4**	**32.8**	**34.5**		
Dry Unit Weight (lbs/ft³)	**86.0**	**87.3**	**88.1**	**86.7**	**84.4**		

Compaction Curve



Proctor Test Results	
Proctor No	3182-129 CURVE 2
Optimum Moisture Content (%)	29.7
Max Dry Unit Weight (lbs/ft³)	88.0

Liquid And Plastic Limits	
Liquid Limit	87
Plastic Limit	25
Plasticity Index	62
Group Symbol	CH
Sand Content (Retained No 200) (%)	0.24
Fines (Minus No 200) (%)	99.76

Remarks Sample Location: Middle of Pit, 1500' from North Pit Limit Avg. Curve 1 & 2; Max. Dry Unit Wt. = 88.2Lbs/cf; Optimum Moisture= 29.4%

Version MVNQS02-100907

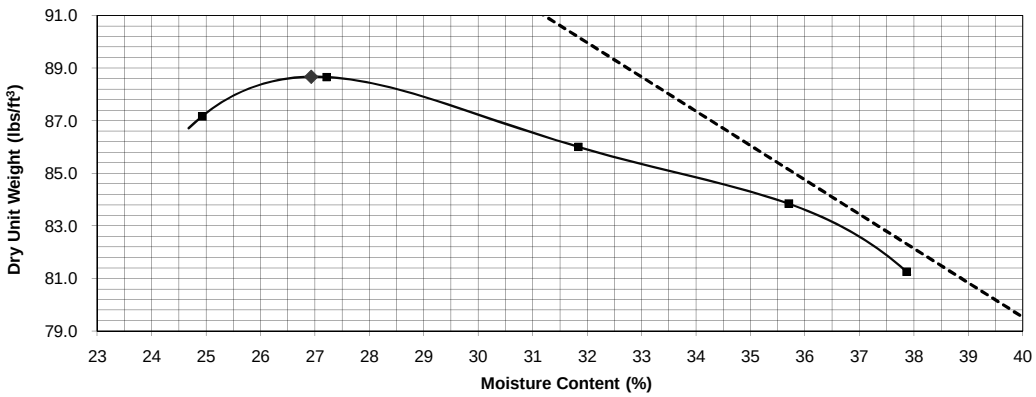
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3183-1	**Test No**	130
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	Middle	**Offset**	1500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02029	**Longitude (°W)**	90.605590	**Elevation (ft)**	-5.0		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	40.1		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3690.3	3749.1	3758.2	3764.1	3737.7		
Wet Soil Mass (g)	1644.8	1703.6	1712.7	1718.6	1692.2		
Wet Unit Weight (lbs/ft³)	108.9	112.8	113.4	113.8	112.0		
Tare No	81	8	31	13	34		
Tare Mass (g)	304.1	250.9	259.1	253.8	254.7		
Wet Soil + Tare Mass (g)	349.2	311.2	421.0	356.8	446.2		
Dry Soil + Tare Mass (g)	340.2	298.3	381.9	329.7	393.6		
Moisture Content (%)	**24.9**	**27.2**	**31.8**	**35.7**	**37.9**		
Dry Unit Weight (lbs/ft³)	**87.2**	**88.7**	**86.0**	**83.8**	**81.3**		

Compaction Curve



Proctor Test Results	
Proctor No	3183-130 CURVE 1
Optimum Moisture Content (%)	27.1
Max Dry Unit Weight (lbs/ft³)	87.9

Liquid And Plastic Limits	
Liquid Limit	81
Plastic Limit	25
Plasticity Index	56
Group Symbol	CH
Sand Content (Retained No 200) (%)	0.4
Fines (Minus No 200) (%)	99.6

Remarks	Avergae Max DD: 87.5 pcf / Average Optimum Moisture: 27.6 %M	Sample Location: Middle of Pit, 1500' from North Pit Limit
Version	**MVNQS02-100907**	

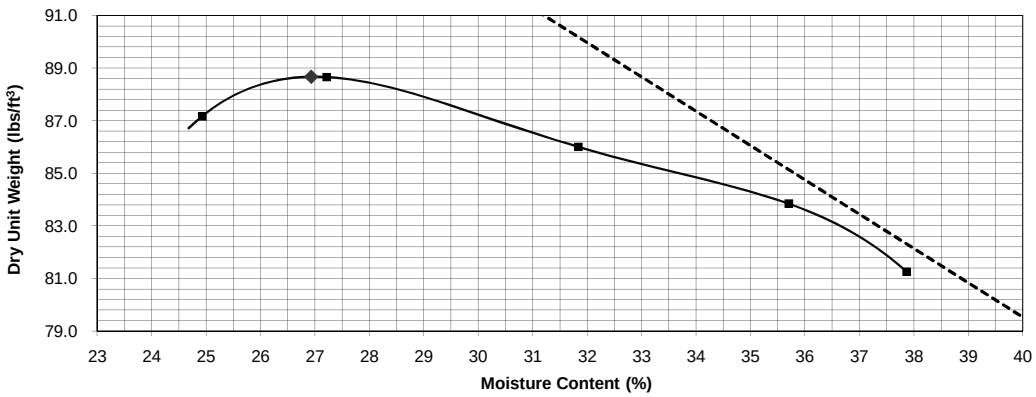
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3183-1	**Test No**	130
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	Middle	**Offset**	1500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02029	**Longitude (°W)**	90.605590	**Elevation (ft)**	-5.0		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	40.1		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**			
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3690.3	3749.1	3758.2	3764.1	3737.7		
Wet Soil Mass (g)	1644.8	1703.6	1712.7	1718.6	1692.2		
Wet Unit Weight (lbs/ft³)	108.9	112.8	113.4	113.8	112.0		
Tare No	81	8	31	13	34		
Tare Mass (g)	304.1	250.9	259.1	253.8	254.7		
Wet Soil + Tare Mass (g)	349.2	311.2	421.0	356.8	446.2		
Dry Soil + Tare Mass (g)	340.2	298.3	381.9	329.7	393.6		
Moisture Content (%)	**24.9**	**27.2**	**31.8**	**35.7**	**37.9**		
Dry Unit Weight (lbs/ft³)	**87.2**	**88.7**	**86.0**	**83.8**	**81.3**		

Compaction Curve



Proctor Test Results	
Proctor No	3183-130 CURVE 1
Optimum Moisture Content (%)	27.1
Max Dry Unit Weight (lbs/ft³)	87.9

Liquid And Plastic Limits	
Liquid Limit	81
Plastic Limit	25
Plasticity Index	56
Group Symbol	CH
Sand Content (Retained No 200) (%)	0.4
Fines (Minus No 200) (%)	99.6

Remarks	Avergae Max DD: 87.5 pcf / Average Optimum Moisture: 27.6 %M	Sample Location: Middle of Pit, 1500' from North Pit Limit
Version	**MVNQS02-100907**	

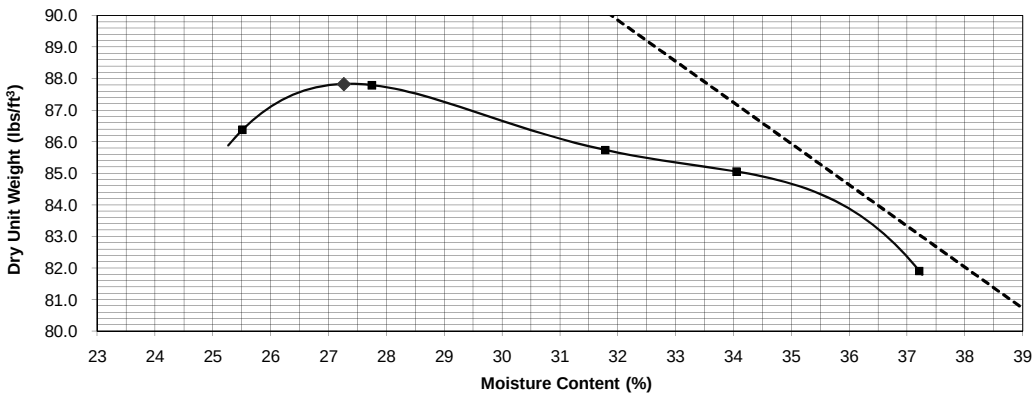
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3183-2	**Test No**	130
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	Middle	**Offset**	1500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02029	**Longitude (°W)**	90.605590	**Elevation (ft)**	-5.0		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	40.1		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3683.1	3739.5	3752.1	3767.6	3742.9		
Wet Soil Mass (g)	1637.6	1694.0	1706.6	1722.1	1697.4		
Wet Unit Weight (lbs/ft³)	108.4	112.2	113.0	114.0	112.4		
Tare No	41	72	18	1	69		
Tare Mass (g)	247.7	253.0	251.9	314.5	251.3		
Wet Soil + Tare Mass (g)	400.7	379.6	453.4	432.6	364.5		
Dry Soil + Tare Mass (g)	369.6	352.1	404.8	402.6	333.8		
Moisture Content (%)	**25.5**	**27.7**	**31.8**	**34.1**	**37.2**		
Dry Unit Weight (lbs/ft³)	**86.4**	**87.8**	**85.7**	**85.1**	**81.9**		

Compaction Curve



Proctor Test Results

Proctor No	3183-130 CURVE 2
Optimum Moisture Content (%)	28.0
Max Dry Unit Weight (lbs/ft³)	87.1

Liquid And Plastic Limits

Liquid Limit	81
Plastic Limit	25
Plasticity Index	56
Group Symbol	CH
Sand Content (Retained No 200) (%)	0.4
Fines (Minus No 200) (%)	99.6

Remarks	Avergae Max DD: 87.5 pcf / Average Optimum Moisture: 27.6 %M	Sample Location: Middle of Pit, 1500' from North Pit Limit
Version	**MVNQS02-100907**	

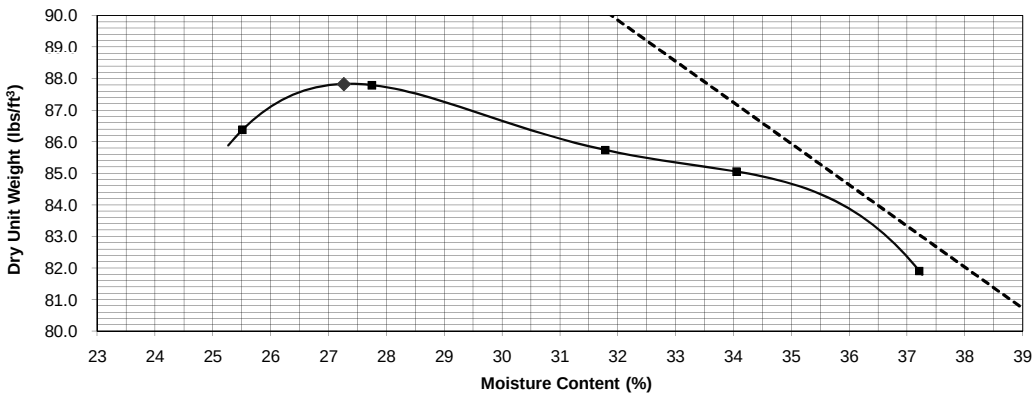
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3183-2	**Test No**	130
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	Middle	**Offset**	1500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02029	**Longitude (°W)**	90.605590	**Elevation (ft)**	-5.0		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	40.1		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**			
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3683.1	3739.5	3752.1	3767.6	3742.9		
Wet Soil Mass (g)	1637.6	1694.0	1706.6	1722.1	1697.4		
Wet Unit Weight (lbs/ft³)	108.4	112.2	113.0	114.0	112.4		
Tare No	41	72	18	1	69		
Tare Mass (g)	247.7	253.0	251.9	314.5	251.3		
Wet Soil + Tare Mass (g)	400.7	379.6	453.4	432.6	364.5		
Dry Soil + Tare Mass (g)	369.6	352.1	404.8	402.6	333.8		
Moisture Content (%)	**25.5**	**27.7**	**31.8**	**34.1**	**37.2**		
Dry Unit Weight (lbs/ft³)	**86.4**	**87.8**	**85.7**	**85.1**	**81.9**		

Compaction Curve



Proctor Test Results	
Proctor No	3183-130 CURVE 2
Optimum Moisture Content (%)	28.0
Max Dry Unit Weight (lbs/ft³)	87.1

Liquid And Plastic Limits	
Liquid Limit	81
Plastic Limit	25
Plasticity Index	56
Group Symbol	CH
Sand Content (Retained No 200) (%)	0.4
Fines (Minus No 200) (%)	99.6

Remarks	Avergae Max DD: 87.5 pcf / Average Optimum Moisture: 27.6 %M	Sample Location: Middle of Pit, 1500' from North Pit Limit
Version	**MVNQS02-100907**	

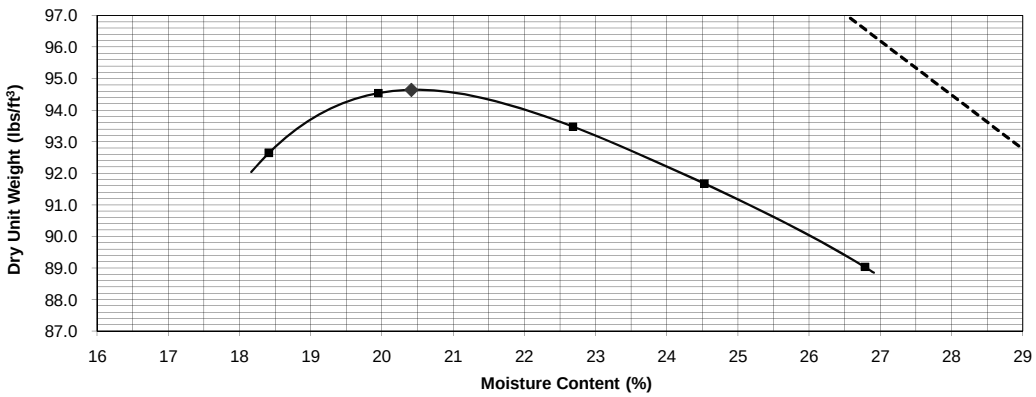
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3184-1	**Test No**	131
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	South End	**Offset**	2500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02029	**Longitude (°W)**	90.605593	**Elevation (ft)**	2.3		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	34.7		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3702.6	3758.4	3777.7	3769.9	3750.5		
Wet Soil Mass (g)	1657.1	1712.9	1732.2	1724.4	1705.0		
Wet Unit Weight (lbs/ft³)	109.7	113.4	114.7	114.2	112.9		
Tare No	50	23	36	66	58		
Tare Mass (g)	248.6	257.3	254.2	248.4	245.6		
Wet Soil + Tare Mass (g)	393.3	407.0	366.7	406.8	368.2		
Dry Soil + Tare Mass (g)	370.8	382.1	345.9	375.6	342.3		
Moisture Content (%)	**18.4**	**20.0**	**22.7**	**24.5**	**26.8**		
Dry Unit Weight (lbs/ft³)	**92.6**	**94.5**	**93.5**	**91.7**	**89.0**		

Compaction Curve



Proctor Test Results	
Proctor No	3184-131 CURVE 1
Optimum Moisture Content (%)	20.9
Max Dry Unit Weight (lbs/ft³)	94.0

Liquid And Plastic Limits	
Liquid Limit	71
Plastic Limit	23
Plasticity Index	48
Group Symbol	CH
Sand Content (Retained No 200) (%)	0.82
Fines (Minus No 200) (%)	99.18

Remarks	Avergae Max DD: 93.8 pcf / Average Optimum Moisture: 21.9 %M	Sample Location: South End of Pit, 2500' from North Pit Limit
Version	**MVNQS02-100907**	

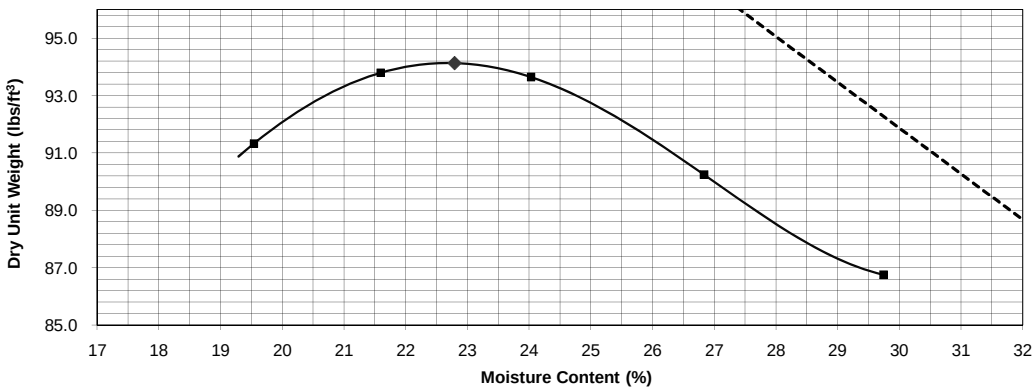
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3184-2	**Test No**	131
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	South End	**Offset**	2500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02029	**Longitude (°W)**	90.605593	**Elevation (ft)**	2.3		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	34.7		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3694.5	3768.2	3799.9	3774.4	3745.6		
Wet Soil Mass (g)	1649.0	1722.7	1754.4	1728.9	1700.1		
Wet Unit Weight (lbs/ft³)	109.2	114.1	116.1	114.5	112.6		
Tare No	19	51	11	42	10		
Tare Mass (g)	245.8	248.4	251.5	260.9	301.6		
Wet Soil + Tare Mass (g)	313.7	321.6	389.3	371.5	408.9		
Dry Soil + Tare Mass (g)	302.6	308.6	362.6	348.1	384.3		
Moisture Content (%)	**19.5**	**21.6**	**24.0**	**26.8**	**29.7**		
Dry Unit Weight (lbs/ft³)	**91.3**	**93.8**	**93.6**	**90.2**	**86.8**		

Compaction Curve



Proctor Test Results	
Proctor No	3184-131 CURVE 2
Optimum Moisture Content (%)	22.9
Max Dry Unit Weight (lbs/ft³)	93.5

Liquid And Plastic Limits	
Liquid Limit	71
Plastic Limit	23
Plasticity Index	48
Group Symbol	CH
Sand Content (Retained No 200) (%)	0.82
Fines (Minus No 200) (%)	99.18

Remarks	Avergae Max DD: 93.8 pcf / Average Optimum Moisture: 21.9 %M	Sample Location: South End of Pit, 2500' from North Pit Limit
Version	**MVNQS02-100907**	

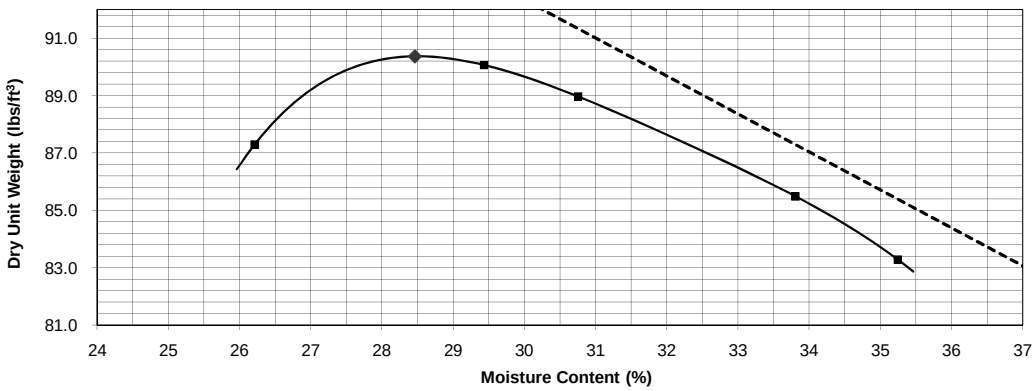
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3185-1	**Test No**	132
USACE Contract No	W912P8-09-D-0046 0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	South End	**Offset**	2500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02029	**Longitude (°W)**	90.605593	**Elevation (ft)**	-5.3		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	45.9		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3709.6	3806.3	3802.6	3773.3	3746.8		
Wet Soil Mass (g)	1664.1	1760.8	1757.1	1727.8	1701.3		
Wet Unit Weight (lbs/ft³)	110.2	116.6	116.3	114.4	112.6		
Tare No	70	21	53	12	29		
Tare Mass (g)	246.4	257.1	249.5	312.7	250.2		
Wet Soil + Tare Mass (g)	433.7	456.3	408.5	463.1	429.4		
Dry Soil + Tare Mass (g)	394.8	411.0	371.1	425.1	382.7		
Moisture Content (%)	**26.2**	**29.4**	**30.8**	**33.8**	**35.2**		
Dry Unit Weight (lbs/ft³)	**87.3**	**90.1**	**89.0**	**85.5**	**83.3**		

Compaction Curve



Proctor Test Results	
Proctor No	3185-132 CURVE 1
Optimum Moisture Content (%)	29.5
Max Dry Unit Weight (lbs/ft³)	89.6

Liquid And Plastic Limits	
Liquid Limit	74
Plastic Limit	23
Plasticity Index	51
Group Symbol	CH
Sand Content (Retained No 200) (%)	0.82
Fines (Minus No 200) (%)	99.18

Remarks	Sample Location: South End of Pit, 2500' from North Pit Limit	Avergae Max DD: 90.0 pcf / Average Optimum Moisture: 28.5 %M
Version	**MVNQS02-100907**	

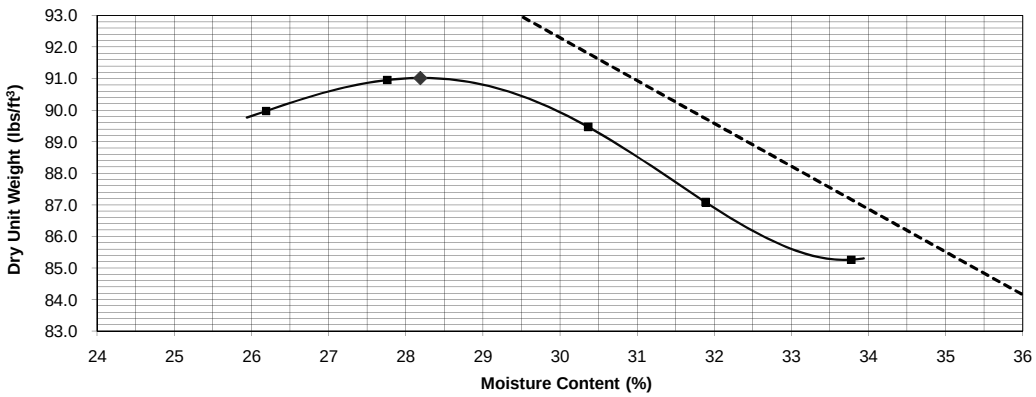
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3185-2	**Test No**	132
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	South End	**Offset**	2500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02029	**Longitude (°W)**	90.605593	**Elevation (ft)**	-5.3		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	45.9		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3760.4	3800.7	3807.3	3780.4	3768.3		
Wet Soil Mass (g)	1714.9	1755.2	1761.8	1734.9	1722.8		
Wet Unit Weight (lbs/ft³)	113.5	116.2	116.6	114.9	114.1		
Tare No	35	14	78	2	71		
Tare Mass (g)	237.3	249.7	251.6	315.4	253.4		
Wet Soil + Tare Mass (g)	375.1	499.6	408.3	485.8	403.9		
Dry Soil + Tare Mass (g)	346.5	445.3	371.8	444.6	365.9		
Moisture Content (%)	**26.2**	**27.8**	**30.4**	**31.9**	**33.8**		
Dry Unit Weight (lbs/ft³)	**90.0**	**91.0**	**89.5**	**87.1**	**85.3**		

Compaction Curve



Proctor Test Results	
Proctor No	3185-132
Optimum Moisture Content (%)	27.5
Max Dry Unit Weight (lbs/ft³)	90.4

Liquid And Plastic Limits	
Liquid Limit	74
Plastic Limit	23
Plasticity Index	51
Group Symbol	CH
Sand Content (Retained No 200) (%)	0.82
Fines (Minus No 200) (%)	99.18

Remarks	Sample Location: South End of Pit, 2500' from North Pit Limit	Avergae Max DD: 90.0 pcf / Average Optimum Moisture: 28.5 %M
Version	**MVNQS02-100907**	

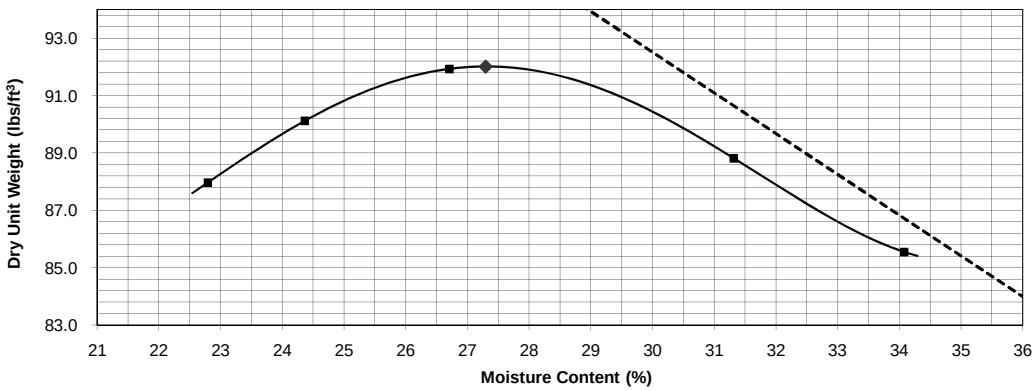
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3186-1	**Test No**	133
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	South End	**Offset**	2500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02029	**Longitude (°W)**	90.605593	**Elevation (ft)**	-5.3		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	38.3		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3677.0	3738.3	3804.9	3807.1	3778.0		
Wet Soil Mass (g)	1631.5	1692.8	1759.4	1761.6	1732.5		
Wet Unit Weight (lbs/ft³)	108.0	112.1	116.5	116.6	114.7		
Tare No	27	38	16	5	9		
Tare Mass (g)	246.0	306.9	256.4	258.8	249.2		
Wet Soil + Tare Mass (g)	379.6	453.9	408.2	395.5	428.6		
Dry Soil + Tare Mass (g)	354.8	425.1	376.2	362.9	383.0		
Moisture Content (%)	**22.8**	**24.4**	**26.7**	**31.3**	**34.1**		
Dry Unit Weight (lbs/ft³)	**88.0**	**90.1**	**91.9**	**88.8**	**85.5**		

Compaction Curve



Proctor Test Results	
Proctor No	3186-133 CURVE 1
Optimum Moisture Content (%)	27.6
Max Dry Unit Weight (lbs/ft³)	91.5

Liquid And Plastic Limits	
Liquid Limit	67
Plastic Limit	23
Plasticity Index	44
Group Symbol	CH
Sand Content (Retained No 200) (%)	1.06
Fines (Minus No 200) (%)	98.94

Remarks	Sample Location: South End of Pit, 2500' from North Pit Limit	Avergae Max DD: 91.6 pcf / Average Optimum Moisture: 26.5 %M
Version	**MVNQS02-100907**	

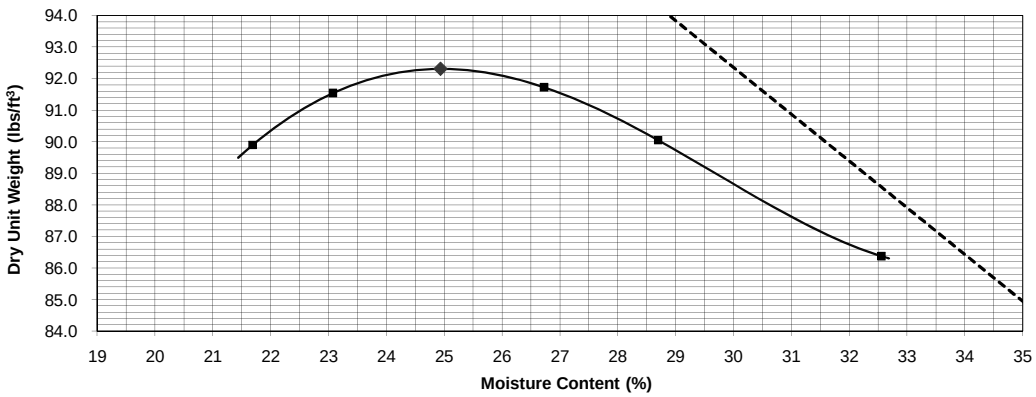
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3186-2	**Test No**	133
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway Construction	**Revision**	1
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	7-Oct-10		
Material Source	Willow Bend	**Feature**	Levee Embankment	**Visual Description**	Brown and Gray Clay		
Station	South End	**Offset**	2500' from North Pit Limit	**Lift No**			
Latitude (°N)	30.02029	**Longitude (°W)**	90.605593	**Elevation (ft)**	-5.3		
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	38.3		
Compaction Hammer	Mechanical	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	C. Willis	**Reviewed By**	P. Grice	**Submitted By**	B. Landers		

Trial No	**1**	**2**	**3**	**4**	**5**		
Mold No	S03	S03	S03	S03	S03		
Mold Mass (g)	2045.5	2045.5	2045.5	2045.5	2045.5		
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333		
Wet Soil + Mold Mass (g)	3697.8	3747.3	3801.3	3796.0	3774.9		
Wet Soil Mass (g)	1652.3	1701.8	1755.8	1750.5	1729.4		
Wet Unit Weight (lbs/ft³)	109.4	112.7	116.2	115.9	114.5		
Tare No	63	3	84	32	75		
Tare Mass (g)	243.9	246.7	256.8	315.4	249.8		
Wet Soil + Tare Mass (g)	375.2	437.1	398.1	461.6	341.0		
Dry Soil + Tare Mass (g)	351.8	401.4	368.3	429.0	318.6		
Moisture Content (%)	**21.7**	**23.1**	**26.7**	**28.7**	**32.6**		
Dry Unit Weight (lbs/ft³)	**89.9**	**91.5**	**91.7**	**90.0**	**86.4**		

Compaction Curve



Proctor Test Results	
Proctor No	3186-133 CURVE 2
Optimum Moisture Content (%)	25.4
Max Dry Unit Weight (lbs/ft³)	91.7

Liquid And Plastic Limits	
Liquid Limit	67
Plastic Limit	23
Plasticity Index	44
Group Symbol	CH
Sand Content (Retained No 200) (%)	1.06
Fines (Minus No 200) (%)	98.94

Remarks	Sample Location: South End of Pit, 2500' from North Pit Limit	Avergae Max DD: 91.6 pcf / Average Optimum Moisture: 26.5 %M
Version	**MVNQS02-100907**	

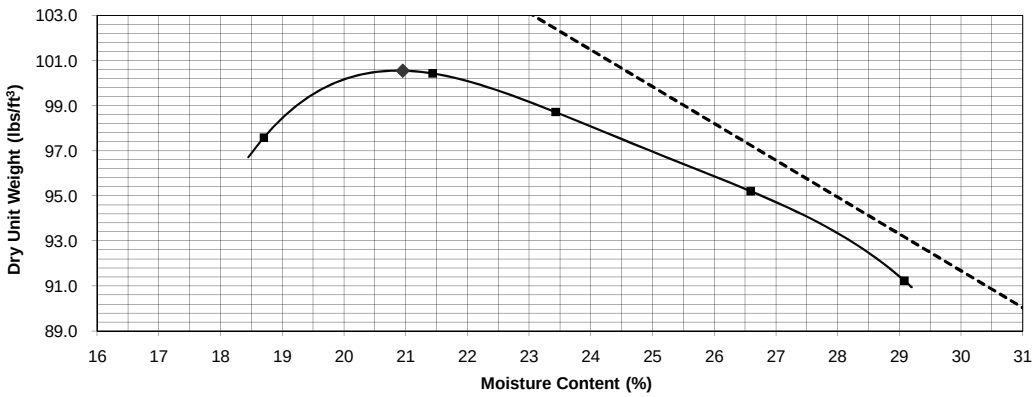
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3291-1	**Test No**	184
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	CONSTRUCTION	**Revision**	
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	10/29/2010		
Material Source	WILLOW BEND	**Feature**	Levee Embankment	**Visual Description**	GR. BR. CL.		
Station	169+80	**Offset**	ON-SITE MATERIAL	**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	21.4		
Compaction Hammer	Manual	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	RODNEY	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.6	2016.6	2016.6	2016.6	2016.6
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3766.2	3858.7	3857.0	3837.0	3795.4
Wet Soil Mass (g)	1749.6	1842.1	1840.4	1820.4	1778.8
Wet Unit Weight (lbs/ft³)	115.8	122.0	121.8	120.5	117.8
Tare No	DT30	DT20	DT11	DT08	DT01
Tare Mass (g)	203.4	212.6	181.0	187.5	171.9
Wet Soil + Tare Mass (g)	554.4	470.9	428.6	487.9	424.9
Dry Soil + Tare Mass (g)	499.1	425.3	381.6	424.8	367.9
Moisture Content (%)	**18.7**	**21.4**	**23.4**	**26.6**	**29.1**
Dry Unit Weight (lbs/ft³)	**97.6**	**100.4**	**98.7**	**95.2**	**91.2**

Compaction Curve



Proctor Test Results

Proctor No	3291-184A
Optimum Moisture Content (%)	21.8
Max Dry Unit Weight (lbs/ft³)	99.5

Liquid And Plastic Limits

Liquid Limit	64
Plastic Limit	22
Plasticity Index	42
Group Symbol	CH
Sand Content (Retained No 200) (%)	2.2
Fines (Minus No 200) (%)	97.8

Remarks	SAMPLE WAS COLLECTED FROM MATERIAL DELIVERED TO SITE	Avg. Curve 1 & 2; Max. Dry Unit Wt. = 99.5 Lbs/cf; Optimum Moisture= 21.9 %
Version	**MVNQS02-100907**	

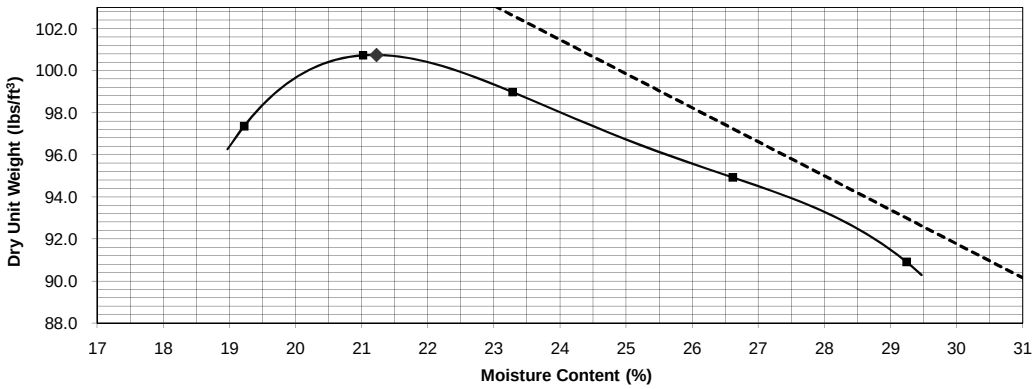
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3291-2	**Test No**	184
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	CONSTRUCTION	**Revision**	
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	10/29/2010		
Material Source	WILLOW BEND	**Feature**	Levee Embankment	**Visual Description**	GR. BR. CL.		
Station	169+80	**Offset**	ON-SITE MATERIAL	**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	21.4		
Compaction Hammer	Manual	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	RODNEY	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.6	2016.6	2016.6	2016.6	2016.6
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3769.8	3857.8	3859.7	3831.9	3791.2
Wet Soil Mass (g)	1753.2	1841.2	1843.1	1815.3	1774.6
Wet Unit Weight (lbs/ft³)	116.1	121.9	122.0	120.2	117.5
Tare No	DT45	DT25	DT47	DT04	DT21
Tare Mass (g)	177.2	205.7	178.1	233.5	211.6
Wet Soil + Tare Mass (g)	422.8	499.3	386.7	568.4	456.0
Dry Soil + Tare Mass (g)	383.2	448.3	347.3	498.0	400.7
Moisture Content (%)	**19.2**	**21.0**	**23.3**	**26.6**	**29.2**
Dry Unit Weight (lbs/ft³)	**97.4**	**100.7**	**99.0**	**94.9**	**90.9**

Compaction Curve



Proctor Test Results	
Proctor No	3291-184B
Optimum Moisture Content (%)	21.9
Max Dry Unit Weight (lbs/ft³)	99.4

Liquid And Plastic Limits	
Liquid Limit	64
Plastic Limit	22
Plasticity Index	42
Group Symbol	CH
Sand Content (Retained No 200) (%)	2.2
Fines (Minus No 200) (%)	97.8

Remarks	SAMPLE WAS COLLECTED FROM MATERIAL DELIVERED TO SITE	Avg. Curve 1 & 2; Max. Dry Unit Wt. = 99.5 Lbs/cf; Optimum Moisture= 21.9 %
Version	**MVNQS02-100907**	

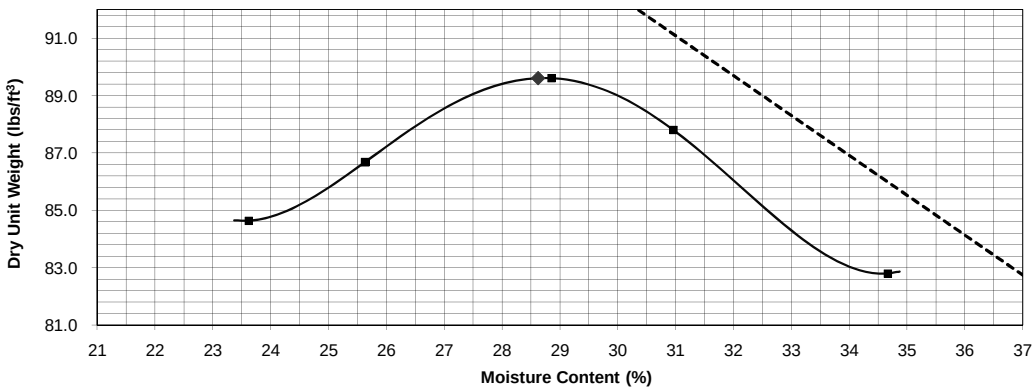
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3462	**Test No**	307 A
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	11/30/2010		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	G. BR. CLAY		
Station	18+00	**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	31		
Compaction Hammer	Manual	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.6	2016.6	2016.6	2016.6	2016.6
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3596.9	3661.5	3760.6	3753.4	3700.7
Wet Soil Mass (g)	1580.3	1644.9	1744.0	1736.8	1684.1
Wet Unit Weight (lbs/ft³)	104.6	108.9	115.5	115.0	111.5
Tare No	dt45	dt47	dt49	dt46	dt50
Tare Mass (g)	177.2	178.1	176.4	177.9	180.7
Wet Soil + Tare Mass (g)	397.0	415.8	615.8	413.5	449.5
Dry Soil + Tare Mass (g)	355.0	367.3	517.4	357.8	380.3
Moisture Content (%)	**23.6**	**25.6**	**28.9**	**31.0**	**34.7**
Dry Unit Weight (lbs/ft³)	**84.6**	**86.7**	**89.6**	**87.8**	**82.8**

Compaction Curve



Proctor Test Results	
Proctor No	3462-307
Optimum Moisture Content (%)	28.7
Max Dry Unit Weight (lbs/ft³)	89.0

Liquid And Plastic Limits	
Liquid Limit	65
Plastic Limit	23
Plasticity Index	42
Group Symbol	CH
Sand Content (Retained No 200) (%)	5.5
Fines (Minus No 200) (%)	94.5

Remarks	Avergae Max DD: 89.1 pcf / Average Optimum Moisture: 28.8 %M	
Version	**MVNQS02-100907**	

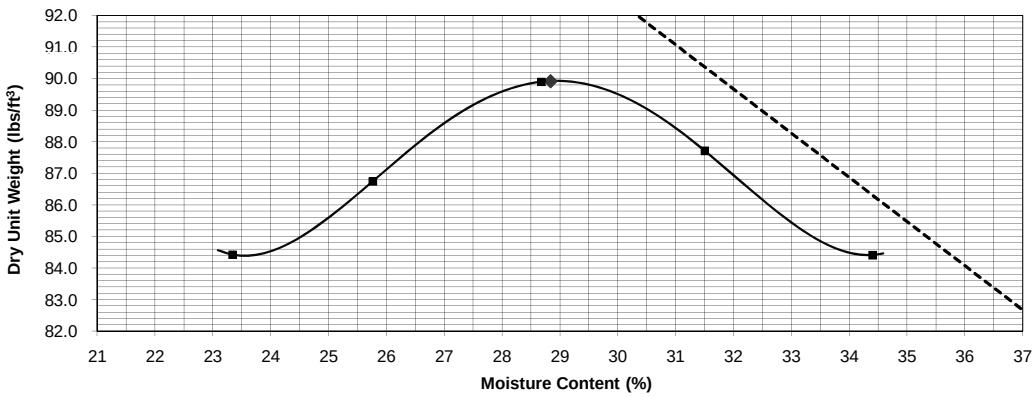
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3462	**Test No**	307 B
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	11/30/2010		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	G. BR. CL.		
Station	18+00	**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	31		
Compaction Hammer	Manual	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.6	2016.6	2016.6	2016.6	2016.6
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3589.3	3664.4	3763.9	3758.8	3730.2
Wet Soil Mass (g)	1572.7	1647.8	1747.3	1742.2	1713.6
Wet Unit Weight (lbs/ft³)	104.1	109.1	115.7	115.3	113.4
Tare No	DT25	DT30	DT21	DT48	DT41
Tare Mass (g)	205.7	203.3	211.6	183.5	178.0
Wet Soil + Tare Mass (g)	475.2	532.3	547.2	447.3	561.6
Dry Soil + Tare Mass (g)	424.2	464.9	472.4	384.1	463.4
Moisture Content (%)	**23.3**	**25.8**	**28.7**	**31.5**	**34.4**
Dry Unit Weight (lbs/ft³)	**84.4**	**86.7**	**89.9**	**87.7**	**84.4**

Compaction Curve



Proctor Test Results

Proctor No	3462-307
Optimum Moisture Content (%)	28.9
Max Dry Unit Weight (lbs/ft³)	89.1

Liquid And Plastic Limits

Liquid Limit	65
Plastic Limit	23
Plasticity Index	42
Group Symbol	CH
Sand Content (Retained No 200) (%)	5.5
Fines (Minus No 200) (%)	94.5

Remarks	Avergae Max DD: 89.1 pcf / Average Optimum Moisture: 28.8 %M
Version	**MVNQS02-100907**

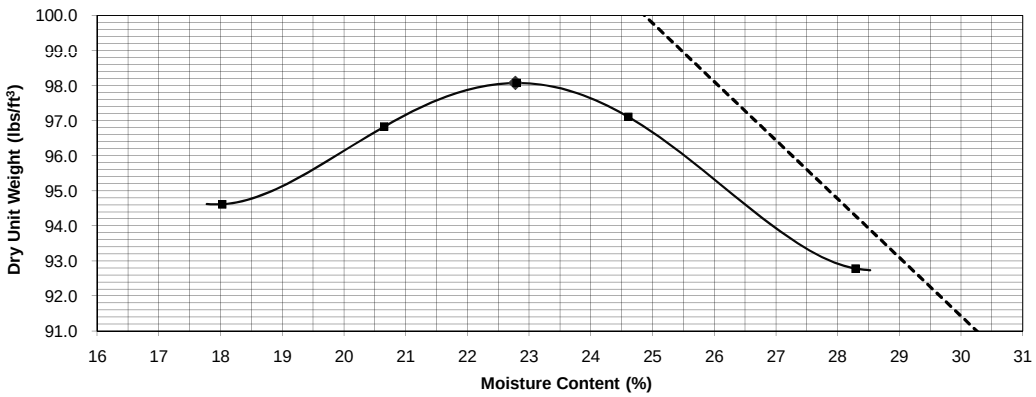
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3467	**Test No**	308 A
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/1/2010		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	G. BR. CLAY		
Station	41+50	**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	24.8		
Compaction Hammer	Manual	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.6	2016.6	2016.6	2016.6	2016.6
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3703.4	3781.3	3835.7	3844.4	3814.5
Wet Soil Mass (g)	1686.8	1764.7	1819.1	1827.8	1797.9
Wet Unit Weight (lbs/ft³)	111.7	116.8	120.4	121.0	119.0
Tare No	dt46	dt02	dt04	dt31	dt40
Tare Mass (g)	177.8	178.9	233.4	211.0	176.2
Wet Soil + Tare Mass (g)	456.7	437.7	630.4	578.6	456.9
Dry Soil + Tare Mass (g)	414.1	393.4	556.7	506.0	395.0
Moisture Content (%)	**18.0**	**20.7**	**22.8**	**24.6**	**28.3**
Dry Unit Weight (lbs/ft³)	**94.6**	**96.8**	**98.1**	**97.1**	**92.8**

Compaction Curve



Proctor Test Results	
Proctor No	3467-308
Optimum Moisture Content (%)	22.6
Max Dry Unit Weight (lbs/ft³)	97.7

Liquid And Plastic Limits	
Liquid Limit	55
Plastic Limit	20
Plasticity Index	35
Group Symbol	CH
Sand Content (Retained No 200) (%)	8.3
Fines (Minus No 200) (%)	91.7

Remarks	Avergae Max DD: 97.8pcf / Average Optimum Moisture: 22.6 %M
Version	**MVNQS02-100907**

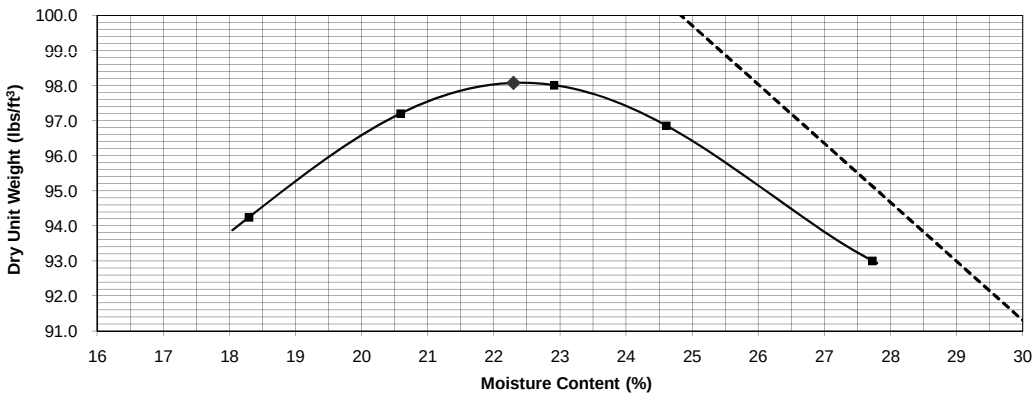
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3467	**Test No**	308 B
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/1/2010		
Material Source	Borrow Pit	**Feature**	Levee Embankment	**Visual Description**	G. BR. CL.		
Station	41+50	**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	24.8		
Compaction Hammer	Manual	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.6	2016.6	2016.6	2016.6	2016.6
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3700.5	3787.1	3836.2	3839.6	3810.8
Wet Soil Mass (g)	1683.9	1770.5	1819.6	1823.0	1794.2
Wet Unit Weight (lbs/ft³)	111.5	117.2	120.5	120.7	118.8
Tare No	DT08	DT51	DT24	DT27	DT11
Tare Mass (g)	187.4	140.1	206.4	209.6	181.0
Wet Soil + Tare Mass (g)	412.4	344.5	469.8	503.8	450.5
Dry Soil + Tare Mass (g)	377.6	309.6	420.7	445.7	392.0
Moisture Content (%)	**18.3**	**20.6**	**22.9**	**24.6**	**27.7**
Dry Unit Weight (lbs/ft³)	**94.2**	**97.2**	**98.0**	**96.9**	**93.0**

Compaction Curve



Proctor Test Results	
Proctor No	3467-308
Optimum Moisture Content (%)	22.6
Max Dry Unit Weight (lbs/ft³)	97.8

Liquid And Plastic Limits	
Liquid Limit	55
Plastic Limit	20
Plasticity Index	35
Group Symbol	CH
Sand Content (Retained No 200) (%)	8.3
Fines (Minus No 200) (%)	91.7

Remarks	Avergae Max DD: 97.8pcf / Average Optimum Moisture: 22.6 %M	
Version	**MVNQS02-100907**	

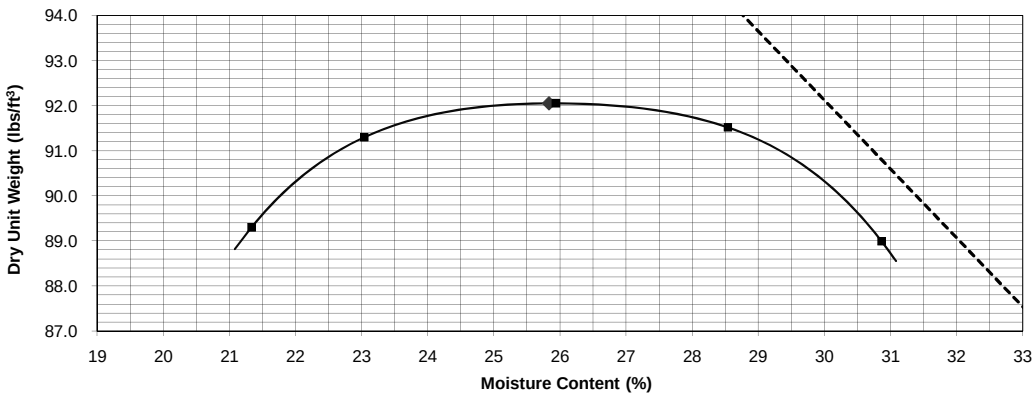
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3550	**Test No**	352A
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/14/2010		
Material Source	Jobsite	**Feature**	Levee Embankment	**Visual Description**	BR. CLAY		
Station	149+90	**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	28.6		
Compaction Hammer	Manual	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.6	2016.6	2016.6	2016.6	2016.6
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3653.2	3713.4	3767.7	3793.5	3775.7
Wet Soil Mass (g)	1636.6	1696.8	1751.1	1776.9	1759.1
Wet Unit Weight (lbs/ft³)	108.4	112.3	115.9	117.6	116.5
Tare No	DT30	DT08	DT27	DT43	DT31
Tare Mass (g)	203.4	187.5	209.7	179.9	211.0
Wet Soil + Tare Mass (g)	507.1	503.1	565.6	547.4	598.1
Dry Soil + Tare Mass (g)	453.7	444.0	492.3	465.8	506.8
Moisture Content (%)	**21.3**	**23.0**	**25.9**	**28.5**	**30.9**
Dry Unit Weight (lbs/ft³)	**89.3**	**91.3**	**92.1**	**91.5**	**89.0**

Compaction Curve



Proctor Test Results	
Proctor No	3550
Optimum Moisture Content (%)	26.0
Max Dry Unit Weight (lbs/ft³)	92.3

Liquid And Plastic Limits	
Liquid Limit	63
Plastic Limit	19
Plasticity Index	44
Group Symbol	CH
Sand Content (Retained No 200) (%)	5
Fines (Minus No 200) (%)	95

Remarks	Avergae Max DD: 92.3pcf / Average Optimum Moisture: 26.0%M	PROCTOR PULLED FROM EXISTING LEVEE 149+90
Version	**MVNQS02-100907**	

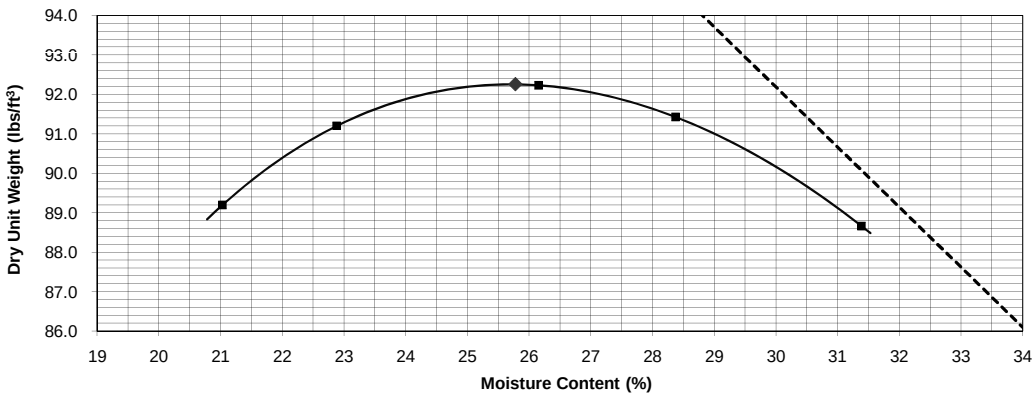
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3550	**Test No**	352B
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/14/2010		
Material Source	Jobsite	**Feature**	Levee Embankment	**Visual Description**	BR. CL.		
Station	149+90	**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	28.6		
Compaction Hammer	Manual	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.6	2016.6	2016.6	2016.6	2016.6
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3647.2	3709.4	3774.1	3789.4	3776.1
Wet Soil Mass (g)	1630.6	1692.8	1757.5	1772.8	1759.5
Wet Unit Weight (lbs/ft³)	108.0	112.1	116.4	117.4	116.5
Tare No	DT25	DT04	DT49	DT40	DT14
Tare Mass (g)	205.7	233.5	176.4	176.4	245.0
Wet Soil + Tare Mass (g)	572.3	500.4	588.8	621.6	508.3
Dry Soil + Tare Mass (g)	508.6	450.7	503.3	523.2	445.4
Moisture Content (%)	**21.0**	**22.9**	**26.2**	**28.4**	**31.4**
Dry Unit Weight (lbs/ft³)	**89.2**	**91.2**	**92.2**	**91.4**	**88.7**

Compaction Curve



Proctor Test Results	
Proctor No	3550
Optimum Moisture Content (%)	26.0
Max Dry Unit Weight (lbs/ft³)	92.2

Liquid And Plastic Limits	
Liquid Limit	63
Plastic Limit	19
Plasticity Index	44
Group Symbol	CH
Sand Content (Retained No 200) (%)	5
Fines (Minus No 200) (%)	95

Remarks	Avergae Max DD: 92.3pcf / Average Optimum Moisture: 26.0 %M	PROCTOR PULLED FROM EXISTING LEVEE 149+90
Version	**MVNQS02-100907**	

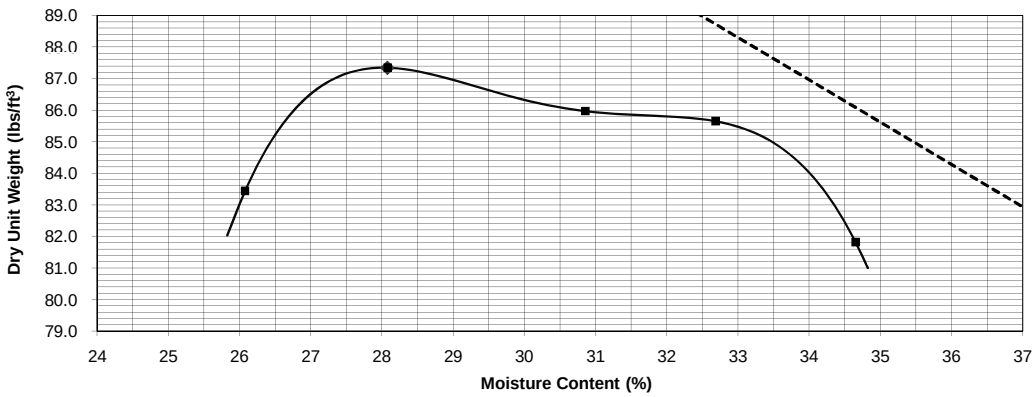
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3555	**Test No**	353A
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/14/2010		
Material Source	Jobsite	**Feature**	Levee Embankment	**Visual Description**	BR. CLAY		
Station	174+90	**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	33.5		
Compaction Hammer	Manual	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.6	2016.6	2016.6	2016.6	2016.6
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3605.6	3706.4	3715.9	3733.2	3680.7
Wet Soil Mass (g)	1589.0	1689.8	1699.3	1716.6	1664.1
Wet Unit Weight (lbs/ft³)	105.2	111.9	112.5	113.6	110.2
Tare No	DT01	DT20	DT43	DT25	DT24
Tare Mass (g)	171.9	212.7	179.9	205.7	206.5
Wet Soil + Tare Mass (g)	412.2	537.9	453.0	424.1	566.7
Dry Soil + Tare Mass (g)	362.5	466.6	388.6	370.3	474.0
Moisture Content (%)	**26.1**	**28.1**	**30.9**	**32.7**	**34.7**
Dry Unit Weight (lbs/ft³)	**83.4**	**87.3**	**86.0**	**85.7**	**81.8**

Compaction Curve



Proctor Test Results	
Proctor No	3555
Optimum Moisture Content (%)	29.9
Max Dry Unit Weight (lbs/ft³)	87.1

Liquid And Plastic Limits	
Liquid Limit	78
Plastic Limit	28
Plasticity Index	50
Group Symbol	CH
Sand Content (Retained No 200) (%)	5.9
Fines (Minus No 200) (%)	94.1

Remarks	Avergae Max DD: 86.6pcf / Average Optimum Moisture: 30.0%M	PROCTOR PULLED FROM EXISTING LEVEE 174+90
Version	**MVNQS02-100907**	

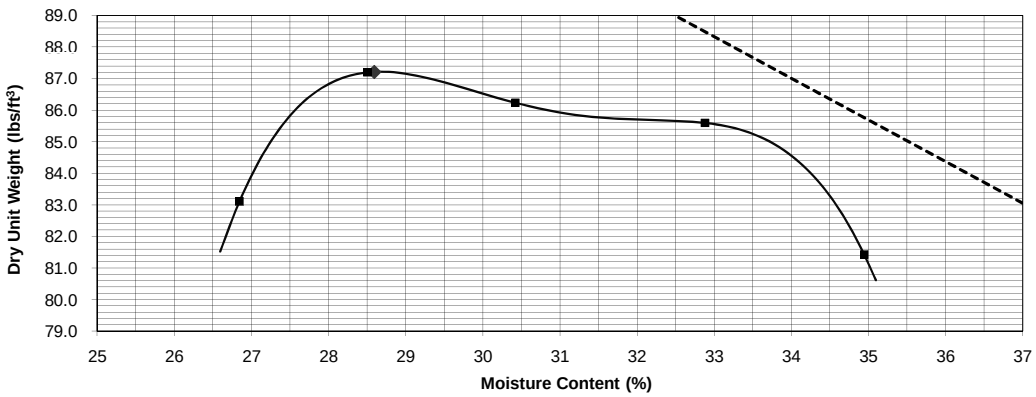
US Army Corps of Engineers

Compaction - Moisture Density Relationship - ASTM D 698 / D 1557

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3555	**Test No**	353B
USACE Contract No	W912P8-09-D-0046-0008			**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/14/2010		
Material Source	Jobsite	**Feature**	Levee Embankment	**Visual Description**	BR. CL.		
Station	174+90	**Offset**		**Lift No**			
Latitude (°N)		**Longitude (°W)**		**Elevation (ft)**			
Test Method	ASTM D698-A	**Preparation Method**	Moist	**Received Moisture Content (%)**	33.5		
Compaction Hammer	Manual	**Specific Gravity**	2.65	**Specific Gravity Method**	Estimated		
Retained - No 4 Sieve (%)		**Retained - 3/8" Sieve (%)**		**ASTM D 3718 Correction**	No		
Retained - 3/4" Sieve (%)				**Test Result**	**Pass**		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS		

Trial No	**1**	**2**	**3**	**4**	**5**
Mold No	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03	GZL-ML-03
Mold Mass (g)	2016.6	2016.6	2016.6	2016.6	2016.6
Mold Volume (ft³)	0.0333	0.0333	0.0333	0.0333	0.0333
Wet Soil + Mold Mass (g)	3608.9	3709.1	3715.4	3734.6	3676.3
Wet Soil Mass (g)	1592.3	1692.5	1698.8	1718.0	1659.7
Wet Unit Weight (lbs/ft³)	105.4	112.1	112.5	113.7	109.9
Tare No	DT41	DT42	DT31	DT40	DT02
Tare Mass (g)	178.1	178.3	211.0	176.2	179.0
Wet Soil + Tare Mass (g)	434.2	422.2	448.5	440.9	522.3
Dry Soil + Tare Mass (g)	380.0	368.1	393.1	375.4	433.4
Moisture Content (%)	**26.8**	**28.5**	**30.4**	**32.9**	**34.9**
Dry Unit Weight (lbs/ft³)	**83.1**	**87.2**	**86.2**	**85.6**	**81.4**

Compaction Curve



Proctor Test Results	
Proctor No	3555
Optimum Moisture Content (%)	30.0
Max Dry Unit Weight (lbs/ft³)	86.1

Liquid And Plastic Limits	
Liquid Limit	78
Plastic Limit	28
Plasticity Index	50
Group Symbol	CH
Sand Content (Retained No 200) (%)	5.9
Fines (Minus No 200) (%)	94.1

Remarks	Avergae Max DD: 86.6pcf / Average Optimum Moisture: 30.0%M	PROCTOR PULLED FROM EXISTING LEVEE 174+90
Version	**MVNQS02-100907**	

US Army Corps of Engineers

Moisture Content Determination - ASTM D 2216 (Method B)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3034
USACE Contract No	W912P8-09-D-0046 0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14C.2 Phase 2, First Lift			**Sample Date**	9/29/2010
Oven Start Time (Date Time)	9/29/2010 - 6:00 P.M.	**Oven Stop Time (Date Time)**	9/30/2010 - 7:00 A.M.	**Oven Used**	21-350-ER
Lab Tested By	R. Fisher	**Reviewed By**	B. Landers	**Submitted By**	B. Landers

Test No	92				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description					
Station	99+25				
Offset	Proctor				
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No	DT51				
Tare Mass (g)	140.19				
Wet Soil + Tare Mass (g)	316.41				
Dry Soil + Tare Mass (g)	279.34				
Moisture Content (%)	**26.6**				
Test Result	**Info Only**				

Test No					
Retest of Test ID					
Material Source					
Feature					
Visual Description					
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No					
Tare Mass (g)					
Wet Soil + Tare Mass (g)					
Dry Soil + Tare Mass (g)					
Moisture Content (%)					
Test Result					
Remarks					
Version	**MVNQS04-100625**				

US Army Corps of Engineers

Moisture Content Determination - ASTM D 2216 (Method B)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3462
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	11/30/2010
Oven Start Time (Date Time)	12/1/2010 - 4:00 P.M.	**Oven Stop Time (Date Time)**	12/2/2010 - 7:00 A.M.	**Oven Used**	21-350-ER
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	307				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description					
Station	18+00				
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No	DT48				
Tare Mass (g)	183.40				
Wet Soil + Tare Mass (g)	395.85				
Dry Soil + Tare Mass (g)	345.55				
Moisture Content (%)	**31.0**				
Test Result	**Info Only**				
Test No					
Retest of Test ID					
Material Source					
Feature					
Visual Description					
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No					
Tare Mass (g)					
Wet Soil + Tare Mass (g)					
Dry Soil + Tare Mass (g)					
Moisture Content (%)					
Test Result					
Remarks					
Version	**MVNQS04-101028**				

US Army Corps of Engineers

Moisture Content Determination - ASTM D 2216 (Method B)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3467
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/1/2010
Oven Start Time (Date Time)	12/1/2010 - 4:00 P.M.	**Oven Stop Time (Date Time)**	12/2/2010 - 7:00 A.M.	**Oven Used**	21-350-ER
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	308				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description					
Station	41+50				
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No	DT46				
Tare Mass (g)	177.81				
Wet Soil + Tare Mass (g)	391.75				
Dry Soil + Tare Mass (g)	349.24				
Moisture Content (%)	**24.8**				
Test Result	**Info Only**				
Test No					
Retest of Test ID					
Material Source					
Feature					
Visual Description					
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No					
Tare Mass (g)					
Wet Soil + Tare Mass (g)					
Dry Soil + Tare Mass (g)					
Moisture Content (%)					
Test Result					
Remarks					
Version	**MVNQS04-101028**				

US Army Corps of Engineers

Moisture Content Determination - ASTM D 2216 (Method B)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3550
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/14/2010
Oven Start Time (Date Time)	12/14/2010 - 4:00 P.M.	**Oven Stop Time (Date Time)**	12/15/2010 - 7:00 A.M.	**Oven Used**	21-350-ER
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	352				
Retest of Test ID					
Material Source	Jobsite				
Feature	Levee Embankment				
Visual Description	BR. CLAY				
Station	149+90				
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No	DT08				
Tare Mass (g)	187.42				
Wet Soil + Tare Mass (g)	392.42				
Dry Soil + Tare Mass (g)	346.81				
Moisture Content (%)	**28.6**				
Test Result	**Info Only**				
Test No					
Retest of Test ID					
Material Source					
Feature					
Visual Description					
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No					
Tare Mass (g)					
Wet Soil + Tare Mass (g)					
Dry Soil + Tare Mass (g)					
Moisture Content (%)					
Test Result					
Remarks	PROCTOR PULLED FROM EXISTING LEVEE				
Version	**MVNQS04-101028**				

US Army Corps of Engineers

Moisture Content Determination - ASTM D 2216 (Method B)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3555
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/14/2010
Oven Start Time (Date Time)	12/14/2010 - 4:00 P.M.	**Oven Stop Time (Date Time)**	12/15/2010 - 7:00 A.M.	**Oven Used**	21-350-ER
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	353				
Retest of Test ID					
Material Source	Jobsite				
Feature	Levee Embankment				
Visual Description	BR. CLAY				
Station	174+90				
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No	DT49				
Tare Mass (g)	176.39				
Wet Soil + Tare Mass (g)	383.92				
Dry Soil + Tare Mass (g)	331.87				
Moisture Content (%)	**33.5**				
Test Result	**Info Only**				
Test No					
Retest of Test ID					
Material Source					
Feature					
Visual Description					
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No					
Tare Mass (g)					
Wet Soil + Tare Mass (g)					
Dry Soil + Tare Mass (g)					
Moisture Content (%)					
Test Result					
Remarks	PROCTOR PULLED FROM EXISTING LEVEE 174+90				
Version	**MVNQS04-101028**				

US Army Corps of Engineers

Moisture Content Determination - ASTM D 2216 (Method B)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3616
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/20/2010
Oven Start Time (Date Time)	12/20/2010 - 1:00 P.M.	**Oven Stop Time (Date Time)**	12/21/2010 - 7:00 A.M.	**Oven Used**	21-350-ER
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	361				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description	G. BR. CLAY				
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No	69				
Tare Mass (g)	247.58				
Wet Soil + Tare Mass (g)	450.83				
Dry Soil + Tare Mass (g)	404.56				
Moisture Content (%)	**29.5**				
Test Result	**Info Only**				
Test No					
Retest of Test ID					
Material Source					
Feature					
Visual Description					
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No					
Tare Mass (g)					
Wet Soil + Tare Mass (g)					
Dry Soil + Tare Mass (g)					
Moisture Content (%)					
Test Result					
Remarks	SAMPLE COLLECTED FROM RIVER BURCH EAST STOCKPILE				
Version	**MVNQS04-101028**				

US Army Corps of Engineers

Moisture Content Determination - ASTM D 2216 (Method B)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3649
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/20/2010
Oven Start Time (Date Time)	12/20/2010 - 1:00 P.M.	**Oven Stop Time (Date Time)**	12/21/2010 - 7:00 A.M.	**Oven Used**	21-350-ER
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	362				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description	G. BR. CLAY				
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No	19				
Tare Mass (g)	251.48				
Wet Soil + Tare Mass (g)	450.49				
Dry Soil + Tare Mass (g)	407.51				
Moisture Content (%)	**27.5**				
Test Result	**Info Only**				
Test No					
Retest of Test ID					
Material Source					
Feature					
Visual Description					
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No					
Tare Mass (g)					
Wet Soil + Tare Mass (g)					
Dry Soil + Tare Mass (g)					
Moisture Content (%)					
Test Result					
Remarks	SAMPLE COLLECTED FROM RIVER BURCH WEST STOCKPILE				
Version	**MVNQS04-101028**				

US Army Corps of Engineers

Moisture Content Determination - ASTM D 2216 (Method B)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3745
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	1/13/2011
Oven Start Time (Date Time)	1/13/2011 - 3:00 P.M.	**Oven Stop Time (Date Time)**	1/14/2011 - 7:00 A.M.	**Oven Used**	21-350-ER
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	365				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description	G. BR. CLAY				
Station	27+49				
Offset	F.S. +59				
Lift No	1				
Latitude (°N)	29.887629				
Longitude (°W)	90.147345				
Elevation (ft)	4.4				
Tare No	DT41				
Tare Mass (g)	177.95				
Wet Soil + Tare Mass (g)	393.18				
Dry Soil + Tare Mass (g)	344.93				
Moisture Content (%)	**28.9**				
Test Result	**Info Only**				
Test No					
Retest of Test ID					
Material Source					
Feature					
Visual Description					
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No					
Tare Mass (g)					
Wet Soil + Tare Mass (g)					
Dry Soil + Tare Mass (g)					
Moisture Content (%)					
Test Result					
Remarks					
Version	**MVNQS04-101028**				

US Army Corps of Engineers

Moisture Content Determination - ASTM D 2216 (Method B)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3804
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	1/22/2011
Oven Start Time (Date Time)	1/22/2011 - 4:00 P.M.	**Oven Stop Time (Date Time)**	1/23/2011 - 7:00 A.M.	**Oven Used**	21-350-ER
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	387				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description	G. BR. CLAY				
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No	DT02				
Tare Mass (g)	178.83				
Wet Soil + Tare Mass (g)	398.66				
Dry Soil + Tare Mass (g)	332.40				
Moisture Content (%)	**43.1**				
Test Result	**Info Only**				
Test No					
Retest of Test ID					
Material Source					
Feature					
Visual Description					
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No					
Tare Mass (g)					
Wet Soil + Tare Mass (g)					
Dry Soil + Tare Mass (g)					
Moisture Content (%)					
Test Result					
Remarks	Sample collected from River Burch Pit. South End of Stock Pile B.				
Version	**MVNQS04-101028**				

US Army Corps of Engineers

Moisture Content Determination - ASTM D 2216 (Method B)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3815
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	1/22/2011
Oven Start Time (Date Time)	1/22/2011 - 4:00 P.M.	**Oven Stop Time (Date Time)**	1/23/2011 - 7:00 A.M.	**Oven Used**	21-350-ER
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	388				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description	G. BR. CLAY				
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No	DT43				
Tare Mass (g)	179.86				
Wet Soil + Tare Mass (g)	396.91				
Dry Soil + Tare Mass (g)	335.38				
Moisture Content (%)	**39.6**				
Test Result	**Info Only**				
Test No					
Retest of Test ID					
Material Source					
Feature					
Visual Description					
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No					
Tare Mass (g)					
Wet Soil + Tare Mass (g)					
Dry Soil + Tare Mass (g)					
Moisture Content (%)					
Test Result					
Remarks	Sample collected from River Burch Pit. Northeast Corner of Stock Pile B.				
Version	**MVNQS04-101028**				

US Army Corps of Engineers

Moisture Content Determination - ASTM D 2216 (Method B)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	4502
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	4/27/2011
Oven Start Time (Date Time)	4/27/2011 - 2:00 A.M.	**Oven Stop Time (Date Time)**	4/28/2011 - 7:00 A.M.	**Oven Used**	21-350-ER
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	642				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description	G. BR. CL.				
Station	142+62				
Offset	P.S. -90				
Lift No	2				
Latitude (°N)	29.872090				
Longitude (°W)	90.129965				
Elevation (ft)	5.0				
Tare No	DT41				
Tare Mass (g)	178.03				
Wet Soil + Tare Mass (g)	393.34				
Dry Soil + Tare Mass (g)	341.50				
Moisture Content (%)	**31.7**				
Test Result	**Info Only**				
Test No					
Retest of Test ID					
Material Source					
Feature					
Visual Description					
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No					
Tare Mass (g)					
Wet Soil + Tare Mass (g)					
Dry Soil + Tare Mass (g)					
Moisture Content (%)					
Test Result					
Remarks					
Version	**MVNQS04-101028**				

Unified Soil Classification System - ASTM D 2487 (Method B)

US Army Corps of Engineers

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3094
USACE Contract No	W912P8-09-D-0046 0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	10/2/2010
Min Plasticity Index	10	**Max Fines (%) Retained**	35.0		
Lab Tested By	TREVOR	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	107	108			
Retest of Test ID					
Material Source	Borrow Pit	Borrow Pit			
Feature	Levee Embankment	Levee Embankment			
Visual Description	G-Br. Clay	BR. FAT CLAY			
Station	88+02	77+00			
Offset	F.S. +36'	PROCTOR			
Lift No	1				
Latitude (°N)	29.948180				
Longitude (°W)	86.089529				
Elevation (ft)	3.1				
Estimated Retained No 40 (%)	0.0	0.0			
Sample Air Dried	NO	NO			
Liquid Limit (ASTM D 4318 Method B)					
Trial No 1 / Blow Count	29	27			
Tare No	T16	T25			
Wet Soil + Tare Mass (g)	48.98	26.99			
Dry Soil + Tare Mass (g)	37.76	22.46			
Tare Mass (g)	20.01	16.57			
Moisture Content (%)	64.4	77.6			
Trial No 2 / Blow Count	30	27			
Tare No	T32	T15			
Wet Soil + Tare Mass (g)	39.10	26.83			
Dry Soil + Tare Mass (g)	30.78	22.02			
Tare Mass (g)	17.70	15.77			
Moisture Content (%)	65.0	77.7			
Plastic Limit (ASTM D 4318)					
Trial No 1 / Tare No	T51	T46			
Wet Soil + Tare Mass (g)	33.26	26.06			
Dry Soil + Tare Mass (g)	30.45	24.77			
Tare Mass (g)	17.53	19.89			
Moisture Content (%)	21.7	26.4			
Trial No 2 / Tare No	T26	T45			
Wet Soil + Tare Mass (g)	34.11	25.25			
Dry Soil + Tare Mass (g)	31.40	23.99			
Tare Mass (g)	18.96	19.21			
Moisture Content (%)	21.8	26.4			
Materials Finer than No 200 Sieve (ASTM D 1140)					
Initial Dry Soil Mass (g)	330.31	371.96			
Dry Soil Mass after Washing (g)	276.64	280.02			
Test Status					
Liquid Limit	**65**	**78**			
Plastic Limit	**22**	**26**			
Plasticity Index	**43**	**52**			
Gravel Content (%)	0.0	0.0			
Sand Content (%)	3.4	3.2			
Fines (%)	96.6	96.8			
Group Symbol	CH	CH			
Group Name	FAT CLAY	FAT CLAY			
Test Result	**Pass**	**Pass**			
Remarks					
Version	**MVNQS06-100903**				

Unified Soil Classification System - ASTM D 2487 (Method B)

US Army Corps of Engineers

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3462
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	11/30/2010
Min Plasticity Index	10	**Max Fines (%) Retained**	35.0		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	307				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description					
Station	18+00				
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Estimated Retained No 40 (%)	0.0				
Sample Air Dried	NO				
Liquid Limit (ASTM D 4318 Method B)					
Trial No 1 / Blow Count	21				
Tare No	T40				
Wet Soil + Tare Mass (g)	31.18				
Dry Soil + Tare Mass (g)	26.47				
Tare Mass (g)	19.36				
Moisture Content (%)	64.9				
Trial No 2 / Blow Count	21				
Tare No	T21				
Wet Soil + Tare Mass (g)	37.95				
Dry Soil + Tare Mass (g)	29.04				
Tare Mass (g)	15.51				
Moisture Content (%)	64.5				
Plastic Limit (ASTM D 4318)					
Trial No 1 / Tare No	T7				
Wet Soil + Tare Mass (g)	26.44				
Dry Soil + Tare Mass (g)	25.22				
Tare Mass (g)	19.80				
Moisture Content (%)	22.5				
Trial No 2 / Tare No	T64				
Wet Soil + Tare Mass (g)	23.99				
Dry Soil + Tare Mass (g)	22.70				
Tare Mass (g)	17.08				
Moisture Content (%)	23.0				
Materials Finer than No 200 Sieve (ASTM D 1140)					
Initial Dry Soil Mass (g)	93.40				
Dry Soil Mass after Washing (g)	5.10				
Test Status					
Liquid Limit	**65**				
Plastic Limit	**23**				
Plasticity Index	**42**				
Gravel Content (%)	0.0				
Sand Content (%)	5.5				
Fines (%)	94.5				
Group Symbol	CH				
Group Name	FAT CLAY				
Test Result	**PASS**				
Remarks					
Version	**MVNQS06-100903**				

Unified Soil Classification System - ASTM D 2487 (Method B)

US Army Corps of Engineers

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3467
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/1/2010
Min Plasticity Index	10	**Max Fines (%) Retained**	35.0		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	308				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description					
Station	41+50				
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Estimated Retained No 40 (%)	0.0				
Sample Air Dried	NO				
Liquid Limit (ASTM D 4318 Method B)					
Trial No 1 / Blow Count	28				
Tare No	T73				
Wet Soil + Tare Mass (g)	33.55				
Dry Soil + Tare Mass (g)	27.37				
Tare Mass (g)	15.89				
Moisture Content (%)	54.6				
Trial No 2 / Blow Count	28				
Tare No	T20				
Wet Soil + Tare Mass (g)	41.17				
Dry Soil + Tare Mass (g)	33.00				
Tare Mass (g)	17.83				
Moisture Content (%)	54.6				
Plastic Limit (ASTM D 4318)					
Trial No 1 / Tare No	T69				
Wet Soil + Tare Mass (g)	25.37				
Dry Soil + Tare Mass (g)	24.40				
Tare Mass (g)	19.68				
Moisture Content (%)	20.6				
Trial No 2 / Tare No	T42				
Wet Soil + Tare Mass (g)	21.61				
Dry Soil + Tare Mass (g)	20.77				
Tare Mass (g)	16.58				
Moisture Content (%)	20.0				
Materials Finer than No 200 Sieve (ASTM D 1140)					
Initial Dry Soil Mass (g)					
Dry Soil Mass after Washing (g)					
Test Status					
Liquid Limit	**55**				
Plastic Limit	**20**				
Plasticity Index	**35**				
Gravel Content (%)	0.0				
Sand Content (%)	8.3				
Fines (%)	91.7				
Group Symbol	CH				
Group Name	FAT CLAY				
Test Result	**Pass**				
Remarks					
Version	**MVNQS06-100903**				

US Army Corps of Engineers

Unified Soil Classification System - ASTM D 2487 (Method B)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3550
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/14/2010
Min Plasticity Index	10	**Max Fines (%) Retained**	35.0		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	352				
Retest of Test ID					
Material Source	Jobsite				
Feature	Levee Embankment				
Visual Description					
Station	149+90				
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Estimated Retained No 40 (%)	0.0				
Sample Air Dried	NO				
Liquid Limit (ASTM D 4318 Method B)					
Trial No 1 / Blow Count	26				
Tare No	T99				
Wet Soil + Tare Mass (g)	46.38				
Dry Soil + Tare Mass (g)	34.92				
Tare Mass (g)	16.57				
Moisture Content (%)	62.7				
Trial No 2 / Blow Count	25				
Tare No	T12				
Wet Soil + Tare Mass (g)	46.43				
Dry Soil + Tare Mass (g)	36.02				
Tare Mass (g)	19.63				
Moisture Content (%)	63.5				
Plastic Limit (ASTM D 4318)					
Trial No 1 / Tare No	T68				
Wet Soil + Tare Mass (g)	27.33				
Dry Soil + Tare Mass (g)	26.27				
Tare Mass (g)	20.76				
Moisture Content (%)	19.2				
Trial No 2 / Tare No	T90				
Wet Soil + Tare Mass (g)	26.30				
Dry Soil + Tare Mass (g)	25.25				
Tare Mass (g)	19.76				
Moisture Content (%)	19.1				
Materials Finer than No 200 Sieve (ASTM D 1140)					
Initial Dry Soil Mass (g)	105.58				
Dry Soil Mass after Washing (g)	5.26				
Test Status					
Liquid Limit	**63**				
Plastic Limit	**19**				
Plasticity Index	**44**				
Gravel Content (%)	0.0				
Sand Content (%)	5.0				
Fines (%)	95.0				
Group Symbol	CH				
Group Name	FAT CLAY				
Test Result	**PASS**				
Remarks	Proctor pulled from exisiting levee 149+90				
Version	**MVNQS06-100903**				

US Army Corps of Engineers

Unified Soil Classification System - ASTM D 2487 (Method B)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3555
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/14/2010
Min Plasticity Index	10	**Max Fines (%) Retained**	35.0		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	353				
Retest of Test ID					
Material Source	Jobsite				
Feature	Levee Embankment				
Visual Description					
Station	174+90				
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Estimated Retained No 40 (%)	0.0				
Sample Air Dried	NO				
Liquid Limit (ASTM D 4318 Method B)					
Trial No 1 / Blow Count	23				
Tare No	T5				
Wet Soil + Tare Mass (g)	41.93				
Dry Soil + Tare Mass (g)	31.94				
Tare Mass (g)	19.24				
Moisture Content (%)	77.9				
Trial No 2 / Blow Count	24				
Tare No	T47				
Wet Soil + Tare Mass (g)	37.88				
Dry Soil + Tare Mass (g)	28.64				
Tare Mass (g)	16.84				
Moisture Content (%)	77.9				
Plastic Limit (ASTM D 4318)					
Trial No 1 / Tare No	T21				
Wet Soil + Tare Mass (g)	30.21				
Dry Soil + Tare Mass (g)	26.98				
Tare Mass (g)	15.54				
Moisture Content (%)	28.2				
Trial No 2 / Tare No	T7				
Wet Soil + Tare Mass (g)	34.90				
Dry Soil + Tare Mass (g)	31.61				
Tare Mass (g)	19.77				
Moisture Content (%)	27.8				
Materials Finer than No 200 Sieve (ASTM D 1140)					
Initial Dry Soil Mass (g)	110.49				
Dry Soil Mass after Washing (g)	6.50				
Test Status					
Liquid Limit	**78**				
Plastic Limit	**28**				
Plasticity Index	**50**				
Gravel Content (%)	0.0				
Sand Content (%)	5.9				
Fines (%)	94.1				
Group Symbol	CH				
Group Name	FAT CLAY				
Test Result	**Pass**				
Remarks	Proctor pulled from exisiting levee 174+90				
Version	**MVNQS06-100903**				

Unified Soil Classification System - ASTM D 2487 (Method B)

US Army Corps of Engineers

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3616
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/20/2010
Min Plasticity Index	10	**Max Fines (%) Retained**	35.0		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	361				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description	G. - BR. CLAY				
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Estimated Retained No 40 (%)	0.0				
Sample Air Dried	NO				
Liquid Limit (ASTM D 4318 Method B)					
Trial No 1 / Blow Count	24				
Tare No	G44				
Wet Soil + Tare Mass (g)	36.12				
Dry Soil + Tare Mass (g)	30.18				
Tare Mass (g)	19.24				
Moisture Content (%)	54.0				
Trial No 2 / Blow Count	25				
Tare No	G15				
Wet Soil + Tare Mass (g)	35.88				
Dry Soil + Tare Mass (g)	29.86				
Tare Mass (g)	18.70				
Moisture Content (%)	53.9				
Plastic Limit (ASTM D 4318)					
Trial No 1 / Tare No	G47				
Wet Soil + Tare Mass (g)	36.33				
Dry Soil + Tare Mass (g)	33.34				
Tare Mass (g)	20.23				
Moisture Content (%)	22.8				
Trial No 2 / Tare No	G29				
Wet Soil + Tare Mass (g)	38.39				
Dry Soil + Tare Mass (g)	35.12				
Tare Mass (g)	20.92				
Moisture Content (%)	23.0				
Materials Finer than No 200 Sieve (ASTM D 1140)					
Initial Dry Soil Mass (g)	297.58				
Dry Soil Mass after Washing (g)	2.59				
Test Status					
Liquid Limit	**54**				
Plastic Limit	**23**				
Plasticity Index	**31**				
Gravel Content (%)	0.0				
Sand Content (%)	5.2				
Fines (%)	94.8				
Group Symbol	CH				
Group Name	FAT CLAY				
Test Result	**PASS**				
Remarks	SAMPLE COLLECTED FROM RIVER BURCH PIT EAST STOCKPILE				
Version	**MVNQS06-100903**				

Unified Soil Classification System - ASTM D 2487 (Method B)

US Army Corps of Engineers

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3649
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/20/2010
Min Plasticity Index	10	**Max Fines (%) Retained**	35.0		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	362				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description	G. - BR. CLAY				
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Estimated Retained No 40 (%)	0.0				
Sample Air Dried	NO				
Liquid Limit (ASTM D 4318 Method B)					
Trial No 1 / Blow Count	29				
Tare No	G24				
Wet Soil + Tare Mass (g)	35.88				
Dry Soil + Tare Mass (g)	28.57				
Tare Mass (g)	16.06				
Moisture Content (%)	59.5				
Trial No 2 / Blow Count	29				
Tare No	G7				
Wet Soil + Tare Mass (g)	34.10				
Dry Soil + Tare Mass (g)	26.92				
Tare Mass (g)	14.63				
Moisture Content (%)	59.5				
Plastic Limit (ASTM D 4318)					
Trial No 1 / Tare No	G11				
Wet Soil + Tare Mass (g)	32.00				
Dry Soil + Tare Mass (g)	29.09				
Tare Mass (g)	16.65				
Moisture Content (%)	23.4				
Trial No 2 / Tare No	G27				
Wet Soil + Tare Mass (g)	35.65				
Dry Soil + Tare Mass (g)	32.77				
Tare Mass (g)	20.42				
Moisture Content (%)	23.3				
Materials Finer than No 200 Sieve (ASTM D 1140)					
Initial Dry Soil Mass (g)	301.48				
Dry Soil Mass after Washing (g)	2.98				
Test Status					
Liquid Limit	**59**				
Plastic Limit	**23**				
Plasticity Index	**36**				
Gravel Content (%)	0.0				
Sand Content (%)	6.0				
Fines (%)	94.0				
Group Symbol	CH				
Group Name	FAT CLAY				
Test Result	**PASS**				
Remarks	SAMPLE COLLECTED FROM RIVER BURCH PIT WEST STOCKPILE				
Version	**MVNQS06-100903**				

Unified Soil Classification System - ASTM D 2487 (Method B)

US Army Corps of Engineers

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3745
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	1/13/2011
Min Plasticity Index	10	**Max Fines (%) Retained**	35.0		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	365				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description	G. - BR. CLAY				
Station	G. BR. CLAY				
Offset	27+49				
Lift No	F.S. +59				
Latitude (°N)	1.000000				
Longitude (°W)	29.887629				
Elevation (ft)	90.1				
Estimated Retained No 40 (%)	0.0				
Sample Air Dried	NO				
Liquid Limit (ASTM D 4318 Method B)					
Trial No 1 / Blow Count	24				
Tare No	T39				
Wet Soil + Tare Mass (g)	44.80				
Dry Soil + Tare Mass (g)	35.49				
Tare Mass (g)	20.80				
Moisture Content (%)	63.1				
Trial No 2 / Blow Count	24				
Tare No	T8				
Wet Soil + Tare Mass (g)	51.97				
Dry Soil + Tare Mass (g)	39.57				
Tare Mass (g)	20.23				
Moisture Content (%)	63.8				
Plastic Limit (ASTM D 4318)					
Trial No 1 / Tare No	T24				
Wet Soil + Tare Mass (g)	23.33				
Dry Soil + Tare Mass (g)	21.71				
Tare Mass (g)	13.80				
Moisture Content (%)	20.5				
Trial No 2 / Tare No	T103				
Wet Soil + Tare Mass (g)	26.69				
Dry Soil + Tare Mass (g)	25.09				
Tare Mass (g)	17.46				
Moisture Content (%)	21.0				
Materials Finer than No 200 Sieve (ASTM D 1140)					
Initial Dry Soil Mass (g)	110.75				
Dry Soil Mass after Washing (g)	9.02				
Test Status					
Liquid Limit	**63**				
Plastic Limit	**21**				
Plasticity Index	**42**				
Gravel Content (%)	0.0				
Sand Content (%)	8.1				
Fines (%)	91.9				
Group Symbol	CH				
Group Name	FAT CLAY				
Test Result	**PASS**				
Remarks					
Version	**MVNQS06-100903**				

US Army Corps of Engineers

Unified Soil Classification System - ASTM D 2487 (Method B)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3804
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	1/22/2011
Min Plasticity Index	10	**Max Fines (%) Retained**	35.0		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	387				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description	G. - BR. CLAY				
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Estimated Retained No 40 (%)	0.0				
Sample Air Dried	NO				
Liquid Limit (ASTM D 4318 Method B)					
Trial No 1 / Blow Count	24				
Tare No	T82				
Wet Soil + Tare Mass (g)	45.57				
Dry Soil + Tare Mass (g)	33.15				
Tare Mass (g)	18.28				
Moisture Content (%)	83.1				
Trial No 2 / Blow Count	25				
Tare No	T42				
Wet Soil + Tare Mass (g)	39.66				
Dry Soil + Tare Mass (g)	29.14				
Tare Mass (g)	16.61				
Moisture Content (%)	84.0				
Plastic Limit (ASTM D 4318)					
Trial No 1 / Tare No	T69				
Wet Soil + Tare Mass (g)	28.10				
Dry Soil + Tare Mass (g)	26.34				
Tare Mass (g)	19.62				
Moisture Content (%)	26.2				
Trial No 2 / Tare No	T76				
Wet Soil + Tare Mass (g)	25.04				
Dry Soil + Tare Mass (g)	23.15				
Tare Mass (g)	16.16				
Moisture Content (%)	27.0				
Materials Finer than No 200 Sieve (ASTM D 1140)					
Initial Dry Soil Mass (g)	104.80				
Dry Soil Mass after Washing (g)	5.38				
Test Status					
Liquid Limit	**84**				
Plastic Limit	**27**				
Plasticity Index	**57**				
Gravel Content (%)	0.0				
Sand Content (%)	5.1				
Fines (%)	94.9				
Group Symbol	CH				
Group Name	FAT CLAY				
Test Result	**PASS**				
Remarks	Sample collected from River Burch Pit. South End of Stock Pile B.				
Version	**MVNQS06-100903**				

Unified Soil Classification System - ASTM D 2487 (Method B)

US Army Corps of Engineers

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3815
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	1/22/2011
Min Plasticity Index	10	**Max Fines (%) Retained**	35.0		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	388				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description	G. - BR. CLAY				
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Estimated Retained No 40 (%)	0.0				
Sample Air Dried	NO				
Liquid Limit (ASTM D 4318 Method B)					
Trial No 1 / Blow Count	26				
Tare No	T52				
Wet Soil + Tare Mass (g)	50.68				
Dry Soil + Tare Mass (g)	37.66				
Tare Mass (g)	20.33				
Moisture Content (%)	75.5				
Trial No 2 / Blow Count	25				
Tare No	T101				
Wet Soil + Tare Mass (g)	47.02				
Dry Soil + Tare Mass (g)	34.17				
Tare Mass (g)	17.15				
Moisture Content (%)	75.5				
Plastic Limit (ASTM D 4318)					
Trial No 1 / Tare No	T62				
Wet Soil + Tare Mass (g)	24.60				
Dry Soil + Tare Mass (g)	23.40				
Tare Mass (g)	17.84				
Moisture Content (%)	21.6				
Trial No 2 / Tare No	T27				
Wet Soil + Tare Mass (g)	26.50				
Dry Soil + Tare Mass (g)	25.36				
Tare Mass (g)	19.98				
Moisture Content (%)	21.2				
Materials Finer than No 200 Sieve (ASTM D 1140)					
Initial Dry Soil Mass (g)	95.23				
Dry Soil Mass after Washing (g)	4.36				
Test Status					
Liquid Limit	**75**				
Plastic Limit	**21**				
Plasticity Index	**54**				
Gravel Content (%)	0.0				
Sand Content (%)	4.6				
Fines (%)	95.4				
Group Symbol	CH				
Group Name	FAT CLAY				
Test Result	**PASS**				
Remarks	Sample collected from River Burch Pit. Northeast Corner of Stock Pile B.				
Version	**MVNQS06-100903**				

US Army Corps of Engineers

Unified Soil Classification System - ASTM D 2487 (Method B)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3824
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	1/22/2011
Min Plasticity Index	10	**Max Fines (%) Retained**	35.0		
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	389				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description	G. - BR. CLAY				
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Estimated Retained No 40 (%)	0.0				
Sample Air Dried	NO				
Liquid Limit (ASTM D 4318 Method B)					
Trial No 1 / Blow Count	27				
Tare No	T85				
Wet Soil + Tare Mass (g)	46.42				
Dry Soil + Tare Mass (g)	32.58				
Tare Mass (g)	17.50				
Moisture Content (%)	92.6				
Trial No 2 / Blow Count	26				
Tare No	T38				
Wet Soil + Tare Mass (g)	50.27				
Dry Soil + Tare Mass (g)	34.28				
Tare Mass (g)	16.80				
Moisture Content (%)	91.9				
Plastic Limit (ASTM D 4318)					
Trial No 1 / Tare No	T10				
Wet Soil + Tare Mass (g)	23.26				
Dry Soil + Tare Mass (g)	21.41				
Tare Mass (g)	15.50				
Moisture Content (%)	31.3				
Trial No 2 / Tare No	T67				
Wet Soil + Tare Mass (g)	25.10				
Dry Soil + Tare Mass (g)	23.64				
Tare Mass (g)	18.97				
Moisture Content (%)	31.3				
Materials Finer than No 200 Sieve (ASTM D 1140)					
Initial Dry Soil Mass (g)	100.60				
Dry Soil Mass after Washing (g)	6.34				
Test Status					
Liquid Limit	**92**				
Plastic Limit	**31**				
Plasticity Index	**61**				
Gravel Content (%)	0.0				
Sand Content (%)	6.3				
Fines (%)	93.7				
Group Symbol	CH				
Group Name	FAT CLAY				
Test Result	**PASS**				
Remarks	Sample collected from River Burch Pit. Center of Stock Pile A.				
Version	**MVNQS06-100903**				

US Army Corps of Engineers

Moisture, Ash, and Organic Content Determination - ASTM D 2974 (Method C)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3462
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	11/30/2010
Furnace Temperature (°F)	441	**Furnace Used**	F6000	**Max Organic Matter (%)**	9.0
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	307				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description					
Station	18+00				
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No	V1				
Dry Soil + Tare Mass (g)	133.99				
Tare Mass (g)	65.22				
Dry Soil Mass (g)	68.77				
Ashed Soil + Tare Mass (g)	131.09				
Ashed Soil Mass (g)	65.87				
Ash Content (%)	**95.8**				
Organic Matter (%)	**4.2**				
Moisture Content (%)	31.0				
Test Result	**Pass**				
Remarks					
Version	**MVNQS07-100802**				

US Army Corps of Engineers

Moisture, Ash, and Organic Content Determination - ASTM D 2974 (Method C)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3467
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/1/2010
Furnace Temperature (°F)	441	**Furnace Used**	F6000	**Max Organic Matter (%)**	9.0
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	308				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description					
Station	41+50				
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No	V2				
Dry Soil + Tare Mass (g)	130.66				
Tare Mass (g)	68.12				
Dry Soil Mass (g)	62.54				
Ashed Soil + Tare Mass (g)	128.77				
Ashed Soil Mass (g)	60.65				
Ash Content (%)	**97.0**				
Organic Matter (%)	**3.0**				
Moisture Content (%)	24.8				
Test Result	**Pass**				
Remarks					
Version	**MVNQS07-100802**				

US Army Corps of Engineers

Moisture, Ash, and Organic Content Determination - ASTM D 2974 (Method C)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3550
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/14/2010
Furnace Temperature (°F)	441	**Furnace Used**	F6000	**Max Organic Matter (%)**	9.0
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	352				
Retest of Test ID					
Material Source	Jobsite				
Feature	Levee Embankment				
Visual Description					
Station	149+90				
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No	V3				
Dry Soil + Tare Mass (g)	117.85				
Tare Mass (g)	63.84				
Dry Soil Mass (g)	54.01				
Ashed Soil + Tare Mass (g)	115.94				
Ashed Soil Mass (g)	52.10				
Ash Content (%)	**96.5**				
Organic Matter (%)	**3.5**				
Moisture Content (%)	28.6				
Test Result	**Pass**				
Remarks	Proctor pulled from existinf levee 149+90				
Version	**MVNQS07-100802**				

US Army Corps of Engineers

Moisture, Ash, and Organic Content Determination - ASTM D 2974 (Method C)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3555
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/14/2010
Furnace Temperature (°F)	441	**Furnace Used**	F6000	**Max Organic Matter (%)**	9.0
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	353				
Retest of Test ID					
Material Source	Jobsite				
Feature	Levee Embankment				
Visual Description					
Station	174+90				
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No	V4				
Dry Soil + Tare Mass (g)	109.17				
Tare Mass (g)	64.49				
Dry Soil Mass (g)	44.68				
Ashed Soil + Tare Mass (g)	107.28				
Ashed Soil Mass (g)	42.79				
Ash Content (%)	**95.8**				
Organic Matter (%)	**4.2**				
Moisture Content (%)	33.5				
Test Result	**Pass**				
Remarks	Proctor pulled from existinf levee 174+90				
Version	**MVNQS07-100802**				

US Army Corps of Engineers

Moisture, Ash, and Organic Content Determination - ASTM D 2974 (Method C)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3616
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/20/2010
Furnace Temperature (°F)	441	**Furnace Used**	F6000	**Max Organic Matter (%)**	9.0
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	361				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description	G. BR. CL.				
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No	V9				
Dry Soil + Tare Mass (g)	104.74				
Tare Mass (g)	81.02				
Dry Soil Mass (g)	23.72				
Ashed Soil + Tare Mass (g)	103.80				
Ashed Soil Mass (g)	22.78				
Ash Content (%)	**96.0**				
Organic Matter (%)	**4.0**				
Moisture Content (%)	29.5				
Test Result	**Pass**				
Remarks	SAMPLE COLLECTED FROM RIVER BURCH PIT EAST STOCKPILE				
Version	**MVNQS07-100802**				

US Army Corps of Engineers

Moisture, Ash, and Organic Content Determination - ASTM D 2974 (Method C)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3649
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	12/20/2010
Furnace Temperature (°F)	441	**Furnace Used**	F6000	**Max Organic Matter (%)**	9.0
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	362				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description	G. BR. CL.				
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No	V10				
Dry Soil + Tare Mass (g)	108.29				
Tare Mass (g)	79.92				
Dry Soil Mass (g)	28.37				
Ashed Soil + Tare Mass (g)	107.23				
Ashed Soil Mass (g)	27.31				
Ash Content (%)	**96.3**				
Organic Matter (%)	**3.7**				
Moisture Content (%)	27.5				
Test Result	**Pass**				
Remarks	SAMPLE COLLECTED FROM RIVER BURCH PIT WEST STOCKPILE				
Version	**MVNQS07-100802**				

US Army Corps of Engineers

Moisture, Ash, and Organic Content Determination - ASTM D 2974 (Method C)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3745
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	1/13/2011
Furnace Temperature (°F)	441	**Furnace Used**	F6000	**Max Organic Matter (%)**	9.0
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	365				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description	G. BR. CL.				
Station	G. BR. CLAY				
Offset	27+49				
Lift No	F.S. +59				
Latitude (°N)	1.000000				
Longitude (°W)	29.887629				
Elevation (ft)	90.1				
Tare No	V1				
Dry Soil + Tare Mass (g)	121.11				
Tare Mass (g)	65.22				
Dry Soil Mass (g)	55.89				
Ashed Soil + Tare Mass (g)	119.15				
Ashed Soil Mass (g)	53.93				
Ash Content (%)	**96.5**				
Organic Matter (%)	**3.5**				
Moisture Content (%)	28.9				
Test Result	**Pass**				
Remarks					
Version	**MVNQS07-100802**				

US Army Corps of Engineers

Moisture, Ash, and Organic Content Determination - ASTM D 2974 (Method C)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3804
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	1/22/2011
Furnace Temperature (°F)	441	**Furnace Used**	F6000	**Max Organic Matter (%)**	9.0
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	387				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description	G. BR. CL.				
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No	V5				
Dry Soil + Tare Mass (g)	149.30				
Tare Mass (g)	76.12				
Dry Soil Mass (g)	73.18				
Ashed Soil + Tare Mass (g)	144.23				
Ashed Soil Mass (g)	68.11				
Ash Content (%)	**93.1**				
Organic Matter (%)	**6.9**				
Moisture Content (%)	43.1				
Test Result	**Pass**				
Remarks	Sample collected from River Burch Pit. South End of Stock Pile B.				
Version	**MVNQS07-100802**				

US Army Corps of Engineers

Moisture, Ash, and Organic Content Determination - ASTM D 2974 (Method C)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	3815
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	1/22/2011
Furnace Temperature (°F)	441	**Furnace Used**	F6000	**Max Organic Matter (%)**	9.0
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	388				
Retest of Test ID					
Material Source	Borrow Pit				
Feature	Levee Embankment				
Visual Description	G. BR. CL.				
Station					
Offset					
Lift No					
Latitude (°N)					
Longitude (°W)					
Elevation (ft)					
Tare No	V6				
Dry Soil + Tare Mass (g)	137.27				
Tare Mass (g)	76.11				
Dry Soil Mass (g)	61.16				
Ashed Soil + Tare Mass (g)	134.53				
Ashed Soil Mass (g)	58.42				
Ash Content (%)	**95.5**				
Organic Matter (%)	**4.5**				
Moisture Content (%)	39.6				
Test Result	**Pass**				
Remarks	Sample collected from River Burch Pit. Northeast Corner of Stock Pile B.				
Version	**MVNQS07-100802**				

US Army Corps of Engineers

Moisture, Ash, and Organic Content Determination - ASTM D 2974 (Method C)

Laboratory	Tolunay-Wong Engineers, Inc.	**Lab Type**	QC	**Report No**	4716
USACE Contract No	W912P8-09-D-0046-0008	**Contractor**	Phylway, Inc.	**Revision**	
Project	WBV-14c.2 Phase 2, First Lift			**Sample Date**	5/24/2011
Furnace Temperature (°F)	441	**Furnace Used**	F6000	**Max Organic Matter (%)**	9.0
Lab Tested By	RODNEY FISHER	**Reviewed By**	B. LANDERS	**Submitted By**	B. LANDERS
Test No	761	762	763		
Retest of Test ID					
Material Source	Borrow Pit	Borrow Pit	Borrow Pit		
Feature	Levee Embankment	Levee Embankment	Levee Embankment		
Visual Description	G. BR. CL.	G. BR. CL.	G. BR. CL.		
Station	108+55	103+46	8+75		
Offset	F.S. +79	F.S. +83	P.S. -26		
Lift No	4	4	7		
Latitude (°N)	29.874849	29.876209	29.888899		
Longitude (°W)	90.138318	90.137932	90.153081		
Elevation (ft)	5.6	5.1	10.6		
Tare No	V1	V3	V4		
Dry Soil + Tare Mass (g)	124.73	147.32	117.02		
Tare Mass (g)	65.25	63.83	64.49		
Dry Soil Mass (g)	59.48	83.49	52.53		
Ashed Soil + Tare Mass (g)	122.25	143.93	112.28		
Ashed Soil Mass (g)	57.00	80.10	47.79		
Ash Content (%)	**95.8**	**95.9**	**91.0**		
Organic Matter (%)	**4.2**	**4.1**	**9.0**		
Moisture Content (%)	25.5	28.4	30.6		
Test Result	**PASS**	**PASS**	**PASS**		
Remarks	763 PROCTOR				
Version	**MVNQS07-100802**				