L&G Engineering Laboratory
Construction Material Testing
Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-01

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/21/09 **COMPLETED** 4/21/09
GROUND ELEVATION 80.04 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 33.00 ft / Elev 47.04 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 35' / Mud Rotary to 60'
AFTER DRILLING 24.00 ft / Elev 56.04 ft 24 hrs. after completion

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		Gravel, 4"										
		No Sampling Performed 0-10' Below Top Elevation of Levee										
10												
		(CH) Fat Clay, Brown, Moist, Stiff	SH 1	100 (100)		4.5		17	71	25	46	
20			SH 2	100 (100)		4.0		26				69
			SH 3	100 (100)		3.0		25	65	24	41	
30			SH 4	100 (100)		3.0		19				61
			SPT 5	100 (100)	4-6-10 (16)			25	61	26	35	
40		(CL) Lean Clay, Brown, Moist, Stiff	SPT 6	100 (100)	10-11-15 (26)			26	33	20	13	80
		(SC) Clayey Sand, Brown, Moist, Medium Dense	SPT 7	100 (100)	9-10-11 (21)			24				27
50			SPT 8	100 (100)	7-9-9 (18)			25				31
			SPT 9	100 (100)	8-8-10 (18)			29				27
60			SPT 10	100 (100)	10-11-12 (23)			22				34

Bottom of borehole at 60.0 feet.

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L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
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BORING NUMBER BH-02

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/25/09 **COMPLETED** 4/25/09
GROUND ELEVATION 79.59 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 25.00 ft / Elev 54.59 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 26' / Mud Rotary to 120'
AFTER DRILLING 26.00 ft / Elev 53.59 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CH) Fat Clay, Brown, Dry to Moist, Soft to Stiff	SPT 1	100 (100)	4-4-4 (8)			8	60	18	42	63
		SPT 2	100 (100)	4-4-5 (9)			17	62	20	42	86
		SPT 3	100 (100)	6-10-12 (22)			20	70	26	44	93
10	(CH) Fat Clay, Brown, Moist, Soft to Hard	SPT 4	100 (100)	4-3-4 (7)			17				93
		SH 5	100 (100)		3.0		19	63	21	42	97
20		SH 6	100 (100)		4.0		21				97
		SH 7	100 (100)		3.5		22	65	22	43	93
	(CL) Lean Clay, Brown, Moist to Very Moist, Firm to Stiff										
30		SPT 8	100 (100)	4-4-5 (9)			25				99
		SPT 9	100 (100)	5-7-7 (14)			28	48	23	25	99
40		SPT 10	100 (100)	6-9-14 (23)			27				68
	(SC) Clayey Sand, Brown, Wet to Very Moist, Medium Dense to Dense	SPT 11	100 (100)	6-7-9 (16)			24				38
50		SPT 12	100 (100)	12-13-14 (27)			28				19
		SPT 13	100 (100)	14-22-23 (45)			26				14
	(CL) Lean Clay w/ Sand, Brown, Very Moist, Stiff										
60		SPT 14	100 (100)	9-10-14 (24)			29	32	12	20	62
	(SC) Clayey Sand, Brown, Moist, Very Dense										

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Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-02

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
		(SC) Clayey Sand, Brown, Moist, Very Dense *(continued)*	SPT 15	100 (100)	21-25-40 (65)			26				41
		(CL) Lean clay w/ Silt, Brown, Very Moist, Hard										
70			SPT 16	100 (100)	11-17-23 (40)			19				76
			SPT 17	100 (100)	20-31-29 (60)			21				63
		(SC) Clayey Sand, Brown, Moist, Very Dense										
80			SPT 18	100 (100)	25-36-34 (70)			21				23
		(CL) Lean Clay, Brown, Very Moist, Hard	SPT 19	100 (100)	15-33-30 (63)			29				68
		(SC) Clayey Sand, Brown, Very Moist, Very Dense										
90			SPT 20	100 (100)	15-36-31 (67)			22				13
		(CL) Lean Clay, Brown, Very Moist, Hard	SPT 21	100 (100)	14-21-26 (47)			34				58
		(SC) Clayey Sand, Brown, Very Moist to Wet, Very Dense										
100			SPT 22	100 (100)	19-23-29 (52)			31				17
			SPT 23	100 (100)	23-33-31 (64)			26				35
110			SPT 24	100 (100)	28-35-40 (75)			39				32
			SPT 25	100 (100)	10-26-41 (67)			22				16
120			SPT 26	100 (100)	19-27-31 (58)			30				28

Bottom of borehole at 120.0 feet.

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BORING NUMBER BH-03

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/15/09 **COMPLETED** 4/15/09
GROUND ELEVATION 79.12 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 35.00 ft / Elev 44.12 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 35' / Mud Rotary to 60'
AFTER DRILLING 26.00 ft / Elev 53.12 ft 24 hrs. after completion

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		Caliche Base Material, Roadway, 4"										
		No Sampling Performed 0-13' Below Top of Levee Elevation										
10												
		(CH) Fat Clay. Brown, Moist, Stiff to Hard	SH 1	100 (100)		4.5		20				
20			SH 2	100 (100)		4.5		14	65	25	40	
			SH 3	100 (100)		2.5		23	56	25	31	93
30			SH 4	100 (100)		2.5		23	55	25	30	
			SPT 5	100 (100)	6-8-15 (23)			25				42
		(SC) Lean Clay, Brown, Moist, Firm										
40			SPT 6	100 (100)	5-4-5 (9)			5				64
		(SC) Sand, Silty, Tan, Very Moist to Wet, Medium Dense to Loose										
		(SC) Sand, Silty, Tan, Wet to Very Moist, Medium Dense to Dense	SPT 7	100 (100)	7-7-6 (13)			23				12
50			SPT 8	100 (100)	11-15-16 (31)			50				19
			SPT 9	100 (100)	15-19-21 (40)			28				45
60		(CL) Fat Clay, Silty, Very Sandy, Tan, Wet, Stiff	SPT 10	100 (100)	7-8-9 (17)			28				71

Bottom of borehole at 60.0 feet.

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Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-04

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/15/09 **COMPLETED** 4/15/09
GROUND ELEVATION 79.31 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 35.00 ft / Elev 44.31 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 35' / Mud Rotary to 60'
AFTER DRILLING 22.00 ft / Elev 57.31 ft 24 hrs. after completion

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		Caliche Base Material, 3"										
		No Sampling Performed 0-13' Below Top of Levee Elevation										
10												
		(CH) Fat Clay, Brown, Moist, Hard to Stiff	SH 1	100 (100)		4.5		20	76	20	56	87
20			SH 2	100 (100)		3.5		22				
			SH 3	100 (100)		3.0		21	52	24	28	
30			SH 4	100 (100)		3.5		23				99
		(CL) Lean Clay, Tan, Wet, Stiff	SPT 5	100 (100)	6-9-13 (22)			29				82
40			SPT 6	100 (100)	9-10-14 (24)			26				51
		(SP-SC) Clayey Sand, Tan, Wet, Dense to Medium Dense	SPT 7	100 (100)	9-16-16 (32)			23				15
50			SPT 8	100 (100)	8-11-13 (24)			26				14
		(SC) Clayey Sand, Tan, Very Moist, Dense to Very Dense	SPT 9	100 (100)	22-25-24 (49)			23				9
60			SPT 10	100 (100)	25-36-29 (65)			24				9

Bottom of borehole at 60.0 feet.

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Mercedes TX 78570
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BORING NUMBER BH-05

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/15/09 **COMPLETED** 4/15/09
GROUND ELEVATION 79.36 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 30.00 ft / Elev 49.36 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 30' / Mud Rotary to 60'
AFTER DRILLING 23.00 ft / Elev 56.36 ft 24 hrs. after completion

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		Caliche, 4"										
		No Sampling Performed 0-13' Below Top Elevation of Levee										
10												
		(CH) Fat Clay, Brown, Moist, Firm to Hard	SH 1	100 (100)		4.5		23				
20			SH 2	100 (100)		3.5		19	65	25	40	55
			SH 3	100 (100)		4.0		19	64	21	43	
30			SPT 4	100 (100)	5-6-7 (13)			26				
		(CL) Lean Clay, Silty, Brown, Moist, Soft	SPT 5	100 (100)	4-3-4 (7)			27				99
40			SPT 6	100 (100)	12-14-21 (35)			26				88
		(SC) Clayey Sand, Brown, Very Moist to Moist, Medium Dense to Very Dense	SPT 7	100 (100)	6-10-14 (24)			23				22
50			SPT 8	100 (100)	6-10-14 (24)			21				18
			SPT 9	100 (100)	11-17-22 (39)			21				16
60			SPT 10	100 (100)	18-25-29 (54)			20				29

Bottom of borehole at 60.0 feet.

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Mercedes TX 78570
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BORING NUMBER BH-07

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/20/09 **COMPLETED** 4/20/09
GROUND ELEVATION 79.41 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 33.00 ft / Elev 46.41 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 35' / Mud Rotary to 60'
AFTER DRILLING 23.00 ft / Elev 56.41 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CH) Fat Clay, Brown, Moist, Stiff to Hard	SPT 1	100 (100)	4-6-7 (13)			18	79	23	56	
		SPT 2	100 (100)	6-7-8 (15)			17				70
		SPT 3	100 (100)	6-7-9 (16)			14	70	22	48	
10		SPT 4	100 (100)	4-5-6 (11)			18				96
		SH 5	100 (100)		4.0		22				99
20		SH 6	100 (100)		3.5		22	73	30	43	
		SH 7	100 (100)		2.5		23				100
	(CL) Lean Clay, Brown, Very Moist to Wet, Stiff to Firm										
30		SH 8	100 (100)		1.0		24	34	19	15	
		SPT 9	100 (100)	6-6-8 (14)			26				100
	(CL) Lean Clay, Brown, Wet, Soft to Firm										
40		SPT 10	100 (100)	8-10-10 (20)			26				64
		SPT 11	100 (100)	7-9-9 (18)			22				79
	(SC) Clayey Sand, Brown, Wet, Dense										
50		SPT 12	100 (100)	17-19-19 (38)			23				18
	(SP-SM) Poorly Graded Sand w/ Silt, Brown, Wet, Dense to Very Dense	SPT 13	100 (100)	25-24-17 (41)			22				11
60		SPT 14	100 (100)	28-40-44 (84)			21				

Bottom of borehole at 60.0 feet.

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L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-08

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/19/09 **COMPLETED** 4/19/09
GROUND ELEVATION 78.97 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 30.00 ft / Elev 48.97 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 30' / Mud Rotary to 60'
AFTER DRILLING 25.00 ft / Elev 53.97 ft 24 hours after completion

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		(CH) Fat Clay, Brown, Dry to Moist, Stiff to Firm										
			SPT 1	100 (100)	5-8-8 (16)			15				61
			SPT 2	100 (100)	4-9-9 (18)			17	88	26	62	
			SPT 3	100 (100)	5-8-12 (20)			17				94
10			SPT 4	100 (100)	4-8-4 (12)			19	85	25	60	
		(CH) Fat Clay, Brown, Dry to Moist, Hard to Stiff										
			SH 5	100 (100)		4.5		23	73	29	44	
20			SH 6	100 (100)		4.0		11				100
			SH 7	100 (100)		2.5		25	57	27	30	
30		(SC) Clayey Sand, Brown, Medium Dense	SH 8	100 (100)		3.5		24				2
		(CH) Fat Clay, Brown, Dry to Moist, Firm to Stiff										
			SPT 9	100 (100)	5-7-8 (15)			5	64	26	38	
40			SPT 10	100 (100)	5-6-12 (18)			26				100
		(SC) Clayey Sand, Brown, Dense										
			SPT 11	100 (100)	12-16-21 (37)			28				31
		(CL-ML) Sandy Silty Clay, Brown, Wet, Firm										
50			SPT 12	100 (100)	5-5-5 (10)			30				51
		(SP-SM) Poorly Graded Sand w/ Silt, Brown, Very Moist, Medium Dense	SPT 13	100 (100)	12-16-19 (35)			24				7
		(SC) Clayey Sand, Wet, Very Dense										
60			SPT 14	100 (100)	15-24-30 (54)			21				30

Bottom of borehole at 60.0 feet.

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BORING NUMBER BH-09

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/20/09 **COMPLETED** 4/20/09
GROUND ELEVATION 79.1 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 42.00 ft / Elev 37.10 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 40' / Mud Rotary to 60'
AFTER DRILLING 21.00 ft / Elev 58.10 ft 24 hours after completion

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		(CH) Fat Clay, Brown, Dry to Moist, Firm to Hard										
			SPT 1	100 (100)	4-6-7 (13)			15	77	19	58	
			SPT 2	100 (100)	4-6-8 (14)			15				90
			SPT 3	100 (100)	5-9-11 (20)			15	77	25	52	
10			SPT 4	100 (100)	4-7-10 (17)			16				98
			SH 5	100 (100)		4.5		18	73	27	46	
20			SH 6	100 (100)		3.5		19				97
			SH 7	100 (100)		2.0		21	83	25	58	
30			SH 8	100 (100)		2.0		25				98
			SH 9	100 (100)		3.0		23	66	30	36	
40			SH 10	100 (100)		3.0		20	50	22	28	98
		(SC) Clayey Sand, Brown, Very Moist, Medium Dense to Dense	SPT 11	100 (100)	15-17-20 (37)			22				26
50		(SP-SM) Poorly Graded Sand w/ Silt, Brown, Wet, Medium Dense to Very Dense	SPT 12	100 (100)	13-10-10 (20)			23				10
			SPT 13	100 (100)	8-12-14 (26)			25				10
60			SPT 14	100 (100)	13-26-28 (54)			21				10

Bottom of borehole at 60.0 feet.

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Geotechnical Engineering

L&G Engineering Laboratory LLC
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Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-10

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/27/09 **COMPLETED** 4/27/09
GROUND ELEVATION 78.9 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 32.00 ft / Elev 46.90 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 33' / Mud Rotary to 120'
AFTER DRILLING 27.00 ft / Elev 51.90 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CH) Fat Clay, Brown, Dry to Moist, Firm to Stiff										
		SPT 1	100 (100)	4-5-5 (10)			9				65
		SPT 2	100 (100)	4-5-8 (13)			16	78	21	57	86
		SPT 3	100 (100)	7-8-12 (20)			19				95
10		SPT 4	100 (100)	4-4-5 (9)			19	76	20	56	94
		SH 5	100 (100)		4.0		22				94
20		SH 6	100 (100)		4.0		24	73	22	51	93
		SH 7	100 (100)		2.5		24				98
30		SH 8	100 (100)		2.5		21	59	20	39	93
	(CL-ML) Lean Clay w/ Silt, Brown, Wet, Firm										
		SPT 9	100 (100)	4-5-7 (12)			27				66
	(SC) Clayey Sand, Brown, Wet, Dense										
40		SPT 10	100 (100)	16-20-24 (44)			25				14
	(SP-SC) Poorly Graded Sand w/ Clay, Light Brown, Medium Dense to Very Dense										
		SPT 11	100 (100)	18-29-31 (60)			24				10
50		SPT 12	100 (100)	14-14-16 (30)			22				9
	(SC) Clayey Sand, Brown, Very Moist, Medium Dense										
		SPT 13	100 (100)	10-10-16 (26)			27				13
	(SP-SC) Poorly Graded Sand w/ Clay, Brown, Very Moist, Dense to Very Dense										
60		SPT 14	100 (100)	12-20-24 (44)			22				8

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L&G Engineering Laboratory
Construction Material Testing
Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-10

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
		(SP-SC) Poorly Graded Sand w/ Clay, Brown, Very Moist, Dense to Very Dense *(continued)*	SPT 15	100 (100)	18-20-27 (47)			26				11
70			SPT 16	100 (100)	22-23-28 (51)			22				10
			SPT 17	100 (100)	15-30-50 (80)			33				12
		(CH) Fat Clay, Light Brown, Very Moist, Hard										
80			SPT 18	100 (100)	12-15-24 (39)			21	58	16	42	80
		(CL) Lean Clay, Light Brown, Wet, Firm to Hard										
			SPT 19	100 (100)	7-9-10 (19)			25	34	18	16	93
90			SPT 20	100 (100)	5-7-4 (11)			27				91
			SPT 21	100 (100)	6-6-9 (15)			29				78
100			SPT 22	100 (100)	9-12-20 (32)			29				74
			SPT 23	100 (100)	19-23-30 (53)			28				60
		(SC) Clayey Sand, Brown, Wet, Very Dense										
110			SPT 24	100 (100)	38-36-32 (68)			24				18
			SPT 25	100 (100)	40-38-35 (73)			21				34
120			SPT 26	100 (100)	15-28-30 (58)			28				25

Bottom of borehole at 120.0 feet.

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L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-11

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/17/09 **COMPLETED** 4/17/09
GROUND ELEVATION 78.98 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 33.50 ft / Elev 45.48 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 35' / Mud Rotary to 60'
AFTER DRILLING --- No water 24 hrs after completion

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		Gravel, 4"										
		No Sampling Performed 0-13' Below Top of Levee Elevation										
10												
		(CH) Fat Clay, Brown, Moist, Hard	SH 1	100 (100)		4.5		22	87	29	58	
20			SH 2	100 (100)		4.0		18				99
		(CH) Fat Clay, Brown, Moist, Firm to Stiff	SH 3	100 (100)		2.5		20	64	24	40	
30			SH 4	100 (100)		2.0		22	72	30	42	95
		(SC) Sand, Brown, Very Moist, Dense	SPT 5	100 (100)	4-8-12 (20)			22				17
40			SPT 6	100 (100)	21-29-30 (59)			23				21
		(SP-SC) Poorly Graded Sand w/ Clay, Brown, Very Moist, Medium Dense to Dense	SPT 7	100 (100)	21-23-17 (40)			22				14
50			SPT 8	100 (100)	12-12-15 (27)			21				10
			SPT 9	100 (100)	17-24-31 (55)			23				8
		(SC) Sand, Brown, Very Moist, Dense										
60			SPT 10	100 (100)	17-21-22 (43)			23				20

Bottom of borehole at 60.0 feet.

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L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-12

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/19/09 **COMPLETED** 4/19/09
GROUND ELEVATION 78.91 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 38.50 ft / Elev 40.41 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 41' / Mud Rotary to 60'
AFTER DRILLING --- No Water 24 hrs. after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	Gravel, 4"										
	(CH) Fat Clay, Brown, Moist, Firm to Stiff	SPT 1	100 (100)	5-6-7 (13)			11	82	29	53	
		SPT 2	100 (100)	7-8-9 (17)			13				80
		SPT 3	100 (100)	4-4-5 (9)			15	78	20	58	
10		SPT 4	100 (100)	3-4-6 (10)			17				60
		SH 5	100 (100)		4.5		20	83	21	62	
20		SH 6	100 (100)		4.0		21				99
		SH 7	100 (100)		3.0		24	66	25	41	
30		SH 8	100 (100)		2.0		24				97
		SH 9	100 (100)		2.5		25	72	23	49	
40	(MH) Elastic Silt w/ Sand, Brown, Very Moist, Stiff	SPT 10	100 (100)	9-10-14 (24)			27				63
	(SM) Silty Sand, Brown, Moist, Medium Dense to Dense	SPT 11	100 (100)	10-11-14 (25)			26				17
50		SPT 12	100 (100)	12-17-15 (32)			19				12
	(SC) Clayey Sand, Brown, Moist, Dense	SPT 13	100 (100)	20-22-22 (44)			18				31
60	(CL) Lean Clay, Brown, Moist, Hard	SPT 14	100 (100)	8-15-20 (35)			14				56

Bottom of borehole at 60.0 feet.

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Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-13

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/18/09 **COMPLETED** 4/18/09
GROUND ELEVATION 78.81 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 40.00 ft / Elev 38.81 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 40' / Mud Rotary to 55'
AFTER DRILLING --- No water 24 hrs. after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	Gravel, 4"										
	(CH) Fat Clay, Brown, Moist to Very Moist, Firm to Hard	1	100 (100)	6-7-11 (18)			7				96
		2	100 (100)	5-7-11 (18)			17	74	26	48	
		3	100 (100)	7-12-16 (28)			15				92
10		4	100 (100)	5-8-10 (18)			16	80	25	55	
		SH 5	100 (100)		4.5		22	87	25	62	
20		SH 6	100 (100)		4.5		22				99
		SH 7	100 (100)		3.5		24	79	25	54	
30		SH 8	100 (100)		2.0		25				99
		SH 9	100 (100)		2.5		24	73	28	45	68
40	(CL) Lean Clay, Sandy, Brown, Firm	SH 10	100 (100)		2.0		22	44	20	24	
		SPT 11	100 (100)	12-23-19 (42)			22				12
	(CL) Lean Clay, Sandy, Brown, Stiff										
50		SPT 12	100 (100)	6-10-15 (25)			52				69
	(SP-SC) Poorly Graded Sand w/ Clay, Brown, Moist to Wet, Dense										
		SPT 13	100 (100)	9-13-18 (31)			20				11
60	Bottom of borehole at 60.0 feet.										

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Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-15

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/18/09 **COMPLETED** 4/18/09
GROUND ELEVATION 78.69 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 41.00 ft / Elev 37.69 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 41' / Mud Rotary to 60'
AFTER DRILLING 29.00 ft / Elev 49.69 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	Gravel, 3"										
	(CH) Fat Clay, Brown, Moist to Very Moist, Firm to Stiff	SPT 1	100 (100)	4-5-6 (11)			16				96
		SPT 2	100 (100)	4-5-5 (10)			19	76	25	51	
		SPT 3	100 (100)	6-10-14 (24)			20				97
10	(CH) Fat Clay, Brown, Moist to Very Moist, Firm	SPT 4	100 (100)	4-6-8 (14)			16	77	27	50	
	(CH) Fat Clay, Brown, Moist to Very Moist, Soft to Stiff										
		SH 5	100 (100)		4.0		23	76	36	40	
20		SH 6	100 (100)		2.5		27				62
		SH 7	100 (100)		2.5		27	72	27	45	
30		SH 8	100 (100)		1.5		27	82	32	50	85
		SH 9	100 (100)		1.0		27	57	27	30	100
40		SPT 10	100 (100)	7-8-9 (17)			24				
	(SC) Clayey Sand, Brown, Wet, Medium Dense	SPT 11	100 (100)	11-12-12 (24)			20				26
	(SP-SC) Poorly graded Sand w/ Clay, Very Moist, Very Dense										
50		SPT 12	100 (100)	16-22-29 (51)			23				7
	(SC) Clayey Sand, Brown, Very Moist, Dense	SPT 13	100 (100)	10-16-21 (37)			17				38
	(SP-SC) Poorly graded Sand w/ Clay, Very Moist, Dense										
60		SPT 14	100 (100)	20-24-21 (45)			21				6

Bottom of borehole at 60.0 feet.

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Construction Material Testing
Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-16

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/17/09 **COMPLETED** 4/17/09
GROUND ELEVATION 78.29 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 43.00 ft / Elev 35.29 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 45' / Mud Rotary to 60'
AFTER DRILLING 22.00 ft / Elev 56.29 ft 24 hours after completion

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		Gravel, 3"										
		(CH) Fat Clay, Brown, Moist, Stiff to Firm	SPT 1	100 (100)	4-6-10 (16)			14	78	27	51	
			SPT 2	100 (100)	5-7-9 (16)			18				99
			SPT 3	100 (100)	8-13-15 (28)			15	80	26	54	
10			SPT 4	100 (100)	3-4-6 (10)			16				70
		(CH) Fat Clay, Brown, Moist, Hard to Firm										
			SH 5	100 (100)		4.5		20	77	27	50	
20			SH 6	100 (100)		3.5		20				98
			SH 7	100 (100)		3.0		22	72	25	47	99
30			SH 8	100 (100)		2.5		23				
			SH 9	100 (100)		2.0		23	73	29	44	
40			SH 10	100 (100)		2.0		21				98
		(SC) Sand, Tan, Very Moist to Wet, Medium Dense to Dense	SPT 11	100 (100)	3-6-9 (15)			24				46
50			SPT 12	100 (100)	6-7-10 (17)			26				13
			SPT 13	100 (100)	11-14-9 (23)			26				12
60			SPT 14	100 (100)	21-25-17 (42)			20				15

Bottom of borehole at 60.0 feet.

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L&G Engineering Laboratory
Construction Material Testing
Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-17

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/18/09 **COMPLETED** 4/18/09
GROUND ELEVATION 78.63 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 49.00 ft / Elev 29.63 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 50' / Mud Rotary to 60'
AFTER DRILLING 35.00 ft / Elev 43.63 ft 24 hours after completion

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		(CH) Fat Clay, Brown, Moist to Very Wet, Soft to Stiff										
			SPT 1	100 (100)	5-6-10 (16)			14				92
			SPT 2	100 (100)	4-6-11 (17)			26	80	19	61	
			SPT 3	100 (100)	0-10-12 (22)			17				94
10			SPT 4	100 (100)	4-6-9 (15)			22	100	22	78	
			SH 5	100 (100)		3.5		24	75	44	31	
20			SH 6	100 (100)		2.5		27				69
			SH 7	100 (100)		3.0		26	78	28	50	
30			SH 8	100 (100)		2.0		28				100
			SH 9	100 (100)		2.5		27	75	27	48	
40			SH 10	100 (100)		3.0		26				92
			SH 11	100 (100)		2.5		25	70	22	48	
50			SPT 12	100 (100)	9-12-14 (26)			28	49	23	26	95
		(CL) Lean Clay, Brown, Wet, Soft	SPT 13	100 (100)	3-2-5 (7)			25				69
60		(SC) Clayey Sand, Brown, Wet, Very Dense	SPT 14	100 (100)	12-26-29 (55)			20				25

Bottom of borehole at 60.0 feet.

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Construction Material Testing
Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-18

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/28/09 **COMPLETED** 4/28/09
GROUND ELEVATION 78.55 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
∇ **AT TIME OF DRILLING** 27.00 ft / Elev 51.55 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 31' / Mud Rotary to 120'
AFTER DRILLING --- 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CH) Fat Clay, Brown, Dry to Moist, Firm to Stiff										
		SPT 1	100 (100)	6-6-7 (13)			12	81	19	62	98
		SPT 2	100 (100)	4-7-11 (18)			24				91
		SPT 3	100 (100)	4-5-6 (11)			18	58	22	36	66
10		SPT 4	100 (100)	3-4-5 (9)			18				81
		SH 5	100 (100)		4.5		16	56	18	38	67
20		SH 6	100 (100)		3.5		22	61	24	37	89
		SH 7	100 (100)		2.0		23	68	20	48	88
	∇ (SC) Clayey Sand, Light Brown, Very Moist, Loose										
30		SPT 8	100 (100)	3-3-5 (8)			19				46
		SPT 9	100 (100)	4-4-6 (10)			18				41
	(SP-SC) Poorly Graded Sand W/ Clay, Light Brown, Very Moist, Medium Dense										
40		SPT 10	100 (100)	9-9-4 (13)			23				11
	(SC) Clayey Sand, Brown, Wet, Dense										
		SPT 11	100 (100)	11-17-20 (37)			23				15
	(CL) Sandy Lean Clay, Brown, Very Moist, Hard										
50		SPT 12	100 (100)	9-18-20 (38)			18				69
	(SC) Clayey Sand, Brown, Wet, Dense	SPT 13	100 (100)	18-25-24 (49)			33				21
	(SP-SC) Poorly Graded Sand w/ Clay, Brown, Dense										
60		SPT 14	100 (100)	15-25-21 (46)			24				7

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L&G Engineering Laboratory
Construction Material Testing
Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-18

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
		(SP-SC) Poorly Graded Sand w/ Clay, Brown, Dense *(continued)*	SPT 15	100 (100)	15-25-16 (41)			23				10
70			SPT 16	100 (100)	18-25-23 (48)			20				12
		(SC) Clayey Sand, Brown, Wet, Dense	SPT 17	100 (100)	13-13-18 (31)			27				32
		(SP-SC) Poorly Graded Sand w/ Clay, Brown, Wet, Very Dense										
80			SPT 18	100 (100)	10-22-29 (51)			25				11
		(CL-ML) Silty Clay w/ Sand, Brown, Wet, Dense	SPT 19	100 (100)	17-19-22 (41)			32				61
		(SC) Clayey Sand, Brown, Wet, Very Dense										
90			SPT 20	100 (100)	20-30-35 (65)			24				17
		(SP-SC) Poorly Graded Sand w/ Clay, Brown, Wet, Dense	SPT 21	100 (100)	10-20-25 (45)			24				12
		(SC) Clayey Sand, Brown, Very Moist to Wet, Very Dense to Medium Dense										
100			SPT 22	100 (100)	39-45-38 (83)			32				22
			SPT 23	100 (100)	30-17-18 (35)			22				19
110			SPT 24	100 (100)	25-12-12 (24)			21				38
			SPT 25	100 (100)	25-15-15 (30)			27				39
		(SC) Clayey Sand, Brown, Very Moist to Wet, Dense										
120			SPT 26	100 (100)	30-15-19 (34)			23				13

Bottom of borehole at 120.0 feet.

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L&G Engineering Laboratory
Construction Material Testing
Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-20

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 5/4/09 **COMPLETED** 5/4/09
GROUND ELEVATION 78.92 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 19.00 ft / Elev 59.92 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 36' / Mud Rotary to 60'
AFTER DRILLING 39.00 ft / Elev 39.92 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CH) Fat Clay, Brown, Moist, Stiff to Hard										
		SPT 1	100 (100)	6-7-9 (16)			8				64
		SPT 2	100 (100)	6-8-11 (19)			9	61	18	43	
		SH 3	100 (100)		4.5		7				81
10		SH 4	100 (100)		4.0		9				83
		SH 5	100 (100)		3.5		9	71	21	50	
20		SH 6	100 (100)		3.5		7				83
	(SC) Clayey Sand, Brown, Moist, Medium Dense	SH 7	100 (100)		1.75		6	23	14	9	38
30		SPT 8	100 (100)	4-5-7 (12)			5				29
		SPT 9	100 (100)	9-12-14 (26)			16				13
40		SPT 10	100 (100)	11-14-16 (30)			22				13
	(SP-SC) Poorly Graded Sand w/ Clay, Brown, Very Moist, Very Dense	SPT 11	100 (100)	12-24-30 (54)			20				9
	(SC) Clayey Sand, Brown, Wet, Very Dense										
50		SPT 12	100 (100)	15-20-26 (46)			12				16
	(SC) Clayey Sand, Brown, Wet, Medium Dense to Very Dense	SPT 13	100 (100)	12-24-36 (60)			11				27
	(CL) Lean Clay, Brown, Wet, Hard										
60		SPT 14	100 (100)	12-16-24 (40)			10				63

Bottom of borehole at 60.0 feet.

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Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-21

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/20/09 **COMPLETED** 4/20/09
GROUND ELEVATION 78.6 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger/Mud Rotary
AT TIME OF DRILLING 32.00 ft / Elev 46.60 ft
LOGGED BY C. CAVAZOS **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 36' / Mud Rotary to 60'
AFTER DRILLING 28.00 ft / Elev 50.60 ft 24 hours after completion

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		(CH) Fat Clay, Dark Brown, Moist, Firm to Stiff										
			1	100 (100)	5-7-7 (14)			20	78	18	60	
			2	100 (100)	5-8-10 (18)			20				94
			3	100 (100)		3.5		23	80	26	54	
10			4	100 (100)		3.25		22				99
			5	100 (100)		4.25		20	72	29	43	
20			6	100 (100)		2.25		20				96
			7	100 (100)	6-7-9 (16)			21	71	21	50	
30		(SC) Clayey Sand, Brown, Wet to Very Moist, Medium Dense	8	100 (100)	7-12-13 (25)			20				21
			9	100 (100)	8-11-12 (23)			19				17
		(SP-SC) Poorly Graded Sand w/ Silt, Moist, Medium Dense										
40			10	100 (100)	6-14-13 (27)			22				12
			11	100 (100)	8-12-13 (25)			23				6
		(SC) Clayey Sand, Brown, Moist, Medium Dense to Dense										
50			12	100 (100)	16-19-26 (45)			21				16
			13	100 (100)	15-10-15 (25)			32				43
60			14	100 (100)	13-15-18 (33)			23				16

Bottom of borehole at 60.0 feet.

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Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-22

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/29/09 **COMPLETED** 4/29/09
GROUND ELEVATION 78.79 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 30.00 ft / Elev 48.79 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 30' / Mud Rotary to 120'
AFTER DRILLING 22.00 ft / Elev 56.79 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(SC) Calayey Sand, Brown, Dry, Medium Dense	SPT 1	100 (100)	5-5-7 (12)			4	45	10	35	39
	(CH) Fat Clay, Brown, Moist, Firm	SPT 2	100 (100)	4-6-7 (13)			14				94
		SPT 3	100 (100)	4-5-7 (12)			13	72	24	48	96
10		SPT 4	100 (100)	4-5-8 (13)			14				97
	(CL) Lean Clay, Brown, Moist, Hard										
		SH 5	100 (100)		4.5		13	38	20	18	97
20		SH 6	100 (100)		3.5		14	39	19	20	91
	(SC) Clayey Sand, Dark Brown, Moist, Very Loose										
		SH 7	100 (100)		.25		11				23
	(SC) Clayey Sand, Light Brown, Wet, Medium Dense										
30		SPT 8	100 (100)	5-5-7 (12)			16				27
	(SP-SC) Poorly Graded Sand w/ Clay, Brown, Moist to Wet, Medium Dense to Dense										
		SPT 9	100 (100)	10-10-15 (25)			23				9
40		SPT 10	100 (100)	15-15-20 (35)			20				10
		SPT 11	100 (100)	16-19-27 (46)			22				7
50		SPT 12	100 (100)	10-15-24 (39)			18				8
		SPT 13	100 (100)	15-20-22 (42)			19				8
60		SPT 14	100 (100)	21-28-38 (66)			19				8
	(CL) Sandy Lean Clay, Brown, Very Moist. Firm										

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Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-22

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
		(CL) Sandy Lean Clay, Brown, Very Moist. Firm *(continued)*	SPT 15	100 (100)	7-6-9 (15)			20	22	15	7	65
		(CH) Fat Clay, Reddish Brown, Moist, Stiff to Hard										
70			SPT 16	100 (100)	9-11-15 (26)			18	59	26	33	97
			SPT 17	100 (100)	9-14-15 (29)			23				95
80			SPT 18	100 (100)	10-15-20 (35)			22	51	21	30	96
		(CL) Sandy Lean Clay, Brown, Very Moist, Hard	SPT 19	100 (100)	9-30-28 (58)			21	47	14	33	87
		(SC) Clayey Sand, Brown, Wet, Very Dense										
90			SPT 20	100 (100)	28-33-41 (74)			25				15
			SPT 21	100 (100)	27-29-35 (64)			22				15
100			SPT 22	100 (100)	40-34-50 (84)			20				18
			SPT 23	100 (100)	40-39-46 (85)			20				15
		(SP-SM) Poorly Graded Sand w/ Silt, Brown, Wet, Very Dense										
110			SPT 24	100 (100)	30-30-33 (63)			21				12
			SPT 25	100 (100)	28-29-31 (60)			22				8
120			SPT 26	100 (100)	30-50-50 (100)			19				16

Bottom of borehole at 120.0 feet.

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2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-23

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/20/09 **COMPLETED** 4/20/09
GROUND ELEVATION 78.43 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 32.00 ft / Elev 46.43 ft
LOGGED BY R. CANTU **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 35' / Mud Rotary to 60'
AFTER DRILLING 26.00 ft / Elev 52.43 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CH) Fat Clay, Dark Brown, Moist, Firm to Hard	SPT 1	100 (100)	5-4-5 (9)			21				94
		SPT 2	100 (100)	4-5-7 (12)			26	73	23	50	
		SH 3	100 (100)		3.0		21				82
10		SH 4	100 (100)		2.5		24	81	25	56	
		SH 5	100 (100)		4.5+		23				87
20		SH 6	100 (100)		4.5+		23	68	27	41	
	(CH) Fat Clay, Dark Brown, Moist, Firm	SH 7	100 (100)		1.5		12				
30	(SC) Clayey Sand, Brown, Moist, Very Loose	SH 8	100 (100)		0.0		14	21	10	11	40
	(SP-SM) Poorly Graded Sand w/ Silt, Brown, Moist, Medium Dense to Dense	SPT 9	100 (100)	8-10-13 (23)			25				9
40		SPT 10	100 (100)	11-14-17 (31)			22				6
	(SM) Silty Sand, Brown, Moist, Very Dense	SPT 11	100 (100)	25-30-35 (65)			30				19
	(SP-SM) Poorly Graded Sand w/ Silt, Brown, Moist, Very Dense										
50		SPT 12	100 (100)	17-25-32 (57)			18				5
	(SM) Silty Sand, Brown, Moist, Very Dense	SPT 13	100 (100)	21-30-38 (68)			22				34
60	(SP-SM) Poorly Graded Sand w/ Silt, Brown, Moist, Very Dense	SPT 14	100 (100)	25-33-41 (74)			19				7

Bottom of borehole at 60.0 feet.

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L&G Engineering Laboratory
Construction Material Testing
Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-24

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/20/09 **COMPLETED** 4/20/09
GROUND ELEVATION 78.61 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 17.00 ft / Elev 61.61 ft
LOGGED BY E. Castillo **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 18' / Mud Rotary to 60'
AFTER DRILLING 43.00 ft / Elev 35.61 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CH) Fat Clay, Dark Brown, Moist, Soft to Firm	SPT 1	100 (100)	3-5-4 (9)			14	74	24	50	
		SPT 2	100 (100)	7-3-5 (8)			11				65
		SPT 3	100 (100)	3-4-6 (10)			17	51	20	31	
10		SPT 4	100 (100)	5-5-4 (9)			13				78
	(CL) Lean Clay, Dark Brown, Moist, Hard	SH 5	100 (100)		4.5		15	47	17	30	
	(SC) Clayey Sand, Reddish Brown, Moist, Medium Dense										
20		SH 6	100 (100)	7-9-11 (20)			10				43
	(SC) Clayey Sand, Brown, Wet, Loose to Medium Dense	SPT 7	100 (100)	4-3-5 (8)			25				23
30		SPT 8	100 (100)	7-9-13 (22)			24				17
	(SP-SM) Poorly Graded Sand w/ Silt, Brown, Moist, Dense to Very Dense	SPT 9	100 (100)	14-19-27 (46)			22				9
40		SPT 10	100 (100)	17-28-26 (54)			23				
	(SC) Clayey Sand, Brown, Moist, Dense	SPT 11	100 (100)	14-16-19 (35)			19				14
50	(CH) Fat Clay, Brown, Moist, Hard	SPT 12	100 (100)	16-21-24 (45)			23	59	26	33	
	(SP-SM) Poorly Graded Sand w/ Silt, Brown, Moist, Dense to Very Dense	SPT 13	100 (100)	25-25-20 (45)			28				9
60		SPT 14	100 (100)	33-36-41 (77)			23				11

Bottom of borehole at 60.0 feet.

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L&G Engineering Laboratory
Construction Material Testing
Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-26

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/30/09 **COMPLETED** 4/30/09
GROUND ELEVATION 78.81 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 30.00 ft / Elev 48.81 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 30' / Mud Rotary to 120'
AFTER DRILLING 21.00 ft / Elev 57.81 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CH) Fat Clay, Brown, Moist, Firm to Hard	SPT 1	100 (100)	4-5-7 (12)			7	86	24	62	97
		SPT 2	100 (100)	4-5-5 (10)			17	84	23	61	90
		SH 3	100 (100)		5+		15	65	21	44	87
10		SH 4	100 (100)		2.75		14	56	25	31	78
		SH 5	100 (100)		3.75		12	71	26	45	86
20		SH 6	100 (100)		2.25		12	44	21	23	53
	(SC) Clayey Sand, Brown, Moist, Very Loose to Medium Dense	SPT 7	100 (100)	3-2-2 (4)			18				31
30		SPT 8	100 (100)	3-7-8 (15)			19				18
	(CL) Lean Clay , Brown, Moist, Stiff	SPT 9	100 (100)	12-15-8 (23)			22				58
	(SP-SC) Poorly Graded Sand w/ Clay, Brown, Very Moist, Dense										
40		SPT 10	100 (100)	15-17-18 (35)			21				7
	(SC) Clayey Sand, Brown, Moist, Medium Dense	SPT 11	100 (100)	10-13-15 (28)			23				24
	(SP-SM) Poorly Graded Sand w/ Silt, Brown, Moist, Medium Dense										
50		SPT 12	100 (100)	11-13-16 (29)			19				4
	(SC) Clayey Sand, Brown, Moist to Very Moist, Medium Dense to Dense	SPT 13	100 (100)	13-17-18 (35)			24				13
60		SPT 14	100 (100)	4-9-11 (20)			21				24

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L&G Engineering Laboratory
Construction Material Testing
Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-26

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
		(SC) Clayey Sand, Brown, Moist to Very Moist, Medium Dense to Dense (continued)	SPT 15	100 (100)	12-17-20 (37)			22				18
		(CH) Fat Clay, Brown, Moist, Stiff to Hard										
70			SPT 16	100 (100)	9-15-19 (34)			24	75	23	52	88
			SPT 17	100 (100)	10-12-16 (28)			25	63	26	37	93
		(CL) Lean Clay, Brown, Moist, Hard										
80			SPT 18	100 (100)	10-14-18 (32)			21	33	20	13	90
			SPT 19	100 (100)	15-20-22 (42)			20				59
		(SC) Clayey Sand, Brown, Wet, Very Dense										
90			SPT 20	100 (100)	8-21-29 (50)			20				33
			SPT 21	100 (100)	43-50-50 (100)			21				17
100			SPT 22	100 (100)	31-33-48 (81)			17				30
		(CL) Lean Clay, Brown, Very Moist, Hard										
			SPT 23	100 (100)	50-36-32 (68)			18				57
		(SC) Clayey Sand, Brown, Wet, Very Dense										
110			SPT 24	100 (100)	33-41-40 (81)			20				15
			SPT 25	100 (100)	28-39-39 (78)			21				18
120			SPT 26	100 (100)	50-50-50 (100)			13				19

Bottom of borehole at 120.0 feet.

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L&G Engineering Laboratory
Construction Material Testing
Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-27

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/20/09 **COMPLETED** 4/20/09
GROUND ELEVATION 78.41 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 32.00 ft / Elev 46.41 ft
LOGGED BY R. CANTU **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 35' / Mud Rotary to 60'
AFTER DRILLING 26.00 ft / Elev 52.41 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CH) Fat Clay, Dark Brown, Moist, Soft to Hard	SPT 1	100 (100)	4-3-4 (7)			17	89	25	64	
		SH 2	100 (100)		4.5+		17				94
		SH 3	100 (100)		4.5+		16	73	22	51	
10		SH 4	100 (100)		4.5		18				90
		SH 5	100 (100)		2.5		18	63	20	43	
20		SH 6	100 (100)		3.5		22				96
		SH 7	100 (100)		1.5		23	73	28	45	
30		SH 8	100 (100)		2.0		24				93
	(CL) Lean Clay, Brown, Very Moist, Soft to Hard	SPT 9	100 (100)	3-2-4 (6)			17	25	16	9	
40	(SC) Clayey Sand, Brown, Very Moist, Loose	SPT 10	100 (100)	4-3-6 (9)			16				31
	(CL) Lean Clay, Brown, Very Moist, Dense	SPT 11	100 (100)	11-19-25 (44)			30	47	18	29	
50		SPT 12	100 (100)	13-18-21 (39)			24				65
	(SC) Clayey Sand, Brown, Very Moist, Dense	SPT 13	100 (100)	21-24-23 (47)			29				15
	(SP-SM) Poorly Graded Sand w/ Silt, Very Moist, Very Dense										
60		SPT 14	100 (100)	18-24-29 (53)			25				9

Bottom of borehole at 60.0 feet.

L&G Engineering Laboratory
Construction Material Testing
Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-28

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/20/09 **COMPLETED** 4/20/09
GROUND ELEVATION 78.59 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 17.00 ft / Elev 61.59 ft
LOGGED BY E. Castillo **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 18' / Mud Rotary to 60'
AFTER DRILLING 28.00 ft / Elev 50.59 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CH) Fat Clay, Brown, Dry to Moist, Firm	SPT 1	100 (100)	2-4-4 (8)			18				96
		SPT 2	100 (100)	3-4-5 (9)			25	73	22	51	
		SPT 3	100 (100)	4-5-7 (12)			18				84
10		SPT 4	100 (100)	4-6-9 (15)			18	69	26	43	
	(CL) Lean Clay, Brown, Moist, Stiff	SH 5	100 (100)		3.5		14				69
20		SH 6	100 (100)		3.5		22	24	12	12	
		SH 7	100 (100)		2.5		21				91
	(SC) Clayey Sand, Brown, Very Moist, Very Loose to Dense										
30		SPT 8	100 (100)	2-2-2 (4)			17				32
		SPT 9	100 (100)	6-6-7 (13)			17				16
40		SPT 10	100 (100)	13-16-21 (37)			20				15
	(CL-ML) Silty Clay w/ Sand, Brown, Very moist, Hard	SH 11	100 (100)		3.5		19				77
	(SC-SM) Silty Clayey Sand, Brown, Very Moist, Dense										
50		SPT 12	100 (100)	17-23-24 (47)			21				58
	(SP-SM) Poorly Graded Sand w/ Silt, Brown, Very Moist, Dense to Very Dense	SPT 13	100 (100)	15-19-22 (41)			21				6
60		SPT 14	100 (100)	25-28-29 (57)			20				9

Bottom of borehole at 60.0 feet.

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2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-29

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/21/09 **COMPLETED** 4/21/09
GROUND ELEVATION 78.16 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 17.00 ft / Elev 61.16 ft
LOGGED BY E. Castillo **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 18' / Mud Rotary to 60'
AFTER DRILLING 24.00 ft / Elev 54.16 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CH) Fat Clay, Dark Brown, Moist, Soft to Stiff	SPT 1	100 (100)	6-6-4 (10)			22	79	24	55	
		SPT 2	100 (100)	3-3-4 (7)			24				98
		SH 3	100 (100)		3.5		22	78	29	49	
10		SH 4	100 (100)		3.0		22				91
		SH 5	100 (100)		3.0		21	78	32	46	
20		SH 6	100 (100)		3.0		24				50
	(CH) Fat Clay, Brown, Moist, Soft to Firm	SH 7	100 (100)		2.0		25	70	26	44	
30		SH 8	100 (100)		1.5		25				82
	(SC) Clayey Sand, Light Brown. Very Moist, Loose to Dense	SPT 9	100 (100)	1-2-4 (6)			15				44
40		SPT 10	100 (100)	5-5-7 (12)			16				38
		SPT 11	100 (100)	10-12-23 (35)			21				27
50	(CL) Lean Clay, Light Brown, Very Moist, Hard	SPT 12	100 (100)	17-26-33 (59)			4				57
	(SP-SM) Poorly Graded Sand w/ Silt, Light Brown, Very Moist, Very Dense	SPT 13	100 (100)	22-29-20 (49)			18				9
60		SPT 14	100 (100)	34-40-43 (83)			19				12

Bottom of borehole at 60.0 feet.

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2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-30

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 5/1/09 **COMPLETED** 5/1/09
GROUND ELEVATION 78.63 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 16.00 ft / Elev 62.63 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 30' / Mud Rotary to 120'
AFTER DRILLING 50.00 ft / Elev 28.63 ft 24 hours after completion

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		(CH) Fat Clay, Brown, Moist, Firm to Stiff										
			SPT 1	100 (100)	3-6-5 (11)			12	81	25	56	95
			SPT 2	100 (100)	4-4-6 (10)			23	74	24	50	98
			SPT 3	100 (100)	4-8-11 (19)			19	69	22	47	98
10			SH 4	100 (100)		3.25		22	74	29	45	100
			SH 5	100 (100)		3.25		22	70	26	44	99
20			SH 6	100 (100)		1.75		23	70	25	45	98
			SH 7	100 (100)		1.75		25	65	24	41	99
30		(SC) Clayey Sand, Brown, Moist, Firm	SPT 8	100 (100)	2-2-2 (4)			20	26	14	12	38
			SPT 9	100 (100)	3-3-4 (7)			18				42
40			SPT 10	100 (100)	3-3-3 (6)			19				41
			SPT 11	100 (100)	8-12-11 (23)			21				14
50		(SP-SM) Poorly Graded Sand w/ Silt, Brown, Wet, Dense	SPT 12	100 (100)	22-29-30 (59)			23				8
			SPT 13	100 (100)	22-30-40 (70)			24				11
60			SPT 14	100 (100)	23-29-38 (67)			24				11

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Mercedes TX 78570
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BORING NUMBER BH-30

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
		(CL) Lean Clay, Brown, Very Moist, Stiff to Hard	SPT 15	100 (100)	31-13-13 (26)			25				74
70			SPT 16	100 (100)	13-16-16 (32)			22				99
		(CL) Lean Clay, Brown, Very Moist, Stiff	SPT 17	100 (100)	9-13-15 (28)			26				97
80		(SC) Clayey Sand, Wet, Very Dense	SPT 18	100 (100)	11-21-24 (45)			25				47
		(CL) Lean Clay, Brown, Very Moist, Hard	SPT 19	100 (100)	10-17-20 (37)			24				96
90		(SC) Clayey Sand, Brown, Wet, Dense	SPT 20	100 (100)	40-30-37 (67)			22				25
		(SP-SC) Poorly Graded Sand w/ Clay, Brown, Wet, Dense	SPT 21	100 (100)	16-18-20 (38)			22				12
100		(SC) Clayey Sand, Brown, Wet, Dense	SPT 22	100 (100)	20-20-21 (41)			23				13
		(SP-SC) Poorly Graded Sand w/ Clay, Brown, Wet, Very Dense	SPT 23	100 (100)	49-50-50 (100)			21				12
110		(SC) Clayey Sand, Brown, Wet, Very Dense	SPT 24	100 (100)	45-41-50 (91)			21				13
		(SP-SC) Poorly Graded Sand w/ Clay, Brown, Wet, Dense	SPT 25	100 (100)	36-39-40 (79)			21				9
120		(SC) Clayey Sand, Brown, Wet, Very Dense	SPT 26	100 (100)	30-40-50 (90)			24				17

Bottom of borehole at 120.0 feet.

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BORING NUMBER BH-31

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/20/09 **COMPLETED** 4/20/09
GROUND ELEVATION 77.8 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 20.00 ft / Elev 57.80 ft
LOGGED BY R. CANTU **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 30' / Mud Rotary to 60'
AFTER DRILLING 27.00 ft / Elev 50.80 ft 24 hours after completion

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		(CH) Fat Clay, Dark Brown, Moist, Firm to Hard	SPT 1	100 (100)	5-7-9 (16)			22				93
			SPT 2	100 (100)	5-6-9 (15)			24	74	31	43	
			SH 3	100 (100)		4.5+		16				79
10			SH 4	100 (100)		4.5+		16	52	22	30	
			SH 5	100 (100)		4.5		20				87
		(CL) Lean Clay, Brown, Very Moist, Soft to Stiff										
20			SH 6	100 (100)		2.0		13	24	14	10	
		(SC) Clayey Sand, Brown, Very Moist, Loose	SH 7	100 (100)		1.0		15				45
30		(CL) Lean Clay, Brown, Very Moist, Stiff	SPT 8	100 (100)	11-13-15 (28)			19	27	17	10	
			SPT 9	100 (100)	9-11-12 (23)			14				72
		(CL) Lean Clay, Silty, Greyish Brown, Moist, Stiff										
40			SPT 10	100 (100)	8-10-12 (22)			15	37	14	23	
			SPT 11	100 (100)	9-9-11 (20)			16				67
		(CH) Fat Clay, Reddish Brown, Moist, Stiff										
50			SPT 12	100 (100)	8-12-13 (25)			20	59	20	39	
			SPT 13	100 (100)	7-9-8 (17)			27				97
60		(CL) Lean Clay, Reddish Brown, Moist, Hard	SPT 14	100 (100)	9-13-17 (30)			20	33	18	15	

Bottom of borehole at 60.0 feet.

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Geotechnical Engineering

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2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-32

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/20/09 **COMPLETED** 4/20/09
GROUND ELEVATION 77.9 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 17.00 ft / Elev 60.90 ft
LOGGED BY E. Castillo **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 20' / Mud Rotary to 60'
AFTER DRILLING 20.00 ft / Elev 57.90 ft 24 hours after completion

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		(CH) Fat Clay, Brown, Moist , Firm to Stiff	SPT 1	100 (100)	8-9-9 (18)			18	74	19	55	
			SPT 2	100 (100)	4-7-8 (15)			12				77
		(CH) Fat Clay, Reddish Brown, Moist, Soft to Stiff	SPT 3	100 (100)	3-2-2 (4)			8	52	16	36	
10			SPT 4	100 (100)	1-1-2 (3)			11				69
			SH 5	100 (100)		3.0		19	60	23	37	
		(CH) Fat Clay, Light Brown, Very Moist, Soft	SPT 6	100 (100)	3-3-4 (7)			19				59
20			SPT 7	100 (100)	3-3-5 (8)			16	78	26	52	
		(SC) Clayey Sand, Light Brown, Moist, Very Dense	SPT 8	100 (100)	16-37-50 (87)			16				43
30		(CL) Lean Clay, Light Brown, Moist, Hard to Firm	SPT 9	100 (100)	12-17-20 (37)			17	48	16	32	
40			SH 10	100 (100)		4.0		14				69
			SH 11	100 (100)		2.0		12	41	15	26	
		(CH) Fat Clay, Brown, Moist, Hard	SH 12	100 (100)		4.0		18				93
50			SH 13	100 (100)		4.5		15	59	19	40	
60			SPT 14	100 (100)	19-26-32 (58)			16				97

Bottom of borehole at 60.0 feet.

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Construction Material Testing
Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-33

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/21/09 **COMPLETED** 4/21/09
GROUND ELEVATION 78.2 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 17.00 ft / Elev 61.20 ft
LOGGED BY E. Castillo **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 18' / Mud Rotary to 120'
AFTER DRILLING 26.00 ft / Elev 52.20 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(SC) Clayey Sand, Dark Brown, Moist, Loose	SPT 1	100 (100)	4-4-6 (10)			13	67	21	47	46
	(CH) Fat Clay, Dark Brown, Moist, Firm to Hard	SPT 2	100 (100)	3-5-6 (11)			13				57
		SH 3	100 (100)		4.5		18	52	22	30	72
10		SH 4	100 (100)		4.0		16				88
		SH 5	100 (100)		3.5		18	66	20	46	98
	(CH) Fat Clay, Light Brown, Wet, Soft										
20		SPT 6	100 (100)	3-3-3 (6)			16				75
	(CL) Lean Clay, Brown, Moist, Hard to Stiff	SPT 7	100 (100)	5-8-9 (17)			17	31	11	20	51
30		SPT 8	100 (100)	16-24-34 (58)			15				58
		SPT 9	100 (100)	21-30-35 (65)			16	26	17	9	78
40		SH 10	100 (100)		4.5		12				87
		SH 11	100 (100)		4.0		12				69
50	(CH) Fat Clay, Brown, Moist, Hard	SH 12	100 (100)		4.5		12	53	18	35	86
		SH 13	100 (100)		4.5		16	60	21	39	18
60		SH 14	100 (100)		3.5		16	54	19	35	

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2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-33

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
		(CH) Fat Clay, Brown, Moist, Hard *(continued)*										
			SH 15	100 (100)		4.5+		19				99
70			SH 16	100 (100)		4.5+		21	72	29	43	99
			SH 17	100 (100)		4.0		19				98
80			SH 18	100 (100)		4.0		20	78	29	49	79
			SH 19	100 (100)		4.5		20	56	25	31	99
		(CL) Silty Clay, Brown, Moist, Hard										
90			SH 20	100 (100)		3.5		23	33	15	18	91
			SPT 21	100 (100)	17-25-31 (56)			22				99
100			SPT 22	100 (100)	12-16-14 (30)			22	30	16	14	61
		(SC) Clayey Sand, Brown, Moist, Very Dense										
			SPT 23	100 (100)	25-29-36 (65)			21	32	19	13	34
		(SM) Silty Sand, Brown, Wet, Very Dense										
110			SPT 24	100 (100)	33-46-50 (96)			21				12
			SPT 25	100 (100)	33-44-50 (94)			19				16
120		(SC) Clayey Sand, Dark Brown, Moist, Loose	SPT 26	100 (100)	31-35-43 (78)			23				24

Bottom of borehole at 120.0 feet.

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Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-34

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 5/4/09 **COMPLETED** 5/4/09
GROUND ELEVATION 78.39 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 16.00 ft / Elev 62.39 ft
LOGGED BY A. Gomez **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 20' / Mud Rotary to 60'
AFTER DRILLING 50.00 ft / Elev 28.39 ft 24 hours after completion

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		(CH) Fat Clay, Brown, Moist, Firm	SPT 1	100 (100)	5-6-8 (14)			7	62	23	39	
			SPT 2	100 (100)	4-5-7 (12)			5				85
			SPT 3	100 (100)	6-7-6 (13)			5	50	20	30	
10		(CL) Lean Clay, Light Brown, Moist to Wet, Soft to Firm	SPT 4	100 (100)	3-3-2 (5)			2				69
			SH 5	100 (100)		1.5		5	29	14	15	53
20			SH 6	100 (100)		.25		10				86
		(SC) Clayey Sand, Light Brown, Moist, Medium Dense to Dense	SPT 7	100 (100)	6-7-9 (16)			13				32
30			SPT 8	100 (100)	8-13-19 (32)			13				38
		(CL) Lean Clay, Light brown, Moist, Firm to Hard	SPT 9	100 (100)	4-6-9 (15)			7	34	16	18	
40			SPT 10	100 (100)	7-9-11 (20)			14				77
			SPT 11	100 (100)	8-10-10 (20)			3	45	18	27	
50			SPT 12	100 (100)	8-11-14 (25)			3				88
			SPT 13	100 (100)	9-11-12 (23)			6	49	16	33	
60			SPT 14	100 (100)	13-19-26 (45)			4				94

Bottom of borehole at 60.0 feet.

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L&G Engineering Laboratory
Construction Material Testing
Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-36

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/19/09 **COMPLETED** 4/19/09
GROUND ELEVATION 78.25 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 17.00 ft / Elev 61.25 ft
LOGGED BY R. CANTU **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 25' / Mud Rotary to 60'
AFTER DRILLING 22.00 ft / Elev 56.25 ft 24 hours after completion

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		(CH) Fat Clay, Brown, Moist, Stiff to Hard										
			SH 1	100 (100)		2.5		19	67	21	46	77
			SH 2	100 (100)		4.0		23	76	28	48	
			SH 3	100 (100)		4.5+		15				79
10			SH 4	100 (100)		4.5+		19	62	19	43	
			SH 5	100 (100)		3.5		19	60	21	39	
20		(CL) Lean Clay, Light Brown, Very Moist, Soft	SPT 6	100 (100)	3-3-4 (7)			19				57
		(SC) Clayey Sand w/ Gravel, Light Brown, Very Moist, Dense	SPT 7	100 (100)	11-17-21 (38)			24				29
30			SPT 8	100 (100)	9-14-17 (31)			18				43
		(CL) Lean Clay, Light Brown, Moist, Stiff	SPT 9	100 (100)	7-10-13 (23)			17	44	17	27	
40			SPT 10	100 (100)	9-11-15 (26)			17				79
			SPT 11	100 (100)	7-7-9 (16)			20	43	17	26	
50			SPT 12	100 (100)	6-8-10 (18)			18				59
			SPT 13	100 (100)	5-7-10 (17)			29	46	16	30	
60			SPT 14	100 (100)	7-9-8 (17)			17				52

Bottom of borehole at 60.0 feet.

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Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-38

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 5/2/09 **COMPLETED** 5/2/09
GROUND ELEVATION 78.58 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 18.00 ft / Elev 60.58 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 26' / Mud Rotary to 120'
AFTER DRILLING 23.00 ft / Elev 55.58 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CH) Fat Clay, Brown, Dry, Firm	SPT 1	100 (100)	5-6-8 (14)			7	66	18	48	72
	(CL) Lean Clay, Brown, Moist, Firm	SPT 2	100 (100)	4-4-6 (10)			21	41	24	17	70
	(CH) Fat Clay Brown, Moist, Stiff to Hard	SPT 3	100 (100)	6-7-10 (17)			21	64	20	44	91
10		SH 4	100 (100)		3.75		23				98
		SH 5	100 (100)		2.75		23				96
	(CH) Fat Clay, Brown, Moist, Soft										
20		SH 6	100 (100)		1.5		21	58	19	39	94
	(CL) Lean Clay, Light Brown, Moist, Soft to Firm	SPT 7	100 (100)	4-2-2 (4)			18	28	12	16	50
30		SPT 8	100 (100)	5-5-5 (10)			13	32	14	18	91
	(SP-SC) Poorly Graded Sand w/ Clay, Brown, Very Moist, Dense	SPT 9	100 (100)	7-13-21 (34)			16				6
	(CL) Lean Clay, Brown, Very Moist, Hard										
40		SPT 10	100 (100)	15-20-18 (38)			21				96
	(SP-SC) Poorly Graded Sand w/ Clay, Brown, Very Moist, Very Dense	SPT 11	100 (100)	22-32-35 (67)			22				5
	(CH) Fat Clay, Light Brown, Moist, Hard										
50		SPT 12	100 (100)	10-15-17 (32)			18	65	21	44	90
	(CL) Lean Clay, Light Brown, Moist, Stiff to Hard	SPT 13	100 (100)	9-13-15 (28)			19				88
60		SPT 14	100 (100)	7-13-16 (29)			19	44	15	29	95

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L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-38

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
		(CL) Lean Clay, Light Brown, Moist, Stiff to Hard *(continued)*	SPT 15	100 (100)	10-13-18 (31)			20	33	17	16	97
		(CH) Fat Clay, Light Brown, Moist, Hard										
70			SPT 16	100 (100)	13-20-23 (43)			18	60	13	47	78
			SPT 17	100 (100)	8-14-17 (31)			15				82
		(CL) Lean Clay, Light Brown, Very Moist, Stiff										
80			SPT 18	100 (100)	8-12-14 (26)			24	28	17	11	98
		(CH) Fat Clay, Light Brown, Moist, Hard										
			SPT 19	100 (100)	11-14-20 (34)			16	57	19	38	99
		(SC) Clayey Sand, Light Brown, Wet, Medium Dense to Very Dense										
90			SPT 20	100 (100)	6-6-8 (14)			15				28
			SPT 21	100 (100)	24-30-32 (62)			19				14
100			SPT 22	100 (100)	28-34-32 (66)			22				14
			SPT 23	100 (100)	40-46-50 (96)			21				14
110			SPT 24	100 (100)	43-45-49 (94)			21				14
			SPT 25	100 (100)	41-50-47 (97)			21				13
120			SPT 26	100 (100)	40-48-45 (93)			21				15

Bottom of borehole at 120.0 feet.

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Telephone: 956-565-0760

BORING NUMBER BH-40

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/19/09 **COMPLETED** 4/19/09
GROUND ELEVATION 78.17 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 28.00 ft / Elev 50.17 ft
LOGGED BY R. CANTU **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 35' / Mud Rotary to 60'
AFTER DRILLING 23.00 ft / Elev 55.17 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CL) Lean Clay, Brown, Moist, Firm	SPT 1	100 (100)	4-4-6 (10)			10	34	13	21	92
		SH 2	100 (100)		2.5		6				
	(CH) Fat Clay, Dark Brown, Moist, Firm to Hard	SH 3	100 (100)		2.5		23				76
10		SH 4	100 (100)		3.5		22	80	27	53	
		SH 5	100 (100)		4.0		22				98
20		SH 6	100 (100)		2.5		27	81	10	71	
	(SC) Clayey Sand, Brown, Very Moist, Medium Dense	SPT 7	100 (100)	4-4-7 (11)			18				39
30		SPT 8	100 (100)	3-5-6 (11)			17				42
		SPT 9	100 (100)	7-10-12 (22)			20				17
40	(SP-SC) Poorly Graded Sand w/ Clay, Brown, Very Moist, Dense	SPT 10	100 (100)	11-14-17 (31)			18				9
	(SC) Clayey Sand, Brown, Moist, Very Dense	SPT 11	100 (100)	18-21-30 (51)			16				19
50		SPT 12	100 (100)	21-27-33 (60)			18				29
	(SP-SC) Poorly Graded Sand w/ Clay, Brown, Moist, Dense	SPT 13	100 (100)	17-20-26 (46)			17				12
60	(SC) Clayey Sand, Brown, Moist, Very Dense	SPT 14	100 (100)	21-27-29 (56)			23				17

Bottom of borehole at 60.0 feet.

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2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-42

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 5/3/09 **COMPLETED** 5/3/09
GROUND ELEVATION 78.33 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 18.00 ft / Elev 60.33 ft
LOGGED BY C. Trevino **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 20' / Mud Rotary to 120'
AFTER DRILLING 30.00 ft / Elev 48.33 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CH) Fat Clay, Brown, Dry to Moist, Firm to Hard	SPT 1	100 (100)	4-5-7 (12)			8	69	20	49	61
		SPT 2	100 (100)	4-5-8 (13)			17	71	25	46	94
		SH 3	100 (100)		4.25		10				51
10		SH 4	100 (100)		3.75		12	68	23	45	99
	(CL) Lean Clay Brown, Moist, Soft	SH 5	100 (100)		1.25		13	32	13	19	59
	(CH) Fat Clay, Brown, Moist, Firm										
20		SPT 6	100 (100)	5-5-6 (11)			7	74	27	47	75
	(SC) Clayey Sand, Brown, Wet, Medium Dense	SPT 7	100 (100)	5-5-7 (12)			20				43
30		SPT 8	100 (100)	4-5-7 (12)			12				19
		SPT 9	100 (100)	7-9-11 (20)			26				23
	(SP-SC) Poorly Graded Sand w/ Clay, Brown, Wet, Medium Dense to Dense										
40		SPT 10	100 (100)	9-10-12 (22)			25				8
		SPT 11	100 (100)	12-18-20 (38)			22				12
	(SC) Clayey Sand, Brown, Wet, Dense										
50		SPT 12	100 (100)	18-27-18 (45)			20				16
	(CL) Lean Clay, Brown, Moist, Stiff	SPT 13	100 (100)	8-12-16 (28)			13	43	16	27	86
	(SC) Clayey Sand, Brown, Very Moist, Dense										
60		SPT 14	100 (100)	7-16-24 (40)			95				25

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Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-42

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
		(SC) Clayey Sand, Brown, Very Moist, Dense *(continued)*	SPT 15	100 (100)	11-16-19 (35)			17				41
		(SP-SC) Poorly Graded Sand w/ Clay, Brown, Very Moist, Very Dense										
70			SPT 16	100 (100)	15-50-37 (87)			18				11
		(SC) Clayey Sand, Brown, Wet, Very Dense										
			SPT 17	100 (100)	8-22-37 (59)			9				46
		(CL) Lean Clay, Brown, Very Moist, Hard										
80			SPT 18	100 (100)	10-14-19 (33)			7	49	18	31	
		(SP-SC) Poorly Graded Sand w/ Clay, Brown, Wet, Very Dense										
			SPT 19	100 (100)	22-33-39 (72)			23				9
		(SC) Clayey Sand, Brown, Wet, Very Dense to Dense										
90			SPT 20	100 (100)	30-36-41 (77)			24				13
			SPT 21	100 (100)	22-27-20 (47)			23				31
100			SPT 22	100 (100)	20-30-19 (49)			24				41
			SPT 23	100 (100)	28-30-32 (62)			30				14
110			SPT 24	100 (100)	30-31-35 (66)			28				18
		(CL) Lean Clay, Brown, Moist, Hard										
			SPT 25	100 (100)	17-20-25 (45)			19	41	15	26	63
120			SPT 26	100 (100)	16-26-29 (55)			15	49	18	31	88

Bottom of borehole at 120.0 feet.

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L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-44

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 5/5/09 **COMPLETED** 5/5/09
GROUND ELEVATION 77.26 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 17.00 ft / Elev 60.26 ft
LOGGED BY E. Castillo **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 20' / Mud Rotary to 60'
AFTER DRILLING --- No water 24 hours after completion

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		(CL) Lean Clay, Brown, Dry to Moist, Firm	SPT 1	100 (100)	5-5-4 (9)			7	30	12	18	63
			SPT 2	100 (100)	4-8-4 (12)			27				
		(CH) Fat Clay, Brown, Moist, Firm to Stiff	SPT 3	100 (100)	5-6-7 (13)			21	73	26	47	
10			SH 4	100 (100)		3.0		15				68
		(CL) Lean Clay, Brown to Light Brown, Moist, Stiff to Soft	SH 5	100 (100)		3.0		18	42	15	27	
20			SPT 6	100 (100)	3-3-4 (7)			19	34	14	20	65
			SPT 7	100 (100)	3-4-5 (9)			24				77
		(SC) Clayey Sand, Brown, Wet, Medium Dense										
30			SPT 8	100 (100)	9-11-11 (22)			25				43
		(CL) Lean Clay, Brown, Wet, Stiff	SPT 9	100 (100)	7-11-12 (23)			24				54
		(SC) Clayey Sand, Brown, Very Moist to Wet, Medium Dense to Dense										
40			SPT 10	100 (100)	10-10-10 (20)			24				25
			SPT 11	100 (100)	11-19-18 (37)			25				14
50			SPT 12	100 (100)	17-23-24 (47)			21				32
		(CL) Lean Clay, Brown, Wet, Firm	SPT 13	100 (100)	5-5-5 (10)			25				76
		(SC) Clayey Sand, Brown, Wet, Dense										
60			SPT 14	100 (100)	6-9-9 (18)			31				21

Bottom of borehole at 60.0 feet.

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L&G Engineering Laboratory
Construction Material Testing
Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-46

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 5/4/09 **COMPLETED** 5/4/09
GROUND ELEVATION 77.11 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger/Mud Rotary
AT TIME OF DRILLING 18.00 ft / Elev 59.11 ft
LOGGED BY C. CAVAZOS **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 21' / Mud Rotary to 120'
AFTER DRILLING 36.00 ft / Elev 41.11 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CH) Fat Clay, Dark Brown, Moist, Firm	SPT 1	100 (100)	4-7-8 (15)			11	83	21	62	
	(CL) Lean Clay, Dark Brown, Moist, Stiff to Hard	SPT 2	100 (100)	12-13-12 (25)			4	29	16	13	
		SPT 3	100 (100)	9-8-10 (18)			4	28	11	17	
10		SH 4	100 (100)		4.5		7	25	15	10	
	(CL) Lean Clay, Brown, Moist, Soft	SPT 5	100 (100)	1-1-1 (2)			17	32	13	19	53
20		SPT 6	100 (100)	2-3-2 (5)			18	34	15	19	70
	(SC) Clayey Sand, Brown, Very Moist, Medium Dense	SPT 7	100 (100)	6-7-8 (15)			22				18
30	(SP-SC) Poorly Graded Sand w/ Clay, Brown, Very Moist, Medium Dense	SPT 8	100 (100)	8-7-8 (15)			21				7
	(SC) Clayey Sand, Brown, Very Moist, Medium Dense	SPT 9	100 (100)	15-14-16 (30)			18				23
40	(SP-SC) Poorly Graded Sand w/ Clay, Brown, Very Moist, Medium Dense to Dense	SPT 10	100 (100)	11-13-15 (28)			16				7
		SPT 11	100 (100)	11-17-18 (35)			22				8
50		SPT 12	100 (100)	13-15-18 (33)			23				6
	(CL) Lean Clay, Brown, Moist, Hard	SPT 13	100 (100)	12-17-25 (42)			12				54
60	(SC) Clayey Sand, Brown, Wet, Dense	SPT 14	100 (100)	11-16-19 (35)			13				13

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Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-46

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
		(SC) Clayey Sand, Brown, Wet, Dense *(continued)*	SPT 15	100 (100)	16-27-32 (59)			19				13
		(SP-SC) Poorly Graded Sand w/ Clay, Brown, Wet, Very Dense										
70			SPT 16	100 (100)	15-24-29 (53)			18				12
		(SC) Clayey Sand, Brown, Wet, Very Dense to Dense										
			SPT 17	100 (100)	18-24-35 (59)			6				20
80			SPT 18	100 (100)	19-23-31 (54)			14				23
		(SC) Clayey Sand, Brown, Wet, Very Dense										
			SPT 19	100 (100)	21-24-25 (49)			19				20
		(CL) Lean Clay, Brown, Moist, Hard										
90			SPT 20	100 (100)	16-32-35 (67)			14				96
		(SC) Clayey Sand, Brown, Wet, Very Dense										
			SPT 21	100 (100)	15-21-33 (54)			10				14
		(SP-SC) Poolry Graded Sand w/ Clay, Brown, Wet, Very Dense										
100			SPT 22	100 (100)	22-29-35 (64)			14				11
		(CL) Lean Clay, Brown, Moist, Hard										
			SPT 23	100 (100)	20-25-31 (56)			14				94
		(SP-SC) Poolry Graded Sand w/ Clay, Brown, Wet, Very Dense										
110			SPT 24	100 (100)	13-23-33 (56)			18				8
		(SC) Clayey Sand, Brown, Wet, Very Dense										
			SPT 25	100 (100)	19-24-30 (54)			15				25
120			SPT 26	100 (100)	22-25-31 (56)			11				18

Bottom of borehole at 120.0 feet.

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L&G Engineering Laboratory
Construction Material Testing
Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-48

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/20/09 **COMPLETED** 4/20/09
GROUND ELEVATION 76.55 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 20.00 ft / Elev 56.55 ft
LOGGED BY A. Gomez **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 20' / Mud Rotary to 60'
AFTER DRILLING 18.00 ft / Elev 58.55 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CH) Fat Clay, Brown, Moist, Soft	SPT 1	100 (100)	3-4-4 (8)			21	76	25	51	
	(SC) Clayey Sand, Brown, Moist, Firm	SPT 2	100 (100)	4-5-6 (11)			7				39
	(CL) Lean Clay, Brown, Moist, Firm to Stiff	SPT 3	100 (100)	4-8-8 (16)			7	23	15	8	
10		SPT 4	100 (100)	5-6-8 (14)			13				73
		SH 5	100 (100)		3.0		15	33	15	18	
	(CL) Lean Clay, Brown, Moist, Soft to Stiff										
20		SH 6	100 (100)		.50		20	25	15	10	
		SPT 7	100 (100)	4-4-6 (10)			22				71
30		SPT 8	100 (100)	4-6-17 (23)			26				100
	(SC) Clayey Sand, Brown, Moist, Medium Dense	SPT 9	100 (100)	10-11-12 (23)			24				20
40		SPT 10	100 (100)	11-11-13 (24)			19				15
	(SM) Silty Sand, Brown, Moist, Medium Dense	SPT 11	100 (100)	12-14-16 (30)			24				75
	(SP-SM) Poorly Graded Sand w/ Silt, Brown, Moist, Dense										
50		SPT 12	100 (100)	12-16-17 (33)			21				10
	(SC) Clayey Sand, Brown, Very Moist, Medium Dense	SPT 13	100 (100)	13-12-13 (25)			17				46
	(CL) Lean Clay, Brown, Very Moist, Hard										
60		SPT 14	100 (100)	14-16-16 (32)			12	26	13	13	

Bottom of borehole at 60.0 feet.

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Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-49

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/19/09 **COMPLETED** 4/19/09
GROUND ELEVATION 76.53 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 17.00 ft / Elev 59.53 ft
LOGGED BY E. Castillo **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 18' / Mud Rotary to 60'
AFTER DRILLING 19.00 ft / Elev 57.53 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(SC) Clayey Sand, Brown, Moist, Loose to Medium Dense	SPT 1	100 (100)	4-4-5 (9)			18	46	17	29	
		SPT 2	100 (100)	5-5-6 (11)			12				32
		SPT 3	100 (100)	5-5-5 (10)			10	27	16	11	
10		SPT 4	100 (100)	6-8-9 (17)			10				37
	(CH) Fat Clay, Dark Brown, Moist, Very Soft to Firm	SH 5	100 (100)		0.5		29	55	20	35	
20		SH 6	100 (100)		1.5		25	57	21	36	81
	(CH) Fat Clay, Dark Brown, Moist, Very Soft	SH 7	100 (100)		0.5		19				59
30	(SC) Clayey Sand, Brown, Moist, Loose	SPT 8	100 (100)	2-2-3 (5)			26				41
	(SP-SC) Poorly Graded Sand w/ Clay, Brown, Very Moist, Medium Dense to Dense	SPT 9	100 (100)	9-11-19 (30)			24				6
40		SPT 10	100 (100)	11-18-20 (38)			22				
	(SC) Clayey Sand, Brown, Moist, Dense to Very Dense	SPT 11	100 (100)	11-13-28 (41)			19				38
50		SPT 12	100 (100)	23-29-33 (62)			21				32
	(SP-SC) Poorly Graded Sand w/ Clay, Brown, Very Moist, Dense to Very Dense	SPT 13	100 (100)	16-31-42 (73)			19				8
60		SPT 14	100 (100)	22-19-26 (45)			20				12

Bottom of borehole at 60.0 feet.

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Geotechnical Engineering

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Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-51

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/20/09 **COMPLETED** 4/20/09
GROUND ELEVATION 76.65 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 20.00 ft / Elev 56.65 ft
LOGGED BY A. Gomez **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 20' / Mud Rotary to 60'
AFTER DRILLING 19.00 ft / Elev 57.65 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CH) Fat Clay, Dark Brown, Moist, Soft	SPT 1	100 (100)	3-3-4 (7)			22	85	21	64	
		SPT 2	100 (100)	4-3-4 (7)			12				91
	(CL) Lean Clay, Dark Brown, Moist, Stiff	SPT 3	100 (100)	6-7-9 (16)			8	30	11	19	
10		SPT 4	100 (100)	10-11-12 (23)			7				53
		SPT 5	100 (100)	7-9-10 (19)			11	25	15	10	
	(CL) Lean Clay w/ Cal. Nodules, Light Brown, Moist, Very Soft to Firm										
20		SH 6	100 (100)		.25		20				60
		SPT 7	100 (100)	7-6-8 (14)			21	33	18	15	
30	(SC-SM) Silty Clayey Sand, Brown, Moist, Medium Dense	SPT 8	100 (100)	4-5-6 (11)			28				36
	(SP-SM) Poorly Graded Sand w/ Silt, Brown, Very Moist, Medium Dense	SPT 9	100 (100)	10-11-11 (22)			22				7
	(SM) Silty Sand, Brown, Very Moist, Medium Dense to Dense										
40		SPT 10	100 (100)	11-12-12 (24)			22				24
		SPT 11	100 (100)	16-20-22 (42)			20				13
50	(ML) Silt w/ Sand, Brown, Very Moist, Medium Dense	SPT 12	100 (100)	11-13-13 (26)			19				67
	(SC-SM) Silty Clayey Sand, Brown, Moist, Dense	SPT 13	100 (100)	13-18-17 (35)			23				21
	(SP-SM) Poorly Graded Sand w/ Silt, Brown, Very Moist, Dense										
60		SPT 14	100 (100)	16-16-18 (34)			20				5

Bottom of borehole at 60.0 feet.

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Geotechnical Engineering

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Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-53

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/19/09 **COMPLETED** 4/19/09
GROUND ELEVATION 76.66 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 20.00 ft / Elev 56.66 ft
LOGGED BY A. Gomez **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 20' / Mud Rotary to 60'
AFTER DRILLING 13.00 ft / Elev 63.66 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CH) Fat Clay, Dark Brown, Moist, Soft										
		SPT 1	100 (100)	4-3-4 (7)			17	78	21	57	
		SPT 2	100 (100)	3-3-3 (6)			11				66
	(CL) Lean Clay, Brown, Moist, Firm	SPT 3	100 (100)	3-5-4 (9)			9	48	19	29	
10		SPT 4	100 (100)	4-4-5 (9)			11				53
		SPT 5	100 (100)	2-3-6 (9)			18	29	14	15	68
20		SPT 6	100 (100)	3-4-6 (10)			23				
		SPT 7	100 (100)	2-3-2 (5)			24	30	17	13	70
30	(CH) Fat Clay, Brown, Moist, Stiff	SPT 8	100 (100)	7-11-16 (27)			24	70	25	45	
	(SC) Clayey Sand, Brown, Moist, Dense	SPT 9	100 (100)	9-13-16 (29)			24				53
40	(SP-SC) Poorly Graded Sand w/ Silty Clay, Moist, Medium Dense to Dense	SPT 10	100 (100)	10-11-12 (23)			23				6
		SPT 11	100 (100)	9-10-13 (23)			24				6
50		SPT 12	100 (100)	5-7-9 (16)			22				
		SPT 13	100 (100)	9-10-11 (21)			29				12
60		SPT 14	100 (100)	13-15-16 (31)			24				6

Bottom of borehole at 60.0 feet.

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Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-55

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/19/09 **COMPLETED** 4/19/09
GROUND ELEVATION 76.44 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 20.00 ft / Elev 56.44 ft
LOGGED BY A. Gomez **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 20' / Mud Rotary to 60'
AFTER DRILLING 18.00 ft / Elev 58.44 ft 24 hours after completion

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0		(CL) Lean Clay, Brown, Tan, Moist, Firm to Stiff										
			SPT 1	100 (100)	4-7-6 (13)			14				79
			SPT 2	100 (100)	3-5-6 (11)			14	48	15	33	
			SPT 3	100 (100)	4-7-8 (15)			22				91
10		(CL) Lean Clay, Slightly Sandy, Earthy, Moist, Firm	SPT 4	100 (100)	3-4-7 (11)			10	28	16	12	
		(SC) Clayey Sand, Reddish Brown, Moist, Loose to Medium Dense	SPT 5	100 (100)	3-3-3 (6)			11				37
20			SPT 6	100 (100)	4-5-7 (12)			17	31	18	13	
			SPT 7	100 (100)	4-4-5 (9)			21				43
30		(SP-SM) Poorly Graded Sand w/ Silt, Brown, Dense to Very Dense	SPT 8	100 (100)	6-7-9 (16)			23				10
			SPT 9	100 (100)	7-10-13 (23)			23				8
40			SPT 10	100 (100)	7-13-16 (29)			26				15
			SPT 11	100 (100)	16-18-24 (42)			22				9
50		(CH) Fat Clay, Brown, Moist, Stiff to Hard	SPT 12	100 (100)	7-3-16 (19)			17	59	17	42	
			SPT 13	100 (100)	9-11-16 (27)			23				65
60			SPT 14	100 (100)	11-13-19 (32)			21				45

Bottom of borehole at 60.0 feet.

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Construction Material Testing
Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-58

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 5/2/09 **COMPLETED** 5/2/09
GROUND ELEVATION 76.63 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger/Mud Rotary
AT TIME OF DRILLING 15.00 ft / Elev 61.63 ft
LOGGED BY C. CAVAZOS **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 21' / Mud Rotary to 120'
AFTER DRILLING 24.00 ft / Elev 52.63 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CH) Lean Clay, Dark Brown, Moist, Firm	SPT 1	100 (100)	5-7-8 (15)			4	60	15	45	68
	(CL) Fat Clay, Dark Brown, Moist, Firm	SPT 2	100 (100)	6-7-10 (17)			3	49	15	34	62
	(SC) Clayey Sand, Dark Brown, Dry to Wet, Very Dense to Loose	SH 3	100 (100)		4.5		3				15
10		SPT 4	100 (100)	1-1-1 (2)			13				18
		SPT 5	100 (100)	2-3-3 (6)			20				32
	(CL) Lean Clay, Brown, Very Moist, Soft										
20		SPT 6	100 (100)	3-4-4 (8)			14	29	14	15	75
	(CH) Fat Clay, Brown, Very Moist, Soft	SPT 7	100 (100)	4-4-4 (8)			6	57	15	42	93
	(SC) Clayey Sand, Brown, Very Moist to Wet, Medium Dense										
30		SPT 8	100 (100)	6-13-15 (28)			17				23
		SPT 9	100 (100)	10-12-15 (27)			10				25
40		SPT 10	100 (100)	7-10-15 (25)			5				49
	(SP-SC) Poorly Graded Sand w/ Clay, Brown, Very Moist to Wet, Medium Dense	SPT 11	100 (100)	10-11-14 (25)			18				6
50		SPT 12	100 (100)	7-13-16 (29)			17				10
	(SC) Clayey Sand, Reddish Brown, Wet, Medium Dense	SPT 13	100 (100)	8-13-15 (28)			22				26
	(SP) Poorly Graded Sand, Brown, Wet, Medium Dense to Dense										
60		SPT 14	100 (100)	15-19-24 (43)			21				4

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Construction Material Testing
Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-58

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
		(SP) Poorly Graded Sand, Brown, Wet, Medium Dense to Dense *(continued)*	SPT 15	100 (100)	13-13-16 (29)			13				4
70			SPT 16	100 (100)	14-18-19 (37)			21				4
		(SC) Clayey Sand, Brown, Wet, Dense	SPT 17	100 (100)	11-14-18 (32)			18				18
		(CH) Fat Clay, Light Brown, Very Moist, Hard										
80			SPT 18	100 (100)	15-20-24 (44)			7	51	16	35	83
			SPT 19	100 (100)	17-21-25 (46)			7	50	14	36	96
		(SC) Clayey Sand, Light Brown, Wet, Dense to Very Dense										
90			SPT 20	100 (100)	15-20-25 (45)			10				44
			SPT 21	100 (100)	15-22-26 (48)			16				46
100			SPT 22	100 (100)	23-29-38 (67)			17				22
			SPT 23	100 (100)	25-22-29 (51)			20				21
110		(CL) Lean Clay, Light Brown, Very Moist, Hard	SPT 24	100 (100)	20-27-37 (64)			12	36	13	23	97
		(CH) Fat Clay, Brown Very Moist, Hard	SPT 25	100 (100)	23-30-39 (69)			14	61	18	43	50
		(CL) Lean Clay, Light Brown, Wet, Hard										
120			SPT 26	100 (100)	15-22-25 (47)			11	32	17	15	99

Bottom of borehole at 120.0 feet.

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L&G Engineering Laboratory
Construction Material Testing
Geotechnical Engineering

L&G Engineering Laboratory LLC
2100 W. Expressway 83
Mercedes TX 78570
Telephone: 956-565-0760

BORING NUMBER BH-61

CLIENT S&B Infrastructure
PROJECT NAME North Floodway Imp. Project - East & West Segments
PROJECT NUMBER NFE1
PROJECT LOCATION Hidalgo County, Texas
DATE STARTED 4/19/09 **COMPLETED** 4/19/09
GROUND ELEVATION 75.36 ft **HOLE SIZE** 4" inches
DRILLING CONTRACTOR L&G Engineering
GROUND WATER LEVELS:
DRILLING METHOD Solid Stem Auger / Mud Rotary
AT TIME OF DRILLING 32.00 ft / Elev 43.36 ft
LOGGED BY A. Gomez **CHECKED BY** O. De Leon
AT END OF DRILLING ---
NOTES Solid Stem Auger to 16' / Mud Rotary to 60'
AFTER DRILLING 21.00 ft / Elev 54.36 ft 24 hours after completion

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES CONTENT (%)
0	(CH) Fat Clay, Brown, Moist, Firm to Stiff	SPT 1	100 (100)	4-4-5 (9)			19	90	25	65	
		SPT 2	100 (100)	4-5-5 (10)			11				53
		SPT 3	100 (100)	5-6-7 (13)			16	64	21	43	
10	(SC) Clayey Sand, Brown, Moist, Medium Dense	SPT 4	100 (100)	6-7-9 (16)			7				40
	(CL) Silty Sandy Clay, Reddish Brown, Moist, Soft	SPT 5	100 (100)	4-3-4 (7)			5	19	18	1	
	(CL) Lean Clay, Brown, Moist, Wet, Firm to Soft										
20		SPT 6	100 (100)	4-3-6 (9)			19				71
		SPT 7	100 (100)	2-3-3 (6)			24	28	5	23	81
	(SC) Clayey Sand, Brown, Wet, Medium Dense										
30		SPT 8	100 (100)	5-7-9 (16)			21				41
	(SP-SC) Poorly Graded Sand w/ Clay, Brown, Moist, Medium Dense to Dense	SPT 9	100 (100)	9-11-15 (26)			27				12
40		SPT 10	100 (100)	11-15-15 (30)			24				8
		SPT 11	100 (100)	11-15-16 (31)			19				11
50	(SP-SM) Silty Clayey Sand w/ Gravel, Very Moist, Very Dense	SPT 12	100 (100)	20-32-29 (61)			21				17
	(SP-SC) Poorly Graded Sand w/ Clay, Brown, Very Moist, Dense	SPT 13	100 (100)	18-22-24 (46)			21				8
60		SPT 14	100 (100)	16-18-19 (37)			21				7

Bottom of borehole at 60.0 feet.

GEOTECH BH COLUMNS - GINT STD US LAB.GDT - 5/20/09 09:42 - \\S300\LABORATORY\GINT\PROJECTS\NFE1GPJ.GPJ