



DEPTH, FT	WATER LEVEL SYMBOL	SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 4a COORDINATES: N 29°1'49.24" W 94°5'31.77" SURFACE EL.: Not Available	STRATUM DEPTH, FT	CLASSIFICATION						SHEAR STRENGTH				
				STRATUM DESCRIPTION		UNIT DRY WT, PCF	PASSING NO. 200 SIEVE, %	WATER CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT				
												0.5	1.0	1.5	2.0	2.5
6				SILTY SAND, very loose to loose, brown, with shell fragments												
9																
4							13	25								
2				- dark gray, 6.5' to 8'												
				- olive gray, with clay seams below 8'												
10							27		21	18	3					
15																
15				- medium dense below 18.5'												
20																
25				WOH - very loose at 24'			26		24	22	2					
24																
30																
32.0				SANDY CLAY, soft to firm, olive gray	32.0											
35							56		33	18	15					

NOTES:

1. ∇ : Water First Noticed. $\blacktriangledown$: Depth To Water after 15 minutes.
2. WOH: Weight of Hammer.
3. Boring coordinates were obtained with a hand-held GPS device.
4. Terms and symbols are presented on Plates D-9a and D-9b.

DATE: April 25, 2017
TOTAL DEPTH: 400'
CAVED DEPTH: Not Applicable
DRY AUGER: Surface to 8'
WET ROTARY: 8' to 400'
BACKFILL: Cement-Bentonite Grout
LOGGER: E. Schulak

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LOG OF BORING NO. BH-02

STORM SURGE SUPPRESSION STUDY - GCCPRD

BRAZORIA, CHAMBERS, GALVESTON, HARRIS, JEFFERSON AND ORANGE COUNTIES, TEXAS

PLATE D-2a



DEPTH, FT	WATER LEVEL SYMBOL	SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 4a COORDINATES: N 29°1'49.24" W 94°5'31.77" SURFACE EL.: Not Available	STRATUM DEPTH, FT	CLASSIFICATION						SHEAR STRENGTH				
				STRATUM DESCRIPTION		UNIT DRY WT, PCF	PASSING NO. 200 SIEVE, %	WATER CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT				
												0.5	1.0	1.5	2.0	2.5
				SANDY CLAY, firm, olive gray												
45				- with shell fragments below 45'												
				SAND, medium dense, fine-grained, olive gray	47.0											
50			20													
55			21													
60			16				6									
65			19													
70			13	- with shell fragments below 68'												
75			9	- loose below 73.5'												
				CLAY, firm, dark gray, with sand pockets	78.0											
NOTES: 1. ▽: Water First Noticed. ▼: Depth To Water after 15 minutes. 2. WOH: Weight of Hammer. 3. Boring coordinates were obtained with a hand-held GPS device. 4. Terms and symbols are presented on Plates D-9a and D-9b.												DATE: April 25, 2017 TOTAL DEPTH: 400' CAVED DEPTH: Not Applicable DRY AUGER: Surface to 8' WET ROTARY: 8' to 400' BACKFILL: Cement-Bentonite Grout LOGGER: E. Schulak				

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LOG OF BORING NO. BH-02
STORM SURGE SUPPRESSION STUDY - GCCPRD
BRAZORIA, CHAMBERS, GALVESTON, HARRIS, JEFFERSON AND ORANGE COUNTIES, TEXAS
PLATE D-2b



DEPTH, FT	WATER LEVEL SYMBOL SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 4a COORDINATES: N 29°1'49.24" W 94°5'31.77" SURFACE EL.: Not Available	STRATUM DEPTH, FT	CLASSIFICATION						SHEAR STRENGTH				
					UNIT DRY WT, PCF	PASSING NO. 200 SIEVE, %	WATER CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT				
											0.5	1.0	1.5	2.0	2.5
85			CLAY, firm, dark gray, with sand pockets - stiff to very stiff below 83' - greenish gray, 83' to 88' - gray below 88'	107	87	21	57	14	43						3.0
90															
93.5		30	SAND, medium dense to dense, fine-grained, gray												
95															
100		35			6										
105															
108.0			SANDY CLAY, stiff, greenish gray, with calcareous nodules		59		46	13	33						
110															
115															
118.0		11	SILTY CLAY, stiff, gray, with sand seams		81		23	17	6						

NOTES:

1. ▽: Water First Noticed. ▼: Depth To Water after 15 minutes.
2. WOH: Weight of Hammer.
3. Boring coordinates were obtained with a hand-held GPS device.
4. Terms and symbols are presented on Plates D-9a and D-9b.

DATE: April 25, 2017
TOTAL DEPTH: 400'
CAVED DEPTH: Not Applicable
DRY AUGER: Surface to 8'
WET ROTARY: 8' to 400'
BACKFILL: Cement-Bentonite Grout
LOGGER: E. Schulak

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LOG OF BORING NO. BH-02

STORM SURGE SUPPRESSION STUDY - GCCPRD

BRAZORIA, CHAMBERS, GALVESTON, HARRIS, JEFFERSON AND ORANGE COUNTIES, TEXAS

PLATE D-2c



DEPTH, FT	WATER LEVEL SYMBOL SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 4a COORDINATES: N 29°1'49.24" W 94°5'31.77" SURFACE EL.: Not Available	STRATUM DEPTH, FT	CLASSIFICATION						SHEAR STRENGTH				
			STRATUM DESCRIPTION		UNIT DRY WT, PCF	PASSING NO. 200 SIEVE, %	WATER CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT				
											0.5	1.0	1.5	2.0	2.5
125			SILTY CLAY, firm, gray, with sand seams												
130				130.0											
135			SANDY CLAY, very stiff, gray												
140		22				56	22								
145															
150			CLAY, very stiff, greenish gray	148.0	106	75	22	59	13	46					
155															
		5	- firm, tan, with calcium nodules, 158.5' to 168'												
NOTES: 1. : Water First Noticed. : Depth To Water after 15 minutes. 2. WOH: Weight of Hammer. 3. Boring coordinates were obtained with a hand-held GPS device. 4. Terms and symbols are presented on Plates D-9a and D-9b.										DATE: April 25, 2017 TOTAL DEPTH: 400' CAVED DEPTH: Not Applicable DRY AUGER: Surface to 8' WET ROTARY: 8' to 400' BACKFILL: Cement-Bentonite Grout LOGGER: E. Schulak					

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STORM SURGE SUPPRESSION STUDY - GCCPRD
BRAZORIA, CHAMBERS, GALVESTON, HARRIS, JEFFERSON AND ORANGE COUNTIES, TEXAS
PLATE D-2d



DEPTH, FT	WATER LEVEL SYMBOL SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 4a COORDINATES: N 29°1'49.24" W 94°5'31.77" SURFACE EL.: Not Available	STRATUM DEPTH, FT	CLASSIFICATION						SHEAR STRENGTH				
			STRATUM DESCRIPTION		UNIT DRY WT, PCF	PASSING NO. 200 SIEVE, %	WATER CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT				
											0.5	1.0	1.5	2.0	2.5
165			CLAY, firm, tan - with calcium nodules to 168'												
170			- greenish gray and tan, 168' to 178' - stiff, 169' to 219'			97		79	19	60					
175															
180			- greenish gray, 178' to 191'												
185															
190		6	- firm at 191' - tan and gray, 191' to 198' - with silt seams, 191' to 208'												
195			- gray, 198' to 208' - very stiff at 199'												
NOTES: 1. ▽: Water First Noticed. ▼: Depth To Water after 15 minutes. 2. WOH: Weight of Hammer. 3. Boring coordinates were obtained with a hand-held GPS device. 4. Terms and symbols are presented on Plates D-9a and D-9b.					DATE: April 25, 2017 TOTAL DEPTH: 400' CAVED DEPTH: Not Applicable DRY AUGER: Surface to 8' WET ROTARY: 8' to 400' BACKFILL: Cement-Bentonite Grout LOGGER: E. Schulak										

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STORM SURGE SUPPRESSION STUDY - GCCPRD
BRAZORIA, CHAMBERS, GALVESTON, HARRIS, JEFFERSON AND ORANGE COUNTIES, TEXAS
PLATE D-2e



DEPTH, FT	WATER LEVEL SYMBOL SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 4a COORDINATES: N 29°1'49.24" W 94°5'31.77" SURFACE EL.: Not Available	STRATUM DEPTH, FT	CLASSIFICATION						SHEAR STRENGTH				
			STRATUM DESCRIPTION		UNIT DRY WT, PCF	PASSING NO. 200 SIEVE, %	WATER CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT				
			CLAY, very stiff, gray, - with silt seams to 208'								0.5	1.0	1.5	2.0	2.5
205															
210			- olive gray, 208' to 218'												
215															
220			- greenish gray, 218' to 228' - with sand pockets and seams, 218' to 278' - very stiff below 219'		88	98	34	88	24	64					3.2
225															
230			- gray, 228' to 238' - with calcareous nodules, 228' to 268'												
235															
			- gray and tan, 238' to 258'												

NOTES:

1. ∇ : Water First Noticed. $\blacktriangledown$: Depth To Water after 15 minutes.
2. WOH: Weight of Hammer.
3. Boring coordinates were obtained with a hand-held GPS device.
4. Terms and symbols are presented on Plates D-9a and D-9b.

DATE: April 25, 2017
TOTAL DEPTH: 400'
CAVED DEPTH: Not Applicable
DRY AUGER: Surface to 8'
WET ROTARY: 8' to 400'
BACKFILL: Cement-Bentonite Grout
LOGGER: E. Schulak

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STORM SURGE SUPPRESSION STUDY - GCCPRD

BRAZORIA, CHAMBERS, GALVESTON, HARRIS, JEFFERSON AND ORANGE COUNTIES, TEXAS

PLATE D-2f



DEPTH, FT	WATER LEVEL SYMBOL	SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 4a COORDINATES: N 29°1'49.24" W 94°5'31.77" SURFACE EL.: Not Available	STRATUM DEPTH, FT	CLASSIFICATION						SHEAR STRENGTH				
				STRATUM DESCRIPTION		UNIT DRY WT, PCF	PASSING NO. 200 SIEVE, %	WATER CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT				
												0.5	1.0	1.5	2.0	2.5
245				CLAY, very stiff, gray and tan - with calcareous nodules to 268' - with sand pockets and seams to 278'												
250																
255																
260				- tan and greenish gray, 258' to 268' - stiff at 259'												
265																
270				- red and greenish gray, 268' to 278.5'												
275																
			16	- greenish gray, 278.5' to 288'												
NOTES: 1. ▽: Water First Noticed. ▼: Depth To Water after 15 minutes. 2. WOH: Weight of Hammer. 3. Boring coordinates were obtained with a hand-held GPS device. 4. Terms and symbols are presented on Plates D-9a and D-9b.						DATE: April 25, 2017 TOTAL DEPTH: 400' CAVED DEPTH: Not Applicable DRY AUGER: Surface to 8' WET ROTARY: 8' to 400' BACKFILL: Cement-Bentonite Grout LOGGER: E. Schulak										

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STORM SURGE SUPPRESSION STUDY - GCCPRD
BRAZORIA, CHAMBERS, GALVESTON, HARRIS, JEFFERSON AND ORANGE COUNTIES, TEXAS
PLATE D-2g



DEPTH, FT	WATER LEVEL SYMBOL	SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 4a COORDINATES: N 29°1'49.24" W 94°5'31.77" SURFACE EL.: Not Available	STRATUM DEPTH, FT	CLASSIFICATION						SHEAR STRENGTH				
				STRATUM DESCRIPTION		UNIT DRY WT, PCF	PASSING NO. 200 SIEVE, %	WATER CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT				
				CLAY, very stiff, greenish gray								0.5	1.0	1.5	2.0	2.5
285																
290				- brownish gray, 288' to 298' - with silt partings, 288' to 308' - with shell fragments, 288' to 298'		94	100	30	74	20	54					□+ 3.7●
295																
300				- red and greenish gray, 298' to 308'												□+
305																
310			40	- brown and greenish gray, 308' to 314' - with sand seams, 308' to 314'			91		24	15	9					□+
315				- greenish gray and red, with calcareous nodules, 314' to 338'												
NOTES: 1. ▽: Water First Noticed. ▼: Depth To Water after 15 minutes. 2. WOH: Weight of Hammer. 3. Boring coordinates were obtained with a hand-held GPS device. 4. Terms and symbols are presented on Plates D-9a and D-9b.						DATE: April 25, 2017 TOTAL DEPTH: 400' CAVED DEPTH: Not Applicable DRY AUGER: Surface to 8' WET ROTARY: 8' to 400' BACKFILL: Cement-Bentonite Grout LOGGER: E. Schulak										

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STORM SURGE SUPPRESSION STUDY - GCCPRD
BRAZORIA, CHAMBERS, GALVESTON, HARRIS, JEFFERSON AND ORANGE COUNTIES, TEXAS
PLATE D-2h

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PLATE D-2i



DEPTH, FT	WATER LEVEL SYMBOL SAMPLES	BLOWS PER FOOT	LOCATION: See Plate 4a COORDINATES: N 29°1'49.24" W 94°5'31.77" SURFACE EL.: Not Available	STRATUM DEPTH, FT	CLASSIFICATION						SHEAR STRENGTH				
			STRATUM DESCRIPTION		UNIT DRY WT, PCF	PASSING NO. 200 SIEVE, %	WATER CONTENT, %	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX (PI)	KIPS PER SQ FT				
											0.5	1.0	1.5	2.0	2.5
365			CLAY, very stiff, greenish gray, with silt pockets and seams - with sand pockets to 378'												
370		50/6"													
375															
380		22	- with shell fragments, 378' to 388'												
385															
390			- hard at 390'		114	79	17	36	15	21					
395															
		18													

NOTES:

1. ∇ : Water First Noticed. $\blacktriangledown$: Depth To Water after 15 minutes.
2. WOH: Weight of Hammer.
3. Boring coordinates were obtained with a hand-held GPS device.
4. Terms and symbols are presented on Plates D-9a and D-9b.

DATE: April 25, 2017
TOTAL DEPTH: 400'
CAVED DEPTH: Not Applicable
DRY AUGER: Surface to 8'
WET ROTARY: 8' to 400'
BACKFILL: Cement-Bentonite Grout
LOGGER: E. Schulak

□+
7.2

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LOG OF BORING NO. BH-02

STORM SURGE SUPPRESSION STUDY - GCCPRD

BRAZORIA, CHAMBERS, GALVESTON, HARRIS, JEFFERSON AND ORANGE COUNTIES, TEXAS

PLATE D-2j