

Boring Designation EC-13-B-1

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : NAD83 VERTICAL : MLLW
2. HOLE NUMBER EC-13-B-1	LOCATION COORDINATES N 329010.73 E 2360006.15	10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	12. TOTAL SAMPLES DISTURBED : 6 UNDISTURBED : 0
4. NAME OF DRILLER John Haskew		13. TOTAL NUMBER CORE BOXES : 0	14. ELEVATION GROUND WATER : See Remarks
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL : ---	BEARING : ---
6. THICKNESS OF OVERBURDEN : 9'		15. DATE BORING STARTED : 8/28/13 COMPLETED : 8/28/13	16. ELEVATION TOP OF BORING : 0' MLLW
7. DEPTH DRILLED INTO ROCK		17. TOTAL CORE RECOVERY FOR BORING : N/A	
8. TOTAL DEPTH OF BORING : 61.0'		18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-value		
	50.0	Wavy pattern	0.0' TO -51.8' WATER OCEAN BOTTOM @ -51.8' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.				
	52.0	Vertical lines	ML, Brown, nonplastic, SILT, trace shell fragments, very stiff, inelastic..		52 SPT 1 Jar	(51.8-52) Set 67.0' of 8-in diameter casing, with 1.7' stickup from deck of jack-up barge. Mudline was sounded inside casing at 64.2' depth, corrected to 51.8' MLLW. Conduct SPT sampling. WOR, splitspoon sinks 0.2'.	7 6 10	16		
	54.0	Vertical lines	53.5', Dark brown, some fine sand, very soft.		53.5 SPT 2 Jar	(52-61) Conduct continuous SPT sampling.; Lab = (ML); LL = 44%; PL = 31%; PI = 13 Sandy Inorganic Silt Low LL (ML), with a trace of gravel.	WOH	0		
	56.0	Vertical lines	55', Dark brown to brown, weak cementation, contains cemented sands..		55 SPT 3 Jar		WOH	0		
	58.0	Vertical lines	56.5', soft.		56.5 SPT 4 Jar	Lab = (SM); LL = 41%; PL = 36%; PI = 5 Silty Sand (SM).	1 2 2	4		
	60.0	Vertical lines	58', little fine sand, trace clay, very soft.		58 SPT 5 Jar		0 0 4	4		
	61.0	Vertical lines	59.5', trace fine sand, stiff.		59.5 SPT 6 Jar		2 4 6	10		
			BOTTOM OF BOREHOLE AT 61.0 ft							

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



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Boring Designation EC-13-B-2

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-2		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER John Haskew		12. TOTAL SAMPLES	DISTURBED : UNDISTURBED 5 : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	0
DEG FROM VERTICAL : BEARING --- : ---		14. ELEVATION GROUND WATER See Remarks	
6. THICKNESS OF OVERBURDEN 7.5'		15. DATE BORING	STARTED : COMPLETED 8/29/13 : 8/29/13
7. DEPTH DRILLED INTO ROCK		16. ELEVATION TOP OF BORING 0' MLLW	
8. TOTAL DEPTH OF BORING 60.4'		17. TOTAL CORE RECOVERY FOR BORING N/A	
18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-value
	50.0	Wavy pattern	0.0' TO -52.6' WATER			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
	52.0		OCEAN BOTTOM @ -52.6' MLLW					
-52.6		Vertical lines	ML, Dark brown, nonplastic, SANDY SILT, little shell fragments, very soft, moist.		52.9	(52.6-52.9) Set 75.3' of 8-in diameter casing, with 1.7' stickup from deck of jack-up barge. Mudline was sounded inside casing at 71.9' depth, corrected to 52.6' MLLW. WOR; splitspoon sinks 0.3'.	WOH	0
	54.0		54.4', trace shell fragments.		54.4	(52.9-54.4) WOH; clean out to 54.4'; Sample Note: Very soft (54.4-55.9) WOR first 6", then WOH remaining 12".	WOH	0
	56.0		55.9', no shell fragments, very stiff.		55.9	Clean out to 59.9'; Sample Note: Very soft		
	58.0		57.4', medium stiff.		57.4	(55.9-60.4) Conduct continuous SPT sampling.; Lab = (MH); LL = 50%; PL = 45%; PI = 5; MC = 33%; Sandy Inorganic Silt High LL (MH).	2 8 10	18
	60.0		58.9', very soft.		58.9	Sample Note: Very soft	3 3 3	6
-60.4	60.0				60.4		1 0 0 WOR	0

BOTTOM OF BOREHOLE AT 60.4 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



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Boring Designation EC-13-B-3

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-3		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER John Haskew		12. TOTAL SAMPLES	DISTURBED : UNDISTURBED 4 : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	0
6. THICKNESS OF OVERBURDEN 6.9'		14. ELEVATION GROUND WATER	See Remarks
7. DEPTH DRILLED INTO ROCK		15. DATE BORING	STARTED : COMPLETED 8/16/13 : 8/16/13
8. TOTAL DEPTH OF BORING 63.3'		16. ELEVATION TOP OF BORING	0' MLLW
		17. TOTAL CORE RECOVERY FOR BORING	N/A
		18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-value
	54.0	Wavy pattern	0.0' TO -56.4' WATER OCEAN BOTTOM @ -56.4' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
-56.4		Vertical lines	ML, Brown to dark brown, nonplastic, SANDY SILT, very soft, moist, inelastic..	[3] tsf	56.4 1 Jar	(56.4-56.9) Set 76.3' of 8-in diameter casing, with 1.5' stickup from deck of jack-up barge. Mudline was sounded inside casing at 72.1' depth, corrected to 56.37' MLLW. WOH; Splitspoon sinks 0.5' to 56.9'. Apply 2 blows from hammer to seat 1st sample, 0.2 feet.; Sample Note: Average HP	WOH	0
	57.3		57.3', Brown, stiff.	[3.25] tsf	57.3 2 Jar	(56.9-57.3) Clean out	4 6 7	13
	58.0		58.8', Brown mottled with dark brown.	[0.5] tsf	58.8 3 Jar	(57.3-63.3) Conduct continuous SPT sampling.; Sample Note: Average HP; Lab = (ML); LL = 47%; PL = 41%; PI = 6 Sandy Inorganic Silt Low LL (ML). Lab = (SM); MC = 36%; Silty Sand (SM).	4 5 6	11
	60.0		60.3', Brown, soft.	[0.5] tsf	60.3 4 Jar		2 1 3	4
	62.0		61.8', medium stiff.	[1.25] tsf	61.8 5 Jar		2 2 3	5
-63.3					63.3			

BOTTOM OF BOREHOLE AT 63.3 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

(63.3-) Terminated boring early due to incliment weather and wave conditions.

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



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Boring Designation EC-13-B-4

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-4		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER John Haskew		12. TOTAL SAMPLES	DISTURBED : UNDISTURBED 10 : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	0
6. THICKNESS OF OVERBURDEN 19'		14. ELEVATION GROUND WATER	See Remarks
7. DEPTH DRILLED INTO ROCK		15. DATE BORING	STARTED : COMPLETED 8/13/13 : 8/13/13
8. TOTAL DEPTH OF BORING 72.2'		16. ELEVATION TOP OF BORING	0' MLLW
		17. TOTAL CORE RECOVERY FOR BORING	N/A
		18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	52.0	Wavy pattern	0.0' TO -53.2' WATER OCEAN BOTTOM @ -53.2' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
	54.0	Vertical lines	SM , Brown, fine grained, SILTY SAND, trace shell fragments, very loose, wet.		SPT 1 Jar	(53.2-54.7) 53.2-54.7' WOR; splitspoon sinks 1.5' to 54.7', clean out to 55.5'. Set 69.3' of 8-in diameter casing, with 1.5' stickup from deck of jack-up barge. Mudline was sounded inside casing at 67.0' depth, corrected to 53.23' MLLW. (55-57) Conduct SPT sampling, clean out to 57.7'. Lab = (SM) Silty Sand (SM).	WOR	
	55.5	X	Fishtailed from 54.7' to 55.5'. No sample taken.					
	56.0	Vertical lines	55.5', no shell fragments.		SPT 2 Jar		2 1 2	3
	57.7	X	Fishtailed from 57' to 57.7'. No sample taken.					
	58.0	Vertical lines			SPT 3 Jar	(57.7-63.7) Conduct continuous SPT sampling.	1 2 2	4
	60.0	Vertical lines			SPT 4 Jar	Lab = (SM) Silty Sand (SM).	2 2 3	5
	62.0	Vertical lines			SPT 5 Jar		0 3 5	8
	63.0	Vertical lines	ML , Brown mottled with dark brown, nonplastic, SANDY SILT, very stiff, moist.	[1.25] tsf	SPT 6 Jar	Lab = (ML) (Visual) Sandy Inorganic Silt Low LL (ML).	9 11 10	21
	64.0	X	Fishtailed from 63' to 66.2'. No sample taken.					



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DRILLING LOG (Cont Sheet)		INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS	
PROJECT Charleston Harbor Entrance Channel Deepening		COORDINATE SYSTEM State Plane		HORIZONTAL : VERTICAL NAD83 : MLLW	
LOCATION COORDINATES N 326646.27 E 2364895.44		ELEVATION TOP OF BORING 0'			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
-66.2	66.0		Fishtailed from 63' to 66.2'. No sample taken.			(63.7-) Emergency raise on jack-up ship; advance casing and clean out to 66.2'.		
			ML , Brown mottled with dark brown, nonplastic, SANDY SILT, medium stiff, moist.	[0.5] tsf	SPT 7 Jar	(66.2-77.2) Conduct continuous SPT sampling.	2 2 3	5
	68.0		67.7', Brown.	[0.5] tsf	SPT 8 Jar		2 2 3	5
	70.0			[0.75] tsf	SPT 9 Jar		2 2 3	5
	72.0		70.7', stiff.	[1.5] tsf	SPT 10 Jar		4 6 9	15

BOTTOM OF BOREHOLE AT 72.2 ft

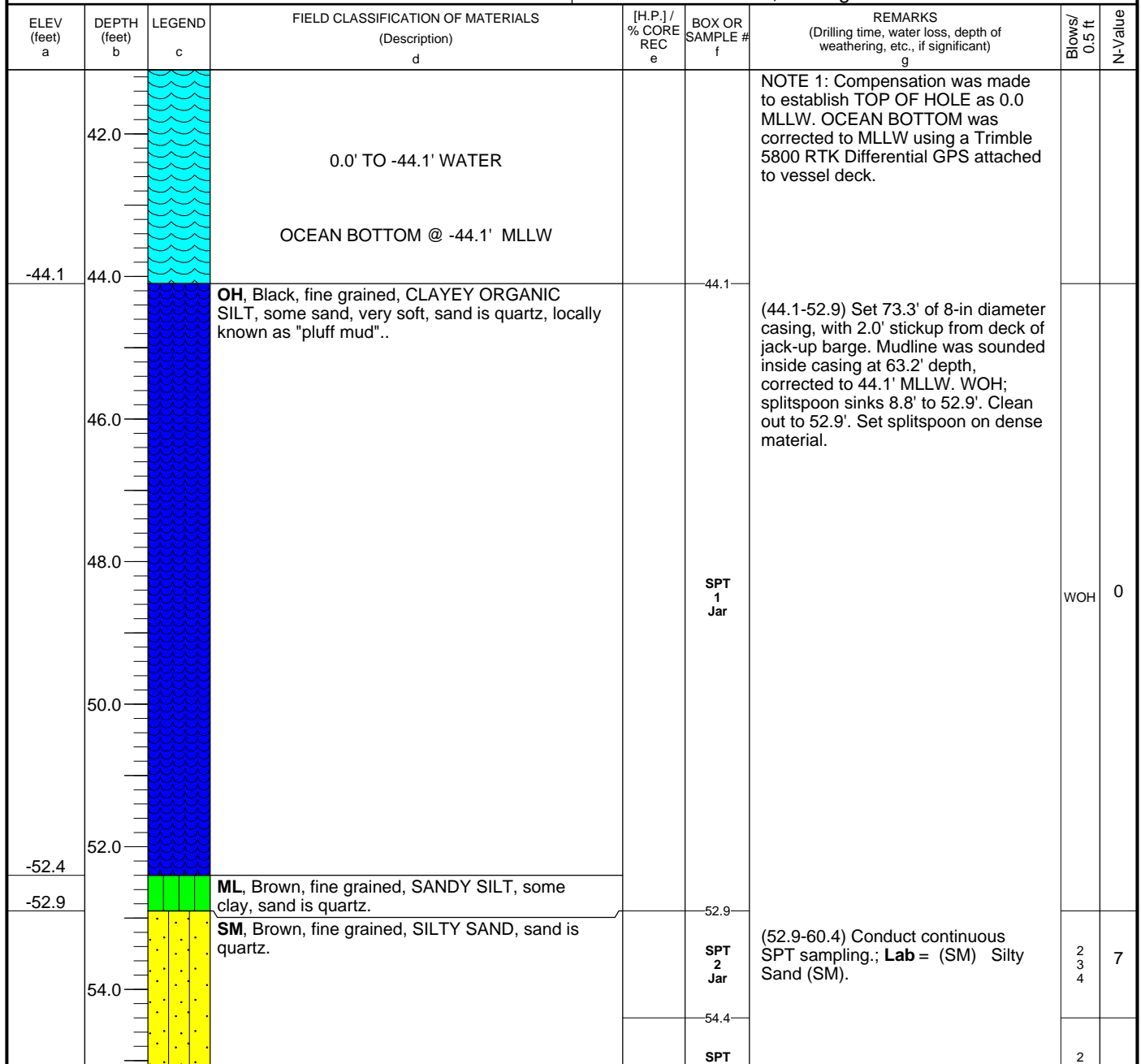
SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



Boring Designation EC-13-B-5

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : NAD83 VERTICAL : MLLW
2. HOLE NUMBER EC-13-B-5		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER Danny Hewlett		12. TOTAL SAMPLES	DISTURBED : 6 UNDISTURBED : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	0
DEG FROM VERTICAL : ---		14. ELEVATION GROUND WATER : See Remarks	
6. THICKNESS OF OVERBURDEN : 16.8'		15. DATE BORING	STARTED : 8/14/13 COMPLETED : 8/14/13
7. DEPTH DRILLED INTO ROCK : 0.0'		16. ELEVATION TOP OF BORING : 0' MLLW	
8. TOTAL DEPTH OF BORING : 60.4'		17. TOTAL CORE RECOVERY FOR BORING : N/A	
18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist			



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VERSION: Draft

DRILLING LOG (Cont Sheet)		INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS
PROJECT Charleston Harbor Entrance Channel Deepening		COORDINATE SYSTEM State Plane	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES N 324770.21 E 2368233.14		ELEVATION TOP OF BORING 0'		

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value	
	56.0	SM	SM, Brown, fine grained, SILTY SAND, sand is quartz.		3 Jar	Lab = (SM) Silty Sand (SM).	3	8	
					55.9		SPT 4 Jar	2	5
	58.0				57.4		SPT 5 Jar	2	3
	60.0				58.9		SPT 6 Jar	2	5
-60.4			BOTTOM OF BOREHOLE AT 60.4 ft		60.4				

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



Boring Designation EC-13-B-6

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : NAD83 VERTICAL : MLLW
2. HOLE NUMBER EC-13-B-6		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon	
LOCATION COORDINATES N 324221.53 E 2369212.89		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
3. DRILLING AGENCY USACE, Savannah District		12. TOTAL SAMPLES	DISTURBED : 7 UNDISTURBED : 0
4. NAME OF DRILLER Danny Hewlett		13. TOTAL NUMBER CORE BOXES : 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		14. ELEVATION GROUND WATER : See Remarks	
DEG FROM VERTICAL : ---		15. DATE BORING : STARTED 8/14/13 COMPLETED 8/14/13	
6. THICKNESS OF OVERBURDEN : 18.6'		16. ELEVATION TOP OF BORING : 0' MLLW	
7. DEPTH DRILLED INTO ROCK : 0.0'		17. TOTAL CORE RECOVERY FOR BORING : N/A	
8. TOTAL DEPTH OF BORING : 61.8'		18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	42.0	Wavy pattern	0.0' TO -43.2' WATER OCEAN BOTTOM @ -43.2' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
	44.0	Wavy pattern	OH , Black, fine grained, ORGANIC SILT, with clay, some sand, very soft, locally known as "pluff mud"..		SPT 1 Jar	(43.2-52.3) Set 73.3' of 8-in diameter casing, with 2.0' stickup from deck of jack-up barge. Mudline was sounded inside casing at 62.4' depth, corrected to 43.2' MLLW. WOH; splitspoon sinks 9.1' to 52.3'. Clean out to 52.3'.	WOH	0
	52.0	Vertical lines	ML , Olive brown, fine grained, nonplastic, SANDY SILT, some clay, stiff, sand is quartz.		SPT 2 Jar	(52.3-53.8) Set splitspoon on dense material. Conduct SPT sampling. Clean out to 54.3'; LL = 63%; PL = 43%; PI = 20 Silty Sand High LL (SM-H).	2 4 5	9
	54.0							



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DRILLING LOG (Cont Sheet)		INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS
PROJECT Charleston Harbor Entrance Channel Deepening		COORDINATE SYSTEM State Plane	HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES N 324221.53 E 2369212.89		ELEVATION TOP OF BORING 0'		

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value	
-54.3			SM , Brown, fine grained, SILTY SAND, loose, sand is quartz.		54.3	(54.3-61.8) Conduct continuous SPT sampling.; LL = 75%; PL = 58%; PI = 17 Silty Sand High LL (SM-H).	2	7	
	56.0				SPT 3 Jar		3		
					55.8		SPT 4 Jar		4
	58.0				57.3		SPT 5 Jar		5
					58.8		SPT 6 Jar		3
	60.0				60.3		SPT 7 Jar		1
					61.8				3
-61.8							1	4	

BOTTOM OF BOREHOLE AT 61.8 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



Boring Designation EC-13-B-7

DRILLING LOG		DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83		HORIZONTAL NAD83
2. HOLE NUMBER EC-13-B-7		LOCATION COORDINATES N 323693.36 E 2369961		VERTICAL MLLW
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon
4. NAME OF DRILLER Danny Hewlett		12. TOTAL SAMPLES 9		DISTURBED 9
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL	BEARING	UNDISTURBED 0
6. THICKNESS OF OVERBURDEN 20.8'		13. TOTAL NUMBER CORE BOXES 0		14. ELEVATION GROUND WATER See Remarks
7. DEPTH DRILLED INTO ROCK 0.0'		15. DATE BORING 8/10/13		STARTED 8/10/13
8. TOTAL DEPTH OF BORING 65.0'		16. ELEVATION TOP OF BORING 0' MLLW		COMPLETED 8/10/13
		17. TOTAL CORE RECOVERY FOR BORING N/A		18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
	42.0		0.0' TO -44.2' WATER OCEAN BOTTOM @ -44.2' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
-44.2	44.0		OH, Black, ORGANIC SILT, little fine sand, with shell fragments, very soft, wet, locally known as "pluff mud"..		44.2	(44.2-52.4) Set 69.3' of 8-in diameter casing, with 1.5' stickup from deck of jack-up barge. Mudline was sounded inside casing at 60.6' depth, corrected to 44.2' MLLW. WOR; splitspoon sinks 8.2' to 53.4'. Clean out to 53.4'.		
	46.0				SPT 1A Jar		WOR	0
	48.0							
	50.0							
-52.4	52.0		ML, Olive brown, LEAN SILT, little fine sand, very soft.		52.4			
	54.0		53.4', medium stiff.		SPT 1B Jar		WOR	0
				[1.5] tsf	SPT 2 Jar	(53.4-54.9) Set splitspoon on dense material. Conduct SPT sampling. Clean out to 55.2'; Lab = (SM) Silty Sand (SM).	3 3 4	7
					54.9			



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DRILLING LOG (Cont Sheet)		INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS	
PROJECT Charleston Harbor Entrance Channel Deepening		COORDINATE SYSTEM State Plane		HORIZONTAL : VERTICAL NAD83 : MLLW	
LOCATION COORDINATES N 323693.36 E 2369961		ELEVATION TOP OF BORING 0'			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	56.0	ML	ML, Olive brown, LEAN SILT, little fine sand, very soft. 55.2', stiff.	[1.5] tsf	SPT 3 Jar	(55.2-59.7) Conduct continuous SPT sampling. Clean out to 60.2'.	4 4 6	10
	58.0		58.2', some fine sand, medium stiff.	[1.5] tsf	SPT 4 Jar	Lab = (SM) Silty Sand (SM).	3 4 5	9
	60.0		60.2', Dark brown, SANDY CLAYEY SILT, Sand is quartz.	[1.5] tsf	SPT 5 Jar		2 3 3	6
	-61.8				[1] tsf	SPT 6 Jar	(60.2-61.7) Conduct SPT sampling. Clean out to 61.8'	2 3 4
	62.0	SM	SM, Dark brown, fine grained, SILTY SAND, loose.	[0.5] tsf	SPT 7 Jar	(61.8-63.3) Conduct SPT sampling. Clean out to 63.5'; Lab = (SM) Silty Sand (SM).	2 2 3	5
	64.0		63.3', very loose.		SPT 8 Jar	(63.5-65) Conduct SPT sampling.	1 2 1	3
	-65.0							

BOTTOM OF BOREHOLE AT 65.0 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



Boring Designation EC-13-B-8

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : NAD83 VERTICAL : MLLW
2. HOLE NUMBER EC-13-B-8		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER Danny Hewlett		12. TOTAL SAMPLES	DISTURBED : 7 UNDISTURBED : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	0
6. THICKNESS OF OVERBURDEN 19.3'		14. ELEVATION GROUND WATER	See Remarks
7. DEPTH DRILLED INTO ROCK 0.0'		15. DATE BORING	STARTED : 8/11/13 COMPLETED : 8/11/13
8. TOTAL DEPTH OF BORING 63.2'		16. ELEVATION TOP OF BORING	0' MLLW
		17. TOTAL CORE RECOVERY FOR BORING	N/A
		18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	42.0		0.0' TO -43.9' WATER OCEAN BOTTOM @ -43.9' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
-43.9	44.0		OH, Black, fine grained, ORGANIC SILT, very soft, locally known as "pluff mud"..			(43.9-52.7) Set 69.3' of 8-in diameter casing, with 2.0' stickup from deck of jack-up barge. Mudline was sounded inside casing at 60.7' depth, corrected to 43.9' MLLW. WOR; splitspoon sinks 8.8' to 52.7'. Clean out to 52.7'.		
	46.0							
	48.0							
	50.0							
	52.0							
-52.7	54.0		ML, Olive brown, fine grained, SANDY SILT, stiff.		52.7	(52.7-63.2) Set splitspoon on dense material. Conduct continuous SPT sampling.	4 4 6	10
					54.2	Lab = (MH) (Visual) Sandy Inorganic Silt High LL (MH).	3	



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DRILLING LOG (Cont Sheet)		INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS	
PROJECT Charleston Harbor Entrance Channel Deepening		COORDINATE SYSTEM State Plane		HORIZONTAL : VERTICAL NAD83 : MLLW	
LOCATION COORDINATES N 322537.51 E 2370746.43		ELEVATION TOP OF BORING 0'			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	56.0		ML, Olive brown, fine grained, SANDY SILT, stiff.		2 Jar		3	9
					55.7			
			57.2', medium stiff.		SPT 3 Jar		4	12
					57.2			
	58.0		58.7', with silty sand strata or lenses, some clay, (contains fine quartz sand)..		SPT 4 Jar	Lab = (SM); LL = 64%; PL = 49%; PI = 15 Silty Sand High LL (SM-H).	2	7
					58.7			
					SPT 5 Jar		2	7
					60.2			
					SPT 6 Jar	Lab = (SM) Silty Sand (SM).	2	7
					61.7			
					SPT 7 Jar		2	5
					63.2			

BOTTOM OF BOREHOLE AT 63.2 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



Boring Designation EC-13-B-9

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-9		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon	
LOCATION COORDINATES N 321793.09 E 2372138.84		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
3. DRILLING AGENCY USACE, Savannah District		12. TOTAL SAMPLES	DISTURBED : UNDISTURBED 9 : 0
4. NAME OF DRILLER Danny Hewlett		13. TOTAL NUMBER CORE BOXES 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		14. ELEVATION GROUND WATER See Remarks	
DEG FROM VERTICAL --- BEARING		15. DATE BORING	
		STARTED : COMPLETED 8/11/13 : 8/11/13	
6. THICKNESS OF OVERBURDEN 21.7'		16. ELEVATION TOP OF BORING 0' MLLW	
7. DEPTH DRILLED INTO ROCK 0.0'		17. TOTAL CORE RECOVERY FOR BORING N/A	
8. TOTAL DEPTH OF BORING 64.9'		18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	42.0	Wavy pattern	0.0' TO -43.2' WATER OCEAN BOTTOM @ -43.2' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
	44.0	Wavy pattern	OH , Black, fine grained, ORGANIC SILT, some sand, some clay, some shell fragments, locally known as "pluff mud"..		SPT 1 Jar	(43.2-52.4) Set 69.3' of 8-in diameter casing, with 2.2' stickup from deck of jack-up barge. Mudline was sounded inside casing at 58.8' depth, corrected to 43.2' MLLW. WOR; splitspoon sinks 9.2' to 52.4'. Clean out to 52.9'.	WOH	0
	52.0	Vertical lines	ML , Olive brown, fine grained, SANDY SILT, some clay, stiff.		SPT 2 Jar	(52.9-64.9) Set splitspoon on dense material. Conduct continuous SPT sampling.; Lab = (MH); LL = 96%; PL = 52%; PI = 44 Inorganic Silt	2 3 5	8
	54.0							



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DRILLING LOG (Cont Sheet)		INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS	
PROJECT Charleston Harbor Entrance Channel Deepening		COORDINATE SYSTEM State Plane		HORIZONTAL : VERTICAL NAD83 : MLLW	
LOCATION COORDINATES N 321793.09 E 2372138.84		ELEVATION TOP OF BORING 0'			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
			ML , Olive brown, fine grained, SANDY SILT, some clay, stiff. 54.4', few silty sand strata or lenses, (sand component composed of very fine-grained quartz sand)..		-54.4	High LL (MH), with some sand.		
					SPT 3 Jar		2 4 5	9
	56.0		55.9', no silty sand strata or lenses, no clay.		55.9	Lab = (MH) (Visual) Inorganic Silt High LL (MH), with some sand.		
					SPT 4 Jar		2 4 6	10
	58.0				57.4			
					SPT 5 Jar		2 4 5	9
					58.9	Lab = (MH) (Visual) Sandy Inorganic Silt High LL (MH).		
	60.0				SPT 6 Jar		2 4 7	11
			60.4', medium stiff.		60.4			
					SPT 7 Jar		3 3 4	7
	62.0				61.9	Lab = (SM); LL = 94%; PL = 63%; PI = 31 Silty Sand High LL (SM-H).		
					SPT 8 Jar		2 3 4	7
			63.4', some clay.		63.4			
	64.0				SPT 9 Jar		2 3 5	8
	-64.9				64.9			

BOTTOM OF BOREHOLE AT 64.9 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



Boring Designation EC-13-B-10

DRILLING LOG		DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83		HORIZONTAL VERTICAL NAD83 MLLW
2. HOLE NUMBER EC-13-B-10		LOCATION COORDINATES N 322083.95 E 2373090.48		10. SIZE AND TYPE OF BIT 1-1/2" Fishtail & 1-3/8" Splitspoon
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500		12. TOTAL SAMPLES DISTURBED UNDISTURBED 10 0
4. NAME OF DRILLER John Haskew		13. TOTAL NUMBER CORE BOXES 0		14. ELEVATION GROUND WATER See Remarks
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL ---	BEARING	15. DATE BORING STARTED COMPLETED 8/11/13 8/11/13
6. THICKNESS OF OVERBURDEN 20'		16. ELEVATION TOP OF BORING 0' MLLW		17. TOTAL CORE RECOVERY FOR BORING N/A
7. DEPTH DRILLED INTO ROCK		18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist		
8. TOTAL DEPTH OF BORING 65.1'				

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
-42.0			0.0' TO -45' WATER OCEAN BOTTOM @ -45' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
-45.0			OL, Brown to black, CLAYEY ORGANIC SILT, little fine sand, very soft, wet.		45 SPT 1 Jar	(45-47) Set 71.3' of 8-in diameter casing, with 1.6' stickup from deck of jack-up barge. Mudline was sounded inside casing at 62.9' depth, corrected to 45.0' MLLW. Conduct SPT sampling. WOR; splitspoon sinks 2.0'. Clean out 2.1' to 47.1'; Sample Note: Overdrive by 0.6'.	WOR	0
-47.1			Zone of loss; OH Black ORGANIC SILTY CLAY on tip of sampling shoe. No Sample Recovered		47.1 NR 2 Jar	(47.1-49.1) WOR, complete sample loss, organic silt on outside of spoon. Clean out 1.0' to 50.1'. Extremely soft conditions.; Sample Note: No Recovery.	WOR	0
-49.1			Fishtailed from 49.1' to 50.1'. Soils not classified.		49.1			
-50.1			OH, Dark gray to black, SILTY ORGANIC CLAY, little fine sand, very soft, locally known as "puff mud"..		50.1 SPT 3A Jar	(50.1-52.6) Conduct SPT sampling. Clean out to 53.1'; Sample Note: Split sample 3A & 3B. Overdrive by 0.7'.	WOR	0
-52.3			GM, Gray to light gray, fine to coarse grained, SILTY GRAVEL, loose, (limestone gravel)..		52.3 3B	Lab = (SM) Gravelly Silty Sand (SM).	0 0 2	2
-53.1			CL, Brown, medium plasticity, SILTY LEAN CLAY, trace fine sand, very stiff.		53.1 SPT 4 Jar	Lab = (CH) Fat Clay (CH), with a little sand.	7 11 11	22
-54.0			54.6', with silty sand strata or lenses, stiff.	[1.25] tsf	54.6 SPT 5 Jar		2 3 6	9
-56.0								



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DRILLING LOG (Cont Sheet)	INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS
	PROJECT Charleston Harbor Entrance Channel Deepening	COORDINATE SYSTEM State Plane	HORIZONTAL : VERTICAL NAD83 : MLLW
LOCATION COORDINATES N 322083.95 E 2373090.48		ELEVATION TOP OF BORING 0'	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value	
56.0		CLAY	CL, Brown, medium plasticity, SILTY LEAN CLAY, trace fine sand, very stiff.		56.1	(56.6-59.6) Conduct SPT sampling. Clean out to 60.2'; Lab = (MH) Inorganic Silt High LL (MH), with some sand and a trace of gravel.			
			56.6', with sand strata or lenses, sand lenses 1/2" thick..	[1.25] tsf	SPT 6 Jar			2 2 6	8
58.0			58.1', no fine sand.	[1.75] tsf	SPT 7 Jar			3 4 5	9
60.0			60.2', trace fine sand.	[1.25] tsf	SPT 8 Jar		(60.2-63.2) Conduct SPT sampling. Clean out to 63.6'.	4 6 8	14
62.0				[1.5] tsf	SPT 9 Jar		Lab = (SM) Silty Sand (SM).	5 5 7	12
64.0				[1.5] tsf	SPT 10 Jar		(63.6-65.1) Conduct SPT sampling. Boring complete.	3 5 9	14
-65.1							65.1		

BOTTOM OF BOREHOLE AT 65.1 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



Boring Designation EC-13-B-11

DRILLING LOG		DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83		HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-11		LOCATION COORDINATES N 321139.58 E 2373373.41		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500		12. TOTAL SAMPLES DISTURBED : 5 UNDISTURBED : 0
4. NAME OF DRILLER Danny Hewlett		13. TOTAL NUMBER CORE BOXES 0		14. ELEVATION GROUND WATER See Remarks
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL ---	BEARING	15. DATE BORING STARTED : 8/12/13 COMPLETED : 8/12/13
6. THICKNESS OF OVERBURDEN 16.6'		16. ELEVATION TOP OF BORING 0' MLLW		17. TOTAL CORE RECOVERY FOR BORING N/A
7. DEPTH DRILLED INTO ROCK 0.0'		18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist		
8. TOTAL DEPTH OF BORING 61.8'				

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
-45.2	44.0		0.0' TO -45.2' WATER OCEAN BOTTOM @ -45.2' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
-55.1	46.0		OH, Very dark gray, fine grained, CLAYEY ORGANIC SILT, some sand, soft, locally known as "pluff mud"..		45.2	(45.2-56.8) Set 73.3' of 8-in diameter casing, with 2.2' stickup from deck of jack-up barge. Mudline was sounded inside casing at 63.4' depth, corrected to 45.2' MLLW. WOH; splitspoon sinks 10.6' to 55.8'. Clean out to 55.8'. 55.8-61.8' Conduct continuous SPT sampling.; Sample Note: Very soft, overdrove by 9.1'.	WOH	0
-55.8	50.0		SP, Olive gray, fine grained, POORLY GRADED SAND, with shell fragments, some organics.					
56.0	52.0		(Continued on next sheet)		55.8			



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DRILLING LOG (Cont Sheet)		INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS	
PROJECT Charleston Harbor Entrance Channel Deepening		COORDINATE SYSTEM State Plane		HORIZONTAL : VERTICAL NAD83 : MLLW	
LOCATION COORDINATES N 321139.58 E 2373373.41		ELEVATION TOP OF BORING 0'			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
-58.8	58.0		GM , Light brownish gray, fine to medium grained, SANDY GRAVEL, some shell fragments, limestone gravel <0.5in diameter, quartz sand.		SPT 2 Jar	Lab = (SM) Silty Sand (SM), with a little gravel.	3	12
					57.3		SPT 3 Jar	
-61.8	60.0		ML , Olive brown, fine grained, SANDY SILT, few clay, soft, few limestone fragments. 60.3', few sand strata or lenses.		SPT 4 Jar	Lab = (CH); LL = 74%; PL = 33%; PI = 41 Sandy Fat Clay (CH).	1	4
					60.3		[1] tsf SPT 5 Jar	
					61.8		3	7

BOTTOM OF BOREHOLE AT 61.8 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



DRILLING LOG (Cont Sheet)	INSTALLATION Charleston Harbor	SHEET 2 OF 2 SHEETS
PROJECT Charleston Harbor Entrance Channel Deepening	COORDINATE SYSTEM State Plane	HORIZONTAL : VERTICAL NAD83 : MLLW
LOCATION COORDINATES N 321595 E 2374017	ELEVATION TOP OF BORING 0'	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
-58.3	58.0		GM , Gray, GRAVELLY SAND, some shell fragments.		SPT 4 Jar	Lab = (SM) Silty Sand (SM), with a trace of gravel.	4 6 11	17
-60.3	60.0		SM , Gray, fine to medium grained, SILTY SAND, some shell fragments, gravel is limestone.		SPT 5 Jar		7 4 4	8
	62.0		ML , Brown, fine grained, SILT, some sand, with clay, few sand strata or lenses, stiff.		SPT 6 Jar	Lab = (SC) (Visual) Clayey Sand (SC).	2 1 2	3
-62.8	62.0			[2.5] tsf	SPT 7 Jar	Lab = (CH); LL = 100%; PL = 32%; PI = 68 Fat Clay (CH), with a little sand.	3 4 5	9

BOTTOM OF BOREHOLE AT 62.8 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



Boring Designation EC-13-B-13

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : NAD83 VERTICAL : MLLW
2. HOLE NUMBER EC-13-B-13		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER John Haskew		12. TOTAL SAMPLES	DISTURBED : 11 UNDISTURBED : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	0
6. THICKNESS OF OVERBURDEN 21'		14. ELEVATION GROUND WATER	See Remarks
7. DEPTH DRILLED INTO ROCK		15. DATE BORING	STARTED : 8/12/13 COMPLETED : 8/12/13
8. TOTAL DEPTH OF BORING 65.2'		16. ELEVATION TOP OF BORING	0' MLLW
		17. TOTAL CORE RECOVERY FOR BORING	N/A
		18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	42.0	Wavy pattern	0.0' TO -44.2' WATER OCEAN BOTTOM @ -44.2' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
-44.2	44.0	Wavy pattern	OH , Black, high plasticity, ORGANIC CLAY, with silty sand strata or lenses, very soft to soft, wet, (puff mud)..		44.2	(44.2-51.6) Set 69.3' of 8-in diameter casing, with 1.8' stickup from deck of jack-up barge. Mudline was sounded inside casing at 62.0' depth, corrected to 44.2' MLLW. WOR; splitspoon sinks 7.0'. Clean out 7.4 feet to 51.6'; Sample Note: Very soft, overdrive by 5.9'.	0 2 2	4
	46.0	Wavy pattern			SPT 1 Jar			
	48.0	Wavy pattern						
	50.0	Wavy pattern						
-51.6	52.0	Dotted pattern	SM , Light gray, fine to medium grained, SILTY SAND, trace fine to medium gravel, dense, wet, weak cementation.		51.6	(51.6-54.6) Conduct continuous SPT sampling. Clean out to 54.7'; Lab = (SM); MC = 25%; Silty Sand (SM), with a trace of gravel.	21 19 18	37
	53.1	Dotted pattern	53.1', little fine to medium gravel, medium dense.		53.1		14 10 8	18
	54.0	Dotted pattern			SPT 3 Jar			
	54.6	Dotted pattern	54.7', Gray to light gray, fine to coarse grained,		54.6			
	54.7	Dotted pattern			54.7			



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DRILLING LOG (Cont Sheet)		INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS	
PROJECT Charleston Harbor Entrance Channel Deepening		COORDINATE SYSTEM State Plane		HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES N 320567.11 E 2374430.48		ELEVATION TOP OF BORING 0'			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
	56.0	[Yellow background with dots]	some fine to medium gravel. SM , Light gray, fine to medium grained, SILTY SAND, trace fine to medium gravel, dense, wet, <u>weak cementation</u> .		SPT 4 Jar	(54.7-65.2) Conduct continuous SPT sampling.	2 11 9	20
	56.2		56.2', Gray to dark gray, trace shell fragments, little fine to medium gravel.		SPT 5 Jar		11 12 13	25
	58.0	[Yellow background with dots]	57.7', Gray, some shell fragments, trace fine to medium gravel.		SPT 6 Jar	Lab = (SM); MC = 31%; Silty Sand (SM), with a trace of gravel.	8 10 14	24
-59.2	59.2				SPT 7 Jar		7 10 7	17
	60.0	[Yellow background with circles]	GM , Light gray, fine to medium grained, SILTY GRAVEL, with fine to coarse sand, little shell fragments, medium dense, wet, weak cementation, (silty limestone gravel)..		SPT 8 Jar	Lab = (SM); MC = 32%; Silty Sand (SM), with a trace of gravel.	10 5 10	15
	62.0		62.2', Light gray to tannish gray, some shell fragments.		SPT 9 Jar		16 11 16	27
	64.0	[Yellow background with circles]	63.7', and fine to coarse sand, wet, (limestone-gravel), weakly cemented..		SPT 10A Jar	Sample Note: Split sample 10A & 10B	4 5 6	11
-64.5	64.5				SPT 10B Jar			
-65.2	65.2	[Yellow background with dots]	SM , Gray to tannish gray, fine to medium grained, SILTY SAND, little fine to medium gravel, loose, weak cementation.		SPT 10B Jar			

BOTTOM OF BOREHOLE AT 65.2 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



Boring Designation EC-13-B-14

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-14		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER Danny Hewlett		12. TOTAL SAMPLES	DISTURBED : UNDISTURBED 8 : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	0
DEG FROM VERTICAL : BEARING --- : ---		14. ELEVATION GROUND WATER	See Remarks
6. THICKNESS OF OVERBURDEN 19.9'		15. DATE BORING	STARTED : COMPLETED 8/13/13 : 8/13/13
7. DEPTH DRILLED INTO ROCK 0.0'		16. ELEVATION TOP OF BORING	0' MLLW
8. TOTAL DEPTH OF BORING 64.4'		17. TOTAL CORE RECOVERY FOR BORING	N/A
18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	42.0		0.0' TO -44.5' WATER			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
	44.0		OCEAN BOTTOM @ -44.5' MLLW					
-44.5			OH , Black, fine grained, CLAYEY ORGANIC SILT, with sand, with shell fragments, very soft, locally known as "pluff mud"..		44.5	(44.5-53.9) Set 71.3' of 8-in diameter casing, with 2.0' stickup from deck of jack-up barge. Mudline was sounded inside casing at 61.1' depth, corrected to 44.5' MLLW. Conduct SPT sampling. WOH; splitspoon sinks 9.4' to 53.9'. Clean out to 53.9'. Sample Note: Very soft, overdrive by 7.9'.		
	46.0							
	48.0							
	50.0				SPT 1 Jar		WOH	0
	52.0							
-53.6			SM , Dark gray, fine grained, SILTY SAND, sand is quartz and shells.		53.9			
-53.9			SW , Light gray, fine to coarse grained, well-graded, SAND, with shell fragments, sand is quartz and some limestone fragments.		55.4	(53.9-64.4) Set splitspoon on dense material. Conduct continuous SPT sampling.; Lab = (SP-SM) Poorly Graded Silty Sand (SP-SM).	5 10	20



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DRILLING LOG (Cont Sheet)		INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS	
PROJECT Charleston Harbor Entrance Channel Deepening		COORDINATE SYSTEM State Plane		HORIZONTAL : VERTICAL NAD83 : MLLW	
LOCATION COORDINATES N 320825.86 E 2375425.12		ELEVATION TOP OF BORING 0'			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value	
-56.9	56.0	SW	SW, Light gray, fine to coarse grained, well-graded, SAND, with shell fragments, sand is quartz and some limestone fragments.		SPT 3 Jar	Lab = (SP-SM) Poorly Graded Silty Sand (SP-SM).	3 6 7	13	
	58.0	SP	SP, Light gray, fine grained, poorly-graded, SAND, with shell fragments, with few black limestone fragments.		SPT 4 Jar		6 6 8	14	
					SPT 5 Jar		3 7 7	14	
	60.0				SPT 6 Jar		5 8 8	16	
	62.0				SPT 7 Jar		5 8 8	16	
	64.0				SPT 8 Jar		3 10 10	20	

BOTTOM OF BOREHOLE AT 64.4 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



Boring Designation EC-13-B-15

DRILLING LOG		DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83		HORIZONTAL : NAD83 VERTICAL : MLLW
2. HOLE NUMBER EC-13-B-15		LOCATION COORDINATES N 320052.5 E 2375324.91		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500		12. TOTAL SAMPLES DISTURBED : 8 UNDISTURBED : 0
4. NAME OF DRILLER Danny Hewlett		13. TOTAL NUMBER CORE BOXES : 0		14. ELEVATION GROUND WATER : See Remarks
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL : ---	BEARING : ---	15. DATE BORING STARTED : 8/13/13 COMPLETED : 8/13/13
6. THICKNESS OF OVERBURDEN : 18.1'		16. ELEVATION TOP OF BORING : 0' MLLW		17. TOTAL CORE RECOVERY FOR BORING : N/A
7. DEPTH DRILLED INTO ROCK : 0.0'		18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist		
8. TOTAL DEPTH OF BORING : 64.1'				

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
	44.0		0.0' TO -46' WATER OCEAN BOTTOM @ -46' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
-46.0	46.0		OH, Black, fine grained, CLAYEY ORGANIC SILT, some sand, very soft, locally known as "pluff mud"..		46	(46-53.6) Set 71.3' of 8-in diameter casing, with 1.8' stickup from deck of jack-up barge. Mudline was sounded inside casing at 62.9' depth, corrected to 46.0' MLLW. WOR; splitspoon sinks 7.6' to 53.6'. Clean out to 53.6'; Sample Note: Very soft, overdrive by 6.1'.		
	48.0				SPT 1 Jar		WOH	0
	50.0							
	52.0							
-53.4	53.6		SM, Dark gray, fine grained, SILTY SAND, some shell fragments.		53.6	(53.6-64.1) Conduct continuous SPT sampling.; Lab = (SM); MC = 25%; Silty Sand (SM), with a trace of gravel.	6 12 9	21
	54.0		SP, Light gray, fine grained, poorly-graded, SAND, with shell fragments, little silt, sand is quartz with some black limestone, some sand is loosely cemented in a limestone matrix..		SPT 2 Jar			
	55.0				SPT 3 Jar			
	56.0						4 4 10	14



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DRILLING LOG (Cont Sheet)		INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS	
PROJECT Charleston Harbor Entrance Channel Deepening		COORDINATE SYSTEM State Plane		HORIZONTAL : VERTICAL NAD83 : MLLW	
LOCATION COORDINATES N 320052.5 E 2375324.91		ELEVATION TOP OF BORING 0'			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value	
	58.0		SP, Light gray, fine grained, poorly-graded, SAND, with shell fragments, little silt, sand is quartz with some black limestone, some sand is loosely cemented in a limestone matrix..		SPT 4 Jar	Lab = (SM); MC = 33%; Silty Sand (SM), with a little gravel.	7	14	
							7		
	60.0						SPT 5 Jar	3	9
								4	
	61.1		61.1', fine grained, GRAVELLY SAND, with gravel, sand is quartz, limestone gravel is poorly cemented sandy limestone and larger (0.25") shell fragments..		SPT 6 Jar	Lab = (SM); MC = 35%; Silty Sand (SM), with a trace of gravel.	4	13	
						4			
	62.0				SPT 7 Jar		8	21	
						9			
-62.6			Zone of loss. No sample recovered..				12	4	
					NR 8 Jar	Sample Note: No Recovery.	1		
-64.1	64.0						3		
							1		

BOTTOM OF BOREHOLE AT 64.1 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8"ID splitspoon w/140 lb. hammer falling 30".



Boring Designation EC-13-B-16

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : NAD83 VERTICAL : MLLW
2. HOLE NUMBER EC-13-B-16		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER Danny Hewlett		12. TOTAL SAMPLES	DISTURBED : 7 UNDISTURBED : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	0
DEG FROM VERTICAL : ---		14. ELEVATION GROUND WATER	See Remarks
6. THICKNESS OF OVERBURDEN 17.5'		15. DATE BORING	STARTED : 8/16/13 COMPLETED : 8/16/13
7. DEPTH DRILLED INTO ROCK 0.0'		16. ELEVATION TOP OF BORING	0' MLLW
8. TOTAL DEPTH OF BORING 61.4'		17. TOTAL CORE RECOVERY FOR BORING	N/A
18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	42.0		0.0' TO -43.9' WATER OCEAN BOTTOM @ -43.9' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
-43.9	44.0		OH , Black, fine grained, CLAYEY ORGANIC SILT, very soft, locally known as "pluff mud"..			(43.9-52.4) Set 72.3' of 8-in diameter casing, with 2.0' stickup from deck of jack-up barge. Mudline was sounded inside casing at 64.0' depth, corrected to 43.9' MLLW. WOR; splitspoon sinks 8.5' to 52.4'. Clean out to 52.4'; Sample Note: Very soft, over drive by 7.0'		
	46.0				SPT 1 Jar		WOH	0
	50.0							
-52.4	52.0		GP-GM , Gray, fine to coarse grained, well-graded, GRAVELLY SAND, with shell fragments, some silt, (limestone gravel composed of cemented sand and limestone gravel <0.5" diameter)..			(52.4-61.4) Conduct continuous SPT sampling.; Lab = (SM) Silty Sand (SM), with a trace of gravel.	12 20 20	40
	54.0		53.9', little silt.			Lab = (SM) Silty Sand (SM), with a little gravel.	12 14	22



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DRILLING LOG (Cont Sheet)		INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS	
PROJECT Charleston Harbor Entrance Channel Deepening		COORDINATE SYSTEM State Plane		HORIZONTAL : VERTICAL NAD83 : MLLW	
LOCATION COORDINATES N 318346.04 E 2378378.39		ELEVATION TOP OF BORING 0'			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value		
			GP-GM , Gray, fine to coarse grained, well-graded, GRAVELLY SAND, with shell fragments, some silt, (limestone gravel composed of cemented sand and limestone gravel <0.5" diameter)..		Jar		8			
	56.0						55.4		7 12 14	26
	58.0						56.9		8 10 12	22
							58.4		9 10 16	26
	60.0						59.9		10 14 11	25
							61.4			
-61.4										

BOTTOM OF BOREHOLE AT 61.4 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



Boring Designation EC-13-B-17

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-17		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER Danny Hewlett		12. TOTAL SAMPLES	DISTURBED : UNDISTURBED 7 : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	0
DEG FROM VERTICAL : BEARING --- : ---		14. ELEVATION GROUND WATER	See Remarks
6. THICKNESS OF OVERBURDEN 15.6'		15. DATE BORING	STARTED : COMPLETED 8/27/13 : 8/27/13
7. DEPTH DRILLED INTO ROCK 0.0'		16. ELEVATION TOP OF BORING	0' MLLW
8. TOTAL DEPTH OF BORING 62.3'		17. TOTAL CORE RECOVERY FOR BORING	N/A
18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	44.0	Wavy pattern	0.0' TO -46.7' WATER			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
	46.0		OCEAN BOTTOM @ -46.7' MLLW					
-46.7		Wavy pattern	OH , Black, SANDY ORGANIC SILT, few shell fragments, soft, locally known as "pluff mud"..			(46.7-53.3) Set 74.3' of 8-in diameter casing, with 2.1' stickup from deck of jack-up barge. Mudline was sounded inside casing at 62.9' depth, corrected to 46.7' MLLW. WOR; splitspoon sinks 6.6' to 53.3'. Clean out to 53.3'; Sample Note: Very soft, overdrive by 5.1'.		
	48.0				SPT 1A Jar		WOH	0
	50.0							
	52.0							
-53.3		Vertical lines	ML , Gray, low plasticity, SILT, some clay, soft.			(53.3-62.3) Conduct continuous SPT sampling.		
	54.0				SPT 1B Jar		1 1 1	2
	54.8				SPT 2A Jar	Lab = (CH); LL = 88%; PL = 34%; PI = 54 Fat Clay (CH), with a little sand and a trace of gravel.	WOH	0
-55.8		Vertical lines	SM , Gray, fine to coarse grained, SILTY SAND, with shell fragments, soft, sand is quartz..			Lab = (SC) Clayey Sand High LL (SC-H), with a trace of gravel.		
	56.0				SPT 2B Jar		WOH	0



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DRILLING LOG (Cont Sheet)		INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS	
PROJECT Charleston Harbor Entrance Channel Deepening		COORDINATE SYSTEM State Plane		HORIZONTAL : VERTICAL NAD83 : MLLW	
LOCATION COORDINATES N 318507.24 E 2379601.26		ELEVATION TOP OF BORING 0'			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
-58.8	58.0		SM , Gray, fine to coarse grained, SILTY SAND, with shell fragments, soft, sand is quartz..		57.8 SPT 3A 3B Jar	Lab = (SP-SM) Poorly Graded Silty Sand (SP-SM), with a trace of gravel.	3 10 14	24
	60.0		SW , Gray, fine grained, well-graded, SAND, some silt, with shell fragments, sand is quartz..		59.3 SPT 4 Jar		5 10 14	24
-62.3	62.0		60.8', fine to coarse grained, some shell fragments.		60.8 SPT 5 Jar		5 11 12	23

BOTTOM OF BOREHOLE AT 62.3 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



Boring Designation EC-13-B-18

DRILLING LOG		DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83		HORIZONTAL : NAD83 VERTICAL : MLLW
2. HOLE NUMBER EC-13-B-18		LOCATION COORDINATES N 317738.57 E 2379609.99		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & HQ-Core Barrel
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500		12. TOTAL SAMPLES DISTURBED : 2 UNDISTURBED : 0
4. NAME OF DRILLER Danny Hewlett		13. TOTAL NUMBER CORE BOXES 1		14. ELEVATION GROUND WATER See Remarks
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL ---	BEARING	15. DATE BORING STARTED : 8/27/13 COMPLETED : 8/27/13
6. THICKNESS OF OVERBURDEN 6.8'		16. ELEVATION TOP OF BORING 0' MLLW		17. TOTAL CORE RECOVERY FOR BORING N/A
7. DEPTH DRILLED INTO ROCK 10.0'		18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist		
8. TOTAL DEPTH OF BORING 63.4'				

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value	
	44.0		0.0' TO -46.6' WATER			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.			
	46.0		OCEAN BOTTOM @ -46.6' MLLW						
-46.6			OH, Black, SANDY ORGANIC SILT, very soft, locally known as "pluff mud"..		46.6	(46.6-51.9) Set 71.3' of 8-in diameter casing, with 2.0' stickup from deck of jack-up barge. Mudline was sounded inside casing at 65.2' depth, corrected to 46.6' MLLW. WOH; splitspoon sinks 5.3' to 51.9'. Clean out to 51.9'. Sample Note: Very soft, over drive by 3.8'.	WOH	0	
	48.0								
	50.0								
-51.9			GP, Gray, fine to medium grained, poorly-graded, GRAVEL, weak cementation, sand is quartz, friable.		51.9	(51.9-53.4) Conduct SPT sampling. 53.4' Set HQ-core barrel and begin coring.	10 15 12	27	
	52.0								
-53.4			LIMESTONE, Gray, sandy, fossiliferous, moderately hard, moderate cementation, fine to coarse grained, cemented quartz sand and shell fragments in matrix, friable..	Run #1	53.4	Run # 1 From: 53.4' To: 58.4' Run: 5' Rec: 4.9' Core Loss: 0.1' RQD: 91% Drilling Time: 7 Min. Hydraulic Pressure: 0 psi			
	54.0				53.9				
					1-UCS 54.4				
					55 2-STG				
	56.0			REC: 98% RQD: 91%	57.3				



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Boring Designation EC-13-B-19

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-19		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER John Haskew		12. TOTAL SAMPLES	DISTURBED : UNDISTURBED 6 : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	0
DEG FROM VERTICAL : BEARING --- : ---		14. ELEVATION GROUND WATER	See Remarks
6. THICKNESS OF OVERBURDEN 12.4'		15. DATE BORING	STARTED : COMPLETED 8/27/13 : 8/27/13
7. DEPTH DRILLED INTO ROCK		16. ELEVATION TOP OF BORING	0' MLLW
8. TOTAL DEPTH OF BORING 60.1'		17. TOTAL CORE RECOVERY FOR BORING	N/A
18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist			

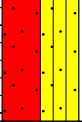
ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	46.0	Wavy pattern	0.0' TO -47.7' WATER OCEAN BOTTOM @ -47.7' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
	48.0	Horizontal lines	OL, Black to dark gray, ORGANIC SILT, trace fine sand, very soft, wet, organic, (puff-mud)..		-47.7	(47.7-52.6) Set 71.3' of 8-in diameter casing, with 1.7' stickup from deck of jack-up barge. Mudline was sounded inside casing at 64.1' depth, corrected to 47.7' MLLW. WOR; splitspoon sinks 4.9' to 52.6'. Clean out to 52.6'; Sample Note: Very soft, over drive by 3.4'.	WOR	0
	50.0	Horizontal lines			SPT 1A Jar			
	52.0	Horizontal lines						
	52.6	Vertical lines	SM, Gray, fine to coarse grained, SILTY SAND, medium dense, wet, occasional cemented sand horizons..		52.6	(52.6-60.1) Conduct continuous SPT sampling.; Lab = (SP-SM) Poorly Graded Silty Sand (SP-SM), with a trace of gravel.	5 7 8	15
	54.0	Vertical lines			SPT 1B Jar			
	54.1	Dotted pattern	SP, Gray, medium to coarse grained, poorly-graded, SAND, trace shell fragments, no silt, medium dense, wet.		54.1		3 7 7	14
	56.0	Dotted pattern	55.6', no shell fragments, trace fine sand.		55.6	Lab = (SP) Poorly Graded Sand (SP).	6 10 12	22
	57.1	Dotted pattern	57.1', trace silt, dense.		57.1	Lab = (SP-SM) Poorly Graded Silty Sand (SP-SM).	9 13 17	30
	58.0	Dotted pattern			SPT 2 Jar			
	58.6	Dotted pattern			SPT 3 Jar			
		Dotted pattern			SPT 4 Jar			
		Dotted pattern			58.6			



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DRILLING LOG (Cont Sheet)		INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS	
PROJECT Charleston Harbor Entrance Channel Deepening		COORDINATE SYSTEM State Plane		HORIZONTAL : VERTICAL NAD83 : MLLW	
LOCATION COORDINATES N 317844.64 E 2380865.38		ELEVATION TOP OF BORING 0'			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
-60.1	60.0		SP-SM , Dark gray, fine to medium grained, poorly-graded, SAND, with silt, little shell fragments, medium dense, saturated.		SPT 5 Jar		5 10 12	22

BOTTOM OF BOREHOLE AT 60.1 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



DRILLING LOG (Cont Sheet)	INSTALLATION Charleston Harbor	SHEET 2 OF 2 SHEETS
PROJECT Charleston Harbor Entrance Channel Deepening	COORDINATE SYSTEM State Plane	HORIZONTAL : VERTICAL NAD83 : MLLW
LOCATION COORDINATES N 317069.41 E 2380920.39	ELEVATION TOP OF BORING 0'	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
-62.2	62.0		61.6', numerous small shelly cavities at 61.1'.					

BOTTOM OF BOREHOLE AT 62.2 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN
ACCORDANCE WITH THE UNIFIED SOIL
CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number
required to drive 1-3/8" ID splitspoon
w/140 lb. hammer falling 30".

LAB ROCK TESTING SUMMARY

Sample Number	USCS SM	UCS (psi)	Other Strength Tests (psi)
1B	SM		
1-UCS		209.9	
2-STC			5.1 STS-AVG
3-STC			7.45 STS-AVG
4-UCS		154.7	



Boring Designation EC-13-B-21

DRILLING LOG		DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83		HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-21		LOCATION COORDINATES N 315871.27 E 2382941.19		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & HQ-Core Barrel
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500		12. TOTAL SAMPLES DISTURBED : 1 UNDISTURBED : 0
4. NAME OF DRILLER Danny Hewlett		13. TOTAL NUMBER CORE BOXES 1		14. ELEVATION GROUND WATER See Remarks
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL ---	BEARING	15. DATE BORING STARTED : 8/28/13 COMPLETED : 8/28/13
6. THICKNESS OF OVERBURDEN 4.9'		16. ELEVATION TOP OF BORING 0' MLLW		17. TOTAL CORE RECOVERY FOR BORING N/A
7. DEPTH DRILLED INTO ROCK 9.1'		18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist		
8. TOTAL DEPTH OF BORING 62.0'				


ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
-48	46.0		0.0' TO -48' WATER OCEAN BOTTOM @ -48' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck. Bottom of hole not tape checked.		
-51.4	48.0		OH, Black, SANDY ORGANIC SILT, very soft, locally known as "pluff mud"..			(48-51.4) Set 71.3' of 8-in diameter casing, with 2.0' stickup from deck of jack-up barge. Mudline was sounded inside casing at 65.6' depth, corrected to 48.0' MLLW. WOR; splitspoon sinks 3.4' to 51.4'. Clean out to 51.4'.		
-52.9	52.0		GP, Gray, poorly-graded, SANDY GRAVEL, with shell fragments, weak cementation, friable, gravel is limestone and shell fragments, sand is quartz.		51.4 SPT 1 Jar	(51.4-52.9) Set splitspoon on dense material. Conduct SPT sampling. Clean out to 52.9'.	2 3 12	15
	54.0		LIMESTONE, Gray, sandy, fossiliferous, moderately hard, moderate cementation, fine to medium grained, cemented quartz sand and shell fragment matrix, friable, fossil shell casts present..	Run #1	52.9 53.5 54.9 56 57.9	(52.9-) Set HQ-core barrel and begin coring. Run # 1 From: 52.9' To: 57.9' Run: 5' Rec: 4.7' Core Loss: 0.3' RQD: 86% Drilling Time: 2 Min. Hydraulic Pressure: 0 psi		
	58.0			Run #2	59.1	Run # 2 From: 57.9' To: 62' Run: 4.1' Rec: 4.1' Core Loss: 0' RQD: 100% Drilling Time: 5 Min. Hydraulic Pressure: 0 psi		
	60.0			REC: 94% RQD: 86%	1-UCS 2-STC 3-UCS			
				REC: 100% RQD: 100%	4-UCS 5-STC			



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DRILLING LOG (Cont Sheet)		INSTALLATION		SHEET 2
		Charleston Harbor		OF 2 SHEETS
PROJECT		COORDINATE SYSTEM	HORIZONTAL	VERTICAL
Charleston Harbor Entrance Channel Deepening		State Plane	NAD83	MLLW
LOCATION COORDINATES		ELEVATION TOP OF BORING		
N 315871.27 E 2382941.19		0'		

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
-62	62.0							

BOTTOM OF BOREHOLE AT 62.0 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN
ACCORDANCE WITH THE UNIFIED SOIL
CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number
required to drive 1-3/8" ID splitspoon
w/140 lb. hammer falling 30".

LAB ROCK TESTING SUMMARY

Sample Number	<u>USCS</u>	UCS (psi)	Other Strength Tests (psi)
1	SM		
1-UCS		120.3	
2-STC			18.2 STS-AVG
3-UCS		150.8	
4-UCS		158.0	
5-STC			13.9 STS-AVG



Boring Designation EC-13-B-22

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : NAD83 VERTICAL : MLLW
2. HOLE NUMBER EC-13-B-22		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon	
LOCATION COORDINATES N 315366.48 E 2385503.13		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
3. DRILLING AGENCY USACE, Savannah District		12. TOTAL SAMPLES	DISTURBED : 6 UNDISTURBED : 0
4. NAME OF DRILLER Danny Hewlett		13. TOTAL NUMBER CORE BOXES : 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		14. ELEVATION GROUND WATER : See Remarks	
DEG FROM VERTICAL : ---		15. DATE BORING : STARTED 8/28/13 COMPLETED 8/28/13	
6. THICKNESS OF OVERBURDEN : 13.1'		16. ELEVATION TOP OF BORING : 0' MLLW	
7. DEPTH DRILLED INTO ROCK : 0.0'		17. TOTAL CORE RECOVERY FOR BORING : N/A	
8. TOTAL DEPTH OF BORING : 60.7'		18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	46.0	Wavy pattern	0.0' TO -47.6' WATER OCEAN BOTTOM @ -47.6' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
	48.0	Solid black	Very soft, Zone of loss. No recovery, (Likely pluff mud).			(47.6-51.4) Set 69.3' of 8-in diameter casing, with 2.1' stickup from deck of jack-up barge. Mudline was sounded inside casing at 65.1' depth, corrected to 47.6' MLLW. WOR; splitspoon sinks 3.8' to 51.4'		
	52.0	Red with dots	SP, Gray, fine to medium grained, SAND, with shell fragments.		SPT 1 Jar	(51.4-52.9) Conduct SPT sampling. Clean out to 53.0'; Lab = (SP-SM) Poorly Graded Silty Sand (SP-SM).	1 3 10	13
	52.9	Red with dots	52.9', no shell fragments.		SPT 2 Jar	(53-59) Conduct continuous SPT sampling. Clean out to 59.2'	4 6 15	21
	54.0	Red with dots			SPT 3 Jar	Lab = (SP-SM) Poorly Graded Silty Sand (SP-SM).	15 15 9	24
	56.0	Red with dots			SPT 4 Jar		3 5 7	12
	58.0	Red with dots			SPT 5 Jar		7 9 5	14



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DRILLING LOG (Cont Sheet)		INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS	
PROJECT Charleston Harbor Entrance Channel Deepening		COORDINATE SYSTEM State Plane		HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES N 315366.48 E 2385503.13		ELEVATION TOP OF BORING 0'			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
-59.0								
	60.0		ML, Gray, fine grained, nonplastic, LEAN SILT, little sand, soft, sand component is fine quartz sand..		SPT 6 Jar	(59.2-60.7) Conduct SPT sampling.; Lab = (CH); LL = 78%; PL = 25%; PI = 53 Fat Clay (CH), with some sand.	1 1 1	2
-60.7								

BOTTOM OF BOREHOLE AT 60.7 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



Boring Designation EC-13-B-23

DRILLING LOG		DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83		HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-23		LOCATION COORDINATES N 314877.62 E 2384879		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500		12. TOTAL SAMPLES DISTURBED : 5 UNDISTURBED : 0
4. NAME OF DRILLER Danny Hewlett		13. TOTAL NUMBER CORE BOXES 0		14. ELEVATION GROUND WATER See Remarks
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL ---	BEARING	15. DATE BORING STARTED : 8/28/13 COMPLETED : 8/28/13
6. THICKNESS OF OVERBURDEN 10'		16. ELEVATION TOP OF BORING 0' MLLW		17. TOTAL CORE RECOVERY FOR BORING N/A
7. DEPTH DRILLED INTO ROCK 0.0'		18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist		
8. TOTAL DEPTH OF BORING 61.4'				

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
-51.4	50.0	Wavy pattern	0.0' TO -51.4' WATER OCEAN BOTTOM @ -51.4' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
-54.4	52.0	Wavy pattern	OH , Black, ORGANIC SILT, very soft, locally known as "pluff mud"..		51.4 SPT 1A Jar	(51.4-54.2) Set 75.3' of 8-in diameter casing, with 2.1' stickup from deck of jack-up barge. Mudline was sounded inside casing at 69.5' depth, corrected to 51.4' MLLW. WOH; splitspoon sinks 2.8' to 54.2'. Clean out to 54.2'	WOH	0
-54.9	54.0	Dotted pattern	SM , Gray, SILTY SAND, with shell fragments.		54.2 SPT 1B Jar	(54.2-55.7) Set splitspoon on denser material. Conduct SPT sampling. Clean out to 56.2'	0 0 2	2
	56.0	Vertical lines	ML , Gray, fine grained, nonplastic, SILT, some clay, few sand strata or lenses, soft, sand is quartz..		55.7 SPT 2 Jar	(56.2-57.7) Conduct SPT sampling. Clean out to 58.3'; Lab = (CH); LL = 115%; PL = 42%; PI = 73 Fat Clay (CH), with a trace of sand.	1 1 3	4
	58.0	Vertical lines	56.9', 0.2' lens of silty sand (SM), fine, with shell fragments, sand is quartz..		57.7 SPT 3 Jar	(58.3-59.8) Conduct SPT sampling. Clean out to 59.9'	1 1 3	4
	60.0	Vertical lines			59.8 SPT 4 Jar	(59.9-61.4) Conduct SPT sampling.; Lab = (CH); LL = 87%; PL = 28%; PI = 59 Fat Clay (CH), with some sand and a trace of gravel.	1 1 1	2
-61.4	61.4		BOTTOM OF BOREHOLE AT 61.4 ft					

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8"ID splitspoon w/140 lb. hammer falling 30".



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Boring Designation EC-13-B-24

DRILLING LOG		DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83		HORIZONTAL : NAD83 VERTICAL : MLLW
2. HOLE NUMBER EC-13-B-24	LOCATION COORDINATES N 314044.05 E 2386450.17		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & PQ-Core Barrel	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500		
4. NAME OF DRILLER John Haskew		12. TOTAL SAMPLES		DISTURBED : 2 UNDISTURBED : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL ---	13. TOTAL NUMBER CORE BOXES : 1	
6. THICKNESS OF OVERBURDEN : 3.2'		14. ELEVATION GROUND WATER : See Remarks		
7. DEPTH DRILLED INTO ROCK : 5.0'		15. DATE BORING		STARTED : 8/28/13 COMPLETED : 8/28/13
8. TOTAL DEPTH OF BORING : 60.9'		16. ELEVATION TOP OF BORING : 0' MLLW		17. TOTAL CORE RECOVERY FOR BORING : N/A
18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist				

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
	50.0		0.0' TO -52.7' WATER			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
	52.0		OCEAN BOTTOM @ -52.7' MLLW			Taped bottom of hole at 60.5'; 0.4' fall-in.		
	-52.7		GM. Tan, fine to coarse grained, SILTY GRAVEL, with fine to coarse sand, loose, wet, weak cementation, (limestone gravel)..		52.9	(52.7-52.9) Set 71.3' of 8-in diameter casing, with 1.7' stickup from deck of jack-up barge. Mudline was sounded inside casing at 69.2' depth, corrected to 52.7' MLLW. WOR; splitspoon sinks 0.2' to 52.9'	2 3 3	6
	-54.4		SM. Tannish gray, fine to coarse grained, SILTY SAND, with fine to medium gravel, medium dense, wet, weak cementation.		54.4	(52.9-55.9) Set splitspoon on dense material. Conduct continuous SPT sampling. Clean out to 55.9'	4 8 8	16
	-55.9		LIMESTONE Gray light, sandy, fossiliferous, horizontal, very thickly bedded, soft to moderately hard, weak cementation, fine to medium grained, cemented silty quartz sand and shell hash matrix, slightly weathered, wet, no staining, contains zone of numerous fossil shell, mold and casts 56.9-58.1'.	Run #1	55.9 56	(55.9-) Set PQ-core barrel and begin coring.		
	56.0				1-UCS 56.5	Run # 1 From: 55.9' To: 60.9' Run: 5' Rec: 4.8' Core Loss: 0.2' RQD: 94% Drilling Time: 60 Min. Hydraulic Pressure: 0 psi		
	58.0			REC: 96% RQD: 94%	2-UCS 58.0			
	60.0				3-STG 58.5			
	-60.9				4-STG 59.5			

BOTTOM OF BOREHOLE AT 60.9 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".

LAB ROCK TESTING SUMMARY

Sample UCS Other Strength

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DRILLING LOG (Cont Sheet)	INSTALLATION Charleston Harbor	SHEET 2 OF 2 SHEETS
PROJECT Charleston Harbor Entrance Channel Deepening	COORDINATE SYSTEM State Plane	HORIZONTAL : VERTICAL NAD83 : MLLW
LOCATION COORDINATES N 314044.05 E 2386450.17	ELEVATION TOP OF BORING 0'	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
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Number	USCS	(psi)	Tests (psi)
1	SC		
1-UCS		77.4	
2-UCS		79.7	
3-STC			21.8 STS-AVG
4-STC			14.5 STS-AVG



Boring Designation EC-13-B-28

DRILLING LOG		DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83		HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-28		LOCATION COORDINATES N 311844.23 E 2390436.82		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & PQ-Core Barrel
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500		
4. NAME OF DRILLER John Haskew		12. TOTAL SAMPLES		DISTURBED : 1 UNDISTURBED : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL ---	BEARING	
6. THICKNESS OF OVERBURDEN 1.5'		13. TOTAL NUMBER CORE BOXES 1		14. ELEVATION GROUND WATER See Remarks
7. DEPTH DRILLED INTO ROCK 10.0'		15. DATE BORING		STARTED : 8/24/13 COMPLETED : 8/24/13
8. TOTAL DEPTH OF BORING 62.6'		16. ELEVATION TOP OF BORING 0' MLLW		17. TOTAL CORE RECOVERY FOR BORING N/A
18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist				

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	50.0		0.0' TO -51.1' WATER OCEAN BOTTOM @ -51.1' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck. Bottom of hole not tape checked.		
	52.0		GM , Gray, fine to coarse grained, SILTY GRAVEL, and silty sand strata or lenses, medium dense, wet, weak cementation.		51.1 SPT 1 Jar	(51.1-52.6) Set 69.3' of 8-in diameter casing, with 1.7' stickup from deck of jack-up barge. Mudline was sounded at 67.7' depth, corrected to 51.1' MLLW. Conduct SPT sampling. Clean out to 52.6'	3 5 7	12
	54.0		LIMESTONE , Light gray, sandy, fossiliferous, horizontal, very thickly bedded, soft to moderately hard, weak cementation, fine to coarse grained, cemented quartz sand with fine shell hash matrix, slightly weathered, wet, no staining, contains zones of small shelly cavities from 52.6-53.4' and at 53.7', contains open fractures at 54.9', 55.3', 57.6'-58.0', 58.5-58.6', 59.2', 59.9', 60.4-61.0', and 61.4'..	Run #1	52.6 53.4 54.1 54.6	(52.6-) Set HQ-core barrel and begin coring. Run # 1 From: 52.6' To: 57.6' Run: 5' Rec: 4' Core Loss: 1' RQD: 72% Drilling Time: 5 Min. Hydraulic Pressure: 0 psi		
	58.0		58.1', zone of numerous small shelly cavities 58.5-58.6'.	REC: 80% RQD: 72%	57 57.5 57.7 58.1			
	60.0		59', zone of numerous small shelly cavities 59.0-59.2'.	REC: 80% RQD: 74%	58.8 59.3 59.5 60.1	Run # 2 From: 57.6' To: 62.6' Run: 5' Rec: 4' Core Loss: 1' RQD: 74% Drilling Time: 10 Min. Hydraulic Pressure: 0 psi		
	62.0		60.7', zone of numerous small shelly cavities at 60.7'.					



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DRILLING LOG (Cont Sheet)	INSTALLATION Charleston Harbor	SHEET 2 OF 2 SHEETS
PROJECT Charleston Harbor Entrance Channel Deepening	COORDINATE SYSTEM State Plane	HORIZONTAL : VERTICAL NAD83 : MLLW
LOCATION COORDINATES N 311844.23 E 2390436.82	ELEVATION TOP OF BORING 0'	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
-62.6		—	BOTTOM OF BOREHOLE AT 62.6 ft					

SOILS ARE FIELD VISUALLY CLASSIFIED IN
ACCORDANCE WITH THE UNIFIED SOIL
CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number
required to drive 1-3/8" ID splitspoon
w/140 lb. hammer falling 30".

LAB ROCK TESTING SUMMARY

Sample Number	USCS SP-SM	UCS (psi)	Other Strength Tests (psi)
1			
1-ST			
2-UCS		88.77	
3-UCS		97.56	
4-UCS		95.22	
5-UCS		56.71	
6-ST			19.1 STS-AVG



Boring Designation EC-13-B-32

DRILLING LOG		DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM : HORIZONTAL : VERTICAL State Plane - SC NAD83 : NAD83 : MLLW		
2. HOLE NUMBER EC-13-B-32		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & HQ-Core Barrel		
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500		
4. NAME OF DRILLER John Haskew		12. TOTAL SAMPLES : DISTURBED : UNDISTURBED : 1 : 0		
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES : 1		
6. THICKNESS OF OVERBURDEN : 1.5'		14. ELEVATION GROUND WATER : See Remarks		
7. DEPTH DRILLED INTO ROCK : 5.0'		15. DATE BORING : STARTED : COMPLETED : 8/23/13 : 8/23/13		
8. TOTAL DEPTH OF BORING : 60.2'		16. ELEVATION TOP OF BORING : 0' MLLW		
		17. TOTAL CORE RECOVERY FOR BORING : N/A		
		18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist		

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
-53.7	52.0		0.0' TO -53.7' WATER OCEAN BOTTOM @ -53.7' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck. Taped bottom of hole at 58.8'; 0.9' fall-in, 0.5' core left in bottom of the hole.		
-55.2	54.0		GM , Light gray mottled with dark gray, fine to medium grained, SILTY GRAVEL, and fine to medium sand, with silty sand strata or lenses, with wood, medium dense, wet, weak cementation, (limestone gravel). and shell fragments.		53.7 SPT 1 Jar	(53.7-55.2) Set 73.3' of 8-in diameter casing, with 1.8' stickup from deck of jack-up barge. Mudline was sounded inside casing at 71.1' depth, corrected to 53.7' MLLW. Conduct SPT sampling. Clean out to 55.2.	5 7 13	20
-60.2	56.0		LIMESTONE , Light gray, sandy, fossiliferous, horizontal, very thickly bedded, moderately hard, strong cementation, medium to coarse grained, cemented quartz sand and fine shell hash matrix, slightly weathered, wet, no staining, contains occasional large shell, fossil mold and cast features, competent, few small shelly cavity zones, open fractures at 55.2-55.4', 55.7-55.9', 56.9', and 59.6', contains small shelly cavities 56.6-57.0'..	Run #1 55.2 55.3 1-ST 56 2-UCS 56.5	55.2 55.3 1-ST 56 2-UCS 56.5 58.1 3-UCS 58.6	(55.2-) Set HQ-core barrel and begin coring. Run # 1 From: 55.2' To: 60.2' Run: 5' Rec: 4.5' Core Loss: 0.5' RQD: 84% Drilling Time: 7 Min. Hydraulic Pressure: 0 psi		
	58.0		58.8', Contains small shelly cavities 58.8-59.0'..	REC: 90% RQD: 84%				
	60.0							

BOTTOM OF BOREHOLE AT 60.2 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8"ID splitspoon w/140 lb. hammer falling 30".

LAB ROCK TESTING SUMMARY


Sample Number	USCS	UCS (psi)	Other Strength Tests (psi)
1	GM		
1-ST			67.4 STS-AVG
2-UCS		189.42	
3-UCS		249.74	



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DRILLING LOG (Cont Sheet)	INSTALLATION Charleston Harbor	SHEET 2 OF 2 SHEETS
PROJECT Charleston Harbor Entrance Channel Deepening	COORDINATE SYSTEM State Plane	HORIZONTAL : VERTICAL NAD83 : MLLW
LOCATION COORDINATES N 308748.12 E 2397478.95	ELEVATION TOP OF BORING 0'	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
-62.7	62.0							

BOTTOM OF BOREHOLE AT 62.7 ft
SOILS ARE FIELD VISUALLY CLASSIFIED IN
ACCORDANCE WITH THE UNIFIED SOIL
CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number
required to drive 1-3/8" ID splitspoon
w/140 lb. hammer falling 30".

Sample Number	<u>USCS</u>	UCS (psi)	Other Strength Tests (psi)
1	SM		
1-UCS		350.86	
2-UCS		237.77	
3-STC			37.9 STS-AVG
4-UCS		322.07	



Boring Designation EC-13-B-34

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83 HORIZONTAL : NAD83 VERTICAL : MLLW	
2. HOLE NUMBER EC-13-B-34		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & HQ-Core Barrel	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER Danny Hewlett		12. TOTAL SAMPLES DISTURBED : 2 UNDISTURBED : 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES 1	
6. THICKNESS OF OVERBURDEN 3'		14. ELEVATION GROUND WATER See Remarks	
7. DEPTH DRILLED INTO ROCK 5.0'		15. DATE BORING STARTED : 8/23/13 COMPLETED : 8/23/13	
8. TOTAL DEPTH OF BORING 60.9'		16. ELEVATION TOP OF BORING 0' MLLW	
		17. TOTAL CORE RECOVERY FOR BORING N/A	
		18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
	50.0		0.0' TO -52.9' WATER			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
	52.0		OCEAN BOTTOM @ -52.9' MLLW					
	-52.9		SM , Gray, fine to medium grained, SILTY SAND, with silt strata or lenses, with shell fragments, loose, (sand component consists of fine quartz sand)..		52.9	(52.9-55.9) Set 73.3' of 8-in diameter casing, with 2.1' stickup from deck of jack-up barge. Mudline was sounded inside casing at 71.1' depth, corrected to 52.9' MLLW. Set splitspoon on dense material. Conduct SPT sampling. Clean out to 55.9.	4	9
	-53.9				54.4		SPT 2 Jar	
	54.0		GP , Gray, fine to coarse grained, poorly-graded, SANDY GRAVEL, with shell fragments, dense, weak cementation, (weakly cemented limestone and fine quartz sand)..		54.4		10	38
	-55.9				55.9		SPT 2 Jar	
	56.0		LIMESTONE , Gray, sandy, fossiliferous, moderately hard, moderate cementation, fine, cemented quartz sand and shell hash matrix, friable, locally known as "coquina"..		55.9	(55.9-) Set HQ-core barrel and begin coring.		
	-56.9				56.4		Run # 1 From: 55.9' To: 60.9' Run: 5' Rec: 5' Core Loss: 0' RQD: 100% Drilling Time: 6 Min. Hydraulic Pressure: 0 psi	
	58.0				56.8		2-UCS	
	60.0				57.7		3-UCS	
	-60.9				58.2		60.2	

BOTTOM OF BOREHOLE AT 60.9 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8"ID splitspoon w/140 lb. hammer falling 30".

LAB ROCK TESTING SUMMARY			
Sample Number	UCS (psi)	Other Strength Tests (psi)	



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DRILLING LOG (Cont Sheet)	INSTALLATION Charleston Harbor	SHEET 2 OF 2 SHEETS
PROJECT Charleston Harbor Entrance Channel Deepening	COORDINATE SYSTEM State Plane	HORIZONTAL : VERTICAL NAD83 : MLLW
LOCATION COORDINATES N 307198.41 E 2398893.88	ELEVATION TOP OF BORING 0'	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
						GM	14.8	STS-AVG
					2-UCS	124.69		
					3-UCS	194.55		



Boring Designation EC-13-B-35

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-35	LOCATION COORDINATES N 306514.27 E 2400139.88	10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & HQ-Core Barrel	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER John Haskew		12. TOTAL SAMPLES	DISTURBED : UNDISTURBED 1 : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	1
DEG FROM VERTICAL : BEARING --- : ---		14. ELEVATION GROUND WATER See Remarks	
6. THICKNESS OF OVERBURDEN 1.5'		15. DATE BORING	STARTED : COMPLETED 8/22/13 : 8/22/13
7. DEPTH DRILLED INTO ROCK 10.0'		16. ELEVATION TOP OF BORING 0' MLLW	
8. TOTAL DEPTH OF BORING 63.7'		17. TOTAL CORE RECOVERY FOR BORING N/A	
18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	50.0		0.0' TO -52' WATER OCEAN BOTTOM @ -52' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck. Taped bottom of hole at 63.3'; 0.4' core left in bottom of the hole.		
-52	52.0		GP-GM , Gray, fine to coarse grained, GRAVEL, and fine to coarse sand, with silt, medium dense, wet, weak cementation, (limestone gravel)..		52.2 SPT 1 Jar	(52-52.2) Set 73.3' of 8-in diameter casing, with 1.7' stickup from deck of jack-up barge. Mudline was sounded at 70.5' depth, corrected to 52.0' MLLW. WOR; splitspoon sinks 0.2' to 52.2'. (52.2-53.7) Conduct SPT sampling. Clean out to 53.7.	10 6 9	15
-53.7	54.0		LIMESTONE Light gray, sandy, fossiliferous, horizontal, thickly bedded, soft to moderately hard, weak cementation, medium to coarse grained, cemented quartz sand and fine shell hash matrix, slightly weathered, wet, no staining, contains open fractures along sand seams at; 54.2-54.3', 54.6', and 54.8-54.9'..	Run #1	53.7 1-SPTS	(53.7-) Set HQ-core barrel, begin cori		
	56.0			REC: 96% RQD: 84%	55 2-UCS	Run # 1 From: 53.7' To: 58.7' Run: 5' Rec: 4.8' Core Loss: 0.2' RQD: 84% Drilling Time: 10 Min. Hydraulic Pressure: 0 psi		
	58.0		57.6', Open fracture; fine sand seam 57.6-57.8'..		58.7 Run #2			
	60.0		58.7', moderately hard, strong cementation, coarse, no open fractures..	REC: 92% RQD: 92%	59 3-UCS	Run # 2 From: 58.7' To: 63.7' Run: 5' Rec: 4.6' Core Loss: 0.4' RQD: 92% Drilling Time: 10 Min. Hydraulic Pressure: 0 psi		
	62.0							



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DRILLING LOG (Cont Sheet)	INSTALLATION Charleston Harbor	SHEET 2 OF 2 SHEETS
PROJECT Charleston Harbor Entrance Channel Deepening	COORDINATE SYSTEM State Plane	HORIZONTAL : VERTICAL NAD83 : MLLW
LOCATION COORDINATES N 306514.27 E 2400139.88	ELEVATION TOP OF BORING 0'	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
-63.7		[Pattern]		[Pattern]				

BOTTOM OF BOREHOLE AT 63.7 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN
ACCORDANCE WITH THE UNIFIED SOIL
CLASSIFICATION SYSTEM

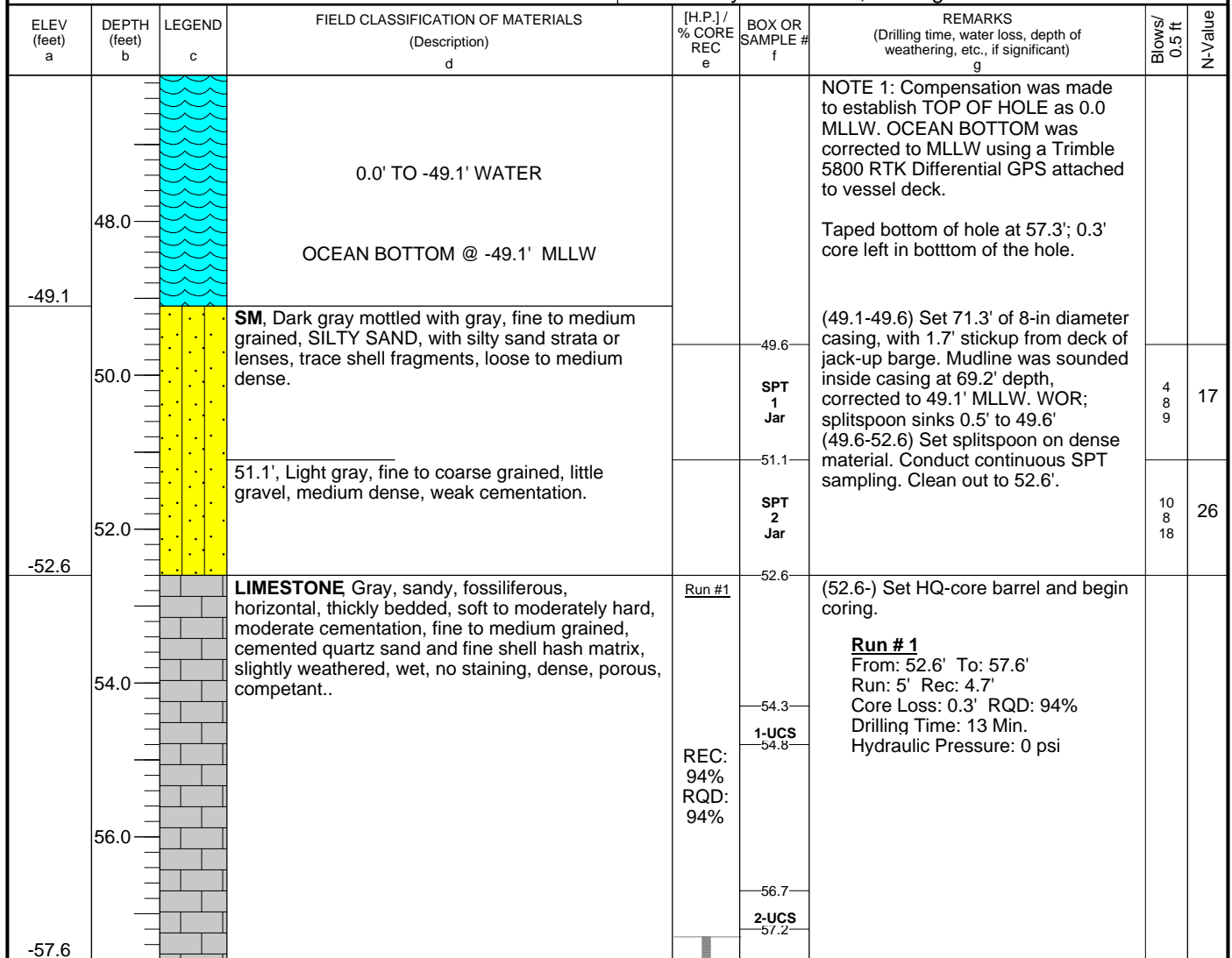
BLOWS PER FOOT: Number
required to drive 1-3/8" ID splitspoon
w/140 lb. hammer falling 30".

LAB ROCK TESTING SUMMARY

Sample Number	USCS SP-SM	UCS (psi)	Other Strength Tests (psi)
1			6.5 STS-AVG
1-STC			
2-UCS		195.03	
3-UCS		230.97	



DRILLING LOG		DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83 HORIZONTAL : NAD83 VERTICAL : MLLW		
2. HOLE NUMBER EC-13-B-36		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & HQ-Core Barrel		
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500		
4. NAME OF DRILLER John Haskew		12. TOTAL SAMPLES DISTURBED : 2 UNDISTURBED : 0		
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES 1		
6. THICKNESS OF OVERBURDEN 3'		14. ELEVATION GROUND WATER See Remarks		
7. DEPTH DRILLED INTO ROCK 5.0'		15. DATE BORING STARTED : 8/23/13 COMPLETED : 8/23/13		
8. TOTAL DEPTH OF BORING 57.6'		16. ELEVATION TOP OF BORING 0' MLLW		
		17. TOTAL CORE RECOVERY FOR BORING N/A		
		18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist		



BOTTOM OF BOREHOLE AT 57.6 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".

LAB ROCK TESTING SUMMARY

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DRILLING LOG (Cont Sheet)	INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS
	PROJECT Charleston Harbor Entrance Channel Deepening	COORDINATE SYSTEM State Plane	HORIZONTAL : VERTICAL NAD83 : MLLW
LOCATION COORDINATES N 307213.8 E 2400173.74	ELEVATION TOP OF BORING 0'		

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
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Sample Number	USCS SP-SM	UCS (psi)	Other Strength Tests (psi)
1			
1-UCS		183.93	
2-UCS		145.38	



Boring Designation EC-13-B-37

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : NAD83 VERTICAL : MLLW
2. HOLE NUMBER EC-13-B-37	LOCATION COORDINATES N 306615.83 E 2401268.05	10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & HQ-Core Barrel	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER Danny Hewlett		12. TOTAL SAMPLES	DISTURBED : 1 UNDISTURBED : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	1
DEG FROM VERTICAL : ---		14. ELEVATION GROUND WATER	See Remarks
6. THICKNESS OF OVERBURDEN 1.4'		15. DATE BORING	STARTED : 8/22/13 COMPLETED : 8/22/13
7. DEPTH DRILLED INTO ROCK 8.0'		16. ELEVATION TOP OF BORING	0' MLLW
8. TOTAL DEPTH OF BORING 61.0'		17. TOTAL CORE RECOVERY FOR BORING	N/A
18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.]/% CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	50.0		0.0' TO -51.4' WATER			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
	-51.4		OCEAN BOTTOM @ -51.4' MLLW					
	52.0		GP, Gray, fine to coarse grained, poorly-graded, SANDY GRAVEL, with shell fragments, medium dense, weak cementation, (weakly cemented limestone gravel with quartz sand)..		51.6	(51.4-51.6) Set 69.3' of 8-in diameter casing, with 1.6' stickup from deck of jack-up barge. Mudline was sounded inside casing at 68.1' depth, corrected to 51.4' MLLW. WOR; splitspoon sinks 0.2' to 51.6'	3	20
	-53.1					(51.6-53.1) Conduct SPT sampling. Clean out to 53.1'	8	
	54.0		LIMESTONE Gray, sandy, fossiliferous, soft, weak cementation, fine, cemented fine quartz sand and some shell matrix, friable..	Run #1	53.1	(53.1-) Set HQ-core barrel and begin cori		
				REC: 54%	53.6	Run # 1		
				RQD: 0%	53.9	From: 53.1' To: 58.1'		
	56.0				55.3	Run: 5' Rec: 2.7'		
					55.8	Core Loss: 2.3' RQD: 0%		
	58.0				58.1	Drilling Time: 5 Min.		
						Hydraulic Pressure: 0 psi		
	60.0			Run #2	59.2	Run # 2		
				REC: 93%	59.7	From: 58.1' To: 61.1'		
				RQD: 93%		Run: 3' Rec: 2.8'		
	-61					Core Loss: 0.2' RQD: 93%		
						Drilling Time: 3 Min.		
						Hydraulic Pressure: 0 psi		

BOTTOM OF BOREHOLE AT 61.0 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8"ID splitspoon w/140 lb. hammer falling 30".



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Date Checked:
VERSION: Draft

DRILLING LOG (Cont Sheet)	INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS
	PROJECT Charleston Harbor Entrance Channel Deepening	COORDINATE SYSTEM State Plane	HORIZONTAL : VERTICAL NAD83 : MLLW
LOCATION COORDINATES N 306615.83 E 2401268.05	ELEVATION TOP OF BORING 0'		

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft N-Value
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<u>LAB ROCK TESTING SUMMARY</u>			
Sample Number	USCS SM	UCS (psi)	Other Strength Tests (psi)
3-UCS		174.52	15.7 STS-AVG 17.6 STS-AVG



Boring Designation EC-13-B-38

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : NAD83 VERTICAL : MLLW
2. HOLE NUMBER EC-13-B-38		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & HQ-Core Barrel	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER Danny Hewlett		12. TOTAL SAMPLES	DISTURBED : 1 UNDISTURBED : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	1
6. THICKNESS OF OVERBURDEN 2.2'		14. ELEVATION GROUND WATER	See Remarks
7. DEPTH DRILLED INTO ROCK 5.0'		15. DATE BORING	STARTED : 8/22/13 COMPLETED : 8/22/13
8. TOTAL DEPTH OF BORING 60.9'		16. ELEVATION TOP OF BORING	0' MLLW
		17. TOTAL CORE RECOVERY FOR BORING	N/A
		18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
	52.0		0.0' TO -53.7' WATER OCEAN BOTTOM @ -53.7' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
	54.0		Very soft, Zone of loss. No recovery, (Likely pluff mud).		54.4	(53.7-54.4) Set 72.3' of 8-in diameter casing, with 1.7' stickup from deck of jack-up barge. Mudline was sounded inside casing at 71.0' depth, corrected to 53.7' MLLW. WOR; splitspoon sinks 0.7' to 54.4'. No Recovery		
	55.9		GP, Gray, fine to coarse grained, poorly-graded, SANDY GRAVEL, with shell fragments, and fine sand, dense, weak cementation, (weakly cemented limestone gravel with quartz sand)..		SPT 1 Jar	(54.4-55.9) Conduct SPT sampling. Clean out to 55.9'.	3 20 16	36
	56.0		LIMESTONE, Gray, sandy, fossiliferous, moderately hard, moderate cementation, fine, cemented fine quartz sand and shell hash matrix, friable, locally known as "coquina"..	Run #1	55.9	(55.9-) Set HQ-core barrel and begin coring.		
	56.2		58.6', Open sand-filled fracture 58.6'..		1-UCS 56.7	Run # 1 From: 55.9' To: 60.9' Run: 5' Rec: 5' Core Loss: 0' RQD: 80% Drilling Time: 43 Min. Hydraulic Pressure: 0 psi		
	57.7				2-STC			
	59			REC: 100% RQD: 80%	3-UCS 59.5			
	60.0							
	60.9							

BOTTOM OF BOREHOLE AT 60.9 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".

LAB ROCK TESTING SUMMARY

Sample Number	USCS	UCS (psi)	Other Strength Tests (psi)
1	SM		
1-UCS		33.29	
2-STC			24.1 STS-AVG



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DRILLING LOG (Cont Sheet)	INSTALLATION Charleston Harbor	SHEET 2 OF 2 SHEETS
PROJECT Charleston Harbor Entrance Channel Deepening	COORDINATE SYSTEM State Plane	HORIZONTAL : VERTICAL NAD83 : MLLW
LOCATION COORDINATES N 305564.19 E 2401856.12	ELEVATION TOP OF BORING 0'	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
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3-UCS	100.72
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Boring Designation EC-13-B-39

DRILLING LOG		DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83		HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-39		LOCATION COORDINATES N 305697.71 E 2402984.13		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & PQ-Core Barrel
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500		12. TOTAL SAMPLES DISTURBED : 1 UNDISTURBED : 0
4. NAME OF DRILLER John Haskew		13. TOTAL NUMBER CORE BOXES 2		14. ELEVATION GROUND WATER See Remarks
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL ---	BEARING	15. DATE BORING STARTED : 8/22/13 COMPLETED : 8/22/13
6. THICKNESS OF OVERBURDEN 1.5'		16. ELEVATION TOP OF BORING 0' MLLW		17. TOTAL CORE RECOVERY FOR BORING N/A
7. DEPTH DRILLED INTO ROCK 15.8'		18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist		
8. TOTAL DEPTH OF BORING 69.6'				

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	50.0		0.0' TO -52.2' WATER OCEAN BOTTOM @ -52.2' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
	52.0		GM , Light gray, fine to coarse grained, SILTY GRAVEL, and sand, medium dense, wet, weak cementation, (weakly cemented limestone)..		52.3 SPT 1 Jar	(52.3-53.8) Set 71.3' of 8-in diameter casing, with 1.7' stickup from deck of jack-up barge. Mudline was sounded inside casing at 69.6' depth, corrected to 52.23' MLLW. Conduct SPT sampling. Clean out to 53.8'	7 13 12	25
	53.8		LIMESTONE Light gray, sandy, fossiliferous, horizontal, very thickly bedded, soft to moderately hard, moderate cementation, medium to coarse grained, cemented fine-coarse sand and fine shell matrix, slightly weathered, wet, no staining, contains occasional oyster shell, compact and dense, contains small open shelly cavities..	Run #1	53.8 54.2 1-UCS 54.7	(53.8-) Set PQ-Core barrel and begin coring. Run # 1 From: 53.8' To: 58.8' Run: 5' Rec: 4.7' Core Loss: 0.3' RQD: 90% Drilling Time: 1050 Min. Hydraulic Pressure: 0 psi		
	54.0				54.7 55.2 2-STs 55.7			
	56.0			REC: 94% RQD: 90%	57.2 3-UCS 57.7			
	58.0				58.7 Run #2 58.8 4-UCS 59.3			
	59.1		59.1', open shelly cavity zone 59.1-59.6'.		59.3 5-STS 59.8			
	60.0			REC: 104% RQD: 104%		Run # 2 From: 58.8' To: 63.8' Run: 5' Rec: 5.2' Core Loss: 0' RQD: 104% Drilling Time: 1010 Min. Hydraulic Pressure: 0 psi		
	61.2		61.2', open shelly cavity zone 61.2-61.4'.					
	62.0		62.1', open shelly cavity zone 62.1-62.8'.					



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DRILLING LOG (Cont Sheet)	INSTALLATION Charleston Harbor	SHEET 2 OF 2 SHEETS
PROJECT Charleston Harbor Entrance Channel Deepening	COORDINATE SYSTEM State Plane	HORIZONTAL : VERTICAL NAD83 : MLLW
LOCATION COORDINATES N 305697.71 E 2402984.13	ELEVATION TOP OF BORING 0'	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
	64.0		LIMESTONE Light gray, sandy, fossiliferous, horizontal, very thickly bedded, soft to moderately hard, moderate cementation, medium to coarse grained, cemented fine-coarse sand and fine shell matrix, slightly weathered, wet, no staining, contains occasional oyster shell, compact and dense, contains small open shelly cavities.. 63.8', contains sand seam 63.8-64.6'.	█	64.6	(63.8-64.6) Suspected sand seam		
	66.0			Run #3		(64.6-69.6) Change to HQ-core barrel. Core with HQ-core barrel. Run # 3 From: 64.6' To: 69.6' Run: 5' Rec: 4.6' Core Loss: 0.4' RQD: 62% Drilling Time: 10 Min. Hydraulic Pressure: 0 psi		
	68.0			REC: 92% RQD: 62%				
-69.6				█				

BOTTOM OF BOREHOLE AT 69.6 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8"ID splitspoon w/140 lb. hammer falling 30".

LAB ROCK TESTING SUMMARY

Sample Number	USCS	UCS (psi)	Other Strength Tests (psi)
1	SP-SM		
1-UCS		176.45	
2-STC			66.4 STS-AVG
3-UCS		248.86	
4-UCS		253.30	
5-STC			44.5 STS-AVG



Boring Designation EC-13-B-40

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-40		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & PQ-Core Barrel	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER John Haskew		12. TOTAL SAMPLES	DISTURBED : UNDISTURBED 1 : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	1
6. THICKNESS OF OVERBURDEN 1.5'		14. ELEVATION GROUND WATER	See Remarks
7. DEPTH DRILLED INTO ROCK 10.0'		15. DATE BORING	STARTED : COMPLETED 8/21/13 : 8/21/13
8. TOTAL DEPTH OF BORING 63.8'		16. ELEVATION TOP OF BORING	0' MLLW
		17. TOTAL CORE RECOVERY FOR BORING	N/A
		18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
	50.0		0.0' TO -52.2' WATER OCEAN BOTTOM @ -52.2' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck. Taped bottom of hole at 61.5'; 2.3' fall-in.		
	-52.2		GP-GM , Gray mottled with light gray, fine to coarse grained, GRAVEL, and fine to coarse sand, with silt, dense, wet, moderate cementation, (limestone gravel-sand mixture)..		52.3 SPT 1 Jar	(52.2-) Set 73.3' of 8-in diameter casing, with 1.5' stickup from deck of jack-up barge. Mudline was sounded inside casing at 71.3' depth, corrected to 52.2' MLLW. (52.3-53.8) Conduct SPT sampling.	11 17 18	35
	-53.8		LIMESTONE , Gray, sandy, fossiliferous, horizontal, very thickly bedded, moderately hard, moderate cementation, medium to coarse grained, cemented quartz sand and shell hash matrix, unweathered, wet, no staining, dense and competent, contains small zones of open shelly cavities..	Run #1	53.7 53.8 53.9 54.0 1-UCS	Clean out to 53.8' (53.8-) Set PQ-core barrel and begin coring		
	54.0			REC: 90% RQD: 90%	54.3 55.8 2-UCS	From: 53.8' To: 58.8' Run: 5' Rec: 4.5' Core Loss: 0.5' RQD: 90% Drilling Time: 1515 Min. Hydraulic Pressure: 0 psi		
	56.0				56.7 3-STs			
	58.0				58.7 58.8 3-UCS			
	60.0		60.7', open shelly cavities 60.7-61.3'.		59.3			
	62.0		61.2', open shelly cavities filled with fine sand 61.2'.	REC: 102% RQD: 98%				



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DRILLING LOG (Cont Sheet)	INSTALLATION Charleston Harbor	SHEET 2 OF 2 SHEETS
PROJECT Charleston Harbor Entrance Channel Deepening	COORDINATE SYSTEM State Plane	HORIZONTAL : VERTICAL NAD83 : MLLW
LOCATION COORDINATES N 304899.48 E 2403039.27	ELEVATION TOP OF BORING 0'	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
-63.8		[Symbol]	62.9', open shelly cavities filled with fine sand 62.9'.					

BOTTOM OF BOREHOLE AT 63.8 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".

Sample Number	<u>USCS</u>	UCS (psi)	Other Strength Tests (psi)
1	SP-SM		
1-UCS		295.52	
2-UCS		292.92	
3-STC			64.6 STS-AVG
3-UCS		232.1	



Boring Designation EC-13-B-41

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83 HORIZONTAL : NAD83 VERTICAL : MLLW	
2. HOLE NUMBER EC-13-B-41		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & PQ-Core Barrel	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER Danny Hewlett		12. TOTAL SAMPLES DISTURBED : 1 UNDISTURBED : 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES 1	
6. THICKNESS OF OVERBURDEN 3.5'		14. ELEVATION GROUND WATER See Remarks	
7. DEPTH DRILLED INTO ROCK 5.0'		15. DATE BORING STARTED : 8/21/13 COMPLETED : 8/21/13	
8. TOTAL DEPTH OF BORING 60.6'		16. ELEVATION TOP OF BORING 0' MLLW	
		17. TOTAL CORE RECOVERY FOR BORING N/A	
		18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.]/% CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
	50.0	Wavy lines	0.0' TO -51.6' WATER OCEAN BOTTOM @ -51.6' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
	52.0	Red with circles	GP, Gray, fine to coarse grained, poorly-graded, SANDY GRAVEL, and fine sand, and shell fragments, dense, weak cementation, (weakly cemented limestone gravel and fine quartz sand)..		52.1 SPT 1 Jar	(51.6-52.1) Set 69.3' of 8-in diameter casing, with 2.1' stickup from deck of jack-up barge. Mudline was sounded inside casing at 68.7' depth, corrected to 51.6' MLLW. WOR; splitspoon sinks 0.5' to 52.1'. (52.1-53.6) Conduct SPT sampling. Clean out to 53.6'.	10 20 20	40
	54.0	Brick pattern	LIMESTONE Gray, sandy, fossiliferous, hard, strong cementation, fine, cemented quartz sand and shell hash matrix, locally known as "coquina", contains few fine sand filled fractures..	Run #1	53.6 1-UCS 54.1	(53.6-) Set PQ-core barrel and begin coring.		
	56.0	Brick pattern	55.8', Open fracture; sand filled fracture 55.8'..	REC: 100% RQD: 86%	55.9 2-UCS 56.4	Run # 1 From: 53.6' To: 58.6' Run: 5' Rec: 5' Core Loss: 0' RQD: 86% Drilling Time: 2 Min. Hydraulic Pressure: 0 psi		
	58.0	Brick pattern			57.4 3-STC 57.9			
	60.0	Brick pattern		Run #2	58.6 4-STC 59.0	Run # 2 From: 58.6' To: 60.6' Run: 2' Rec: 2' Core Loss: 0' RQD: 100% Drilling Time: 5 Min. Hydraulic Pressure: 0 psi		
	60.6	Brick pattern		REC: 100% RQD: 100%	59.5 5-UCS 60.0	BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".		

BOTTOM OF BOREHOLE AT 60.6 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

 Wilmington District Geotechnical Section	Drafted By: Kelley Kaltenbach Date Drafted: 11/15/2013	Reviewed By: Date Checked: VERSION: Draft
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DRILLING LOG (Cont Sheet)	INSTALLATION Charleston Harbor	SHEET 2 OF 2 SHEETS
PROJECT Charleston Harbor Entrance Channel Deepening	COORDINATE SYSTEM State Plane	HORIZONTAL : VERTICAL NAD83 : MLLW
LOCATION COORDINATES N 304847.58 E 2404694.93	ELEVATION TOP OF BORING 0'	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
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LAB ROCK TESTING SUMMARY			
Sample Number	USCS SP-SM	UCS (psi)	Other Strength Tests (psi)
1			
1-UCS		185.98	
2-UCS		226.31	
3-STC			66.6 STS-AVG
4-STC			49.7 STS-AVG
5-UCS		273.67	



Boring Designation EC-13-B-42

DRILLING LOG		DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83		HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-42		LOCATION COORDINATES N 304195.8 E 2404402.52		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & PQ-Core Barrel
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500		
4. NAME OF DRILLER Danny Hewlett		12. TOTAL SAMPLES		DISTURBED : UNDISTURBED 1 : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL ---	BEARING	
6. THICKNESS OF OVERBURDEN 0.5'		13. TOTAL NUMBER CORE BOXES		1
7. DEPTH DRILLED INTO ROCK 10.2'		14. ELEVATION GROUND WATER See Remarks		
8. TOTAL DEPTH OF BORING 62.8'		15. DATE BORING		STARTED : COMPLETED 8/21/13 : 8/21/13
		16. ELEVATION TOP OF BORING		0' MLLW
		17. TOTAL CORE RECOVERY FOR BORING N/A		
		18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist		


ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	48.0		0.0' TO -50.8' WATER			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
	50.0		OCEAN BOTTOM @ -50.8' MLLW					
	-50.8		GP, Gray, fine to coarse grained, poorly-graded, SANDY GRAVEL, some fine sand, and shell fragments, medium dense, moderate cementation, (moderately well cemented limestone gravel and sand)..		51.1	(50.8-51.1) Set 71.3' of 8-in diameter casing, with 1.9' stickup from deck of jack-up barge. Mudline was sounded inside casing at 69.4' depth, corrected to 50.8' MLLW. WOR; splitspoon sinks 0.3' to 51.1'. (51.1-52.6) Conduct SPT sampling. Clean out to 52.6'.	3	30
	-52.6		LIMESTONE Gray, sandy, fossiliferous, soft to moderately hard, moderate cementation, fine to medium grained, cemented quartz sand and shell hash matrix, locally known as "coquina", contains few loose sand zones..	Run #1	52.6	(52.6-) Set PQ-core barrel and begin coring		
			52.9', Open fracture; filled with fine sand 52.9'..	1-UCS	53.5	Run # 1 From: 52.6' To: 57.6' Run: 5' Rec: 4.5' Core Loss: 0.5' RQD: 76% Drilling Time: 4 Min. Hydraulic Pressure: 0 psi		
			55.1', Open fracture; small open shelly cavity zone 55.1'..	REC: 90% RQD: 76%	54.6			
			56', Open fracture; filled with fine sand 56.0'..	2-UCS	55.1			
				3-STC	55.8			
				Run #2	57.6	Run # 2 From: 57.6' To: 62.8' Run: 5.2' Rec: 5.4' Core Loss: 0' RQD: 98% Drilling Time: 4 Min. Hydraulic Pressure: 0 psi		
				4-UCS	58.4			
				5-STC	59.3			
			61.2', weak cementation, friable..	REC: 104% RQD: 98%				



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DRILLING LOG (Cont Sheet)	INSTALLATION Charleston Harbor	SHEET 2 OF 2 SHEETS
PROJECT Charleston Harbor Entrance Channel Deepening	COORDINATE SYSTEM State Plane	HORIZONTAL : VERTICAL NAD83 : MLLW
LOCATION COORDINATES N 304195.8 E 2404402.52	ELEVATION TOP OF BORING 0'	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
-62.8	62.0		62.5', hard, strong cementation, fine.					

BOTTOM OF BOREHOLE AT 62.8 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN
ACCORDANCE WITH THE UNIFIED SOIL
CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number
required to drive 1-3/8" ID splitspoon
w/140 lb. hammer falling 30".

LAB ROCK TESTING SUMMARY

Sample Number	USCS SP-SM	UCS (psi)	Other Strength Tests (psi)
1-UCS		223.31	
2-UCS		195.15	
3-STC			27.2 STS-AVG
4-UCS		200.11	
5-STC			71 STS-AVG



Boring Designation EC-13-B-43

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-43	LOCATION COORDINATES N 304230.39 E 2405655.47	10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & PQ-Core Barrel	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER John Haskew		12. TOTAL SAMPLES	DISTURBED : UNDISTURBED 1 : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	1
DEG FROM VERTICAL : BEARING --- : ---		14. ELEVATION GROUND WATER See Remarks	
6. THICKNESS OF OVERBURDEN 1.5'		15. DATE BORING	STARTED : COMPLETED 8/21/13 : 8/21/13
7. DEPTH DRILLED INTO ROCK 10.0'		16. ELEVATION TOP OF BORING 0' MLLW	
8. TOTAL DEPTH OF BORING 63.2'		17. TOTAL CORE RECOVERY FOR BORING N/A	
18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft h	N-Value i
-51.7	50.0		0.0' TO -51.8' WATER OCEAN BOTTOM @ -51.8' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck. Taped bottom of hole at 57.9'; 5.3' fall-in.		
-53.2	52.0		GP-GM , Gray, fine to coarse grained, GRAVEL, and fine to coarse sand, with silt, medium dense, wet, moderate cementation, (limestone gravel and cemented sand, contains rock fragments)..		51.7 SPT 1 Jar	(51.8-53.3) Set 69.3' of 8-in diameter casing, with 1.5' stickup from deck of jack-up barge. Mudline was sounded inside casing at 68.1' depth, corrected to 51.8' MLLW. Conduct SPT sampling. Clean out to 53.3'	5 8 9	17
	54.0		LIMESTONE , Gray, sandy, fossiliferous, horizontal, thickly bedded, soft to moderately hard, moderate cementation, fine to coarse grained, cemented quartz sand and shell hash matrix, slightly weathered, wet, no staining, mold and cast features common, fracture zone 53.2-53.6', widely spaced fractures at 53.9' and 55.8'..	Run #1 REC: 86% RQD: 78%	53.2 54 54.5 55.4 56.6 57.1	(53.3-) Set PQ-core barrel and begin coring. Run # 1 From: 53.2' To: 58.2' Run: 5' Rec: 4.3' Core Loss: 0.7' RQD: 78% Drilling Time: 1010 Min. Hydraulic Pressure: 0 psi		
	58.0			Run #2 REC: 100% RQD: 100%	58.2 58.3 58.6 59.3 59.7	Run # 2 From: 58.2' To: 63.2' Run: 5' Rec: 5' Core Loss: 0.6' RQD: 100% Drilling Time: 55 Min. Hydraulic Pressure: 0 psi		
	62.0		61.4', small open shelly cavity zone 61.4-63.0'..					



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DRILLING LOG (Cont Sheet)		INSTALLATION		SHEET 2
		Charleston Harbor		OF 2 SHEETS
PROJECT		COORDINATE SYSTEM	HORIZONTAL	VERTICAL
Charleston Harbor Entrance Channel Deepening		State Plane	NAD83	MLLW
LOCATION COORDINATES		ELEVATION TOP OF BORING		
N 304230.39 E 2405655.47		0'		

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
-63.2	—							

BOTTOM OF BOREHOLE AT 63.2 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN
ACCORDANCE WITH THE UNIFIED SOIL
CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number
required to drive 1-3/8" ID splitspoon
w/140 lb. hammer falling 30".

LAB ROCK TESTING SUMMARY

Sample Number	USCS SP-SM	UCS (psi)	Other Strength Tests (psi)
1	SP-SM	369.17	
1-UCS			52.0 STS-AVG
2-UCS		415.83	
3-UCS		219.33	
4-UCS			120.6 STS-AVG
5-STC			



Boring Designation EC-13-B-44

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-44		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & PQ-Core Barrel	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER Danny Hewlett		12. TOTAL SAMPLES	DISTURBED : UNDISTURBED 2 : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	1
DEG FROM VERTICAL : BEARING --- : ---		14. ELEVATION GROUND WATER	See Remarks
6. THICKNESS OF OVERBURDEN 3'		15. DATE BORING	STARTED : COMPLETED 8/20/13 : 8/20/13
7. DEPTH DRILLED INTO ROCK 5.0'		16. ELEVATION TOP OF BORING	0' MLLW
8. TOTAL DEPTH OF BORING 61.8'		17. TOTAL CORE RECOVERY FOR BORING	N/A
18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	52.0		0.0' TO -53.2' WATER OCEAN BOTTOM @ -53.2' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
-53.2	54.0		GP, Gray, fine to coarse grained, poorly-graded, SANDY GRAVEL, with shell fragments, medium dense, weak cementation, (weakly cemented limestone gravel)..		53.8 SPT 1 Jar	(53.2-53.8) Set 73.3' of 8-in diameter casing, with 2.7' stickup from deck of jack-up barge. Mudline was sounded inside casing at 71.5' depth, corrected to 53.2' MLLW. WOR; splitspoon sinks 0.6' to 53.8'.	5 12 11	23
	56.0		55.3', dense.		55.3 SPT 2 Jar	(53.8-56.8) Set splitspoon on dense material. Conduct SPT sampling. Clean out to 56.8'.	14 21 16	37
-56.8	58.0		LIMESTONE Gray, sandy, fossiliferous, soft, weak cementation, fine, cemented quartz sand and shell hash matrix, contains some fossil cast and molds, friable, locally known as "coquina", contains few thin shelly zones..	Run #1	56.8 1-UCS	(56.8-) Set PQ-core barrel and begin coring.		
	60.0		58.8', Open fracture; zone of shells 58.8'.. 59.3', Open fracture; zone of shells 59.3'..	REC: 96% RQD: 94%	58.4 2-STs 59.4 3-UCS	Run # 1 From: 56.8' To: 61.8' Run: 5' Rec: 4.8' Core Loss: 0.2' RQD: 94% Drilling Time: 3 Min. Hydraulic Pressure: 0 psi		
-61.8			60', Open fracture; zone of shells 60.0'..					

BOTTOM OF BOREHOLE AT 61.8 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8"ID splitspoon w/140 lb. hammer falling 30".

Sample Number	UCS (psi)	Other Strength Tests (psi)
2	SP-SM	
1-UCS	114.56	
2-STs		26.5 STS-AVG
3-UCS	158.72	



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Boring Designation EC-13-B-45

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	
2. HOLE NUMBER EC-13-B-45		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & PQ-Core Barrel	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER John Haskew		12. TOTAL SAMPLES DISTURBED: 1 UNDISTURBED: 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES 1	
6. THICKNESS OF OVERBURDEN 1.5'		14. ELEVATION GROUND WATER See Remarks	
7. DEPTH DRILLED INTO ROCK 10.0'		15. DATE BORING STARTED: 8/20/13 COMPLETED: 8/20/13	
8. TOTAL DEPTH OF BORING 62.8'		16. ELEVATION TOP OF BORING 0' MLLW	
		17. TOTAL CORE RECOVERY FOR BORING N/A	
		18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.]/% CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value	
	50.0		0.0' TO -51.3' WATER OCEAN BOTTOM @ -51.3' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck. Taped bottom of hole at 62.5'; 0.2' fall-in.			
	52.0		GP-GM , Gray, fine to coarse grained, GRAVEL, and fine to coarse sand, with silt, some shell fragments, medium dense, weak cementation, (weakly cemented limestone gravel and sand)..		51.3 SPT 1 Jar	(51.3-52.8) Set 72.3' of 8-in diameter casing, with 1.8' stickup from deck of jack-up barge. Mudline was sounded inside casing at 70.0' depth, corrected to 51.3' MLLW. Conduct SPT sampling. Clean out to 52.8'.	9 9 9	18	
	54.0		LIMESTONE , Gray, sandy, fossiliferous, horizontal, very thickly bedded, moderately hard, strong cementation, fine to coarse grained, cemented quartz sand and fine shell matrix, slightly weathered, wet, no staining, contains fossil shell rich zones, with molds and casts, fractured zone 52.8-53.3', open fractures at 53.5', 53.7', 56.6', 58.7', and 60.7'.. 53.8', shelly zones 53.8-55.9'.	Run #1 REC: 100% RQD: 78%	52.8 53.7 54.2 55 55.5 55.8 56.3	(52.8-) Set PQ-Core barrel and begin coring. Run # 1 From: 52.8' To: 57.8' Run: 5' Rec: 5' Core Loss: 0' RQD: 78% Drilling Time: 10 Min. Hydraulic Pressure: 0 psi			
	58.0		58.2', shelly zone 58.2-58.7'.	Run #2	57.8 58.3	Run # 2 From: 57.8' To: 62.8' Run: 5' Rec: 4.9' Core Loss: 0.1' RQD: 92% Drilling Time: 20 Min. Hydraulic Pressure: 0 psi			
	60.0		59.2', shelly zone 59.2-59.3'.		59.5 60.0				
	62.0		60.8', shelly zone 60.8-61.8'.	REC: 98% RQD: 92%					



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DRILLING LOG (Cont Sheet)		INSTALLATION		SHEET	2
		Charleston Harbor		OF 2 SHEETS	
PROJECT		COORDINATE SYSTEM	HORIZONTAL	VERTICAL	
Charleston Harbor Entrance Channel Deepening		State Plane	NAD83	MLLW	
LOCATION COORDINATES		ELEVATION TOP OF BORING			
N 303577.06 E 2406796.81		0'			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
-62.8								

BOTTOM OF BOREHOLE AT 62.8 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN
ACCORDANCE WITH THE UNIFIED SOIL
CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number
required to drive 1-3/8" ID splitspoon
w/140 lb. hammer falling 30".

LAB ROCK TESTING SUMMARY

Sample Number	USCS SP-SM	UCS (psi)	Other Strength Tests (psi)
1			
1-UCS		227.36	
2-STC			30.2 STS-AVG
3-UCS		200.46	
4-UCS		191.35	
5-STC			38.3 STS-AVG



Boring Designation EC-13-B-46

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-46		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & PQ-Core Barrel	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER Danny Hewlett		12. TOTAL SAMPLES	DISTURBED : UNDISTURBED 2 : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	1
DEG FROM VERTICAL : BEARING --- : ---		14. ELEVATION GROUND WATER	See Remarks
6. THICKNESS OF OVERBURDEN 3'		15. DATE BORING	STARTED : COMPLETED 8/20/13 : 8/20/13
7. DEPTH DRILLED INTO ROCK 5.0'		16. ELEVATION TOP OF BORING	0' MLLW
8. TOTAL DEPTH OF BORING 62.0'		17. TOTAL CORE RECOVERY FOR BORING	N/A
18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	52.0	Wavy pattern	0.0' TO -53.6' WATER OCEAN BOTTOM @ -53.6' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
-53.6	-54	X pattern	Soft material; not sampled.		54	(53.6-54) Set 73.3' of 8-in diameter casing, with 3.0' stickup from deck of jack-up barge. Mudline was sounded inside casing at 72.4' depth, corrected to 53.6' MLLW. WOR; splitspoon sinks 0.4' to 54.0'.	8 16 14	30
	56.0	Red with circles	GP, Gray, fine grained, poorly-graded, SANDY GRAVEL, with shell fragments, medium dense, weak cementation, (weakly cemented limestone gravel with sand and shell fragments)..		55.5	(54-57) Set splitspoon on dense material. Conduct continuous SPT sampling. Clean out to 57.0', set PQ-core barrel and begin coring.	5 15 13	28
-57	58.0	Brick pattern	LIMESTONE, Gray, sandy, fossiliferous, soft, weak cementation, fine, cemented fine quartz sand and shell hash matrix, friable, known locally as "coquina", contains few soft sandy zones and seams.. 57.4', Zone of open fractures; fine sand seams 57.4' to 58.8'..	Run #1	57			
	60.0	Brick pattern		REC: 100% RQD: 94%	57.5 59 59.9	Run # 1 From: 57' To: 62' Run: 5' Rec: 5' Core Loss: 0' RQD: 94% Drilling Time: 3 Min. Hydraulic Pressure: 0 psi		
-62	62.0	Brick pattern						

BOTTOM OF BOREHOLE AT 62.0 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".

LAB ROCK TESTING SUMMARY			
Sample Number	USCS	UCS (psi)	Other Strength Tests (psi)
1	SP-SM		
1-UCS		138.37	
2-STC			33.9 STS-AVG
3-UCS		170.46	

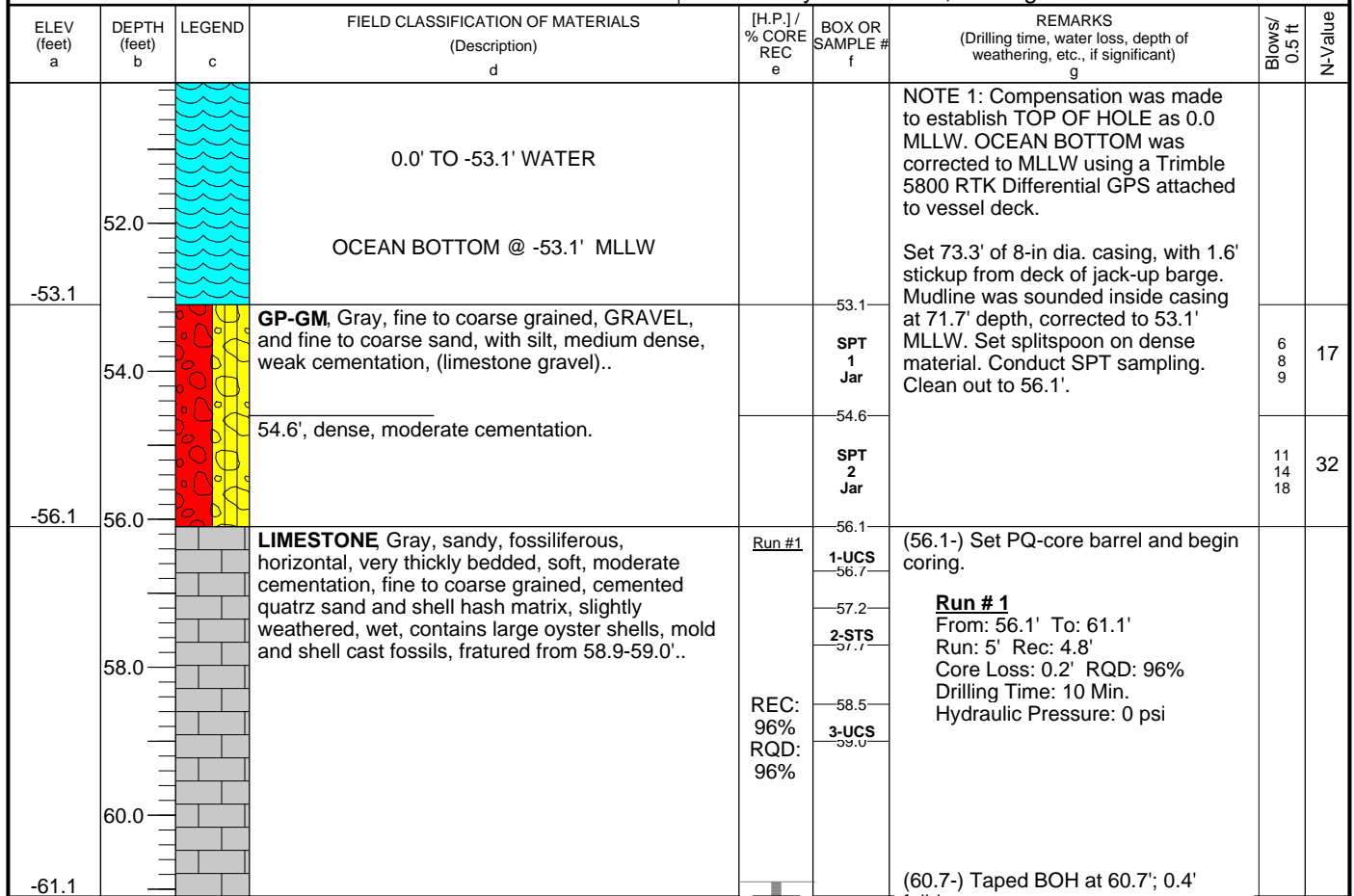


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Boring Designation EC-13-B-47

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : NAD83 VERTICAL : MLLW
2. HOLE NUMBER EC-13-B-47	LOCATION COORDINATES N 302820.64 E 2408182.67	10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & HQ-Core Barrel	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER John Haskew		12. TOTAL SAMPLES	DISTURBED : 2 UNDISTURBED : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	1
DEG FROM VERTICAL : ---		14. ELEVATION GROUND WATER : See Remarks	
6. THICKNESS OF OVERBURDEN		15. DATE BORING	STARTED : 8/20/13 COMPLETED : 8/20/13
7. DEPTH DRILLED INTO ROCK		16. ELEVATION TOP OF BORING : 0' MLLW	
8. TOTAL DEPTH OF BORING : 61.1'		17. TOTAL CORE RECOVERY FOR BORING : N/A	
18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist			



BOTTOM OF BOREHOLE AT 61.1 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".

Sample Number	USCS	UCS (psi)	Other Strength Tests (psi)
1	SP-SM		
1-UCS		130.48	
2-STs			22.2 STS-AVG
3-UCS		152.33	



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Boring Designation EC-13-B-48

DRILLING LOG		DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83		HORIZONTAL : NAD83 VERTICAL : MLLW
2. HOLE NUMBER EC-13-B-48	LOCATION COORDINATES N 302055.69 E 2408173.46		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & PQ-Core Barrel	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500		
4. NAME OF DRILLER John Haskew		12. TOTAL SAMPLES		DISTURBED : 2 UNDISTURBED : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL : ---	BEARING	
6. THICKNESS OF OVERBURDEN : 3'		13. TOTAL NUMBER CORE BOXES : 1		14. ELEVATION GROUND WATER : See Remarks
7. DEPTH DRILLED INTO ROCK : 10.0'		15. DATE BORING		STARTED : 8/19/13 COMPLETED : 8/19/13
8. TOTAL DEPTH OF BORING : 62.8'		16. ELEVATION TOP OF BORING : 0' MLLW		17. TOTAL CORE RECOVERY FOR BORING : N/A
18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist				


ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	48.0		0.0' TO -49.7' WATER OCEAN BOTTOM @ -49.7' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck. Taped bottom of hole at 62.7'; 0.2' fall-in.		
	50.0		GP-GM , Gray mottled with brown, fine to medium grained, GRAVEL, and fine to coarse sand, with silt, some shell fragments, medium dense, wet, weak cementation, (weakly cemented limestone gravel and rock fragments)..		49.8 SPT 1 Jar	(49.7-49.8) Set 71.3' of 8-in diameter casing, with 1.7' stickup from deck of jack-up barge. Mudline was sounded inside casing at 69.4' depth, corrected to 49.7' MLLW. Splitspoon, sinks 0.1' to 49.8'. (49.8-52.8) Conduct SPT sampling. Clean out to 52.8'	4 4 7	11
	52.0		SM , Gray, fine to coarse grained, SILTY SAND, little fine to medium gravel, medium dense, wet, (weakly cemented sand and limestone gravel mixture)..		51.3 SPT 2 Jar		6 12 13	25
	54.0		LIMESTONE Gray, sandy, fossiliferous, horizontal, very thickly bedded, soft, weak cementation, fine to medium grained, cemented quartz sand and shell has matrix, unweathered, wet, no staining, contains occasional oyster shell, silty sand to clayed sand seams 1-1/2" thick, open fracture at 57.1'.		52.8 Run #1 1-UCS 53.3	(52.8-) Set PQ-core barrel and begin coring. Run # 1 From: 52.8' To: 57.8' Run: 5' Rec: 5' Core Loss: 0' RQD: 100% Drilling Time: 10 Min. Hydraulic Pressure: 0 psi		
	56.0				55 REC: 100% RQD: 100% 2-UCS 55.5			
	57.1		57.1', sandy zone 57.1-57.3'.		57.1 3-STs 57.6			
	58.0		57.8', coarse sand zone 57.8-59.3'.		57.8 Run #2 4-UCS 58.2			
	58.7				58.7 6-STs 59.2	Run # 2 From: 57.8' To: 62.8' Run: 5' Rec: 4.7' Core Loss: 0.3' RQD: 92% Drilling Time: 10 Min. Hydraulic Pressure: 0 psi		
	60.0				59.7 5-UCS 60.2 REC: 94%			



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DRILLING LOG (Cont Sheet)		INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS	
PROJECT Charleston Harbor Entrance Channel Deepening		COORDINATE SYSTEM State Plane		HORIZONTAL : VERTICAL NAD83 : MLLW	
LOCATION COORDINATES N 302055.69 E 2408173.46		ELEVATION TOP OF BORING 0'			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
-62.8	62.0		LIMESTONE Gray, sandy, fossiliferous, horizontal, very thickly bedded, soft, weak cementation, fine to medium grained, cemented quartz sand and shell has matrix, unweathered, wet, no staining, contains occasional oyster shell, silty sand to clayed sand seams 1-1/2" thick, open fracture at 57.1'.	RQD: 92%				

BOTTOM OF BOREHOLE AT 62.8 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".

LAB ROCK TESTING SUMMARY

Sample Number	USCS	UCS (psi)	Other Strength Tests (psi)
1	SP-SM		
2	SM		
1-UCS		98.44	
2-UCS		204.94	
3-STC			13.6 STS-AVG
4-UCS		89.08	
6-STC			41.6 STS-AVG
5-UCS		142.44	



Boring Designation EC-13-B-49

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-49		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & PQ-Core Barrel	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER Danny Hewlett		12. TOTAL SAMPLES	DISTURBED : 1 UNDISTURBED : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	1
6. THICKNESS OF OVERBURDEN		14. ELEVATION GROUND WATER	
1.5'		See Remarks	
7. DEPTH DRILLED INTO ROCK		15. DATE BORING	
9.9'		STARTED : 8/19/13 COMPLETED : 8/19/13	
8. TOTAL DEPTH OF BORING		16. ELEVATION TOP OF BORING	
61.3'		0' MLLW	
		17. TOTAL CORE RECOVERY FOR BORING	
		N/A	
		18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	48.0	[Wavy pattern]	0.0' TO -49.6' WATER OCEAN BOTTOM @ -49.6' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck. Taped bottom of hole at 50.8'; 10.5' fall-in.		
	50.0	[Red pattern]	GP, Gray, fine grained, poorly-graded, SANDY GRAVEL, with shell fragments, loose to medium dense, weak cementation, friable, (weakly cemented limestone gravel and quartz sand)..		49.9	(49.6-49.9) Set 67.3' of 8-in diameter casing, with 1.7' stickup from deck of jack-up barge. Mudline was sounded inside casing at 65.8' depth, corrected to 49.6' MLLW. WOR; splitspoon sinks 0.3' to 49.9'. (49.9-51.4) Conduct SPT sampling. Clean out to 51.4'.	12 12 14	26
	51.4	[Brick pattern]	LIMESTONE Gray, sandy, fossiliferous, soft to moderately hard, weak cementation, fine, cemented fine quartz sand and shell hash matrix, friable..		51.4	(51.4-) Set PQ-Core barrel and begin coring. Run # 1 From: 51.4' To: 56.3' Run: 4.9' Rec: 3.8' Core Loss: 1.1' RQD: 78% Drilling Time: 6 Min. Hydraulic Pressure: 0 psi		
	52.0	[Brick pattern]		Run #1				
	53.1	[Brick pattern]		REC: 78% RQD: 78%	53.1			
	53.7	[Brick pattern]			53.7			
	54.0	[Brick pattern]						
	55.7	[Brick pattern]			55.7			
	56.0	[Brick pattern]			56.0			
	56.3	[Brick pattern]			56.3			
	56.6	[Brick pattern]			56.6			
	58.0	[Brick pattern]			58.0			
	58.4	[Brick pattern]			58.4			
	58.9	[Brick pattern]			58.9			
	60.0	[Brick pattern]						



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VERSION: Draft

DRILLING LOG (Cont Sheet)		INSTALLATION		SHEET	2
		Charleston Harbor		OF	2 SHEETS
PROJECT		COORDINATE SYSTEM		HORIZONTAL	VERTICAL
Charleston Harbor Entrance Channel Deepening		State Plane		NAD83	MLLW
LOCATION COORDINATES		ELEVATION TOP OF BORING			
N 302154.37 E 2409294.29		0'			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
-61.3		[Pattern]		[Pattern]				

BOTTOM OF BOREHOLE AT 61.3 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN
ACCORDANCE WITH THE UNIFIED SOIL
CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number
required to drive 1-3/8" ID splitspoon
w/140 lb. hammer falling 30".

LAB ROCK TESTING SUMMARY

Sample Number	USCS SP-SM	UCS (psi)	Other Strength Tests (psi)
1		84.76	
2-UCS		88.09	
3-STC			8.4 STS-AVG
4-UCS		0.0	



Boring Designation EC-13-B-50

DRILLING LOG		DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83		HORIZONTAL : NAD83 VERTICAL : MLLW
2. HOLE NUMBER EC-13-B-50		LOCATION COORDINATES N 301240.38 E 2411175.93		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & HQ-Core Barrel
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500		
4. NAME OF DRILLER Danny Hewlett		12. TOTAL SAMPLES		DISTURBED : 2 UNDISTURBED : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL : ---	BEARING	
6. THICKNESS OF OVERBURDEN 1.9'		13. TOTAL NUMBER CORE BOXES 1		14. ELEVATION GROUND WATER See Remarks
7. DEPTH DRILLED INTO ROCK 12.0'		15. DATE BORING		STARTED : 8/19/13 COMPLETED : 8/19/13
8. TOTAL DEPTH OF BORING 64.8'		16. ELEVATION TOP OF BORING 0' MLLW		17. TOTAL CORE RECOVERY FOR BORING N/A
18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist				

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	48.0		0.0' TO -49.4' WATER OCEAN BOTTOM @ -49.4' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck. Set 68.3' of 8-in diameter casing, with 1.9' stickup from deck of jack-up barge. Mudline was sounded inside casing at 67.8' depth, corrected to 49.4' MLLW. 49.4'-49.8' WOR; splitspoon sinks 0.4'.		
	50.0		GP-GM , Gray, fine to coarse grained, poorly-graded, SANDY GRAVEL, with silt, some shell fragments, very loose to medium dense, weak cementation, (disarticulated limestone; mixture of sand and limestone gravel), friable.		49.8 SPT 1 Jar	Sample Note: Originally labelled GM; later changed to GP-GM	8 10 10	20
	51.3		LIMESTONE , Gray, sandy, fossiliferous, hard, moderate cementation, fine-grained, cemented sand and shell hash matrix, friable, locally known as "coquina"..	Run #1	51.3 51.6 1-UCS 52.1	(51.3-66.3) Set PQ-core barrel and begin coring. Run # 1 From: 51.3' To: 56.3' Run: 5' Rec: 2.3' Core Loss: 2.7' RQD: 30% Drilling Time: 2 Min. Hydraulic Pressure: 0 psi		
	53.6		Zone of core loss, suspect possible sand horizon	REC: 46% RQD: 30%	53.2 2-UCS 53.9			
	54.0			REC: 0% RQD: 0%	56.3			
	58.3		LIMESTONE , Gray, sandy, fossiliferous, hard, moderate cementation, fine-grained, cemented sand and shell hash matrix, friable, locally known as "coquina"..	Run #3	58.3 3-STs	Run # 2 From: 56.3' To: 58.3' Run: 2' Rec: 0' Core Loss: 2' RQD: 0% Drilling Time: 5 Min. Hydraulic Pressure: 0 psi		
	59.5			REC: 24% RQD: 22%		Run # 3 From: 58.3' To: 63.3' Run: 5' Rec: 1.2' Core Loss: 3.8' RQD: 22% Drilling Time: 3 Min.		
	60.0		Zone of core loss, suspect possible sand horizon					



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DRILLING LOG (Cont Sheet)		INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS	
PROJECT Charleston Harbor Entrance Channel Deepening		COORDINATE SYSTEM State Plane		HORIZONTAL : VERTICAL NAD83 : MLLW	
LOCATION COORDINATES N 301240.38 E 2411175.93		ELEVATION TOP OF BORING 0'			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	62.0		Zone of core loss, suspect possible sand horizon			Hydraulic Pressure: 0 psi		
-63.3					63.3			
	64.0		GP-GM , Gray, fine to coarse grained, poorly-graded, SANDY GRAVEL, with silt, some shell fragments, medium dense, weak cementation, (disarticulated limestone; mixture of sand and limestone gravel), friable.		SPT 2 Jar	(63.3-64.8) Switch back to fishtail bit, clean out to 63.3'. Conduct SPT sampling. Sample Note: Originally labelled GM; later changed to GP-GM	3 9 9	18
-64.8					64.8			

BOTTOM OF BOREHOLE AT 64.8 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".

LAB ROCK TESTING SUMMARY

Sample Number	USCS	UCS (psi)	Other Strength Tests (psi)
1	SP-SM		
1-UCS	SP-SM	115.31	
2-UCS		73.66	
3-STC			22.4 STS-AVG
2			



Boring Designation EC-13-B-51

DRILLING LOG		DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83		HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-51		LOCATION COORDINATES N 300120.02 E 2411721.71		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & PQ-Core Barrel
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500		
4. NAME OF DRILLER John Haskew		12. TOTAL SAMPLES		DISTURBED : UNDISTURBED 1 : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL : BEARING --- : ---		13. TOTAL NUMBER CORE BOXES : 1
6. THICKNESS OF OVERBURDEN : 1.5'		14. ELEVATION GROUND WATER : See Remarks		
7. DEPTH DRILLED INTO ROCK : 10.0'		15. DATE BORING		STARTED : COMPLETED 8/19/13 : 8/19/13
8. TOTAL DEPTH OF BORING : 61.0'		16. ELEVATION TOP OF BORING : 0' MLLW		
		17. TOTAL CORE RECOVERY FOR BORING : N/A		
18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist				

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	48.0		0.0' TO -49.5' WATER OCEAN BOTTOM @ -49.5' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck. Set 69.3' of 8-in dia. casing with 1.7' stickup. Mudline sounded inside casing at 67.8' depth, corrected to 49.5' MLLW.		
	50.0		GM , Light gray, fine to coarse grained, SILTY GRAVEL, and fine to coarse sand, some shell fragments, trace clay, medium dense, no cementation, (limestone gravel and sand)..		SPT 1 Jar	(49.5-51) Conduct SPT sampling to 51.0'. Set PQ-core barrel and begin coring.	8 11 12	23
	52.0		LIMESTONE , Gray, sandy, fossiliferous, horizontal, very thickly bedded, moderately hard, strong cementation, coarse-grained, cemented quartz sand and shell hash matrix, slightly weathered, wet, no staining, trace silt, contains fossil shell hash zone from 51.0-51.5' and occasional oyster shell, contains thin seams of fine sand..	Run #1	51 51.5 1-UCS 51.3	Run # 1 From: 51' To: 56' Run: 5' Rec: 4.6' Core Loss: 0.4' RQD: 84% Drilling Time: 10 Min. Hydraulic Pressure: 0 psi		
	54.0		54.1', zone of fossilized shell hash and oyster shell 54.1-54.6'.	REC: 92% RQD: 84%	52.9 2-UCS 53.4			
	56.0		57', open fracture; fine-grained sand seam 57.0-57.5'.		54.2 3-STC 54.7			
	58.0		58.3', open fracture; fine-grained sand seam 58.3-58.6'.	Run #2	56 4-UCS 56.5			
	60.0		59', open fracture; fine-grained sand seam suspected at 59.0'.	REC: 60% RQD: 46%	58.4 5-STC			
						(56-) Change to HQ-core barrel and core from 56.0-61.0'. Run # 2 From: 56' To: 61' Run: 5' Rec: 3' Core Loss: 2.7' RQD: 46% Drilling Time: 15 Min. Hydraulic Pressure: 0 psi		



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DRILLING LOG (Cont Sheet)		INSTALLATION		SHEET 2
		Charleston Harbor		OF 2 SHEETS
PROJECT		COORDINATE SYSTEM	HORIZONTAL	VERTICAL
Charleston Harbor Entrance Channel Deepening		State Plane	NAD83	MLLW
LOCATION COORDINATES		ELEVATION TOP OF BORING		
N 300120.02 E 2411721.71		0'		

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
-61		-		1		(60.5-) Taped bottom of hole at 60.5'; 0.5' core left at bottom of hole.		

BOTTOM OF BOREHOLE AT 61.0 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN
ACCORDANCE WITH THE UNIFIED SOIL
CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number
required to drive 1-3/8" ID splitspoon
w/140 lb. hammer falling 30".

LAB ROCK TESTING SUMMARY

Sample Number	USCS SP-SM	UCS (psi)	Other Strength Tests (psi)
1			
1-UCS		76.4	40 STS
2-UCS		77	
3-STC			19.0 STS
4-UCS		95.3	
5-STC			20.8 STS



Boring Designation EC-13-B-52

DRILLING LOG		DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83		HORIZONTAL : NAD83 VERTICAL : MLLW
2. HOLE NUMBER EC-13-B-52		LOCATION COORDINATES N 300433.08 E 2412634.47		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail w/ 1-3/8" Splitspoon & PQ-Core Barrel
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500		12. TOTAL SAMPLES DISTURBED : 4 UNDISTURBED : 0
4. NAME OF DRILLER John Haskew		13. TOTAL NUMBER CORE BOXES 1		14. ELEVATION GROUND WATER See Remarks
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL ---	BEARING	15. DATE BORING STARTED : 8/18/13 COMPLETED : 8/18/13
6. THICKNESS OF OVERBURDEN 11.1'		16. ELEVATION TOP OF BORING 0' MLLW		17. TOTAL CORE RECOVERY FOR BORING N/A
7. DEPTH DRILLED INTO ROCK 5.0'		18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist		
8. TOTAL DEPTH OF BORING 60.8'				

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
-49.7	48.0		0.0' TO -49.7' WATER OCEAN BOTTOM @ -49.7' MLLW			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
-51.3	50.0		GM , Gray mottled with dark tannish gray, fine grained, SILTY GRAVEL, and fine to coarse sand, little silt, little shell fragments, medium dense, moderate cementation, (limestone gravel and cemented sand)..		49.8 SPT 1 Jar	(49.7-49.8) Set 69.3' of 8-in diameter casing, with 1.7' stickup from deck of jack-up barge. Mudline was sounded inside casing at 67.7' depth, corrected to 49.7' MLLW. WOR; splitspoon sinks 0.1'.	7 6 7	13
-55.8	52.0		SP-SM , Gray, fine to coarse grained, SAND, with silt, little fine gravel, and rock fragments, dense, weak cementation, (weakly cemented sand and limestone gravel)..		51.3 SPT 2 Jar	(49.8-55.8) Conduct continuous SPT sampling. Clean out to 55.8'; Lab = (SP-SM) Poorly Graded Silty Sand (SP-SM), with some gravel.	16 10 21	31
-55.8	54.0		54.3', some fine to coarse gravel, and rock fragments, moderate cementation, (weak-well cemented limestone gravels and sand)..		52.8 SPT 3 Jar	Lab = (SM) Silty Sand (SM), with a trace of gravel.	10 15 14	29
-55.8	54.3				54.3 SPT 4 Jar		10 15 15	30
-55.8	56.0		LIMESTONE Gray, sandy, fossiliferous, very thickly bedded, moderately hard to very hard, moderate cementation, coarse grained, cemented quartz sand and gravel matrix with shell, slightly weathered, wet, no staining, friable, little fossil material, contains variable amounts of silt and clay within the sand-gravel matrix. Broken zone 55.8-56.2'..		55.8 Run #1	(55.8-) Set PQ-core barrel and begin coring.		
-55.8	58.0				57 3-SPTS	Run # 1 From: 55.8' To: 60.8' L:Run: 5' Rec: 4.5' ngth Test 16.5 psi; Core Loss: 0.5' RQD: 76% Drilling Time: 55 Min. Hydraulic Pressure: 0 psi		
-55.8	60.0				57.9 1-UCS			
-55.8	60.0				58.4 2-UCS			
-55.8	60.0				60.3			



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VERSION: Draft

DRILLING LOG (Cont Sheet)		INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS	
PROJECT Charleston Harbor Entrance Channel Deepening		COORDINATE SYSTEM State Plane		HORIZONTAL NAD83	VERTICAL MLLW
LOCATION COORDINATES N 300433.08 E 2412634.47		ELEVATION TOP OF BORING 0'			

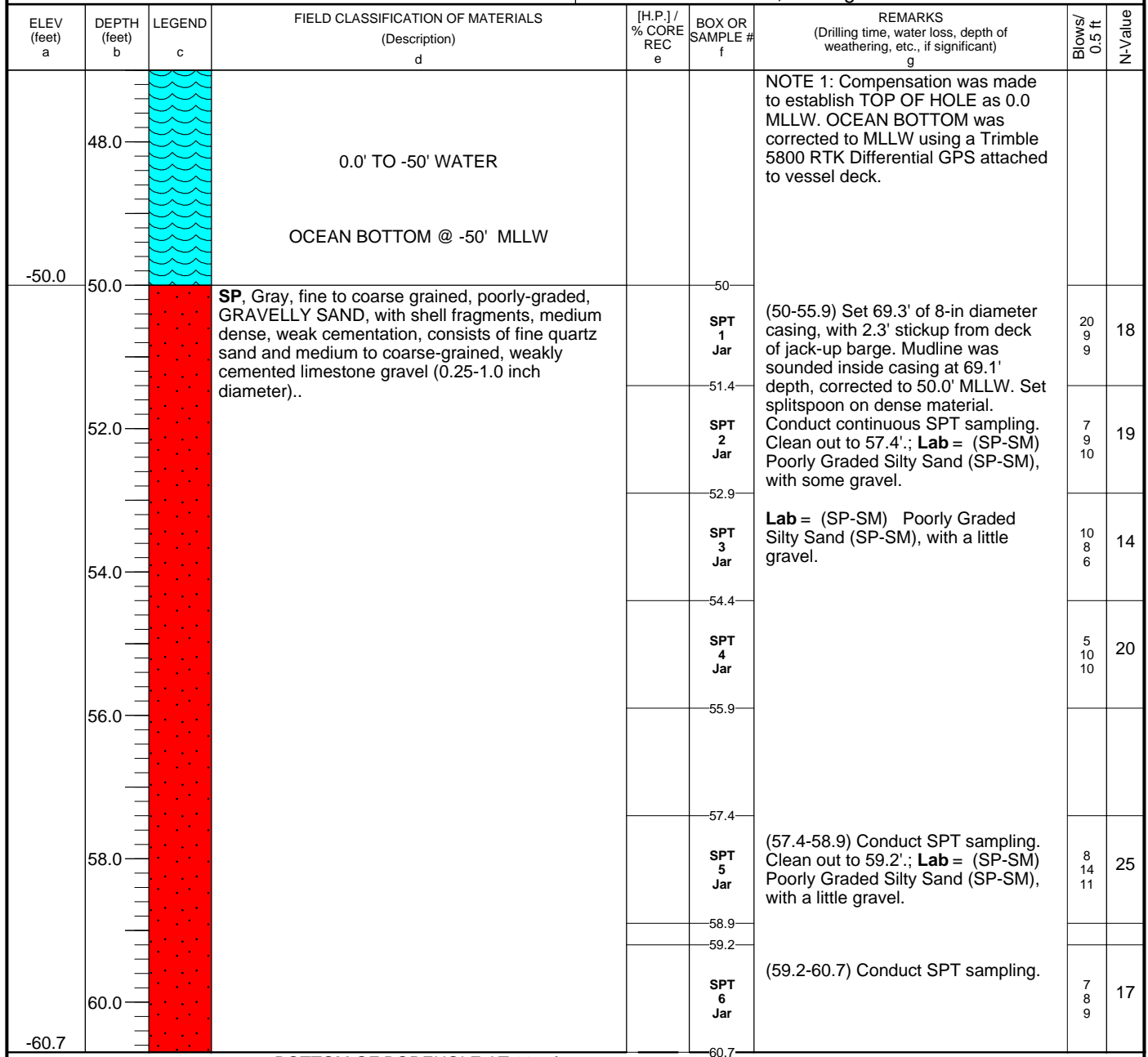
ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
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-60.8			BOTTOM OF BOREHOLE AT 60.8 ft					
SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM				BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".				



Boring Designation EC-13-B-53

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : NAD83 VERTICAL : MLLW
2. HOLE NUMBER EC-13-B-53		10. SIZE AND TYPE OF BIT 1-3/8" Splitspoon w/ 5 1/2" Fishtail	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER Danny Hewlett		12. TOTAL SAMPLES	DISTURBED : 6 UNDISTURBED : 0
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES	0
DEG FROM VERTICAL : ---		14. ELEVATION GROUND WATER	See Remarks
6. THICKNESS OF OVERBURDEN 10.7'		15. DATE BORING	STARTED : 8/18/13 COMPLETED : 8/18/13
7. DEPTH DRILLED INTO ROCK 0.0'		16. ELEVATION TOP OF BORING	0' MLLW
8. TOTAL DEPTH OF BORING 60.7'		17. TOTAL CORE RECOVERY FOR BORING	N/A
18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist			



BOTTOM OF BOREHOLE AT 60.7 ft



Drafted By: Kelly Katenbach
Date Drafted: 8/20/13
SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

Reviewed By: [Signature]
Date Checked: 8/20/13
VERSION: hamderr

Boring Designation EC-13-B-54

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83	HORIZONTAL : VERTICAL NAD83 : MLLW
2. HOLE NUMBER EC-13-B-54	LOCATION COORDINATES N 298303.71 E 2415122.21	10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	12. TOTAL SAMPLES DISTURBED : 7 UNDISTURBED : 0
4. NAME OF DRILLER Danny Hewlett		13. TOTAL NUMBER CORE BOXES 0	14. ELEVATION GROUND WATER See Remarks
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		DEG FROM VERTICAL : BEARING --- : ---	15. DATE BORING STARTED : 8/18/13 COMPLETED : 8/18/13
6. THICKNESS OF OVERBURDEN 10.9'		16. ELEVATION TOP OF BORING 0' MLLW	
7. DEPTH DRILLED INTO ROCK 0.0'		17. TOTAL CORE RECOVERY FOR BORING N/A	
8. TOTAL DEPTH OF BORING 60.9'		18. SIGNATURE AND TITLE OF INSPECTOR Jason Lennane, Geologist	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	48.0	Wavy pattern	0.0' TO -50' WATER			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
	-50.0	Wavy pattern	OCEAN BOTTOM @ -50' MLLW					
	50.0	Dotted pattern	SP, Gray, fine grained, poorly-graded, SAND, with shell fragments, medium dense, sand is quartz.		50	(50-60.9) Set 72.3' of 8-in diameter casing, with 2.1' stickup from deck of jack-up barge. Mudline was sounded inside casing at 70.1' depth, corrected to 50.0' MLLW. Set splitspoon on dense material. Conduct continuous SPT sampling; first drive 1.9'; Lab = (SP) Poorly Graded Sand (SP).		
	52.0	Dotted pattern			SPT 2 Jar		14 8 8	16
	54.0	Dotted pattern			SPT 3 Jar		3 4 12	16
	56.0	Dotted pattern	54.9', fine to coarse grained, little gravel, mix of medium to coarse-grained, angular carbonate sand and fine-grained quartz sand, gravel portion consists of weakly cemented limestone..		SPT 4 Jar		8 6 6	12
	58.0	Dotted pattern			SPT 5 Jar		5 7 8	15
	60.0	Dotted pattern			SPT 6 Jar		7 7 8	15
	-60.9	Dotted pattern			SPT 7 Jar		7 10 10	20

BOTTOM OF BOREHOLE AT 60.9 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



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Boring Designation EC-13-B-55

DRILLING LOG	DIVISION South Atlantic Division	INSTALLATION Charleston Harbor	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening		9. COORDINATE SYSTEM State Plane - SC NAD83 HORIZONTAL: NAD83 VERTICAL: MLLW	
2. HOLE NUMBER EC-13-B-55		10. SIZE AND TYPE OF BIT 5-1/2" Fishtail & 1-3/8" Splitspoon	
3. DRILLING AGENCY USACE, Savannah District		11. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. NAME OF DRILLER John Haskew		12. TOTAL SAMPLES DISTURBED: 12 UNDISTURBED: 0	
5. DIRECTION OF BORING <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED		13. TOTAL NUMBER CORE BOXES 0	
6. THICKNESS OF OVERBURDEN 15'		14. ELEVATION GROUND WATER See Remarks	
7. DEPTH DRILLED INTO ROCK		15. DATE BORING STARTED: 8/17/13 COMPLETED: 8/17/13	
8. TOTAL DEPTH OF BORING 65.3'		16. ELEVATION TOP OF BORING 0' MLLW	
		17. TOTAL CORE RECOVERY FOR BORING N/A	
		18. SIGNATURE AND TITLE OF INSPECTOR Kelley Kaltenbach, Geologist	

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/ 0.5 ft	N-Value
	48.0		0.0' TO -50.3' WATER			NOTE 1: Compensation was made to establish TOP OF HOLE as 0.0 MLLW. OCEAN BOTTOM was corrected to MLLW using a Trimble 5800 RTK Differential GPS attached to vessel deck.		
	50.0		OCEAN BOTTOM @ -50.3' MLLW					
	50.3		SP-SM , Dark gray, fine to coarse grained, poorly-graded, SAND, with silt, medium dense, contains silt lenses 0.2' thick from 50.8-60.0'..		50.3			
	51.8				SPT 1 Jar	(50.3-54.8) Set 74.3' of 8-in diameter casing, with 1.8' stickup from deck of jack-up barge. Mudline was sounded inside casing at 69.0' depth, corrected to 50.3' MLLW. Set splitspoon on dense material. Conduct continuous SPT sampling. Lost mud circulation. Clean out to 54.8'.	3 6 12	18
	52.0		ML , Brown, nonplastic, SANDY SILT, trace coarse sand, very soft, inelastic..	[0.5] tsf	51.8			2
	53.0				SPT 2A Jar			
	53.3		SP-SM , Gray, fine to coarse grained, poorly-graded, SAND, with silt, some shell fragments, medium dense.	[0.5] tsf	53.3	Lab = (CL); LL = 46%; PL = 24%; PI = 22 Sandy Lean Clay (CL). Lab = (SP-SM) Poorly Graded Silty Sand (SP-SM).		15
	53.8		ML , Brown, nonplastic, SANDY SILT, soft, inelastic..		53.8	Lab = (SC); LL = 46%; PL = 25%; PI = 21 Clayey Sand (SC). Lab = (SP) Poorly Graded Sand (SP), with a trace of gravel.		4
	54.0		SP-SM , Gray to dark gray, fine to coarse grained, poorly-graded, SAND, with silt, some shell fragments, very loose.		54.0	(54.8-62.3) Conduct continuous SPT sampling. Clean out to 63.8'. Lab = (SP-SM) Poorly Graded Silty Sand (SP-SM), with a trace of gravel.		4
	54.8				SPT 3A Jar			
	55.6				54.8			
	56.0		GP-GM , Light gray, fine to coarse grained, GRAVEL, and sand, with silt, little shell fragments, medium dense, moderate cementation, (cemented limestone gravel and moderate-weakly cemented silty sand)..		55.6			
	56.3				SPT 3B Jar			
	56.8				56.3			
	57.8				SPT 4A Jar			7
	58.0				54.8			
	59.3		59.3', fine grained, GRAVEL, some shell fragments, weak cementation, (cemented limestone gravel and cemented silty sand)..		56.8			
	60.0				SPT 4B Jar			13
	60.8		60.8', Gray, trace shell fragments, dense.		57.8			
					SPT 5 Jar	Lab = (SM) Silty Sand (SM), with a trace of gravel.	12 12 12	24
					58.0			
					SPT 6 Jar		15 16 14	30
					59.3			
					SPT 7 Jar		15 14 15	29
					60.8			



Drafted By: Kelley Kaltenbach
Date Drafted: 11/15/2013

Reviewed By:
Date Checked:
VERSION: Draft

DRILLING LOG (Cont Sheet)		INSTALLATION Charleston Harbor		SHEET 2 OF 2 SHEETS	
PROJECT Charleston Harbor Entrance Channel Deepening		COORDINATE SYSTEM State Plane		HORIZONTAL : VERTICAL NAD83 : MLLW	
LOCATION COORDINATES N 297307.4 E 2418512.54		ELEVATION TOP OF BORING 0'			

ELEV (feet) a	DEPTH (feet) b	LEGEND c	FIELD CLASSIFICATION OF MATERIALS (Description) d	[H.P.] / % CORE REC e	BOX OR SAMPLE # f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows/0.5 ft	N-Value
	62.0		GP-GM , Light gray, fine to coarse grained, GRAVEL, and sand, with silt, little shell fragments, medium dense, moderate cementation, (cemented limestone gravel and moderate-weakly cemented silty sand)..		SPT 8 Jar	(63.8-65.3) Conduct SPT sampling	15	33
					62.3			
	64.0						63.8	SPT 9 Jar
-65.3					65.3		16	

BOTTOM OF BOREHOLE AT 65.3 ft

SOILS ARE FIELD VISUALLY CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM

BLOWS PER FOOT: Number required to drive 1-3/8" ID splitspoon w/140 lb. hammer falling 30".



DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2" Pisttail		
2. LOCATION (Coordinates or Station) N-308,190 E-2,396,400		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-100-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 6	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 9.0' (46.9' water)		16. DATE HOLE STARTED 6 Mar 1990 COMPLETED 6 Mar 1990		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.9'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>				

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e			
			Water Bottom of Harbor 46.9'			NOTE: Suspect thin limestone layers from 46.9' to 55.9' w/ large amount of shell fragments. NOTE: Scale change @ 45.0'.	
-46.9'			(GM) Light grey, silty, med. to coarse limestone GRAVEL. Some med. to coarse sand & small & large shell fragments, calcareous, wet.				
-48.4'			Large amount of small & large shell fragments.		1	Set 6" casing by own weight to 47.3'. Mixed Zeogel drilling mud at 46.9'.	14
-49.9'			Some small & large shell fragments.		2		3
-51.4'			Large amount of small & large shell fragments, trace of clay.		3	Weight of rods drove splitspoon from 46.9' to 47.6', cont'd to 48.4'.	21
					4		2
					5		1
-55.9'			Bottom of Boring 55.9'		6		6
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) 09,820 E-2,395,440		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-101-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 10	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 15.0' (40.2' water)		16. DATE HOLE	STARTED 9 Mar 1990	COMPLETED 9 Mar 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.2'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e	JAR	g	
			Water Bottom of Harbor 40.2'			NOTE: Scale change @ 40.0'. Made up new batch of Zeogel mud at 40.2'.	
-40.2'	40		(SM) Brown, silty, fine to med SAND. Some small shell fragments, calcareous, wet.				
-41.7'			Grey.		1	Set 6" casing by own weight to 41.2'.	20
			Trace of small shell fragments.		2	Weight of rods drove splitspoon from 40.2' to 40.6', cont'd drive to 41.7'.	24
-44.7'	45		Grey & light grey, med. to coarse sand, some small & large shell fragments, trace of fine to coarse limestone gravel.		3		25
-46.2'			Light grey.		4	NOTE: Suspect thin limestone layers from 46.2' to 55.2'.	28
-47.7'			Trace of clay & small shell fragments.		5		65
-49.2'			No clay.		6		30
-50.7'	50		Trace of fine limestone gravel.		7		28
-52.2'			Bottom of Boring 55.2'		8	LAB CLASSIFICATION	28
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.		9	No. Class LL PL PI	26
-55.2'	55				10	2 SP-SM NP NP NP	27
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.		SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-309,045 E-2,394,815			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishial		
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-102-90			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 7 UNDISTURBED 0
5. NAME OF DRILLER D. Justiss			14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 10.5' (45.3' water)			16. DATE HOLE		STARTED 10 Mar 1990 COMPLETED 10 Mar 1990
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.8'			18. TOTAL CORE RECOVERY FOR BORING N/A %		
			19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'						
			Water Bottom of Harbor 45.3'			NOTE: Scale change @ 45.0'.	
-45.3'	45		(SP) Tannish-grey, poorly graded med. to coarse SAND. Large amount of small shell fragments, calcareous, wet.		1	Set 6" casing by own weight to 46.3'.	10
-46.8'			(SM) Light grey, silty, med. to coarse SAND. Large amount of small shell fragments, calcareous, wet.		2	Weight of rods drove splitspoon from 45.3' to 45.9'.	31
-48.3'					3		47
-49.8'	50		Large amount of small & large shell fragments, some fine quartz gravel.		4	Mixed new Zeogel mud at 48.3'.	43
-51.3'			(GM) Light grey, silty, fine to coarse limestone GRAVEL.		5	NOTE: Suspect thin limestone layers from 49.8' to 55.8'.	62
-52.8'			Some med. to coarse sand & trace of small shell fragments, calcareous, wet.		6		51
-55.8'	55		(SM) Light grey, silty, med. to coarse SAND. Calcareous, some fine to coarse limestone gravel, trace of small shell fragments, wet.		7		53
			Trace of fine to coarse limestone gravel.				
			Bottom of Boring 55.8'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) 10,850 E-2,393,610		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-103-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 5	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 9.0' (46.0' water)		16. DATE HOLE STARTED 10 Mar 1990 COMPLETED 10 Mar 1990		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.0'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e			
			Water				
			Bottom of Harbor 46.0'			NOTE: Scale change @ 45.0'.	
-46.0'	45'		(SP) Grey, poorly graded, fine-med. SAND. Slightly calcareous, trace of silt, large amount of small shell fragments, wet.		1	Set 6" casing by own weight to 49.9'. Mixed Zeogel mud at 46.0'.	0
-50.0'	50'		(CH) Dark grey, fat CLAY. Trace of med.-coarse sand & small shell fragments, wet.		2	Weight of hammer drove splitspoon from 46.0' to 46.9', cont'd drive to 48.2' w/one hammer blow, cont'd drive to 49.0' w/8 blows.	8
-52.0'			(SM) Light grey, silty, med. to coarse SAND. Calcareous, some fine limestone gravel, trace of small shell fragments, wet.		3		19
-55.0'	55'		Trace of fine limestone gravel.		4		23
			Bottom of Boring 55.0'		5	Weight of hammer drove splitspoon from 49.0' to 50.5', cont'd to 51.0' w/8 blows then from 51.0' to 52.0' w/19 blows. NOTE: Suspect thin limestone layers from 50.5' to 55.0'.	18
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N 10,500 E-2,392,210		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-104-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 9	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 13.5' (41.7' water)		16. DATE HOLE STARTED 10 Mar 1990 COMPLETED 10 Mar 1990		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.2'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0' b	c	d	e	JAR	g BLOWS
			Water Bottom of Harbor 41.7'			NOTE: Scale change @ 40.0'.
-41.7'	40		(SP) Grey, poorly graded, fine med. SAND. Trace of silt & small shell fragments, slightly calcareous, wet.			
-44.7'	45		(SM) Grey, silty, fine-med. SAND. Trace of clay & small shell fragments, wet.		1	Set 6" casing by own weight to 43.7'
-45.7'			(CH) Dark grey, fat CLAY. Trace of fine-med. sand & small shell fragments, damp.		2	Weight of rods drove splitspoon from 41.7' to 42.1', cont'd. to 43.2' w/3 blows, to 43.7' w/5 blows & to 44.7' w/27 blows. Mixed new Zeogel mud at 44.7'
-49.2'	50		(SM) Light grey, silty med, to coarse SAND. Calcareous, trace of fine-coarse limestone gravel & small shell fragments, wet.		3	Sample #4 taken from 45.7' to 46.2'. Weight of hammer drove splitspoon from 46.2' to 48.5', cont'd. drive to 49.2' w/5 blows. NOTE: Suspect thin LS layers 49.2' -
-53.7'			Yellow & light grey, trace of small & large shell fragments & fine limestone gravel.		4	
-55.2'	55		Tan. Bottom of Boring 55.2'		5	
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.		6	BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".
					7	
					8	
					9	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston S.C.	SHEET 1 OF 1 SHEETS	
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) 1,890 E-2,391,685			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-105-90			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 12	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss			14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 19.5' (35.2' water)			16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK 0.0'			STARTED 11 Mar 1990	COMPLETED 11 Mar 1990	
9. TOTAL DEPTH OF HOLE 54.7'			17. ELEVATION TOP OF HOLE 0.0'		
			18. TOTAL CORE RECOVERY FOR BORING N/A %		
			19. SIGNATURE OF INSPECTOR James Arthur, P G. <i>James Arthur</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'		Water				
			Bottom of Harbor 35.2'			NOTE: Scale change @ 35.0'	
-35.2'	35		(SP) Grey, poorly graded, fine to med. SAND. Calcareous, trace of silt, some small shell fragments, wet.		1	Set 6" casing by own weight to 37.8'.	9
-38.2'	40		Trace of small shell fragments.		2	Weight of rods drove splitspoon from 35.2' to 37.0', cont'd drive to 38.2'.	27
					3	Weight of rods drove splitspoon from 44.2' to 46.0' & 47.2' to 48.7' cont'd. to 50.2'.	36
-44.2'	45		(CH) Dark greenish-grey, fat CLAY. Trace of fine to med. sand & small shell fragments, damp.		4		31
					5		33
-48.7'	50		(GM) Light grey, silty, fine to coarse limestone GRAVEL. Calcareous, some med. to coarse sand, trace of small shell fragments, wet.		6	NOTE: Suspect thin limestone layers from 48.7' to 54.7'.	0
-50.2'	55		Trace of clay.		7		5
-51.7'			No clay.		8	LAB CLASSIFICATION	0
					9	No. Class LL PL PI	25
-54.7'					10	3 SP-SM NP NP NP	5
					11	Specific Gravity=2.69	18
					12		29
			Bottom of Boring 54.7'			BLOWS PER FOOT:	
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.		SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		OF 1 SHEETS
2. LOCATION (Coordinates or Station) N-311,470 E-2,390,450			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-106-90			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 10	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss			14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 15.0' (40.8' water)			16. DATE HOLE STARTED 11 Mar 1990 COMPLETED 11 Mar 1990		
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.8'			18. TOTAL CORE RECOVERY FOR BORING N/A %		
			19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>		

ELEVATION 0.0' _a	DEPTH 0' _b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS
			Water Bottom of Harbor 40.8'			NOTE: Scale change @ 40.0'. Mixed Zeogel at 40.8'.	
-40.8'	40		(SP) Grey, poorly graded fine to med. SAND. Calcareous, large amount of small shell fragments, trace of silt, wet.		1		7
-43.8'	45		(CH) Grey, fat CLAY. Trace of fine to med. sand & small shell fragments, damp.		2	Set 6" casing by own weight to 45.1'.	13
			(SC) Grey, clayey, fine to med. SAND. Large amount of small shells & small shell fragments, slightly calcareous, wet.		3	Weight of hammer drove splitspoon from 49.8' to 51.3', & 52.8' to 54.3'.	5
			(CM) Light, grey, silty, fine to coarse limestone GRAVEL. Some med. to coarse sand & small shell fragments, calcareous, wet.		4		5
					5		2
					6	NOTE: Suspect thin limestone layers from 54.3' to 55.8'.	6
-52.8'					7		0
-54.3'					8		6
-55.8'	55				9		0
					10		14
			Bottom of Boring 55.8'			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30.	
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) 12,740 E-2,390,115		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-107-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 9	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 16.5' (39.2' water)		16. DATE HOLE STARTED 11 Mar 1990 COMPLETED 11 Mar 1990		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.7'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>		

ELEVATION 0.0'	DEPTH 0' b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS
			Water				
	35		Bottom of Harbor 39.2'			NOTE: Scale change @ 35.0'.	
	40		(SM) Grey, silty, fine to med SAND. Some small shell fragments, slightly calcareous, trace of clay, wet.				
	42.2'		(CH) Grey, fat CLAY. Large amount of small shell fragments, trace of fine to med sand, wet.		1	Set 6" casing by own weight to 40.4'.	13
	45				2	Weight of rods drove splitspoon from 39.2' to 39.5', 42.2' to 44.1', 45.2' to 47.2' & 48.2' to 50.7'.	29
	48.2'				3	Mixed new Zeogel at 48.2'.	0
	49.7'		Some fine sand & small shell fragments.		4		0
	50		(SC) Grey, clayey, fine to med. SAND. Some small shell fragments, wet.		5	LAB CLASSIFICATION	0
	54.2'				6	No. Class LL PL PI	0
	55		Med. to coarse sand.		7	I SM NP NP NP 3	11
	55.7'		Bottom of Boring 55.7'		8		5
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.		9		24
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-312,200 E-2,389,000		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-108-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 10	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 15.0' (41.0' water)		16. DATE HOLE	STARTED 19 Mar 1990	COMPLETED 19 Mar 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 56.0'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G.		

ELEVATION 0.0' a	DEPTH 0' b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS
			Water Bottom of Harbor 41.0'			NOTE: Scale change @ 40.0'.	
-41.0'	40		(SP) Grey, poorly graded fine-med. SAND. Trace of silt, calcareous, large amount of small shell fragments, wet.		1	Set 6" casing by own weight to 41.3'.	7
-44.0'			(CH) Grey, fat CLAY. Some small to large shell fragments, trace of fine to med. sand slightly calcareous, damp.		2	Mixed Zeogel mud at 44.0'.	13
-45.5'	45				3	Weight of rods drove splitspoon from 44.0' to 45.5' & 45.5' to 46.5'.	0
-47.0'			(SC) Grey, clayey, fine SAND. Trace of small shell fragments, slightly calcareous, damp.		4		2
-48.5'					5	Had poor recovery from 50.0' to 53.0' & very poor recovery from 54.5' to 56.0'.	13
-50.0'	50		Fine-med. sand, large amount of small shell fragments, calcareous, wet.		6		26
-51.5'					7		7
-53.0'			(SM) Grey, silty, med. to coarse SAND. Calcareous, large amount of small shell fragments, wet.		8		19
-54.5'	55				9		18
-56.0'			Fine-med. sand, trace of small & large shell fragments. Trace of small shell fragments. (SP) Grey, poorly graded, med.-coarse SAND. Calcareous, some small shell fragments, trace of silt, wet. (GP) Grey, fine-coarse quartz GRAVEL. Trace of fine-med. sand, silt & small to large shell fragments, wet.		10		3
			Bottom of Boring 56.0'			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				

ATHENA CORE LOG

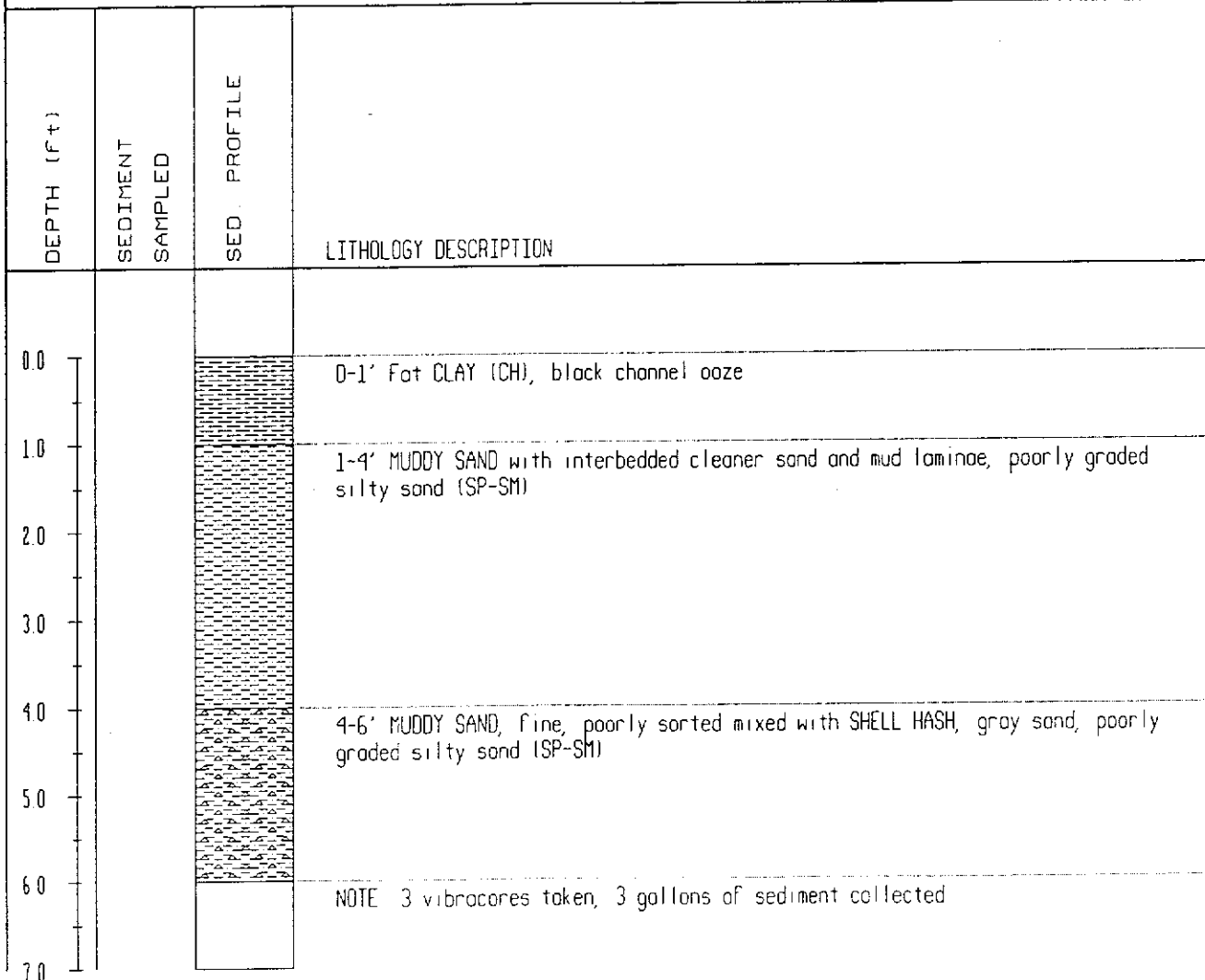
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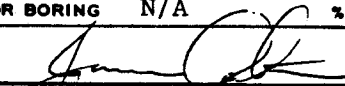
EC-10

PROJECT: CHARLESTON HARBOR ENTRANCE CHANNEL SAMPLING - GEC
 CLIENT: GULF ENGINEERS & CONSULTANTS, INC.
 CORE DATE: 10-29-96
 TIME: 0820
 PENETRATION LENGTH: 6'
 RECOVERY: 6'
 WATER DEPTH: 46' 1 HOUR BEFORE HIGH TIDE
 WEATHER: SUNNY/CLEAR
 GPS LON: 32°43.044 N
 GPS LAT: 79°48.231 W

CORED BY: ATHENA TECHNOLOGIES INC.
 LOGGER: TDC/HJS
 DATE LOGGED: 10-29-96
 PAGE: 1 OF 1





KEY				
Fine Sand		Pebbles		Mud
Med Sand		Shell Hash		Burrows
Crs Sand		Sed Sample		Organics



DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-313,710 E-2,388,360		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-109-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 8	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 15.0' (40.0' water)		16. DATE HOLE	STARTED 22 March 1990	COMPLETED 22 March 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.0'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. 		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'		Water Bottom of Harbor 40.0'				
			(SM) Brown, silty, fine SAND. Some small shell fragments, slightly calcareous, trace of clay, wet.			NOTE: Scale change @ 40.0'	
			Grey silty, fine sand, calcareous, wet.			LAB CLASSIFICATION No Class LL PL PI	
-40.0'	40		Large amount of small shell fragments. See remarks.		1	Set 6" casing by own weight to 40.8'.	18
-41.5'			(SC) Grey, clayey, med. to coarse SAND. Large amount of small to large shell fragments, trace of fine limestone gravel, slightly calcareous, wet.		2	Mixed new batch of Zeogel drilling mud @ 40.0'.	20
-43.0'	45		Fine sand, trace of small to large shell fragments, no gravel.		3	NOTE: No splitspoon recovery on first attempt from 43.0'-44.5' & 44.5'-46.0'.	3
-47.5'			Grey to light grey, fine to med. sand, trace of small shell fragments, and fine limestone gravel, calcareous, damp.		4	did not wash out hole, redrove from 43.0'-47.5' & recovered large amt. of small shell fragments. Sample #3 taken from 43.0' to 47.5'. Wash return contained large amount of shell fragments.	10
-50.5'	50		(SM) Light grey to white, silty, med. to coarse SAND. Calcareous, trace of fine limestone gravel, wet.		5		5
-52.0'					6		12
-53.5'					7		3
-55.0'	55				8	53.5'-55.0' suspect thin limestone layers.	18
			Bottom of Boring 55.0'				24
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS-PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-313,210 E-2,387,260		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-110-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 9	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 13.5' (41.2' water)		16. DATE HOLE	STARTED 22 March 1990	COMPLETED March 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 54.7'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>[Signature]</i>		

ELEVATION 0.0' ^d	DEPTH 0' ^b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS
			Water			NOTE: Scale change @ 40.0'. Used Zeogel drilling mud.	
			Bottom of Harbor 41.2'				
			(CH) Greenish-grey, fat CLAY. Some fine sand, trace of small shell fragments, slightly calcareous, wet.				
-41.2'	40		Some small to large shell fragments.		1	Set 6" casing by own weight to 46.1'.	0
-44.2'					2	Weight of rods drove splitspoon from 41.2' to 44.3'. Pulled tools from hole & cleaned to 44.2'. Weight of rods from 44.2' to 46.2'.	0
-45.7'	45		Trace of small shell fragments.		3		0
-47.2'					4		5
			(SM) Light grey, silty, fine to med. SAND. Calcareous, trace of small shell fragments & fine limestone gravel, wet.		5	Suspect thin limestone layers starting at 47.2'.	18
-50.2'	50		Yellowish brown, silty, fine to med. sand, calcareous, damp.		6		17
-51.7'			Trace of fine gravel.		7		14
					8		14
					9		15
-54.7'	55		Bottom of Boring 54.7'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	


DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2" fishtail		
2. LOCATION (Coordinates or Station) 15,194 E -2,385,670		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-112-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 12	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 19.5' (35.7' water)		16. DATE HOLE STARTED 23 March 1990 COMPLETED 23 March 1990		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.2'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>[Signature]</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'	c	d	e	UAR	g BLOWS
			Water Bottom of Harbor 35.7'			NOTE: Scale change @ 35.0' Used Zeogel drilling mud.
-35.7'	35		(SP) Tannish-grey, poorly graded, fine SAND. Trace of silt, slightly calcareous, wet.		1	Set 6" casing by own weight to 37.1'.
-37.2'			(SM) Grey, silty, fine to med. SAND. Calcareous, some small shell fragments, wet.		2	Weight of rods drove splitspoon from 39.2' to 40.6', cont'd drive to 41.7'.
-38.7'	40		(CH) Grey, fat CLAY. Trace of fine sand & small shell fragments.		3	Weight of rods drove splitspoon from 41.7' to 43.3', cont'd drive to 43.7' w/4 blows & 4
-41.7'			Some fine sand & small shell fragments.		4	to 44.7' w/4 blows.
-44.7'	45		(SC) Tannish-grey, clayey, med. to coarse SAND. Some small shell fragments, trace of fine gravel, calcareous, wet.		5	NOTE: Suspect thin LS layers from 45.4' to 55.2'.
-45.4'			(GM) Light grey, wilty, fine to coarse limestone GRAVEL.		6	LAB CLASSIFICATION
-46.2'			Some med. to coarse sand & small shell fragments, calcareous, wet.		7	No. Class LL PL PI
-49.2'	50		(SM) Light grey, silty, med. to coarse SAND. Calcareous, some fine to coarse limestone gravel & small shell fragments, wet.		8	1 SP-SM NP NP NP
-50.7'			Fine to med. sand & trace of fine to coarse limestone gravel, small shell fragments & clay.		9	Specific Gravity=2.67
-55.2'	55		Med. to coarse sand, some fine to coarse limestone gravel & small shell fragments. Bottom of Boring 55.2'		10	
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.		11	
					12	BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-315,181 E-2,385,668			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail, MLW 4X5 1/2" dia bit.	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-112A-90			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED 7 UNDISTURBED 0	
5. NAME OF DRILLER D. Justiss			14. TOTAL NUMBER CORE BOXES 1	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 12.3' (35.8' water)			16. DATE HOLE STARTED 24 May 1990 COMPLETED 24 May 1990	
8. DEPTH DRILLED INTO ROCK 1.3'			17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 49.4'			18. TOTAL CORE RECOVERY FOR BORING 42 %	
			19. SIGNATURE OF INSPECTOR <i>James Arthur P.G.</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'	c	d	e	f	g BLOWS
			Water Bottom of Harbor 35.8'			NOTE: Scale change @ 35.0' & 45.0'.
-35.8'	35		(SP) Tannish-grey, poorly graded fine SAND. Trace of silt, slightly calcareous, wet.			
			Greenish-grey.			
-38.8'			(SM) Grey, silty, fine to med. SAND. Large amount of small shell fragments, calcareous, wet.		1	Set 6" casing by own weight to 38.0' 14
-40.3'	40		(SP) Grey, poorly graded, fine to med. SAND. Large amount of small shell fragments, calcareous, wet.		2	Made new batch Zeogel mud at 44.8'. 44
-41.8'					3	
-43.3'			(SC) Dark grey, clayey, med. to coarse SAND. Some fine to coarse limestone gravel & small shell fragments, calcareous, wet.		4	
-44.8'	45				5	
			(GM) Light grey to white, silty, fine to coarse limestone GRAVEL. Some fine to coarse sand & small shell fragments, calcareous, wet.		6	
-46.3'	47			REC 28%		
			Core Loss	RQD 0.0		
-48.1'			(LIMESTONE) Light grey, med. to coarse grained, sandy, clayey, fossiliferous, poorly cemented, friable, soft, badly broken.	REC 100%	Box 1	Pull #1 From 46.3' To 48.8' Run 2.5' Rec 0.0' C.L. 2.5' Taped 47.2' Drilling Time: 4 Min. Hyd. Pressure: 150 PSI Water Return: 0%
-49.4'	49		49.1-49.4' fine to med. grained.	RQD 0.0		Pull #2 From 48.8' to 49.4' Run 0.6' Rec 1.3' C.G. 0.7' Taped 49.4' Drilling Time: 4 Min Hyd. Pressure: 150 PSI Water Return: 0%
			Bottom of Boring 49.4'			
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		OF 1 SHEETS
2. LOCATION (Coordinates or Station) N-314,500 E-2,384,850		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fish tail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-113-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 7	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 12.0' (43.3' water)		16. DATE HOLE STARTED 23 March 1990 COMPLETED 23 March 1990		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.3'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>[Signature]</i>		

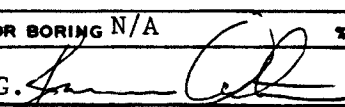
ELEVATION 0.0'd	DEPTH 0'b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS
			Water			NOTE: Scale change @ 40.0'. Used Zeogel drilling mud.	
	40		Bottom of Harbor 43.3'				
	43.3'		(CH) Grey, fat CLAY. Trace of fine to med. sand, wet.		1	Set 6" casing by own weight to 48.3'. Weight of rods drove splitspoon from 43.3' to 46.3', 49.3' to 51.8' & 52.3' to 54.8'.	0
	45		Trace of small shell fragments.		2		2
	47.8'		Some fine to med. sand & small shell fragments.		3		6
	49.3'		No sand or shell fragments.		4		0
	50.8'				5		2
	55.3'				6		0
	55				7		2
			Bottom of Boring 55.3'			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 1401b. hammer falling 30".	
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				





DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-316 028 E-2,384,112		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fish tail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-114-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 8	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 15.0' (40.0' water)		16. DATE HOLE	STARTED 24 March 1990	COMPLETED 24 March 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.0'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G.		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'b	c	d	e	JAR		
			Water Bottom of Harbor 40.0'			NOTE: Scale change @ 40.0'. Used Zeogel drilling mud.	
-40.0'	40		(SC) Grey, clayey, fine to med. SAND. Trace of small shell fragments, wet.		1	Set 6" casing by own weight to 46.5'.	0
-41.5'			(SM) Grey, silty, fine to med. SAND. Trace of small shell fragments, slightly calcareous, wet.		2	Weight of rods drove splitspoon from 40.0' to 40.5'. One hammer blow drove splitspoon from 41.5' to 43.0'.	9
-43.0'			(CH) Grey, fat CLAY. Trace of fine to med. sand & small shell fragments, damp.		3	Wt. of rods drove splitspoon from 44.5' to 46.6', cont'd. 47.5' w/4 blows. Wt. of rods drove splitspoon from 50.5' to 55.0'.	0
-44.5'	45		Trace of fine sand & small to large shell fragments. No shell fragments.		4		11
-46.0'			(SC) Grey, clayey, fine SAND. Large amount of small shell fragments, wet.		5		0
-47.5'			Med. to coarse sand.		6		4
-50.5'	50				7		0
					8		3
-55.0'	55		Bottom of Boring 55.0'. NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	0


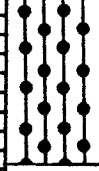
DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2" fishtail		
2. LOCATION (Coordinates or Station) N-315,465 E-2,383,093		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-115-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 11	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 15.0' (39.6' water)		16. DATE HOLE STARTED 24 March 1990 COMPLETED 24 March 1990		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 54.6'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur P.G. <i>[Signature]</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0d	0f	c	d	e	f	g	
			Water			NOTE: Scale change @ 35.0'. Used Zeogel drilling mud.	
	35		Bottom of Harbor 39.6'			Set 6" casing by own wt. to 40.7'. Wt. of rods drove splitspoon from 39.6' to 41.1', cont'd. drive to 41.6' w/2 blows, to 42.6' w/1 blow. Wt. of rods drove ssp from 42.6' to 44.6', cont'd. drive to 45.6' w/3 blows. Wt. of rods drove 45.6' to 47.2', cont'd. to 47.6' w/2 blows, to 48.6' w/4 blows. Wt. of rods drove from 48.6' to 49.6', cont'd to 50.1' w/12 blows.	
-39.6'	40		(SC) Grey, clayey, med. to coarse SAND. Large amount of small shell fragments, slightly calcareous wet.		1		0
			Fine to med. sand, some small shell fragments.		2		1
-42.6'					3		0
-44.1'	45		(CH) Grey, fat CLAY. Trace of fine sand & small shell fragments, damp.		4		3
			(SC) Grey, clayey, fine, SAND. Trace of fine gravel, damp.		5	NOTE: Suspect thin limestone layers from 49.6' to 54.6'.	0
-48.6'					6		4
-49.6'	50		(GM) Light grey, silty, fine to coarse, limestone GRAVEL. Some med. to coarse sand & trace of small shell fragments, calcareous, wet.		7	LAB CLASSIFICATION	0
-50.1'					8	No Class LL PL PI	12
			(SM) Light grey, silty, med. to coarse SAND. Calcareous, some fine to coarse limestone gravel & trace of small shell fragments, wet.		9	2 SM-SC 26 20 6	22
					10	Specific Gravity=2.71	22
-54.6'	55		Bottom of Boring 54.6'		11		23
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-316,750 E-2,381,860		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-116-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 8	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 10.5' (45.3' water)		16. DATE HOLE	STARTED 26 March 1990	COMPLETED 26 March 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.8'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. 		

ELEVATION 0.0d	DEPTH 0'b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g BLOWS
			Water			NOTE: Scale change @ 45.0' Used Zeogel drilling mud.
-45.3'	45		(CH) Grey, fat CLAY. Trace of fine sand, slightly calcareous, damp.		1	Set 6" casing by own weight to 48.7'. 0
			(SC) Grey, clayey, med. to coarse SAND. Trace of small shell fragments, slightly calcareous, wet.		2	Weight of rods drove splitspoon from 45.3' to 46.8', cont'd to 2
	50		(SP) Light grey, coarse quartz SAND. Trace of fine quartz gravel, wet.		3	to 46.8', cont'd to 47.3' w/2 blows then to 8
					4	48.3' w/8 blows. Wt. of hammer drove split-spoon 48.3' to 50.5', 0
-52.8'					5	cont'd. to 51.3'. Wt. of hammer 51.3' to 53.4', 5
	55				6	cont'd. to 54.3'. 0
-55.5'					7	
-55.8'					8	
			Bottom of Boring 55.8'			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30". 28
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-317,195 E-2,382,014		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW	
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-117-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 11 UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 16.5' (38.7' water)		16. DATE HOLE STARTED 25 March 1990 COMPLETED 25 March 1990	
8. DEPTH DRILLED INTO ROCK 0.0.		17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 55.2'		18. TOTAL CORE RECOVERY FOR BORING N/A %	
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>[Signature]</i>	

ELEVATION 0.0'	DEPTH 0'	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			Water			NOTE: Scale change @ 35.0'. Used Zeogel drilling mud.
	35		Bottom of Harbor 38.7'			Set 6" casing by own weight to 44.4'. Wt. of rods 38.7'-39.3', cont'd. drive to 40.2' but had no recovery first attempt 0
-38.7'	40		(CH) Grey, fat CLAY. Some fine sand & small shell fragments, damp.		1	Re-drove to 40.2' 7
-40.2'			Trace of fine sand & small shell fragments.		2	cont'd. drive to 40.7' 3
			Trace of fine sand & small shell fragments.		3	w/3 blows then 41.7' 11
	45		Trace of fine gravel.		4	w/11 blows. Wt. of rods drove splitspoon from 41.7' to 44.1' cont'd. drive to 44.7' w/3 3
			(SM) Grey to light grey, silty, med. to coarse SAND. Calcareous, some fine to coarse limestone gravel, trace of small shell fragments, wet.		5	blows. Wt. of rods drove splitspoon from 44.7' to 46.6', cont'd. 0
-49.2'	50		Light grey.		6	to 46.7' w/1 blow then 5
-50.7'			Trace of fine to coarse limestone gravel.		7	47.7' w/3 blows. Wt of rods drove split- 0
-52.2'					8	spoon from 47.7' to 1 6
-53.7'	55		Bottom of Boring 55.2'		9	49.6', cont'd. drive to 49.7' w/1 blow then 34
-55.2'			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.		10	50.7' w/ 6 blows. NOTE: 38
					11	Suspect then LS layers 39
						50.7'-55.2'. BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-316,594 E-2,381,077		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-118-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 6	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 15.0' (40.8' water)		16. DATE HOLE STARTED 24 March 1990 COMPLETED 24 March 1990		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.8'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>[Signature]</i>		

ELEVATION 0.0' ^d	DEPTH 0' ^b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS
			Water			NOTE: Scale change @ 40.0'. Used Zeogel drilling mud.	
-40.8'	40		Bottom of Harbor 40.8'				
			(SC) Grey, clayey, fine SAND. Trace of small shell fragments, slightly calcareous, wet.		1	Set 6" casing by own weight to 47.8'. Weight of rods drove splitspoon from 40.8' to 48.0' cont'd 48.3	0
	45		(SM) Light grey, silty, med. to coarse SAND. Trace of fine to coarse limestone gravel & small shell fragments, calcareous, wet.		2	NOTE: Suspect thin limestone layers from 49.8' to 55.8'.	27
-49.8'	50		Some fine to coarse limestone gravel.		3		36
-51.8'			Trace of fine to coarse limestone gravel.		4		24
-52.8'					5		30
-55.8'	55		Bottom of Boring 55.8' NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.		6		24
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

ATHENA CORE LOG

CORE ID:

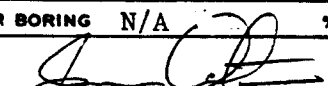
EC-11

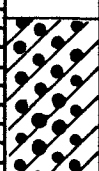
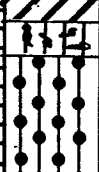

PROJECT: CHARLESTON HARBOR ENTRANCE CHANNEL SAMPLING - GEC
 CLIENT: GULF ENGINEERS & CONSULTANTS, INC.
 CORE DATE: 10-28-96
 TIME: 1100
 PENETRATION LENGTH: 6'
 RECOVERY: 6'
 WATER DEPTH: 46' HIGH TIDE
 WEATHER: SUNNY/CLEAR
 GPS LON: 32°42.878 W
 GPS LAT: 79°47.691 N

CORED BY: ATHENA TECHNOLOGIES INC.
 LOGGER: TDC/WJS
 DATE LOGGED: 10-28-96
 PAGE: 1 OF: 1

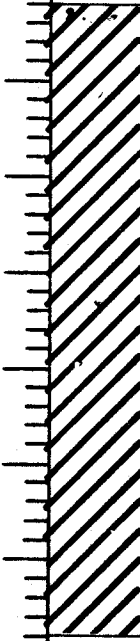
KEY			
Fine Sand		Pebbles	
		Mud	
Med Sand		Shell Hash	
		Burrows	
Crs Sand		Sed Sample	
		Organics	

DEPTH (Ft)	SEDIMENT SAMPLED	SED PROFILE	LITHOLOGY DESCRIPTION
0.0			0-4' Black channel MUD, fat clay (CH)
1.0			
2.0			
3.0			
4.0			4-5.6' Well sorted FINE SAND, abundant BURROWS, well graded sand (SW)
5.0			
6.0			5.6-6' Mixed MUDDY SAND and SHELL HASH, poorly graded silty sand (SP-SM), NOTE: 2 core attempts, 3 gallons of sediment sample collected
7.0			


DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2" fishtail		
2. LOCATION (Coordinates or Station) N-317,454 E-2,379,542		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-119-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 9	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 12.0' (43.6' water)		16. DATE HOLE STARTED 25 March 1990 COMPLETED 25 March 1990		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.6'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. 		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'b	c	d	e	f	g
			Water			
			Bottom of Harbor 43.6'			NOTE: Scale change @ 40.0'. Used Zeogel drilling mud.
	40		(SC) Grey, clayey, fine SAND. Trace of small shell fragments, wet.			
			(CH) Grey, fat CLAY. Some fine sand & small shell fragments, damp.			
-43.6'	45		(GM) Light grey to grey, silty, fine to coarse, limestone GRAVEL. Calcareous, some med. to coarse sand & small shell fragments, wet.		1	Set 6" casing by own weight to 46.8'.
-48.1'			(SM) Light grey, silty, med. to coarse SAND. Calcareous, some fine to coarse limestone gravel & small shell fragments, wet.		2	Weight of rods drove splitspoon from 43.6' to 46.1'.
-48.7'					3	NOTE: Suspect thin limestone layers from 48.7' to 55.6'.
-49.6'	50				4	
-51.1'					5	
					6	
-54.1'			Med. sand, trace of fine to coarse limestone gravel.		7	
-55.6'	55		Some fine to coarse limestone gravel.		8	
			Bottom of Boring 55.6'		9	
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-318,602 E-2,379,428		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-120-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 11	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 16.5' (38.0' water)		16. DATE HOLE	STARTED 25 March 1990	COMPLETED 25 March 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 54.5'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G.		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'b	c	d	e	f	g	
			Water			NOTE: Scale change @ 35.0'. Used Zeogel drilling mud.	
	35		Bottom of Harbor 38.0'			Set 6" casing by own weight to 42.3'. Wt. of rods drove splitspoon from 38.0' to 39.8', cont'd	
-38.0'			(CH) Grey, fat CLAY. Some fine sand, trace of small shell fragments, damp.		1	to 40.0' w/1 blow then	0
	40				2	no recovery. Re-drove to 41.0' then cont'd. drive	1
-42.5'			Trace of fine sand.		3	to 41.5' w/2 blows then	2
	45				4	to 42.5' w/4 blows. Wt. of rods drove split-	4
	50				5	spoon 42.5'-44.3', cont'd to 44.5' w/1 blow then	3
	55				6	45.5' w/3 blows. Wt. of rods drove splitspoon	0
					7	45.5'-47.1', cont'd drive to 47.5' w/2 blows	2
					8	then 48.5' w/6 blows. Wt of rods 48.5'-50.2',	0
					9	cont'd. to 50.5' w/2 blows then 51.5' w/4	4
					10	blows. Wt of rods 51.5' -53.2' cont'd drive to	0
-54.5'			Bottom of Boring 54.5'		11	53.5' w/2 blows, 54.5' w/5	5
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-318,350 E-2,378,890		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-121-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 6	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 9.0' (46.1' water)		16. DATE HOLE STARTED 26 March 1990 COMPLETED 26 March 1990		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.1'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>[Signature]</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
a	b	c	d	e	f	g
0.0'	0		Water			
-46.1'	45		Bottom of Harbor 46.1'			NOTE: Scale change @ 45.0'. Used Zeogel drilling mud.
	50		(CH) Grey, fat CLAY. Trace of fine sand, damp.		1	Set 6" casing by own weight to 49.5'.
					2	Weight of rods drove splitspoon from 46.1' to 48.5' cont'd. to 49.1'
					3	Weight of hammer drove splitspoon from 49.1' to 51.1' cont'd. 52.1'.
					4	Wt. of hammer drove splitspoon 52.1'-55.1'.
					5	
					6	
-55.1'	55		Bottom of Boring 55.1'			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-318,069 E-2,378,397		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-122-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 10	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 16.5' (39.2' water)		16. DATE HOLE STARTED 2 April 1990 COMPLETED 2 April 1990		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.7'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>[Signature]</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'b	c	d	e	JAR	g	
			Water				
	35					NOTE: Scale change @ 35.0'. Used Zeogel drilling mud.	
-39.2'			Bottom of Harbor 39.2'				
	40		(SM) Grey, silty, fine SAND. Trace of small shell fragments, slightly calcareous, wet.		1	Set 6" casing by own weight to 42.1'. Weight of rods drove splitspoon from 39.2' to 41.4', cont'd. 42.2'	0
-42.2'			Large amount of small shell fragments, calcareous.		2		5
	45		(SC) Grey, clayey, fine to med. SAND. Some fine to coarse gravel size fossil particles & large amount of small shell fragments, calcareous, wet.		3	NOTE: Suspect thin limestone layers from 46.7' to 55.7'.	12
-45.2'					4		7
-46.7'					5	LAB CLASSIFICATION	2
-48.2'					6	No Class LL PL PI	36
	50		(SM) Light grey, silty, fine to med. SAND. Calcareous, trace of fine to coarse limestone gravel, wet.		7	1 SC 37 22 15	40
-51.2'			Trace of fine limestone gravel.		8		47
	55		Trace of fine to coarse limestone gravel.		9		39
-54.2'			Trace of fine limestone gravel.		10		34
-55.7'			Bottom of Boring 55.7'				45
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-319,550 E-2,377,700		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah Harbor		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-123-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 12	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 21.0' (33.9' water)		16. DATE HOLE STARTED 3 April 1990 COMPLETED 3 April 1990		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 54.9'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>[Signature]</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'b	c	d	e	JAR	g	
			Water			NOTE: Scale change @ 30.0'. Used Zeogel drilling mud.	
	30		Bottom of Harbor 33.9'				
			(SM) Grey, silty, fine SAND. Trace of small shell fragments, slightly calcareous, wet.				
-33.9'	35		(SC) Light grey to grey, clayey, fine to med. SAND. Some small to large shell fragments, calcareous, wet.		1	Set 6" casing by own weight to 39.0'.	8
-36.9'					2	Weight of rods drove splitspoon from 36.9' to 39.0', cont'd. to 39.9'.	12
-38.4'			Grey, fine sand, trace of small to large shell fragments, slightly calcareous, wet.		3		0
	40				4	Weight of rods drove splitspoon from 42.9' to 45.4', cont'd. to 45.9'.	3
					5		3
	45		(CH) Grey, fat CLAY. Trace of small shell fragments, damp.		6	Weight of rods drove splitspoon from 48.9' to 49.4', one blow of hammer drove splitspoon to 50.5', cont'd. drive to 51.9'.	7
-42.9'					7		0
	50				8	Weight of rods drove splitspoon from 51.9' to 53.9', cont'd. drive to 54.9'.	2
					9		1
	55		Bottom of Boring 54.9'		10	Weight of rods drove splitspoon from 51.9' to 53.9', cont'd. drive to 54.9'.	5
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.		11		0
					12	LAB CLASSIFICATION No Class LL PL PI 3 SC 49 15 34	5
-54.9'						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	3

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 3/8" splitspoon, 5 1/2"		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail
2. LOCATION (Coordinates or Station) N-318,920 E-2,376,800		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
3. DRILLING AGENCY Savannah District		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 12
4. HOLE NO. (As shown on drawing title and file number) EC-124-90		14. TOTAL NUMBER CORE BOXES		UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		15. ELEVATION GROUND WATER		N/A
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		16. DATE HOLE		STARTED 3 April 1990
7. THICKNESS OF OVERBURDEN 18.0' (36.7' water)		17. ELEVATION TOP OF HOLE		0.0'
8. DEPTH DRILLED INTO ROCK 0.0'		18. TOTAL CORE RECOVERY FOR BORING		0 %
9. TOTAL DEPTH OF HOLE 54.7'		19. SIGNATURE OF INSPECTOR James Arthur, P.G.		


ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e	JAR	g	
			Water			NOTE: Scale change @ 35.0'. Used Zeogel drilling mud.	
			Bottom of Harbor 36.7'				
			(SM) Grey, silty, fine SAND. Trace of small shell fragments & clay, slightly calcareous, wet.				
-36.7'			(SC) Grey, clayey, fine SAND. Some small to large shell fragments, slightly calcareous, wet.		1	Set 6" casing by own weight to 38.6'.	2
-39.7'			(CH) Grey, fat CLAY. Trace of small shell fragments & fine sand, damp.		2	Weight of rods drove splitspoon from 42.7' to 43.2', cont'd. drive w/weight of hammer to 44.7' then drove to 45.7'.	6
-41.2'			Some fine sand & small shell fragments.		3		3
-42.7'			Trace of fine sand & small shell fragments.		4		5
-44.2'			(SC) Grey, clayey, fine to med. SAND. Trace of small shell fragments, wet.		5	One blow of hammer at 45.7' drove splitspoon to 47.2'.	0
-45.7'			(SM) Light grey, silty, med. to coarse SAND. Some fine to coarse limestone gravel, calcareous, wet.		6		9
-47.2'			Trace of fine limestone, gravel.		7	NOTE: Suspect thin limestone layers from 47.2' to 54.7'.	1
-50.2'			Some fine to coarse limestone gravel.		8		13
-51.7'			Trace of fine to coarse limestone gravel.		9	LAB CLASSIFICATION	31
-53.2'			Bottom of Boring 54.7'		10	No Class LL PL PI	41
-54.7'			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.		11	4 CH 79 21 58	49
					12		37
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

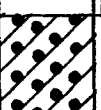
DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.		SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2" fishtail		
2. LOCATION (Coordinates or Station) N-319,500 E-2,376,790			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-125-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 7	UNDISTURBED 0
5. NAME OF DRILLER C. D. Justiss			14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 9.0' (46.4' water)			16. DATE HOLE STARTED 4 May 1990 COMPLETED 4 May 1990		
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.4'			18. TOTAL CORE RECOVERY FOR BORING N/A %		
			19. SIGNATURE OF INSPECTOR Toni Nicholson, P.G. <i>Toni Nicholson</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'b	c	d	e	JAR	g
			Water			NOTE: Scale change @ 45.0'. Mixed Zeogel drilling mud.
-46.4'	45		Bottom of Harbor 46.4'			
-46.9'			(CH) Dark grey, saturated fat CLAY. Some shell fragments and sand grains.		1	
					2	11
					3	21
	50		(SM) Light grey, fine, very calcareous, silty SAND. Soft limestone chunks and trace of shell fragments, wet.		4	33
					5	37
					6	37
	55		Bottom of Boring 55.4'		7	36
-55.4'			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-320,499 E-2,375,946		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail	
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-126-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 12 UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 21.0' (33.7' water)		16. DATE HOLE	STARTED 4 April 1990 COMPLETED 4 April 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 54.7'		18. TOTAL CORE RECOVERY FOR BORING % 3	
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>[Signature]</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0 ^d	0 ^b	c	d	e	JAR	g	
	30		Water			NOTE: Scale change @ 30.0'. Used Zeogel drilling mud.	
			Bottom of Harbor 33.7'			Set 6" casing by own weight to 36.6'. One hammer blow drove splitspoon from 37.7'-38.7', cont'd drive to 39.7'. Wt. of rods drove	5
-33.7'	35		(SC) Grey, clayey, fine SAND. Slightly calcareous, wet.		1		5
-36.7'			Large amount of small to large shell fragments.		2		13
-38.2'			Some small to large shell fragments.		3		2
-39.7'	40		(CH) Grey, fat CLAY. Trace of silt, fine sand & small shells & shell fragments, slightly calcareous, damp.		4		1
					5		0
					6		2
					7		2
					8	No Class LL PL PI	4
-45.7'	45		No shells or sand.		9	2 SM 25 23 2	0
			(SC) Greyish green, clayey, fine to med. SAND. Trace of small shell fragments & wood fibers slightly calcareous, damp.		10	Specific Gravity=2.69	4
-48.7'	50				11		3
					12		12
-51.7'			(CH) Grey fat CLAY. Trace of silt, damp.				2
							2
-54.7'	55		Bottom of Boring 54.7'				3
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	8

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-319,890 E-2,375,050		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail	
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-127-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 9
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES	UNDISTURBED 0
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 15.5' (38.9' water)		16. DATE HOLE STARTED 4 April 1990 COMPLETED 4 April 1990	
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 54.4'		18. TOTAL CORE RECOVERY FOR BORING 0%	
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. 	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'	c	d	e	JAR	g BLOWS
			Water			NOTE: Scale change @ 35.0'. Used Zeogel drilling mud.
	35		Bottom of Harbor 38.9'			
			(SC) Dark grey, clayey, fine SAND. Trace of small shell fragments, calcareous, wet.			
-38.9'	40		(SM) Light grey, silty, med. to coarse SAND. Some fine to coarse limestone gravel. Trace of small shell fragments, calcareous, wet.		1	Set 6" casing by own weight to 41.7'. Weight of rods drove splitspoon from 38.9' to 42.2', cont'd, drive to 43.4'. See Note
-41.9'			Trace of small shell fragments, calcareous, wet.		2	Suspect thin limestone layers from 41.9' to 55.4'. 17
-43.4'			See note in remarks.		3	43
-45.4'	45		Trace of fine to coarse limestone gravel, no shell fragments.		4	NOTE: Inadvertantly washed hole from 43.4' to 45.4'. Wash return same material as from 41.9' to 43.4' but hard material to fishtail. 44
-47.9'			Trace of fine limestone gravel.		5	46
-49.4'	50		Trace of fine to coarse limestone gravel.		6	29
					7	43
					8	28
					9	35
-55.4'	55		Bottom of Boring 55.4'			<u>BLOWS PER FOOT:</u>
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-320 468 E-2,375,001		11. DATUM FOR ELEVATION SHOWN (FBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-128-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 7	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 10.5' (44.2' water)		16. DATE HOLE	STARTED 22 May 1990	COMPLETED 22 May 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 54.7'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR <i>James Arthur, P.G.</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'	c	d	e	JAR	g BLOWS
			Water			
	40		Bottom of Harbor 44.2'			NOTE: Scale change @ 40.0'.
-44.2'			(SM) Light grey, silty, med. to coarse SAND. Calcareous, trace of small shell fragments & fine to coarse, soft, sandy, friable limestone gravel, wet.		1	Set 6" casing to 44.3'.
-45.7'			Fine to med. sand, trace of mod. hard, fine, sandy, limestone gravel.		2	Made new batch of Zeogel mud at 45.7'.
-47.2'			Grey, med. to coarse sand.		3	
-50.2'			Trace of fine to coarse, sandy, mod. hard, limestone gravel.		4	
					5	
					6	
					7	
-54.7'	55		Bottom of Boring 54.7'			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			

ATHENA CORE LOG

CORE ID:


EC-12


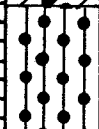
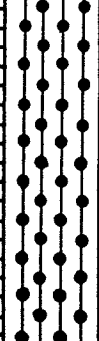

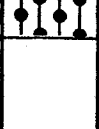
PROJECT: CHARLESTON HARBOR ENTRANCE CHANNEL SAMPLING - GEC
 CLIENT: GULF ENGINEERS & CONSULTANTS, INC.
 CORE DATE: 10-28-96
 TIME: 1250
 PENETRATION LENGTH: 5'
 RECOVERY: 5'
 WATER DEPTH: 43' 1 HOUR PAST MID TIDE
 WEATHER: SUNNY/CLEAR
 GPS LON: 32°42.480 N
 GPS LAT: 79°46.704 W

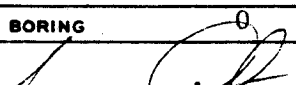
CORED BY: ATHENA TECHNOLOGIES INC.
 LOGGER: TDC/WJS
 DATE LOGGED: 10-28-96
 PAGE: 1 OF 1

KEY			
Fine Sand		Pebbles	
Med Sand		Shell Hash	
Crn Sand		Sed Sample	
		Mud	
		Burrows	
		Organics	

DEPTH (Ft)	SEDIMENT SAMPLED	SED PROFILE	LITHOLOGY DESCRIPTION
00			
10			
20			
30			
40			
49			4-4 9' MUDDY SAND, fine, well sorted, silty sand (SM)
50			4 9-5' MUDDY SAND mixed with SHELL HASH, gray, poorly graded silty sand (SP-SM)
60			NOTE: 3 vibrocones taken, 3 gallons of sediment sampled

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-320,364 E-2,373,740			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-129-90			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER C.D. Justiss			14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 19.5' (35.5' water)			16. DATE HOLE	
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 55.0'			18. TOTAL CORE RECOVERY FOR BORING	
			19. SIGNATURE OF INSPECTOR James Arthur, P.G. 	

ELEVATION 0.0d	DEPTH 0'b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS
			Water			NOTE: Scale change @ 35.0'. Used Zeogel drilling mud.	
-35.5'	35		Bottom of Harbor 35.5'				
-38.5'	40		(SC) Dark grey, clayey, fine SAND. Trace of small shell fragments & fine gravel, wet.		1	Set 6" casing by own weight to 39.1'. Weight of rods drove splitspoon from 35.5' to 39.1', cont'd. drive to 40.0'. Suspect thin limestone layers from 38.5' to 55.0'.	0
	45		(SM) Light grey, silty, med. to coarse SAND. Calcareous, trace of fine to coarse limestone gravel, wet.		2		15
	50		Trace of fine limestone gravel.		3		14
	55		Grey, med. sand.		4		15
					5	LAB CLASSIFICATION	20
					6	No Class LL PL PI	19
					7	2 SM NP NP NP	23
					8	Specific Gravity=2.76	22
					9		28
					10		24
					11		18
					12		13
			Bottom of Boring 55.0'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30'.	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2" fishtail		
2. LOCATION (Coordinates or Station) N-321,486 E-2,374,213		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-130-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 16	UNDISTURBED 0
5. NAME OF DRILLER C. D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 14.0' (30.8' water)		16. DATE HOLE	STARTED 5 April 1990	COMPLETED 5 April 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 54.8'		18. TOTAL CORE RECOVERY FOR BORING	0 %	
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. 		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'b	c	d				
			Water			NOTE: Scale change @ 30.0'. Used Zeogel drilling mud.	
			Bottom of Harbor 30.8'				
			(SM) Grey, silty, fine SAND. Wet.				
-30.8'	30		Med. to coarse sand, large amount of small shell fragments, slightly calcareous.		1	Set 6" casing by own weight to 32.0'.	17
-33.8'			(SC) Grey, clayey, fine to med. SAND. Some small shell fragments, slightly calcareous, damp.		2		30
-35.3'	35		Trace of small shell fragments.		3	LAB CLASSIFICATION	5
-36.8'			Greyish-green, med. to coarse sand, non-calcareous.		4	No Class LL PL PI	28
-39.8'	40		(SM) Light grey, silty, med. to coarse SAND. Calcareous, trace of fine to coarse limestone grav. wet.		5	2 SM NP NP NP 4 SC 31 18 13	2
-41.3'			(GM) Light grey, silty, fine to med. SAND. Calcareous, trace of fine limestone gravel, wet.		6	Sample 2 Specific Gravity=2.70	10
-42.8'			(SM) Light grey, silty, fine to med. SAND. Calcareous, trace of fine limestone gravel, wet.		7	Sample 4 Specific Gravity=2.69	6
-44.3'	45				8		16
-45.8'					9		8
					10		23
					11		12
					12		17
					13		22
					14		23
					15		21
					16		8
54.8'	55		Bottom of Boring 54.8'			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-321,510 E-2,373,115		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-131-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 6	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE XX <input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 9.0' (45.5' water)		16. DATE HOLE	STARTED 8 May 1990	COMPLETED 8 May 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 54.5'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR Toni Nicholson, P.G. <i>Toni Nicholson</i>		

ELEVATION 0.0' a	DEPTH 0' b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS h
			Water		JAR	NOTE: Scale change @ 45.0'. Mixed Zeogel drilling mud.	
-45.5'	45		Bottom of Harbor 45.5'				
-47.5'			(CH) Dark green grey, saturated fat CLAY.		1	Hammer & rods drove splitspoon from 45.5' to 47.5', cont'd. drive to 48.5', Part of Sample #1 taken off rods.	0
-49.0'			(SP) Grey, fine to med., poorly graded SAND. Some shell fragments.		2		12
	50		(SM) Grey, fine, silty SAND. Some shell fragments.		3		37
			(SC) Light greenish-tan, calcareous, very fine, silty clayey SAND. Trace of shell fragments and small phosphate nodules.		4		18
					5		12
-54.5'	55				6		10
			Bottom of Boring 54.5'			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail
2. LOCATION (Coordinates or Station) N-321,349 E-2,372,441		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
3. DRILLING AGENCY Savannah District		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 15 UNDISTURBED 0
4. HOLE NO. (As shown on drawing title and file number) EC-132-90		14. TOTAL NUMBER CORE BOXES 0	
5. NAME OF DRILLER C.D. Justiss		15. ELEVATION GROUND WATER N/A	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		16. DATE HOLE	STARTED 1 May 1990 COMPLETED 1 May 1990
7. THICKNESS OF OVERBURDEN 22.5' (33.3' water)		17. ELEVATION TOP OF HOLE 0.0'	
8. DEPTH DRILLED INTO ROCK 0.0'		18. TOTAL CORE RECOVERY FOR BORING N/A %	
9. TOTAL DEPTH OF HOLE 55.8'		19. SIGNATURE OF INSPECTOR Toni Nicholson, P.G. <i>Toni Nicholson</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'	c	d	e		g
			Water			NOTE: Scale change @ 30.0'. Mixed Zeogel drilling mud.
	30'					
-33.3'			Bottom of Harbor 33.3'			
	35'		(CH) Very dark grey, soupy, fat CLAY.		1	Weight of hammer
-36.3'			(MH) Very dark grey, soupy, few shell fragments. Fat inorganic SILT.		2	drove splitspoon from 33.3' to 37.5', cont'd.
-37.3'			(SM) Very light grey, fine to med., very calcareous, crusty, w/soft limestone fragments, damp silty SAND.		3	drive to 37.8'. 7
	40'				4	Part of sample taken off rods from 33.3' to 36.3'. 45
	45'		Med. grey, fine, calcareous, slightly clayey.		5	
	50'		Greenish-grey, w/limestone fragments.		6	LAB CLASSIFICATION
-51.3'			(ML) Olive green, calcareous, w/thin limestone lenses, trace of shell fragments. Lean inorganic SILT.		7	No Class LL PL PI 34
	55'		Dark olive green, slightly calcareous, no limestone lenses, trace of shells.		8	5 SM NP NP NP 28
-55.8'			Bottom of Boring 55.8'		9	Specific Gravity=2.72 31
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.		10	
					11	
					12	
					13	
					14	
					15	
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2" fishtail	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW 4X5 1/2" dia bit
2. LOCATION (Coordinates or Station) N-321,361 E-2,372,430			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
3. DRILLING AGENCY Savannah District			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 3 UNDISTURBED 0
4. HOLE NO. (As shown on drawing title and file number) EC-132A-90			14. TOTAL NUMBER CORE BOXES 0	
5. NAME OF DRILLER D. Justiss			15. ELEVATION GROUND WATER N/A	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE	STARTED 22 May 1990 COMPLETED 22 May 1990
7. THICKNESS OF OVERBURDEN 40.3' (35.1' water)			17. ELEVATION TOP OF HOLE 0.0'	
8. DEPTH DRILLED INTO ROCK 10.0'			18. TOTAL CORE RECOVERY FOR BORING 10 %	
9. TOTAL DEPTH OF HOLE 50.3'			19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>C. Kelly</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e	JAR	g	
			Water				
			Bottom of Harbor 35.1'				
			(MH) Dark grey to black clayey SILT. Trace of fine sand, slightly calcareous, wet.				
-35.1'	35		(SM) Light grey, silty, med. to coarse SAND. Calcareous, trace of fine to coarse, soft, sandy, friable limestone gravel & small shell fragments, wet.		1	Set 6" casing by own weight to 38.1'. Weight of rods drove splitspoon to 38.1'.	
-38.1'					2		37
-40.3'	40		Top of Rock 40.3'				
-40.5'			(LIMESTONE) Light grey, sandy, med. to coarse grained, soft, friable, porous.	Rec 19%		Pull #1 From 39.6' to 44.3' Run 4.7' Rec 0.9' C.L. 3.8' Taped 42.8' Drilling Time: 9 Min Hyd. Pressure: 100 PSI Water Return: Lost all water at approx. 41.1'.	
	42		No Recovery.	RQD 0.0			
					Box 1	Pull #2 From 44.3' To 46.3' Run 2.0' Rec 0.0' C.L. 2.0' Taped 45.1' Drilling Time: 1 Min. Hyd. Pressure: 250 PSI Water Return: 100%	
-44.3'	44		No Recovery	RED 0.0%			
						Pull #3 From 46.3' To 48.8' Run 2.5' Rec 0.0' C.L. 2.5' Taped 47.4' Drilling Time: 28 Min. Hyd. Pressure: 75 PSI Water Return: 100%	
-46.2'	46		No Recovery	REC 0.0%			
-48.0'	48		Continued on sheet #2 NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE 0.0' MLW

Hole No. EC-132A-90

PROJECT Charleston Harbor Entrance Channel Deepening and Widening

INSTALLATION Charleston, S.C.

SHEET 2 OF 2 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
		c	d	e	f	g BLOWS
-48.0'	48'		No Recovery.			Pull #3 Cont'd.
-48.8'	50		(SM) Grey, silty, med. to coarse SAND. Calcareous, trace of fine, soft, friable, limestone gravel, wet.		3	28
-50.3'			Bottom of Boring 50.3'			

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-322,441 E-2,372,463		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-133-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 18	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 27.0' (27.7' water)		16. DATE HOLE	STARTED 2 May 1990	COMPLETED 2 May 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 54.7'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR Toni Nicholson, P.G. <i>Toni Nicholson</i>		

ELEVATION 0.0' ^d	DEPTH 0' ^b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS BLOWS
			Water			NOTE: Scale change @ 25.0'. Mixed Zeogel drilling mud.	
	25		Bottom of Harbor 27.7'				
-27.7'			(SM) Green-grey, very fine glauconitic, calcareous, silty SAND. Trace of shell fragments.		1		19
	30				2	LAB CLASSIFICATION	30
					3	No Class LL PL PI	11
					4	SP-SM NP NP NP	5
-33.7'			Med. grey.		5	SM NP NP NP	5
	35		(SC) Med-dark grey, fine calcareous, clayey SAND. Abundant shell fragments.		6		5
-36.7'			(SM) Grey, fine, calcareous, silty SAND. Some shell fragments.		7		10
	40		Light grey, trace shell fragments.		8		19
			Grey.		9		36
					10		24
			Light tan-grey, some shell fragments.		11		15
	45				12		14
			Light greenish-tan, very calcareous, fine w/small limestone & shell fragments.		13		6
					14		7
			Fewer limestone fragments.		15		8
-50.0'	50		Continued on sheet #2 NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS
-50.0'	50'		(SM) Cont'd.				
-50.2'			(SC) Light greenish-tan, fine, clayey SAND. Limestone chunks, abundant shell fragments, very calcareous.		16		13
-51.7'					17		9
-54.7'	55		(ML) Dark olive green, calcareous, lean inorganic SILT. Trace of shell fragments.		18		12
			Bottom of Boring 54.7'				

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2" fishtail		
2. LOCATION (Coordinates or Station) N-322,247 E-2,370,628		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-134-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 15	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 22.5 (32.8' water)		16. DATE HOLE	STARTED 31 Jan 1990	COMPLETED 31 Jan 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.3'		18. TOTAL CORE RECOVERY FOR BORING	N/A %	
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0' b	c	d	e	f	g	h
			Water			NOTE: Scale change @ 30.0'.	
			Bottom of Harbor 32.8'				
	30		(MH) Dark grey, clayey SILT. Some fine sand, wet.				
			(GM) Light grey silty fine to coarse limestone GRAVEL. Some fine to coarse sand & small shell fragments, calcareous, wet.				
-32.8'			(SM) Grey, silty, fine to med SAND. Calcareous, wet.		1	Set 6" casing by own weight to 34.9'.	0
-34.9'	35		Med. to coarse sand, trace of fine to coarse limestone gravel, small shells & small shell fragments, wet.		2	Weight of rods drove splitspoon from 32.8' to 35.2', cont'd. to 35.8'.	26
-35.8'			Fine to med. sand, no shells or shell fragments.		3	Weight of hammer drove splitspoon from 48.3' to 49.3', cont'd. drive to 50.8'.	44
-37.3'			(SC) Light grey, clayey, fine to med. SAND. Calcareous, some small to large shell fragments, wet.		4	NOTE: Suspect occasional thin limestone layers from 34.9' to 46.3'.	35
-38.8'	40		Large amount of small & large shell fragments.		5		31
			(CH) Dark greenish brown fat CLAY. Damp.		6		31
-46.3'	45				7		43
-47.8'					8		31
-49.3'	50				9		35
					10		11
					11		0
					12		7
					13		25
					14		16
					15		16
-55.3'	55		Bottom of Boring 55.3'				15
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-322,254 E-2,370,619			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW 4x5 1/2" dia. bit	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-134A-90			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED 3 UNDISTURBED 0	
5. NAME OF DRILLER D. Justiss			14. TOTAL NUMBER CORE BOXES 1	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 3.0' (33.5' water)			16. DATE HOLE STARTED 19 May 1990 COMPLETED 19 May 1990	
8. DEPTH DRILLED INTO ROCK 13.8'			17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 50.3'			18. TOTAL CORE RECOVERY FOR BORING 42 %	
			19. SIGNATURE OF INSPECTOR <i>James Arthur, P.G.</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water logs, depth of weathering, etc., if significant)
0.0'	0'	c	d	e		g BLOWS
			Water			
			Bottom of Harbor 33.5'			
	30		(MH) Dark grey, clayey SILT. Some fine sand & small to large shell fragments, slightly calcareous, trace of coarse limestone gravel, wet.			
-33.5'						
-35.0'	35		(SM) Light grey & grey, silty med. to coarse SAND. Calcareous, trace of fine to coarse limestone gravel & small shell fragments, wet.		1	Set 6" casing by own weight to 34.3'. Scale change @ 35.0'. Wt. of rods 33.5'-34.8' cont'd to 35.0'. 6
			Top of Rock 36.5'		2	62
-36.5'						
	37		(LIMESTONE) Grey, med. to coarse grained, some fine to med. sand, mod. hard to hard, porous, highly jointed w/ near horizontal open joints at 36.7', 37.2', 37.5', 37.9', 38.2', 38.4', 38.7', 39.1', 39.4', 39.7'. Core loss from 39.7' to 40.7'.	REC 76%		Pull #1 From 36.5' To 40.7' Run 4.2' Rec 3.2' C.L. 1.0' Taped 40.2' Drilling Time: 7 Min. Hyd. Pressure: 0 PSI Water Return: 100%
	39			RQD 33.0	Box 1	
			(SM) Grey, silty, med. to coarse SAND. Calcareous, trace of fine limestone gravel, soft, damp, thin limestone layers at 40.7' to 40.8', 41.5'-41.7' & 41.9'-42.1'.	REC 38.0%		Pull #2 From 40.7' To 47.3' Run 6.6' Rec 2.5' C.L. 4.1' Taped 46.7' Drilling Time: 15 Min. Hyd. Pressure: 125 PSI Water Return: 100%
-40.8'	41			RQD 0.0		
	43		Continued on sheet #2 NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".
-43.0'						

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

0.0' MLW

Hole No. EC-134A-90

PROJECT Charleston Harbor Entrance Channel
Deepening and Widening

INSTALLATION
Charleston, S.C.

SHEET 2
OF 2 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY e	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-43.0'	48'	c	d		JAR	B BLOWS
	45		(SM) Grey, silty, med. to coarse SAND. Calcareous, trace of fine limestone gravel, soft, damp.		Box 1	Cont'd. Pull #2
-47.3'	47		No Recovery.	REC 0.0%		Pull #3 From 47.3' To 50.0' Run 2.7' Rec 0.0' C.L. 2.7' Taped 48.6' Drilling Time: 3 Min. Hyd. Pressure: 100 PSI Water Return: 100%
-49.3'	49		(CH) Dark greenish-brown, fat CLAY. Some fine sand, slightly calcareous, soft to stiff, slightly damp.		JAR 3	Note: Re-drove using splitspoon, weight of hammer drove splitspoon to 49.9', cont'd. drive w/ two hammer blows to 50.3'.
=50.3'	51		Bottom of Boring 50.3'			
	53					

DRILLING LOG		DIVISION		INSTALLATION		SHEET 1 OF 1 SHEETS	
1. PROJECT		South Atlantic		Charleston, S.C.			
Charleston Harbor Entrance Channel Deepening and Widening				10. SIZE AND TYPE OF BIT		1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station)				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		fish tail	
N-323,100 E-2,370,210				MLW			
3. DRILLING AGENCY				12. MANUFACTURER'S DESIGNATION OF DRILL			
Savannah District				Failing 314			
4. HOLE NO. (As shown on drawing title and file number)		EC-135-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 7 UNDISTURBED 0	
5. NAME OF DRILLER		C.D. Justiss		14. TOTAL NUMBER CORE BOXES		0	
6. DIRECTION OF HOLE		<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		N/A	
7. THICKNESS OF OVERBURDEN		12.1' (42.8' water)		16. DATE HOLE		STARTED 12 May 1990 COMPLETED 12 May 1990	
8. DEPTH DRILLED INTO ROCK		0.0'		17. ELEVATION TOP OF HOLE		0.0'	
9. TOTAL DEPTH OF HOLE		54.9'		18. TOTAL CORE RECOVERY FOR BORING		N/A %	
				19. SIGNATURE OF INSPECTOR		Toni Nicholson, P.G. <i>Toni Nicholson</i>	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
0.0'	0'	c	d	e		BLOWS	
	40		Water			NOTE: Scale change @ 40.0'	
-42.8'	42.8'		Bottom of Harbor				
	45		(CH) Dark olive green, soupy fat CLAY.		1	Sample #1 taken off rods.	
	48.4'		Dark grey, wet.		2		
	50		(ML) Dark olive green, calcareous, damp, lean inorganic SILT. Very uniform.		3		
	55				4	19	
					5	13	
					6	12	
					7	11	
-54.9'	54.9'		Bottom of Boring			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-325,100 E 2,366,550		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-136-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 7	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 10.5' (44.9' water)		16. DATE HOLE	STARTED 12 May 1990	COMPLETED 12 May 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.4'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR Toni Nicholson, P.G. <i>Toni Nicholson</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'		Water				
	40'					NOTE: Scale change @ 40.0'	
	45'		Bottom of Harbor 44.9'				
-44.9'	45'		(ML) Dark olive green, calcareous, damp lean inorganic SILT.		1		9
					2		12
					3		10
	50'		With fine quartz sand & phosphate grains.		4		8
					5		9
					6		6
	55'				7		7
-55.4'	55'		Bottom of Boring 55.4'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				
						BLOWS PER-FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-326,850 E-2,363,830			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-137-90			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 5 UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss			14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 7.5' (47.4' water)			16. DATE HOLE STARTED 12 May 1990 COMPLETED 12 May 1990	
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 54.9'			18. TOTAL CORE RECOVERY FOR BORING N/A %	
			19. SIGNATURE OF INSPECTOR Toni Nicholson, P.G. <i>Toni Nicholson</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	.	JAR		
			Water			NOTE: Scale change @ 45.0'.	
	45'		Bottom of Harbor 47.4'				
-47.4'			No recovery.				3
-48.9'			(SP) Grey, fine to med, wet, poorly graded SAND. Abundant shell fragments, some up to 3/4" dia.		1		12
-49.9'	50'		(ML) Dark olive green, calcareous, damp, lean inorganic SILT. Very fine sand grains.		2		7
					3		7
					4		7
					5		7
-54.9'	55'		Bottom of Boring 54.9'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 3/8" splitspoon, 5 1/2" fishtail,	
2. LOCATION (Coordinates or Station) N-321,505 E-2,372,653			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW 4X5 1/2" dia. bit	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-138-90			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED 1 UNDISTURBED 0	
5. NAME OF DRILLER D. Justiss			14. TOTAL NUMBER CORE BOXES 1	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 1.5' (41.5' water)			16. DATE HOLE STARTED 13 June 1990 COMPLETED 13 June 1990	
8. DEPTH DRILLED INTO ROCK 6.6'			17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 49.6'			18. TOTAL CORE RECOVERY FOR BORING 88 %	
			19. SIGNATURE OF INSPECTOR <i>James Arthur, P.G.</i>	

ELEVATION 0.0'	DEPTH 0'	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS
			Water			NOTE: Scale change @ 40.0'. Made new batch of Zeogel mud. Set 6" casing by own weight to 41.9'.	
	40		Bottom of Harbor 41.5' (GM) Light grey, silty, fine to coarse, sandy, mod. hard, limestone GRAVEL. Some fine to med. sand, calcareous, wet. Top of Rock 43.0'.				
-41.5'	42		(LIMESTONE) Grey, fossiliferous, sandy, soft to mod. hard, porous, some small to large vugs, intensely to highly jointed. Badly broken, sandy & clayey from 43.0'-43.9', 45.1'-45.3' & 46.1'-46.5'. Near horizontal open joints at 43.1', 43.9', 44.2', 44.6', 45.0', 45.1', 45.3', 45.5', 45.7', 45.8', 46.0', 46.1', 46.5', 46.7', & 47.1'.		1	Weight of rods drove 0 splitspoon to 42.5'.	21
-43.0'	44		(SM) Grey, silty, med. to coarse SAND. Calcareous, trace of small shell fragments & fine, soft, friable, sandy, limestone gravel & clay, wet.	REC 100%	BOX 1	Pull #1 From 43.0' To 47.5' Run 4.5' Rec 4.5' Taped 47.0' Drilling Time: 9 Min. Hyd. Pressure: 50 PSI Water Return: 70% (Driller suspects loss of water at casing seat) Waxed sample from 44.6' to 45.0' for lab test.	
-47.1'	46		(LIMESTONE) Greyish-tan, fossiliferous, soft to mod. hard, sandy, porous, some small to large vug, badly broken.	RQD 0.0		Pull #2 From 47.5' To 47.8' (Blkd) Run 0.3' Rec 0.3' Taped 47.7'	
-48.4'	48			REC 80%		Drilling Time: 4 Min Hyd. Pressure: 100 PSI Water Return: 100%	
-48.8'			Core Loss.	RQD 0.0		Pull #3 From 47.8' To 49.6' (Blocked) Run 1.8'	
-49.6'	50		Bottom of Boring 49.6' NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			Rec 1.0' C.L. 0.8' Taped 49.4' Drilling Time: 5 Min. Hyd. Pressure: 100 PSI Water Return: 100%	
<p align="center">BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/140 lb. hammer falling 30".</p>							

ATHENA CORE LOG

CORE ID:

EC-13

PROJECT CHARLESTON HARBOR ENTRANCE CHANNEL SAMPLING - GEC
 CLIENT: GULF ENGINEERS & CONSULTANTS, INC.
 CORE DATE: 10-27-96
 TIME: 1215
 PENETRATION LENGTH: 5.3'
 RECOVERY 5.3'
 WATER DEPTH: 43' 2 HOURS BEFORE LOW TIDE
 WEATHER: PARTLY CLOUDY
 GPS LON: 32°42.035 N
 GPS LAT: 79°46.518 W

CORED BY: ATHENA TECHNOLOGIES INC.
 LOGGER: TDC/WJS
 DATE LOGGED: 10-27-96
 PAGE: 1 OF: 1

KEY			
Fine Sand		Pebbles	
		Mud	
Med Sand		Shell Hash	
		Burrows	
Crs Sand		Sed Sample	
		Organics	

DEPTH (Ft)	SEDIMENT SAMPLED	SED PROFILE	LITHOLOGY DESCRIPTION
0.0			0-1' MUDDY SAND, fine to very fine sand, light brown, well graded silty sand (SW-SM), small amount of SHELL HASH
1.0			1-2' Dark gray MUD with tight, lean clay lenses with FINE SAND to very fine sand, silty clayey sand (SM-SC)
2.0			2-5 3' Dark gray MUD, water saturated, abundant SHELL HASH with FINE SAND to very fine sand, fat clay (CH), poorly graded silty sand (SP-SM)
3.0			
4.0			
5.0			
6.0			NOTE 2 vibrocores taken, 4 gallons of sediment collected

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-320,462 E-2,374,457		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW 4X5 1/2" dia. bit	
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-139-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 2 UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 1	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 5.8' (41.2' water)		16. DATE HOLE STARTED 6 June 1990 COMPLETED 6 June 1990	
8. DEPTH DRILLED INTO ROCK 2.8'		17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 49.8'		18. TOTAL CORE RECOVERY FOR BORING 100%	
19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>J. R. Kelly</i>			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e	JAR	g	
			Water			NOTE: Scale change @ 40.0' & 45.0'. Made new batch of Zeogel mud. Set 6" casing by own weight to 45.2'.	
-41.2'	40		Bottom of Harbor 41.2'				
			(MH) Grey, clayey SILT. Slightly calcareous, trace of fine sand, very soft, wet.		1	Weight of rods drove splitspoon from 41.2' to 45.5'. Pulled tool.	0
-45.5'	45		(SM) Light grey, silty, med. to coarse SAND. Calcareous, trace of fine, soft, sandy, friable limestone gravel.		2		
-47.0'	47		Top of Rock 47.0'				36
			(LIMESTONE) Tannish-light grey, fossiliferous, sandy, mod. hard to hard, porous & pitted w/ some small to large vugs intensely to highly jointed.	REC 100%	Box 1	Pull #1 From 47.0' To 49.8' Run 2.3' Rec 2.8' Taped 49.5' Drilling Time: 9 Min Hyd. Pressure: 50 PSI Water Return: 100%	
-49.8'	49		47.0'-47.2' Very soft, friable, badly broken. Near horizontal open joints at 47.2', 47.7', 48.4', 48.8', 49.2', 49.4'.	RQD 71.0%			
			Bottom of Boring 49.8'.				
	51		NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-319,789 E-2,375,240			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW 4X5 1/2" dia. bit	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-140-90			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED 4 UNDISTURBED 0	
5. NAME OF DRILLER D. Justiss			14. TOTAL NUMBER CORE BOXES 2	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 4.7' (35.9' water)			16. DATE HOLE STARTED 6 June 1990 COMPLETED 6 June 1990	
8. DEPTH DRILLED INTO ROCK 10.1'			17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 50.7'			18. TOTAL CORE RECOVERY FOR BORING 94 %	
			19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>O'Keller</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'	c	d	e	JAR	BLOWS
			Water Bottom of Harbor 35.9'			NOTE: Scale change @ 35.0' & 40.0'. Set 6" casing by own weight to 39.6'.
-35.9'	35		(MH) Grey to dark grey, clayey SILT. Trace of fine sand, slightly calcareous, very wet.			
			(CH) Greenish-grey, fat CLAY. Slightly calcareous, damp.			
-38.6'			(GC) Light grey, clayey, fine to coarse, soft to mod. hard, sandy limestone GRAVEL. Some med.		1	Weight of rods drove splitspoon to 39.1'. Pulled tool.
-39.6'	40		to coarse sand & small to large shell fragments, calcareous, wet.		2	Made new batch of Zeogel mud @ 39.1'.
			Top of Rock 40.6'		3	
-40.6'			(LIMESTONE) Tannish, light grey, clayey, med. to coarse grained, soft, friable, badly broken.	REC 100% RQD 0	4	Pull #1 From 40.6' To 41.3' (Blocked) Run 0.7' Rec 0.7' Taped 40.3' Drilling Time: 5 Min. Hyd. Pressure: 50 PSI Water Return: 100%
	42		41.3'-Fossiliferous, porous pitted, some small to large vugs, intensely to highly jointed. 41.3'-41.6' Very soft to hard, sandy, clayey, badly broken.	REC 87%		
	44		41.6'-45.3' Mod. hard to hard. Near horizontal open joints at 41.6', 42.1', 42.7', 42.9', 43.5', 43.8', 44.7', 45.0' & 45.3'. C.L. from 45.3' to 45.9'. Some soft zones & badly broken from 45.9'-46.0', 46.6'-46.7', 47.4'-47.6', 48.0'-48.1', 40.6'	RQD 62.0	Box 1 of 2	Pull #2 From 41.3' To 45.9' Run 4.6' Rec 4.0' C.L. 0.6' Taped 45.6' Drilling Time: 6 Min. Hyd. Pressure: 90 PSI Water Return: 100% Waxed sample from 42.1' to 42.7' & 43.3' to 44.7' for lab test.
	46		49.8' & 50.1'-50.4'. Near horizontal open joints @ 46.0', 46.6', 46.7', 47.4', 47.6', 48.0', 48.1', 48.6', 48.8', 49.6', 49.8', 50.1' & 50.4'.	REC 100% RQD 62.0		Pull #3 From 45.9' To 50.7' Run 4.8' Rec 4.8' Taped 50.7' Wat. Ret. 100% Drilling Time: 8 Min. Hyd. Pressure: 90 PSI
-48.0'	48		Continued on sheet 2 NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

0.0' MLW

Hole No. EC-140-90

PROJECT Charleston Harbor Entrance Channel
Deepening and Widening

INSTALLATION

Charleston, S.C.

SHEET 2

OF 2 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
-48.0'	48'	c	d	e			
-50.7'	50'		(LIMESTONE) Cont'd.		Box 2 of 2	Pull #3 Cont'd.	
			Bottom of Boring 50.7'				

DRILLING LOG		DIVISION SOUTH ATLANTIC	INSTALLATION CHARLESTON, S. C.		SHEET 1 OF 1 SHEETS	
1. PROJECT CHARLESTON HARBOR DEEPENING			10. SIZE AND TYPE OF BIT 1 3/8" I. D. SPLITSPOON, 5 1/2" FISHTAIL			
2. LOCATION (Coordinates or Station) LAT: 32° 37' 37.3924", LONG: 79° 36' 26.3666"			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW			
3. DRILLING AGENCY SAVANNAH DISTRICT			12. MANUFACTURER'S DESIGNATION OF DRILL FALLING 314			
4. HOLE NO. (As shown on drawing title and title number) EC-141-97		13. TOTAL NO. OF SOIL SAMPLES TAKEN		DISTURBED 2		UNDISTURBED 0
5. NAME OF DRILLER C. ROBBINS			14. TOTAL NUMBER CORE BOXES 0			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. GROUND WATER ELEVATION N/A		16. DATE HOLE STARTED 31 MAY 97	
7. THICKNESS OF OVERBURDEN 3.0'			17. ELEVATION TOP OF HOLE -47.0'		COMPLETED 31 MAY 97	
8. DEPTH DRILLED INTO ROCK 0.0'			18. TOTAL CORE RECOVERY FOR BORING N/A			
9. TOTAL DEPTH OF HOLE 3.0'			19. SIGNATURE OF INSPECTOR J. ARTHUR, P. G.			

ELEVATION (FT)	DEPTH (FT)	SYMBOLS	CLASSIFICATION OF MATERIALS (Description)	PERCENT MOISTURE CONTENT	JAR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc. If slight/cant)	BLOWS/FT.
-47.0'	0	•••••	(SP) Light brownish gray fine to medium poorly graded SAND, some fine to coarse sand size shell fragments, calcareous.		1	Weight of rods drove splitspoon from 0.0' to 0.8'.	0
	2	•••••			2		4
		•••••					10
		•••••					9
		•••••					13
		•••••					21
-50.0'	BOTTOM OF BORING: 3.0'						
	4						
	6						
	8						
	10						
	12						
	14						

NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

BLOWS PER 1/2 FOOT: NUMBER REQUIRED TO DRIVE 1 3/8" I. D. SPLITSPOON W/140 LB. HAMMER FALLING 30".

DRILLING LOG		DIVISION SOUTH ATLANTIC	INSTALLATION CHARLESTON, S. C.	SHEET 1 OF 1 SHEETS
1. PROJECT CHARLESTON HARBOR DEEPENING			10. SIZE AND TYPE OF BIT 1 3/8" I. D. SPLITSPOON, 5/2" FISHTAIL	
2. LOCATION (Coordinates or Station) LAT: 32° 37' 37.1434", LONG: 79° 36' 26.4213"			11. DATUM FOR ELEVATION SHOWN (TBM or MSU) MLW	
3. DRILLING AGENCY SAVANNAH DISTRICT			12. MANUFACTURER'S DESIGNATION OF DRILL FAILING 314	
4. HOLE NO. (As shown on drawing title and file number) EC-141A-97		13. TOTAL NO. OF SOIL SAMPLES TAKEN DISTURBED 4 UNDISTURBED 0		
5. NAME OF DRILLER C. ROBBINS			14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. GROUND WATER ELEVATION N/A	
7. THICKNESS OF OVERBURDEN 12.0'			16. DATE HOLE STARTED 1 JUN 97 COMPLETED 1 JUN 97	
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE -46.3'	
9. TOTAL DEPTH OF HOLE 12.0'			18. TOTAL CORE RECOVERY FOR BORING N/A %	
			19. SIGNATURE OF INSPECTOR J. ARTHUR, P. G.	

ELEVATION (FT)	DEPTH (FT)	SYMBOLS	CLASSIFICATION OF MATERIALS (Description)	PERCENT MOISTURE CONTENT	JAR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS/FT.
-46.3'	0	•••••	(SP) Brownish gray fine to medium poorly graded SAND, shelly with fine to coarse sand size shell fragments, calcareous.		1	Note: Weight of hammer drove splitspoon from 9.5' to 10.5' through layer of shell fragments.	1
	2	•••••					5
	3.0'	•••••	Gray, some shell fragments.		2		11
-49.3'	4	•••••					16
	6.0'	•••••	Light gray, trace of shell fragments.		3		16
-52.3'	6	•••••					7
	7.5'	•••••	Some shell fragments.				13
-53.8'	8	•••••					12
	9.0'	•••••	Gray, about 85% shell fragments. (See remarks.)				10
-55.3'	10	•••••					11
	10.5'	•••••	Some shell fragments.		4		14
-56.8'	10	•••••					17
	12	•••••					17
-58.3'	12		BOTTOM OF BORING: 12.0'				8
	14		NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.				2
			BLOWS PER 1/2 FOOT: NUMBER REQUIRED TO DRIVE 1 3/8" I. D. SPLITSPOON W/140 LB. HAMMER FALLING 30".				0


DRILLING LOG		DIVISION SOUTH ATLANTIC	INSTALLATION CHARLESTON, S. C.	SHEET 1 OF 1 SHEETS
1. PROJECT CHARLESTON HARBOR DEEPENING			10. SIZE AND TYPE OF BIT 1 3/8" I. D. SPLITSPOON, 5 1/2" FISHTAIL	
2. LOCATION (Coordinates or Station) LAT: 32° 37' 47.8258", LONG: 79° 37' 2.4508"			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW	
3. DRILLING AGENCY SAVANNAH DISTRICT			12. MANUFACTURER'S DESIGNATION OF DRILL FALLING 314	
4. HOLE NO. (As shown on drawing title and file number) EC-144-97			13. TOTAL NO. OF SOIL SAMPLES TAKEN DISTURBED: 3 UNDISTURBED: 0	
5. NAME OF DRILLER C. ROBBINS			14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. GROUND WATER ELEVATION N/A	
7. THICKNESS OF OVERBURDEN 17.0'			16. DATE HOLE STARTED: 12 JUN 97 COMPLETED: 12 JUN 97	
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE -45.7'	
9. TOTAL DEPTH OF HOLE 17.0'			18. TOTAL CORE RECOVERY FOR BORING N/A %	
			19. SIGNATURE OF INSPECTOR J. ARTHUR, P. G.	

ELEVATION (FT)	DEPTH (FT)	SYMBOLS	CLASSIFICATION OF MATERIALS (Description)	PERCENT MOISTURE CONTENT	JAR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS/FT.
-45.7'	0	•••••	(SP) Grayish brown fine to medium poorly graded SAND, some fine to medium sand size shell fragments, calcareous.		1	Casing dropped to 15.5' during wash to 7.5'.	2
-47.2'	1.5'	•••••	Gray, fine grained, trace of silt.		2	Weight of rods drove splitspoon from 7.5' to 17.0'.	6, 21, 39
-53.2'	7.5'	▨▨▨▨▨	(CH) Dark gray fat CLAY.		3		11, 15, 17, 27, 40, 40, 12, 15, 10
-62.7'	17.0'		BOTTOM OF BORING: 17.0'				0

NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

BLOWS PER 1/2 FOOT: NUMBER REQUIRED TO DRIVE 1 3/8" I. D. SPLITSPOON W/140 LB. HAMMER FALLING 30".

DRILLING LOG		DIVISION SOUTH ATLANTIC	INSTALLATION CHARLESTON, S. C.	SHEET 1 OF 1 SHEETS
1. PROJECT CHARLESTON HARBOR DEEPENING			10. SIZE AND TYPE OF BIT 1 3/8" I. D. SPLITSPOON, 5/2" FISHTAIL	
2. LOCATION (Coordinates or Station) LAT: 32° 37' 52.6474", LONG: 79° 37' 17.5748"			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW	
3. DRILLING AGENCY SAVANNAH DISTRICT			12. MANUFACTURER'S DESIGNATION OF DRILL FALLING 314	
4. HOLE NO. (As shown on drawing title and file number) EC-145-97		13. TOTAL NO. OF SOIL SAMPLES TAKEN		DISTURBED 2 UNDISTURBED 0
5. NAME OF DRILLER C. ROBBINS			14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. GROUND WATER ELEVATION N/A	
7. THICKNESS OF OVERBURDEN 9.7'			16. DATE HOLE STARTED 18 JUN 97 COMPLETED 18 JUN 97	
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE -44.5'	
9. TOTAL DEPTH OF HOLE 9.7'			18. TOTAL CORE RECOVERY FOR BORING N/A %	
			19. SIGNATURE OF INSPECTOR J. ARTHUR, P. G.	

ELEVATION (FT)	DEPTH (FT)	SYMBOLS	CLASSIFICATION OF MATERIALS (Description)	PERCENT MOISTURE CONTENT	JAR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) BLOWS/FT.
-44.5'	0		(CH) Gray fat CLAY, trace of fine to coarse sand size shell fragments.		1	Weight of rods drove splitspoon from 0.0' to 6.8' and 6.8' to 9.7'. 0 0
-54.2'	10				2	
			BOTTOM OF BORING: 9.7'			
	15					
	20					
	25					
	30					
	35					

NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

BLOWS PER 1/2 FOOT: NUMBER REQUIRED TO DRIVE 1 3/8" I. D. SPLITSPOON W/140 LB. HAMMER FALLING 30".

DRILLING LOG	DIVISION SOUTH ATLANTIC	INSTALLATION CHARLESTON, S. C.	SHEET 1 OF 1 SHEETS
1. PROJECT CHARLESTON HARBOR DEEPENING		10. SIZE AND TYPE OF BIT 1 3/8" I. D. SPLITSPOON, 5/2" FISHTAIL	
2. LOCATION (Coordinates or Station) LAT: 32° 39' 10.7526", LONG: 79° 39' 41.5124"		11. DATUM FOR ELEVATION SHOWN (TBM or MSU) MLW	
3. DRILLING AGENCY SAVANNAH DISTRICT		12. MANUFACTURER'S DESIGNATION OF DRILL FAILING 314	
4. HOLE NO. (As shown on drawing title and file number) EC-146-97		13. TOTAL NO. OF SOIL SAMPLES TAKEN	DISTURBED 4 UNDISTURBED 0
5. NAME OF DRILLER C. ROBBINS		14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. GROUND WATER ELEVATION N/A	
7. THICKNESS OF OVERBURDEN 10.5'		16. DATE HOLE STARTED 18 JUN 97 COMPLETED 18 JUN 97	
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE -44.1'	
9. TOTAL DEPTH OF HOLE 10.5'		18. TOTAL CORE RECOVERY FOR BORING N/A %	
		19. SIGNATURE OF INSPECTOR J. ARTHUR, P. G.	

ELEVATION (FT)	DEPTH (FT)	SYMBOLS	CLASSIFICATION OF MATERIALS (Description)	PERCENT MOISTURE CONTENT	JAR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS/FT.
-44.1'	0	•••••	(SP) Gray fine to medium poorly graded SAND, some fine to medium sand size shell fragments, calcareous.		1		0
-45.6'	1.5'	•••••	Fine grained sand, trace of shell fragments.				7
	2	•••••					19
	4	•••••			2		19
	4.5'	•••••					36
-48.6'	6	•••••	(SM) Gray fine to medium silty SAND, some fine to medium sand size shell fragments, calcareous.		3		4
	6	•••••					15
	8	•••••					19
	8	•••••					11
	9	•••••					13
	9	•••••					13
	9	•••••					19
	9	•••••					9
	9	•••••					19
	9	•••••					19
-53.1'	9.0'	•••••	Trace of fine gravel size shell fragments.		4		22
	10	•••••					15
-54.6'	10	•••••					18
	10	•••••					18
	10.5'	•••••	BOTTOM OF BORING: 10.5'				
	12	•••••					
	14	•••••					

NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

BLOWS PER 1/2 FOOT: NUMBER REQUIRED TO DRIVE 1 3/8" I. D. SPLITSPOON W/140 LB. HAMMER FALLING 30".

DRILLING LOG	DIVISION SOUTH ATLANTIC	INSTALLATION CHARLESTON, S. C.	SHEET 1 OF 1 SHEETS
1. PROJECT CHARLESTON HARBOR DEEPENING		10. SIZE AND TYPE OF BIT 1 3/8" I. D. SPLITSPOON, 5/2" FISHTAIL	
2. LOCATION (Coordinates or Station) LAT: 32° 39' 7.4261", LONG: 79° 39' 54.8738"		11. DATUM FOR ELEVATION SHOWN (TBM or MSU) MLW	
3. DRILLING AGENCY SAVANNAH DISTRICT		12. MANUFACTURER'S DESIGNATION OF DRILL FALLING 314	
4. HOLE NO. (As shown on drawing title and file number) EC-147-97		13. TOTAL NO. OF SOIL SAMPLES TAKEN	DISTURBED 4 UNDISTURBED 0
5. NAME OF DRILLER C. ROBBINS		14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. GROUND WATER ELEVATION N/A	
7. THICKNESS OF OVERBURDEN 10.5'		16. DATE HOLE STARTED 4 JUN 97 COMPLETED 4 JUN 97	
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE -46.2'	
9. TOTAL DEPTH OF HOLE 10.5'		18. TOTAL CORE RECOVERY FOR BORING N/A %	
		19. SIGNATURE OF INSPECTOR J. ARTHUR, P. G.	

ELEVATION (FT)	DEPTH (FT)	SYMBOLS	CLASSIFICATION OF MATERIALS (Description)	PERCENT MOISTURE CONTENT	JAR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS/FT.
-46.2'	0	•••••	(SP) Gray fine to medium poorly graded SAND, some fine to medium sand size shell fragments, calcareous.		1		2
-47.7'	1.5'	•••••	(SM) Light gray fine to medium silty SAND, some fine to coarse sand size shell fragments, trace of fine gravel size shell fragments, calcareous.		2		12
	2	•••••					47
	4	•••••					27
	6	•••••					27
	8	•••••					38
	10	•••••					23
	12	•••••					26
	14	•••••					26
	16	•••••					15
	18	•••••					22
	20	•••••					23
	22	•••••					10
	24	•••••					12
	26	•••••					14
	28	•••••					12
	30	•••••					14
	32	•••••					20
	34	•••••					9
	36	•••••					14
	38	•••••					22
	40	•••••					
	42	•••••					
	44	•••••					
	46	•••••					
	48	•••••					
	50	•••••					
	52	•••••					
	54	•••••					
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	112	•••••					
	114	•••••					
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	120	•••••					
	122	•••••					
	124	•••••					
	126	•••••					
	128	•••••					
	130	•••••					
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	136	•••••					
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	176	•••••					
	178	•••••					
	180	•••••					
	182	•••••					
	184	•••••					
	186	•••••					
	188	•••••					
	190	•••••					
	192	•••••					
	194	•••••					
	196	•••••					
	198	•••••					
	200	•••••					

BOTTOM OF BORING: 10.5'

NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

BLOWS PER 1/2 FOOT: NUMBER REQUIRED TO DRIVE 1 3/8" I. D. SPLITSPOON W/140 LB. HAMMER FALLING 30".

DRILLING LOG		DIVISION SOUTH ATLANTIC	INSTALLATION CHARLESTON, S. C.	SHEET 1 OF 1 SHEETS
1. PROJECT CHARLESTON HARBOR DEEPENING			10. SIZE AND TYPE OF BIT 1 3/8" I. D. SPLITSPOON, 5/2" FISHTAIL	
2. LOCATION (Coordinates or Station) LAT: 32° 39'19.0703", LONG: 79° 40'19.0915"			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW	
3. DRILLING AGENCY SAVANNAH DISTRICT			12. MANUFACTURER'S DESIGNATION OF DRILL FAILING 314	
4. HOLE NO. (As shown on drawing title and file number) EC-149-97		13. TOTAL NO. OF SOIL SAMPLES TAKEN	DISTURBED 5	UNDISTURBED 0
5. NAME OF DRILLER C. ROBBINS			14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. GROUND WATER ELEVATION N/A	
7. THICKNESS OF OVERBURDEN 7.5'			16. DATE HOLE STARTED 3 JUN 97	
8. DEPTH DRILLED INTO ROCK 0.0'			COMPLETED 3 JUN 97	
9. TOTAL DEPTH OF HOLE 7.5'			17. ELEVATION TOP OF HOLE -49.0'	
			18. TOTAL CORE RECOVERY FOR BORING N/A %	
			19. SIGNATURE OF INSPECTOR J. ARTHUR, P. G.	



ELEVATION (FT)	DEPTH (FT)	SYMBOLS	CLASSIFICATION OF MATERIALS (Description)	PERCENT MOISTURE CONTENT	JAR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS/FT.
-49.0'	0	•••••	(SP) Light brownish gray fine to medium poorly graded SAND, some fine to medium sand size shell fragments, calcareous. 1.2'		1		2
-50.2'	2	•••••	(SM) Light gray fine to medium silty SAND, some fine to medium sand size shell fragments, trace of fine gravel size sand nodules, calcareous.		2		17
	4	•••••	4.5'		3		46
-53.5'	6	•••••	Gray, trace of shell fragments, no sand nodules.		4		14
	8	•••••			5		14
-56.5'	10	•••••					13
	12	•••••					11
	14	•••••					14
	16	•••••					15
	18	•••••					15
	20	•••••					17
	22	•••••					21
	24	•••••					17
	26	•••••					18
	28	•••••					17
	30	•••••					18
	32	•••••					17
	34	•••••					18
	36	•••••					17
	38	•••••					18
	40	•••••					17
	42	•••••					18
	44	•••••					17
	46	•••••					18
	48	•••••					17
	50	•••••					18
	52	•••••					17
	54	•••••					18
	56	•••••					17
	58	•••••					18
	60	•••••					17
	62	•••••					18
	64	•••••					17
	66	•••••					18
	68	•••••					17
	70	•••••					18
	72	•••••					17
	74	•••••					18
	76	•••••					17
	78	•••••					18
	80	•••••					17
	82	•••••					18
	84	•••••					17
	86	•••••					18
	88	•••••					17
	90	•••••					18
	92	•••••					17
	94	•••••					18
	96	•••••					17
	98	•••••					18
	100	•••••					17

BOTTOM OF BORING: 7.5'

NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

BLOWS PER 1/2 FOOT: NUMBER REQUIRED TO DRIVE 1 3/8" I. D. SPLITSPOON W/140 LB. HAMMER FALLING 30".

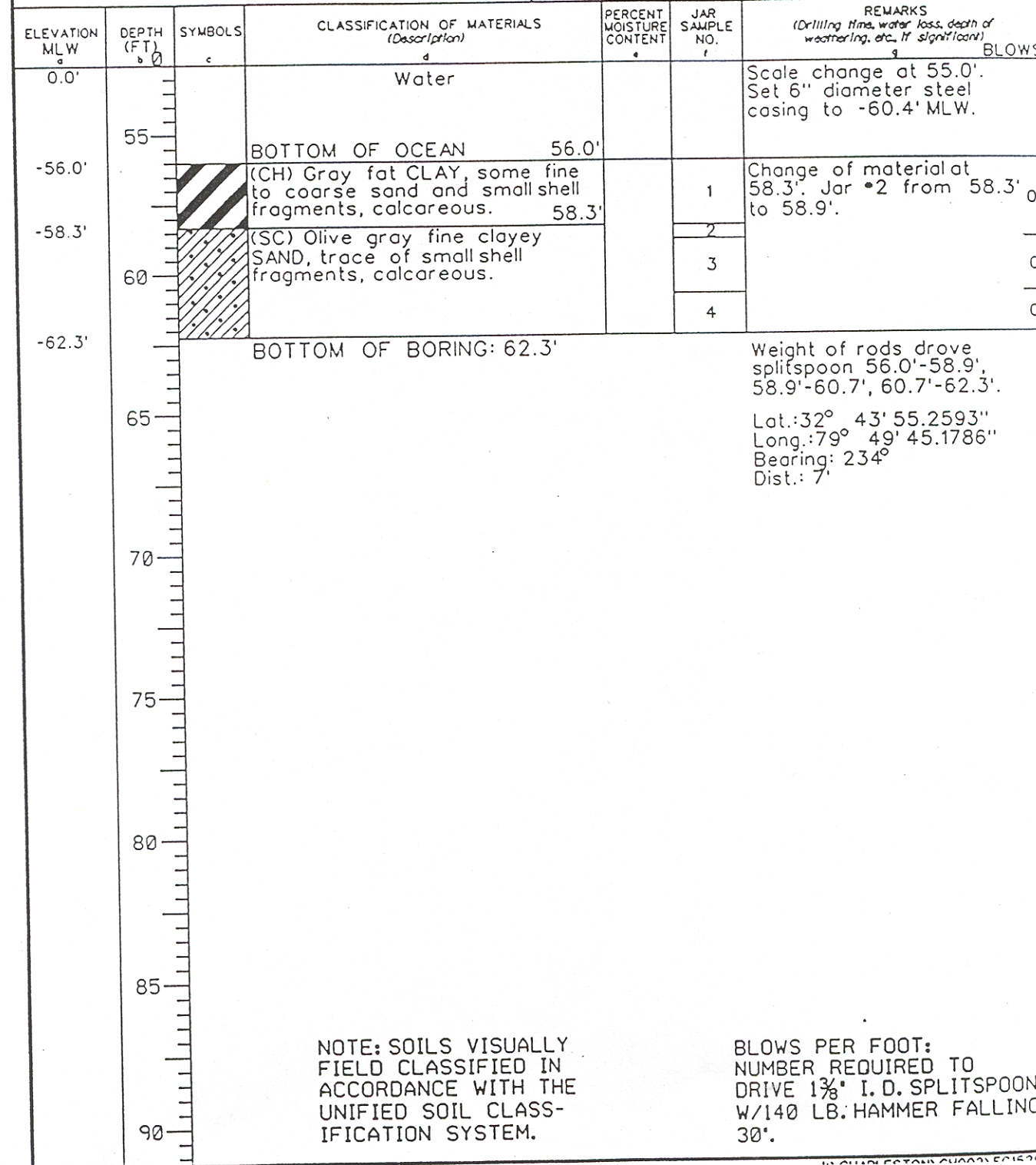
DRILLING LOG		DIVISION SOUTH ATLANTIC	INSTALLATION CHARLESTON, S. C.	SHEET 1 OF 1 SHEETS
1. PROJECT CHARLESTON HARBOR ENTRANCE CHANNEL			10. SIZE AND TYPE OF BIT 1 1/8" I. D. SPLITSPOON, 5 1/2" FISHTAIL	
2. LOCATION (Coordinates or Station) X-2,359,588.10, Y-328,775.81			11. DATUM FOR ELEVATION SHOWN (TBM or MSU) MLW	
3. DRILLING AGENCY SAVANNAH DISTRICT			12. MANUFACTURER'S DESIGNATION OF DRILL FAILING 314	
4. HOLE NO. (As shown on drawing title and file number) EC-151-98		13. TOTAL NO. OF SOIL SAMPLES TAKEN	DISTURBED 2	UNDISTURBED 0
5. NAME OF DRILLER C. ROBBINS			14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. GROUND WATER ELEVATION N/A	
7. THICKNESS OF OVERBURDEN 54.9' (WATER 50.9')			16. DATE HOLE STARTED 8 AUG 98	
8. DEPTH DRILLED INTO ROCK 0.0'			COMPLETED 8 AUG 98	
9. TOTAL DEPTH OF HOLE 54.9'			17. ELEVATION TOP OF HOLE 0.0' MLW	
			18. TOTAL CORE RECOVERY FOR BORING N/A %	
			19. SIGNATURE OF INSPECTOR J. ARTHUR, P. G.	

ELEVATION MLW a	DEPTH (FT) b	SYMBOLS c	CLASSIFICATION OF MATERIALS (Description) d	PERCENT MOISTURE CONTENT e	JAR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc. if significant) g	BLOWS h
0.0'			Water			Scale change at 50.0'. Set 6" diameter steel casing to -52.8' MLW.	
-50.9'	50		BOTTOM OF OCEAN 50.9' (CH) Gray fat CLAY, some fine to coarse sand and small shell fragments, slightly calcareous. 53.4'		1	Weight of rods drove splitspoon from 50.9'-52.0'.	0
-53.4'			(SC) Olive gray fine clayey SAND, partially indurated, calcareous.		2	One hammer blow drove splitspoon from 52.0'-53.4'.	1 80
-54.9'	55		BOTTOM OF BORING: 54.9'			Lat.: 32° 43' 52.8331" Long.: 79° 49' 50.2469" Bearing: 152° Dist.: 5'	

NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

BLOWS PER FOOT: NUMBER REQUIRED TO DRIVE 1 1/8" I. D. SPLITSPOON W/140 LB. HAMMER FALLING 30".

DRILLING LOG		DIVISION SOUTH ATLANTIC	INSTALLATION CHARLESTON, S. C.	SHEET 1 OF 1 SHEETS
1. PROJECT CHARLESTON HARBOR ENTRANCE CHANNEL		10. SIZE AND TYPE OF BIT 1 1/8" I. D. SPLITSPOON, 5 1/2" FISHTAIL		
2. LOCATION (Coordinates or Station) X-2,360,015.82, Y-329,026.29		11. DATUM FOR ELEVATION SHOWN (TBW or MSU) MLW		
3. DRILLING AGENCY SAVANNAH DISTRICT		12. MANUFACTURER'S DESIGNATION OF DRILL FALLING 314		
4. HOLE NO. (As shown on drawing title and file number) EC-152-98		13. TOTAL NO. OF SOIL SAMPLES TAKEN	DISTURBED 4	UNDISTURBED 0
5. NAME OF DRILLER C. ROBBINS		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. GROUND WATER ELEVATION N/A		
7. THICKNESS OF OVERBURDEN 62.3' (WATER 56.0')		16. DATE HOLE	STARTED 10 AUG 98	COMPLETED 10 AUG 98
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0' MLW		
9. TOTAL DEPTH OF HOLE 62.3'		18. TOTAL CORE RECOVERY FOR BORING N/A		
		19. SIGNATURE OF INSPECTOR J. ARTHUR, P. G.		



NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

BLOWS PER FOOT: NUMBER REQUIRED TO DRIVE 1 1/8" I. D. SPLITSPOON W/140 LB. HAMMER FALLING 30".

DRILLING LOG		DIVISION SOUTH ATLANTIC	INSTALLATION CHARLESTON, S. C.	SHEET 1 OF 1 SHEETS
1. PROJECT CHARLESTON HARBOR ENTRANCE CHANNEL			10. SIZE AND TYPE OF BIT 1 1/8" I. D. SPLITSPOON, 5/2" FISHTAIL	
2. LOCATION (Coordinates or Station) X-2,359,580.54, Y-328,766.43			11. DATUM FOR ELEVATION SHOWN (TBM or MSU) MLW	
3. DRILLING AGENCY SAVANNAH DISTRICT			12. MANUFACTURER'S DESIGNATION OF DRILL FALLING 314	
4. HOLE NO. (As shown on drawing title and file number) EC-153-98		13. TOTAL NO. OF SOIL SAMPLES TAKEN DISTURBED: 2 UNDISTURBED: 0		
5. NAME OF DRILLER C. ROBBINS			14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. GROUND WATER ELEVATION N/A	
7. THICKNESS OF OVERBURDEN 55.9' (WATER 49.3')			16. DATE HOLE STARTED 11 AUG 98	
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE 0.0' MLW	
9. TOTAL DEPTH OF HOLE 55.9'			18. TOTAL CORE RECOVERY FOR BORING N/A %	
			19. SIGNATURE OF INSPECTOR J. ARTHUR, P. G.	

ELEVATION MLW	DEPTH (FT)	SYMBOLS	CLASSIFICATION OF MATERIALS (Description)	PERCENT MOISTURE CONTENT	JAR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc. If significant)	BLOWS
0.0'			Water			Scale change at 45.0'. Set 6" diameter steel casing to -54.8' MLW.	
	45						
			BOTTOM OF OCEAN 49.3'				
-49.3'	50		(SM) Light gray medium to coarse silty SAND, some small shell fragments and fine to coarse gravel size poorly cemented silty sand particles.		1	Weight of rods drove splitspoon 49.3'-54.4'. Lat.: 32° 43' 52.7416" Long.: 79° 49' 50.3009" Bearing: 57° Dist.: 12'	0
			54.4'				
-54.4'	55		(CL) Olive gray lean CLAY, some silt, moderately calcareous.		2		33
-55.9'			BOTTOM OF BORING: 55.9'				
	60						
	65						
	70						
	75						
	80						

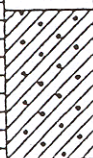
NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

BLOWS PER FOOT: NUMBER REQUIRED TO DRIVE 1 1/8" I. D. SPLITSPOON W/140 LB. HAMMER FALLING 30".

DRILLING LOG	DIVISION SOUTH ATLANTIC	INSTALLATION CHARLESTON, S. C.	SHEET 1 OF 1 SHEETS
1. PROJECT CHARLESTON HARBOR ENTRANCE CHANNEL		10. SIZE AND TYPE OF BIT HQ WIRELINE, DIAMOND BIT	
2. LOCATION (Coordinates or Station) X-2,360,007.65, Y-329,024.05		11. DATUM FOR ELEVATION SHOWN (TBM or MSU) MLW	
3. DRILLING AGENCY SAVANNAH DISTRICT		12. MANUFACTURER'S DESIGNATION OF DRILL FAILING 314	
4. HOLE NO. (As shown on drawing title and file number) EC-154-98		13. TOTAL NO. OF SOIL SAMPLES TAKEN	DISTURBED 0 UNDISTURBED 0
5. NAME OF DRILLER C. ROBBINS		14. TOTAL NUMBER CORE BOXES 1	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. GROUND WATER ELEVATION N/A	
7. THICKNESS OF OVERBURDEN 51.8' (WATER)		16. DATE HOLE STARTED 12 AUG 98 COMPLETED 12 AUG 98	
8. DEPTH DRILLED INTO ROCK 10.6'		17. ELEVATION TOP OF HOLE 0.0' MLW	
9. TOTAL DEPTH OF HOLE 62.4'		18. TOTAL CORE RECOVERY FOR BORING 45.3' %	
		19. SIGNATURE OF INSPECTOR J. ARTHUR, P. G.	

ELEVATION MLW	DEPTH (FT)	SYMBOLS	CLASSIFICATION OF MATERIALS (Description)	PERCENT MOISTURE CONTENT	JAR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc. if significant)
0.0'	0		Water			Scale change at 50.0'. Set 6" diameter steel casing to -51.9' MLW. Lat.: 32° 43' 55.2287" Long.: 79° 49' 45.2703" Bearing: 112° Dist.: 3'
-51.8'	52		BOTTOM OF OCEAN 51.8'			
	52		LIMESTONE-Gray, fossiliferous, highly weathered, porous, pitted and vuggy with small to large vugs, moderately hard, highly to intensely jointed. Low angle open joints: 52.2', 52.9', 53.7', 53.9', 54.3', 54.4', 54.8', 55.1', 55.4'.	REC. 44.4%		Pull-1 From 51.8' to 59.9'. Run 8.1', Rec. 3.6', C. L. 4.5'. Hydraulic pressure: 100 psi. Water return: 0%. Drilling time: 3 min. Tape depth: 57.3'. ROD-2.0/8.1.
	54					
	56		-55.4'-59.9' core loss. 59.9'-60.5' fragmented.	ROD. 24.7%	BOX 1 OF 1	
	58					
	60			REC. 48%		Pull-2 From 59.9' to 62.4'. Run 2.5', Rec. 1.2', C. L. 1.3'. Hydraulic pressure: 90 psi. Water return: 0%. Drilling time: 5 min. Tape depth: 58.2'. ROD-0%.
	60.5'		(CL) Olive gray lean CLAY, some fine sand, partially indurated.			
	61.1'		Core loss.	ROD. 0%		
	62					
	62.4'		BOTTOM OF BORING: 62.4'			
	64		NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.			

DRILLING LOG	DIVISION SOUTH ATLANTIC	INSTALLATION CHARLESTON, S. C.	SHEET 1 OF 1 SHEETS
1. PROJECT CHARLESTON HARBOR ENTRANCE CHANNEL		10. SIZE AND TYPE OF BIT 1 3/8" I. D. SPLITSPOON, 5 1/2" FISHTAIL	
2. LOCATION (Coordinates or Station) X-2,361,833.16, Y-328,222.58		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW	
3. DRILLING AGENCY SAVANNAH DISTRICT		12. MANUFACTURER'S DESIGNATION OF DRILL FALLING 314	
4. HOLE NO. (As shown on drawing title and file number) EC-155-98		13. TOTAL NO. OF SOIL SAMPLES TAKEN	DISTURBED 2 UNDISTURBED 0
5. NAME OF DRILLER C. ROBBINS		14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. GROUND WATER ELEVATION N/A	
7. THICKNESS OF OVERBURDEN 56.8' (WATER 52.7')		16. DATE HOLE	STARTED 13 AUG 98 COMPLETED 13 AUG 98
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0' MLW	
9. TOTAL DEPTH OF HOLE 56.8'		18. TOTAL CORE RECOVERY FOR BORING N/A %	
		19. SIGNATURE OF INSPECTOR J. ARTHUR, P. G.	

ELEVATION MLW a	DEPTH (FT) b	SYMBOLS c	CLASSIFICATION OF MATERIALS (Description) d	PERCENT MOISTURE CONTENT e	JAR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS h
0.0'			Water			Scale change at 50.0'. Set 6" diameter steel casing to -55.3' MLW.	
	50						
			BOTTOM OF OCEAN 52.7'				
-52.7'			(SC) Olive gray fine clayey SAND, trace of small shell fragments, moderately calcareous.		1	Weight of rods drove splitspoon 52.7'-55.0'.	0
	55				2		11
-56.8'			BOTTOM OF BORING: 56.8'			Lat.: 32° 43' 47.0996" Long.: 79° 49' 24.0085" Bearing: 216° Dist.: 5'	
	60						
	65						
	70						
	75						
	80						
	85						

NOTE: SOILS VISUALLY
FIELD CLASSIFIED IN
ACCORDANCE WITH THE
UNIFIED SOIL CLASS-
IFICATION SYSTEM.

BLOWS PER FOOT:
NUMBER REQUIRED TO
DRIVE 1 3/8" I. D. SPLITSPOON
W/140 LB. HAMMER FALLING
30".

DRILLING LOG		DIVISION SOUTH ATLANTIC	INSTALLATION CHARLESTON, S. C.	SHEET 1 OF 1 SHEETS
1. PROJECT CHARLESTON HARBOR ENTRANCE CHANNEL			10. SIZE AND TYPE OF BIT 1 1/8" I. D. SPLITSPOON, 5 1/2" FISHTAIL	
2. LOCATION (Coordinates or Station) X-2,361,889.62, Y-328,131.03			11. DATUM FOR ELEVATION SHOWN (TBM or MSU) MLW	
3. DRILLING AGENCY SAVANNAH DISTRICT			12. MANUFACTURER'S DESIGNATION OF DRILL FALLING 314	
4. HOLE NO. (As shown on drawing title and title number) EC-156-98		13. TOTAL NO. OF SOIL SAMPLES TAKEN DISTURBED: 3 UNDISTURBED: 0		
5. NAME OF DRILLER C. ROBBINS			14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. GROUND WATER ELEVATION N/A	
7. THICKNESS OF OVERBURDEN 61.2' (WATER 56.7')			16. DATE HOLE STARTED 13 AUG 98	
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE 0.0' MLW	
9. TOTAL DEPTH OF HOLE 61.2'			18. TOTAL CORE RECOVERY FOR BORING N/A	
			19. SIGNATURE OF INSPECTOR J. ARTHUR, P. G.	

ELEVATION MLW a	DEPTH (FT) b	SYMBOLS c	CLASSIFICATION OF MATERIALS (Description) d	PERCENT MOISTURE CONTENT e	JAR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc. If significant) g	BLOWS h
0.0'			Water			Scale change at 55.0'. Set 6" diameter steel casing to -59.6' MLW.	
-56.7'			BOTTOM OF OCEAN 56.7'				
-58.4'			(GM) Light gray fine to coarse silty limestone GRAVEL, some small shell fragments, calcareous.		1	Weight of rods drove splitspoon 56.7'-59.7'.	0
			(SC) Light and dark olive gray fine clayey SAND, partially indurated, slightly calcareous.		2		
					3		
-61.2'			BOTTOM OF BORING: 61.2'			Lat.: 32° 43' 46.1942" Long.: 79° 49' 23.3553" Bearing: 76° Dist.: 1.0'	

NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

BLOWS PER FOOT: NUMBER REQUIRED TO DRIVE 1 1/8" I. D. SPLITSPOON W/140 LB. HAMMER FALLING 30'.

DRILLING LOG		DIVISION SOUTH ATLANTIC	INSTALLATION CHARLESTON HARBOR, S. C.	SHEET 1 OF 2 SHEETS
1. PROJECT HARBOR ENTRANCE CHANNEL			10. SIZE AND TYPE OF BIT 1 3/8" I. D. SPLITSPOON, TOP DISCHARGE FISHTAIL	
2. LOCATION (Coordinates or Station) N: 2,396,317, E: 309,420			11. DATUM FOR ELEVATION SHOWN (TBM or MSU) MLW	
3. DRILLING AGENCY SAVANNAH DISTRICT			12. MANUFACTURER'S DESIGNATION OF DRILL FALLING 314 *CD 591	
4. HOLE NO. (As shown on drawing title and file number) EC-157-99			13. TOTAL NO. OF SOIL SAMPLES TAKEN DISTURBED: 13 UNDISTURBED: 0	
5. NAME OF DRILLER J. PICKETT			14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. GROUND WATER ELEVATION N/A	
7. THICKNESS OF OVERBURDEN >65.1'			16. DATE HOLE STARTED 29 JUL 99	
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE -44.8' MLW	
9. TOTAL DEPTH OF HOLE 65.1'			18. TOTAL CORE RECOVERY FOR BORING N/A	
			19. SIGNATURE OF INSPECTOR JAMES A. BIDDLE, GEOLOGIST	

ELEVATION MLW a	DEPTH (FT) b	SYMBOLS c	CLASSIFICATION OF MATERIALS (Description) d	PERCENT MOISTURE CONTENT e	JAR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS h
0.0'	0		Water			Placed 6" I. D. casing to -45.8'. Bored with Florigel drilling fluid from surface.	
	20					Note: Change of scale at 40'.	
	40					Boring location determined from buoy set by Great Lakes Dredging survey boat. Actual location offset by 20' at N 59.5° E.	
	42					Proposed location: 79° 42' 43.28432"W 32° 40' 36.04837"N N:2396300, E:309410	
	44					Weight of tools pushed drill string from -44.8' to -45.6'.	
-44.8'			BOTTOM OF CHANNEL				
	45.6		(SM) Brown, fine silty SAND, trace of fine shell fragments, saturated.		1		
	46		Light gray, fine to medium, very compact, calcareous, appears to be of limestone parentage, with fine to coarse sand sized shell fragments.				82
	48		Very compact, with fine shell fragments.		2		95
	50		Fine to coarse, minor induration.		3		100/0.7'
-50.1'							

CONTINUED ON SHEET #2

NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

BLOWS PER FOOT: NUMBER REQUIRED TO DRIVE 1 3/8" I. D. SPLITSPOON W/140 LB. HAMMER FALLING 30".

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE
-44.8' MLW

Hole No. EC-157-99

PROJECT

HARBOR ENTRANCE CHANNEL

INSTALLATION

CHARLESTON HARBOR, S. C.

SHEET 2
OF 2 SHEETS

ELEVATION MLW a	DEPTH (FT) b	SYMBOLS c	CLASSIFICATION OF MATERIALS (Description) d	PERCENT MOISTURE CONTENT e	JAR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc. if significant) g	BLOWS
-50.1'	50		(Continued from sheet No. 1). (SM) Very light gray, fine to coarse, silty SAND, some fine shell fragments, minor induration.		4		74
	52		With some coarse quartz and unidentified dark mineral grains, very compact.		5		91
	54		Minor cementation.		6		63
	56		Very light gray.		7		51
	58		Fine to medium, very high silt content (borderline SM/ML).		8		38
	60		Some cementation with well indurated nodules of fine to coarse gravel size.		9		38
	62		Fine to medium with a trace of coarse sand, high moisture content (wet).		10		36
	64		Damp, with fine shell fragments.		11		37
	65.1'		Numerous (15%) coarse sand sized shell fragments, high silt content.		12		44
			(ML) Light brownish-gray to gray sandy lean SILT.		13		59
BOTTOM OF BORING: 65.1'							
NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASS- IFICATION SYSTEM.							
BLOWS PER FOOT: NUMBER REQUIRED TO DRIVE 1 3/8" I. D. SPLITSPOON W/140 LB. HAMMER FALLING 30".							

DRILLING LOG		DIVISION SOUTH ATLANTIC	INSTALLATION CHARLESTON HARBOR, S. C.	SHEET 1 OF 2 SHEETS
1. PROJECT HARBOR ENTRANCE CHANNEL			10. SIZE AND TYPE OF BIT 1 3/8" I. D. SPLITSPOON, TOP DISCHARGE FISHTAIL	
2. LOCATION (Coordinates or Station) N: 2,394,659, E: 310,331			11. DATUM FOR ELEVATION SHOWN (TBM or MSU) MLW	
3. DRILLING AGENCY SAVANNAH DISTRICT			12. MANUFACTURER'S DESIGNATION OF DRILL FAILING 314	
4. HOLE NO. (As shown on drawing title and file number) EC-158-99			13. TOTAL NO. OF SOIL SAMPLES TAKEN DISTURBED: 14 UNDISTURBED: 0	
5. NAME OF DRILLER J. PICKETT			14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. GROUND WATER ELEVATION N/A	
7. THICKNESS OF OVERBURDEN >65.2'			16. DATE HOLE STARTED 1 AUG 99	
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE -43.8' MLW	
9. TOTAL DEPTH OF HOLE 65.2'			18. TOTAL CORE RECOVERY FOR BORING N/A %	
			19. SIGNATURE OF INSPECTOR JAMES A. BIDDLE, GEOLOGIST	

ELEVATION MLW a	DEPTH (FT) b	SYMBOLS c	CLASSIFICATION OF MATERIALS (Description) d	PERCENT MOISTURE CONTENT e	JAR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS h
0.0'			Water			Placed 63.4' of 6" I. D. steel casing to 45.7'. Actual boring location was approximately 25' from proposed location at N 49.5° E. Proposed location was: N:2394640, E:310315	
	20						
	40					Note: Change of scale at 40'.	
	42						
	44	•••••	BOTTOM OF CHANNEL (SP) Dark greenish gray, fine, poorly graded SAND with a trace of fine shell, slightly calcareous.		1	Weight of rods pushed splitspoon to 44.2'.	19
	46		(SM) Greenish-gray, fine to medium silty SAND, minor induration, calcareous.		2	Drilled with Florigel drilling fluid from 45.7'.	38
	48		Very light gray, fine trace of fine quartz gravel, calcareous.		3		40
-43.8' -44.2'							
	50						

CONTINUED ON SHEET #2

NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

BLOWS PER FOOT:
NUMBER REQUIRED TO DRIVE 1 3/8" I. D. SPLITSPOON W/140 LB. HAMMER FALLING 30'.

DRILLING LOG		DIVISION SOUTH ATLANTIC	INSTALLATION CHARLESTON HARBOR, S. C.	SHEET 1 OF 1 SHEETS
1. PROJECT HARBOR ENTRANCE CHANNEL		10. SIZE AND TYPE OF BIT 4" X 5 1/2" X 5' CORE BARREL		
2. LOCATION (Coordinates or Station) N: 2,394,659 ±5', E: 310,331 ±5'		11. DATUM FOR ELEVATION SHOWN (TBM or MSU) MLW		
3. DRILLING AGENCY SAVANNAH DISTRICT		12. MANUFACTURER'S DESIGNATION OF DRILL FAILING 314		
4. HOLE NO. (As shown on drawing title and file number) EC-158A-99		13. TOTAL NO. OF SOIL SAMPLES TAKEN	DISTURBED 0	UNDISTURBED 0
5. NAME OF DRILLER J. PICKETT		14. TOTAL NUMBER CORE BOXES 1		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. GROUND WATER ELEVATION N/A		
7. THICKNESS OF OVERBURDEN 45.9'		16. DATE HOLE STARTED 1 AUG 99 COMPLETED 1 AUG 99		
8. DEPTH DRILLED INTO ROCK 9.0'		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE 54.9'		18. TOTAL CORE RECOVERY FOR BORING %		
		19. SIGNATURE OF INSPECTOR JAMES A. BIDDLE, GEOLOGIST		

ELEVATION MLW	DEPTH (FT)	SYMBOLS	CLASSIFICATION OF MATERIALS (Description)	PERCENT MOISTURE CONTENT	JAR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'						Used carbide bit on 4" x 5 1/2" core barrel.
	40		BOTTOM OF CHANNEL			
	45		(SP/SM) Undifferentiated unconsolidated material.			Cleaned soft material to 45.9' by washing through core barrel.
	46		TOP OF INDURATED MATERIAL			
-45.9'	46		Open. LIMESTONE: Shelly, soft to moderately hard, greenish-gray to dark greenish-gray. Intensely fractured.	REC. 71%		Pull-1 Time: 16:50 to 16:55- (5 min.). From 45.9' to 50.4'. Ran 4.5', Rec. 3.2'(71%), C/L 1.3', U/L 1.3', (Core loss appears to have occurred at all fractures). RQD=9">4"/54"=16.66%. Drill pressure: weight of tools Water loss: < 25%.
	47		Open. Moderately hard: 45.9'-46.6', 49.3'-50.4'. Moderately soft: 46.6'-47.6'.			
	48		Open. Soft, broken to coarse gravel to fine sand size. Probable core loss area.	RQD. 17%		
	49		Tight.			
	50		Open. Mechanical fracture at Pull No. 1- Pull No. 2 junction.		BOX 1 OF 1	Tape would not advance past fall-in. 50.4' 45.9'
	51		Soft to moderately soft, intensely fractured, sandy to silty, light gray to brownish gray.	REC. 44%		Pull-2 Time: 16:08 to 16:26- (18 min.). From 50.4' to 54.9'. Ran 4.5', Rec. 2.0'(44%), C/L 2.5', U/L 2.5'. RQD=0">4"/54"=0%. Drill pressure: weight of tools Water loss: approx. 30%.
	52		Area of core loss could not be accurately determined.			
	53			RQD. 0%		
	54		All fractures are open and show evidence of core loss. Soft sandy material appears to have washed away.			Tape would not advance past 51.4'. Fall-in?
-54.9'	55		BOTTOM OF BORING: 54.9'			54.9' 51.4'
	56					
	57					
	58					

NOTE: SOILS VISUALLY FIELD CLASSIFIED IN ACCORDANCE WITH THE UNIFIED SOIL CLASSIFICATION SYSTEM.

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2384486 Y-316602		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Falling 314		
4. HOLE NO. (As shown on drawing title and file number) EC-21-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 6	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 8.6' (40.5' water)		16. DATE HOLE STARTED 23 Feb 1988 COMPLETED 23 Feb 1988		
8. DEPTH DRILLED INTO ROCK 1.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 50.1'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>				

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'	c	d	e	JAR	g BLOWS
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.
			Bottom of Harbor 40.5'			NOTE: The weight of the rods drove the splitspoon from 40.5' to 44.1'.
-40.5'	40		(SC) Grey, fine grained, clayey SAND. With shell fragments.		1	
			(CH) Dark grey, fat clay, sandy, w/shell fragments.		2	
-47.1'	45		(SC) Dark grey, fine grained, clayey SAND. With shell fragments & some gravel.		3	
-48.1'			Top of Rock 49.1'		4	
-49.1'			(LIMESTONE) Light grey, fine grained, very soft, sandy, glauconitic.		5	
-50.1'	50		Bottom of Boring 50.1'		6	
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2385536 Y-314251		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-22-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 6	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 5.5' (43.0' water)		16. DATE HOLE	STARTED 16 Mar 1988	COMPLETED 16 Mar 1988
8. DEPTH DRILLED INTO ROCK 2.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 50.5'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>				

ELEVATION 0.0'	DEPTH 0'	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.	
	40		Bottom of Harbor 43.0'			NOTE: The weight of the rods drove the splitspoon from 43.0' to 44.5'.	
			(CH) Dark grey, fat CLAY. With lenses of shell fragments.				
-43.0'			(SC) Dark grey, fine grained, clayey SAND. With shell fragments.		1		0
-44.5'	45		(CH) Dark grey, fat CLAY. With organics (roots).		2		4
-46.0'			Top of Rock 48.5'		3		3
-48.5'			(LIMESTONE) Broken into a light grey fine grained, silty sand, calcareous, slightly clayey w/ shell fragments while sampling.		4		8
-50.5'	50		Bottom of Boring 50.5'		5		8
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.		6		32
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2" 11. BAYUM FOR ELEVATION SHOWN (TBM or ASL) fishtail		
2. LOCATION (Coordinates or Station) X-2387929 Y-313937		12. MANUFACTURER'S DESIGNATION OF DRILL MLW Falling 314		
3. DRILLING AGENCY Savannah District		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED 6 UNDISTURBED 0		
4. HOLE NO. (As shown on drawing title and file number) EC-23-88		14. TOTAL NUMBER CORE BOXES 0		
5. NAME OF DRILLER C.D. Justiss		15. ELEVATION GROUND WATER N/A		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		16. DATE HOLE STARTED 16 Mar 1988 COMPLETED 16 Mar 1988		
7. THICKNESS OF OVERBURDEN 3.0' (41.2' water)		17. ELEVATION TOP OF HOLE 0.0'		
8. DEPTH DRILLED INTO ROCK 6.0'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
9. TOTAL DEPTH OF HOLE 50.2'		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) BLOWS
0.0'	0' b	c	i	e	JAR	g
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.
	40		Bottom of Harbor 41.2'			
-41.2'			(SM) Dark grey, fine grained, silty SAND. Calcareous, w/ shell fragments.		1	22
-42.7'					2	3
-44.2'			(SC) Dark greenish grey, fine grained, clayey SAND. W/ shell fragments.		3	34
	45		Top of Rock 44.2'		4	18
			(LIMESTONE) Broken into a light tan, fine grained, silty sand, calcareous, slightly clayey w/some med. grained sand & gravel while sampling.		5	11
-50.2'	50		Bottom of Boring 50.2'		6	22
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-313,936 E-2,387,936		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-23A-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 7	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 10.5' (40.3' water)		16. DATE HOLE	STARTED 6 June 1990	COMPLETED 6 June 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 50.8'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G.		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'	e	d	e	f	g BLOWS
			Water			NOTE: Scale change @ 40.0'. Set 6" casing by own weight to 41.4'. Made new batch of Zeogel mud.
			Bottom of Harbor 40.3'			
-40.3'	40		(SP) Grey, poorly graded, fine to med. SAND. Trace of small shells, small shell fragments & silt, wet.		1	NOTE: From 41.8' soil was mostly loose but w/ occasional indurated areas supplying gravel size particles
-41.8'					2	
-43.3'			(SM) Tan, silty, med. to coarse SAND. Some soft to mod. hard, sandy, friable, fine to coarse limestone gravel, trace of small to large shell fragments, calcareous, wet. (See remarks)		3	
-44.8'	45				4	
-46.3'			Tan & light grey, trace of soft, friable, fine limestone gravel.		5	
-47.8'			Tan		6	
-50.8'	50		Tan & light grey.		7	
			Light grey.			
			Bottom of Boring 50.8'			
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2388713 Y-312512		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Falling 314		
4. HOLE NO. (As shown on drawing title and file number) EC-24-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 7	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 6.0' (39.3' water)		16. DATE HOLE STARTED 16 Mar 1988 COMPLETED 16 Mar 1988		
8. DEPTH DRILLED INTO ROCK 6.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 51.3'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
19. SIGNATURE OF INSPECTOR Bob Creen, Geologist <i>Bob Creen</i>				

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. / JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c					
	37.5'		Water			NOTE: Scale change @ 37.5'; 1 in=5 ft.	
	39.3'		Bottom of Harbor 39.3'				
-40.8'	40'		(SP) Greenish grey, fine grained, poorly graded SAND. With shell fragments.		1		6
-43.8'			(SC) Greenish grey, fine grained, clayey SAND. With shell fragments.		2		10
-45.3'	45'		No sample recovered.		3		6
			(LIMESTONE) Broken while sampling into a pale greenish grey, fine grained, silty sand. Calcareous, slightly clayey.		4		2
					5		15
					6		50
					7		49
-51.3'	50'		Bottom of Boring 51.3'				26
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	


DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston S.C.	SHEET 1 of 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 4X5 1/2" core bbl		
2. LOCATION (Coordinates or Station) X-2388724 Y-312534		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-24-88-A		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 0	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 1		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 10.8' (42.2' water)		16. DATE HOLE		STARTED 27 Mar 1988
8. DEPTH DRILLED INTO ROCK 2.8' (see remarks)				COMPLETED 27 Mar 1988
9. TOTAL DEPTH OF HOLE 55.8'		17. ELEVATION TOP OF HOLE 0.0'		
		18. TOTAL CORE RECOVERY FOR BORING 25.0 %		
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION 0.0' _a	DEPTH 0' _b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			Water			NOTE: Scale change @ 40.0'; 1 in = 5 ft.
	40		Bottom of Harbor 42.2'			NOTE: Samples were waxed immediately after each Pull.
	-42.2'		No samples were taken from 42.2' to 49.0'. Cuttings showed both (CH) & (SC). See remarks.			See boring log EC-24-88 for additional overburden & top of rock information.
	45		No sample recovered.			
	-49.0'		(LIMESTONE) Greyish white, fine grained, very soft, crumbles, sandy.	Rec 0%	Box 1	
	50			C.D.		
	-53.0'			Rec 61.0%		Pull #1 From 49.0' To 53.0' Run 4.0' Rec 0.0' C.L. 4.0' U.L. 4.0' C.D. 53.0'
	55		Bottom of Boring 55.8'			Pull #2 From 53.0' To 55.8' Run 2.8' Rec 1.7' C.L. 1.1'
	-55.8'		NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			



DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2390636 Y-312397		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-25-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 5	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 15.1' (35.5' water)		16. DATE HOLE STARTED 25 Feb 1988 COMPLETED 25 Feb 1988		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 50.6'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e	JAR	g	
			Water				
	35		Bottom of Harbor 35.5'			NOTE: Scale change @ 35.0', 1 in. = 5 ft.	
-35.5'			No sample was recovered from 35.5' to 43.1'.			NOTE: 0 means the weight of the rods drove the splitspoon through the sample.	
	40		(CH) Dark grey, fat CLAY. With shell fragments.				0
-43.1'			(SP) Grey, fine grained, poorly graded SAND. Slightly silty, w/shell fragments.		1		14
-44.6'			(SC) Dark grey, fine grained, clayey SAND. With shell fragments.		2		25
-46.1'					3		0
					4		6
					5		23
-50.6'	50		Bottom of Boring 50.6'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2391885 Y-310777		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-26-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 8	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 14.1' (42.1' water)		16. DATE HOLE STARTED 25 Feb 1988 COMPLETED 25 Feb 1988		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 56.2'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION 0.0'	DEPTH 0'	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g BLOWS
	40		Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.
	42.1'		Bottom of Harbor 42.1'			NOTE: 0 means the weight of the rods drove the splitspoon through the sample.
	45		(CH) Dark grey, fat CLAY, w/a little shell fragments.		1	0
					2	4
					3	0
					4	5
					5	1
					6	4
					7	0
	55				8	5
	56.2'		Bottom of Boring 56.2'			
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

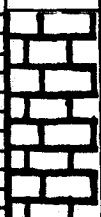
DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.		SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2393786 Y-310633			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number)		EC-27-88	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 3 UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss			14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE		STARTED 25 Feb 1988 COMPLETED 25 Feb 1988
7. THICKNESS OF OVERBURDEN 4.5' (45.3' water)			17. ELEVATION TOP OF HOLE 0.0'		
8. DEPTH DRILLED INTO ROCK 1.5'			18. TOTAL CORE RECOVERY FOR BORING N/A %		
9. TOTAL DEPTH OF HOLE 51.3'			19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION 0.0'	DEPTH 0'	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g BLOWS
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.
	40		Bottom of Harbor 45.3'			
			No sample was recovered from 45.3' to 46.8'.			
-45.3'	45		(SC) Dark grey, fine grained fat clayey SAND. With shell fragments.		1	2
-46.8'			Top of Rock 49.8'		2	6
-49.8'	50		(LIMESTONE) Greyish white, fine grained, very soft, sandy, w/shell fragments.		3	11
-51.3'			Bottom of Boring 51.3'			48
NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2395735 Y-308639		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-28-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 4	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 2.0' (45.4' water)		16. DATE HOLE STARTED 25 Feb 1988 COMPLETED 25 Feb 1988		
8. DEPTH DRILLED INTO ROCK 2.5'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 49.9'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS	
0.0'	0'	c	d	e	JAR			
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.		
	40'		Bottom of Harbor 45.4'					
	45'		(SM) Grey, fine grained, silty SAND. With shell fragments. Top of Rock 47.4'					
-45.4'	45'		(LIMESTONE) Greyish white, fine grained, very soft, sandy w/ shell fragments.		1		32	
-47.4'					2			
						3		67
-49.9'	50'					4		53
			Bottom of Boring 49.9'					
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".		

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) X-2397680 Y-308521		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW	
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-29-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: 4 UNDISTURBED: 0	
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 0.0' (43.9' water)		16. DATE HOLE STARTED: 24 Feb 1988 COMPLETED: 24 Feb 1988	
8. DEPTH DRILLED INTO ROCK 6.0'		17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 49.9'		18. TOTAL CORE RECOVERY FOR BORING N/A %	
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0' b	c	d	e	JAR	g
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.
	40		Bottom of Harbor 43.9' Top of Rock 43.9'			
-43.9'	45		(LIMESTONE) Greyish white, fine grained, very soft, sandy, with shell fragments.		1	78
					2	46
					3	24
					4	60
-49.9'	50		Bottom of Boring 49.9'			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 4x5 1/2" core bbl w/dia		
2. LOCATION (Coordinates or Station) X-2397699 Y-308472		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW bit		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-29-88-A		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 0	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 1		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 0.3' (43.9' water)		16. DATE HOLE	STARTED 27 Mar 1988	COMPLETED 27 Mar 1988
8. DEPTH DRILLED INTO ROCK 7.3'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 51.5'		18. TOTAL CORE RECOVERY FOR BORING 61.6 %		
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'	c	d	e	JAR	g
			Water			BLOWS
	40		Bottom of Harbor 43.9'			NOTE: Scale change @ 40.0'; 1 in=5 ft. NOTE: Samples were waxed immediately after each Pull. NOTE: See boring log EC-29-88 for additional information.
-43.9'			Shell fragments. Top of Rock 44.2'			
-44.2'	45		(LIMESTONE) Greyish-white, fine to coarse grained, very soft, crumbles, sandy, intermittent layers of large shell fragments & pieces of coral.	11.5% C.D.	Box 1	Pull #1 From 44.2' to 48.1' Run 3.9' Rec 0.3' C.L. 3.6' U.L. 2.3' TD: 46.8'
-51.5'	50		Bottom of Boring 51.5'	89.4%		Pull #2 From 48.1' To 51.5' Run 3.4' Rec 4.2' C.L. 0.5'

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 3/8" splitspoon, 5 1/2" fishtail	
2. LOCATION (Coordinates or Station) N-308,522 E-2,397,670			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-29B-90			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED 2 UNDISTURBED 0	
5. NAME OF DRILLER D. Justiss			14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 7.6' (44.5' water)			16. DATE HOLE STARTED 5 June 1990 COMPLETED 5 June 1990	
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 52.1'			18. TOTAL CORE RECOVERY FOR BORING N/A %	
19. SIGNATURE OF INSPECTOR <i>James Arthur, P.G.</i>				

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'b	c	d	e	JAR	g
			Water			NOTE: Scale change @ 40.0'. Set 6" casing by own weight to 52.2'. Made new batch of Zeogel mud at 47.5'.
	40		Bottom of Harbor 44.5'			
-44.5'	45		(SP) Grey, poorly graded, fine to med. SAND. Large amount of small shell fragments, trace of silt, slightly calcareous, wet.			Weight of rods drove splitspoon from 44.5' to 45.3', cont'd. drive to 46.0' but had no recovery. Re-drove to 46.0' then cont'd. drive to 47.5' w/ two blows from 46.0' to 46.5' then five blows from 46.5' to 47.5'. Sample #1 from 44.5' to 47.5'. Weight of rods drove splitspoon from 47.5' to 50.4', cont'd. drive w/ one blow from 50.4' to 52.1'. Sample #2 from 47.5' to 52.1'.
-47.5'	50		(SC) Grey, clayey, fine to med. SAND. Large amount of small shells and shell fragments, slightly calcareous, wet.	1		
			Bottom of Boring 52.1'	2		
-52.1'			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 150 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2399932 Y-306365		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-30-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 6	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justice		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 7.5' (41.1' water)		16. DATE HOLE	STARTED 24 Feb 1988	COMPLETED 24 Feb 1988
8. DEPTH DRILLED INTO ROCK 2.5'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 51.1'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e	JAR	g	
			Water				
			Bottom of Harbor 41.1'			NOTE: Scale change @ 40.0'; 1 in=5 ft.	
-41.1'	40		No sample was recovered from 41.1' to 43.6'.			NOTE: The weight of the rods drove the splitspoon from 41.1' to 42.1'.	0
-43.6'			(SP) Grey, fine grained, poorly graded, SAND. Slightly silty, w/shell fragments.		1		18
-46.6'	45				2		29
-48.6'			(SM) Grey, fine grained, silty SAND. Calcareous, w/shell fragments.		3		32
-51.1'	50				4		35
			Top of Rock 48.6'		5		50/0.4
			(LIMESTONE) Greyish white, fine grained, very soft, sandy, w/shell fragments.		6		49
			Bottom of Boring 51.1'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

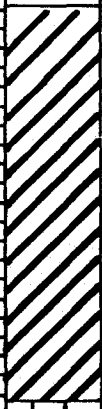
DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2401313 Y-306500		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL MLW Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-31-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 5	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 7.2' (40.8' water)		16. DATE HOLE STARTED 24 Feb 1988 COMPLETED 24 Feb 1988		
8. DEPTH DRILLED INTO ROCK 3.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 51.0'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. PAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e	f	g	
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.	
			Bottom of Harbor 40.8'			NOTE: The weight of the rods drove the splitspoon from 40.8' to 42.0'.	0
-40.8'	40		No sample was recovered from 40.8' to 43.5'.				24
-43.5'	45		(SP) Light grey, fine grained, poorly graded SAND. With shell fragments & lenses of (SC). Top of Rock 48.0'		1		40
					2		30
					3		37
-48.0'	50		(LIMESTONE) Greyish-white, fine grained, very soft, sandy, w/shell fragments.		4		11
					5		35
-51.0'			Bottom of Boring 51.0'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			<u>BLOWS PER FOOT:</u> Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2404691 Y-304653		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL MLW Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-32-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 7	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 7.1' (40.8' water)		16. DATE HOLE	STARTED 23 Feb 1988	COMPLETED 23 Feb 1988
8. DEPTH DRILLED INTO ROCK 3.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 50.9'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>				

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e			
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.	
			Bottom of Harbor 40.8'			NOTE: The weight of the rods drove the splitspoon from 40.8' to 41.9'.	
-40.8'	40		(MH) Dark grey, inorganic SILT, Sandy, w/shell fragments.		1		0
-41.9'			(SM) Dark grey, fine grained, silty SAND. With shell fragments & some gravel.		2		30
	45		(SP) Grey, fine grained, poorly graded SAND. Glauconitic, w/shell fragments.		3		26
-46.4'					4		25
-47.9'					5	100/0.3	
	50		Top of Rock 47.9'		6		38
-50.9'			(LIMESTONE) Greyish white, fine grained very soft, sandy, w/shell fragments.		7		25
			Bottom of Boring 50.9'				
NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2382211 Y-316077		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Falling 314		
4. HOLE NO. (As shown on drawing title and file number) EC-33-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 6	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 10.3' (39.9' water)		16. DATE HOLE	STARTED 25 Mar 1988	COMPLETED 25 Mar 1988
8. DEPTH DRILLED INTO ROCK 0.5'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 50.7'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. / JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0' b	c	d	e		f	
			Water			NOTE: Scale change @ 35.0'; 1 in = 5 ft.	
	35		Bottom of Harbor 39.9'			NOTE: The weight of the rods drove the splitspoon from 39.9' to 44.7', 46.2' to 47.7', 49.2' to 50.2'.	
-39.9'	40		(CH) Dark grey, fat CLAY. With shell fragments & lenses of calcareous sand.		1		0
	45				2		6
-47.7'			Slightly sandy, slightly calcareous.		3		0
					4		3
-50.2'	50		Top of Rock 50.2'		5		9
-50.7'			(LIMESTONE) Broken while sampling into greyish white fine grained, silty sand, calcareous, slightly clayey & slightly indurated.		6		
			Bottom of Boring 50.7'			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2" fishtail	
2. LOCATION (Coordinates or Station) X-2356378 Y-330255			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-41-88			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 6
5. NAME OF DRILLER C.D. Justiss			14. TOTAL NUMBER CORE BOXES	UNDISTURBED 0
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 8.2' (43.5' water)			16. DATE HOLE STARTED 3 Mar 1988 COMPLETED 3 Mar 1988	
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 51.7'			18. TOTAL CORE RECOVERY FOR BORING N/A %	
			19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>	

ELEVATION 0.0'	DEPTH 0' b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g BLOWS
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.
	40		Bottom of Harbor 43.5'			NOTE: The weight of the rods drove the splitspoon from 43.5' to 44.2' & from 48.7' to 50.2'.
-43.5'			(CH) Dark green, fat CLAY.		1	0
-44.2'			Sandy, w/shell fragments.		2	18
-45.7'	45		(SC) Green & dark green, fine grained, clayey SAND.		3	2
-48.7'			(CH) Green, sandy, glauconitic, fat CLAY.		4	10
-51.7'	50		4-7.2'. Slightly calcareous		5	0
			(SC) Green, very fine grained, clayey SAND. Glauconitic, calcareous.		6	13
			Bottom of Boring 51.7'			
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2358416 Y-330001		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-42-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 4	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 7.7' (44.0' water)		16. DATE HOLE	STARTED 3 Mar 1988	COMPLETED 3 Mar 1988
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 51.7'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) BLOWS
0.0'	0'	c	d	e		g
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.
	40		Bottom of Harbor 44.0'			NOTE: The weight of the rods drove the splitspoon from 44.0' to 47.2'.
			(MH) Black, inorganic SILT. Sandy.			
-44.0'	45		(CL) Green, lean CLAY. Sandy.		1	0
-47.2'			(SC) Green, very fine grained clayey SAND. Glauconitic.		2	19
-48.7'					3	6
-51.7'	50				4	7
			Bottom of Boring 51.7'			
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".



DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2359357 Y-328598		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-43-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 6	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 8.7' (41.3' water)		16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK 0.0'		STARTED 3 Mar 1988		
9. TOTAL DEPTH OF HOLE 50.0'		COMPLETED 3 Mar 1988		
		17. ELEVATION TOP OF HOLE 0.0'		
		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e			
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.	
	40		Bottom of Harbor 41.3'			NOTE: The weight of the rods drove the splitspoon from 41.3' to 42.5'.	
-41.3'			(CH) Grey, fat CLAY. With layers of shell fragments.		1		0
-44.0'			Calcareous, slightly sandy.		2		8
	45		No longer calcareous		3		8
-47.0'			Lenses of calcareous (SP).		4		9
-48.5'					5		9
-50.0'	50		Bottom of Boring 50.0'		6		7
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2362451 Y-327779		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL MLW Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-44-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 9	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 12.5' (37.7' water)		16. DATE HOLE	STARTED 3 Mar 1988	COMPLETED 3 Mar 1988
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 50.2'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>				

ELEVATION 0.0'	DEPTH 0'	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g BLOWS
			Water			NOTE: Scale change @ 35.0'; 1 in=5 ft.
	35		Bottom of Harbor 37.7'			NOTE: The weight of the rods drove the splitspoon from 37.7' to 38.2'.
-37.7'			(CH) Grey, fat CLAY. Slightly sandy, with shell fragments.		1	0
-38.2'			(SM) Grey, fine grained, silty SAND. With some clay & a lot of shell fragments.		2	15
	40		Greenish grey.		3	13
			(CL) Dark green, lean CLAY. Sandy.		4	14
-45.7'	45		(SC) Dark green, fine grained, clayey SAND.		5	7
					6	4
-48.7'					7	9
					8	13
-50.2'	50				9	6
			Bottom of Boring 50.2'			
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/4" ID splitspoon w/ 140 lb. hammer falling 30".





DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) X-2362896 Y-326654		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW	
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-45-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 3
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES	UNDISTURBED 0
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 4.1' (48.4' water)		16. DATE HOLE STARTED 5 Mar 1988 COMPLETED 5 Mar 1988	
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 52.5'		18. TOTAL CORE RECOVERY FOR BORING N/A %	
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>	

ELEVATION 0.0'	DEPTH 0'	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS
	45		Water			NOTE: Scale change @ 45.0'; 1 in=5 ft. NOTE: The weight of the rods drove the splitspoon from 48.4' to 49.5'.	
-48.4'			Bottom of Harbor 48.4'				
-49.5'	50		(SP) Grey, fine grained, poorly graded SAND. With shell fragments comprising 50% to 60% of the sample.		1		0
			(SC) Green, very fine grained, clayey SAND. With shell fragments & lenses of grey (SP).		2		14
-52.5'			Bottom of Boring 52.5'		3		5
NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2364770 Y-326502		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-46-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 6 UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 9.0' (41.0' water)		16. DATE HOLE		STARTED 7 Mar 1988 COMPLETED 7 Mar 1988
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 50.0'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>				

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'	c	d	e	JAR	g BLOWS
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.
	40		Bottom of Harbor 41.0'			
-41.0'			(CL) Dark green, lean CLAY. Sandy calcareous.		1	37
-42.5'			(CH) Dark green, fat CLAY. Sandy, micaceous.		2	15
	45		Calcareous.		3	14
					4	11
-48.5'			(SC) Dark green, very fine grained, clayey SAND. Calcareous.		5	12
-50.0'	50		Bottom of Boring 50.0'		6	16
NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".





DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2365482 Y-325262		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-47-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 4	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 5.5' (45.1' water)		16. DATE HOLE STARTED 8 Mar 1988 COMPLETED 8 Mar 1988		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 50.6'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION 0.0 ^d	DEPTH 0' ^b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS BLOWS
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft. NOTE: The weight of the rods drove the splitspoon from 45.1' to 46.1'.	
	40		Bottom of Harbor 45.1'				
-45.1'	45		(SM) Grey, fine grained, silty SAND. With shell fragments.		1		0
-46.1'			(CL) Dark green, lean CLAY. Sandy.		2		11
-49.1'			(CH) Dark green, fat CLAY. Sandy.		3		14
-50.6'	50		Bottom of Boring 50.6'		4		12
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2367457 Y-325042		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-48-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 5	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 8.1' (42.7' water)		16. DATE HOLE STARTED 7 Mar 1988 COMPLETED 7 Mar 1988		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 50.8'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e			
	40'		Water			NOTE: Scale change @ 40.0'; 1 in = 5 ft.	
	42.7'		Bottom of Harbor 42.7'			NOTE: The weight of the rods drove the splitspoon from 42.7' to 44.8'.	
-42.7'	44.8'		(SC) Green & light green, fine grained, clayey SAND. With shell fragments.		1		0
-44.8'	45'		(CL) Dark green, lean CLAY. Sandy.		2		14
-46.3'			(CH) Dark green, fat CLAY. Slightly sandy, w/lenses of (SP).		3		14
-50.8'	50'				4		10
					5		16
			Bottom of Boring 50.8'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 of 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2367623 Y-324089		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Falling 314		
4. HOLE NO. (As shown on drawing title and file number) EC-49-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 5	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 8.7' (42.3' water)		16. DATE HOLE STARTED 7 Mar 1988 COMPLETED 7 Mar 1988		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 52.0'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) BLOWS
0.0'	0'	c	d	e		
	40		Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.
	42.3'		Bottom of Harbor 42.3'			NOTE: The weight of the rods drove the splitspoon from 42.3' to 45.0'.
-42.3'			(MH) Black, inorganic SILT. Sandy, w/shell fragments.		1	0
-45.0'	45		(CL) Green, lean CLAY. Sandy, slightly calcareous.		2	32
-48.0'			(CH) Dark green, fat CLAY. Sandy, slightly micaceous.		3	16
					4	12
-51.0'	50				5	15
			Bottom of Boring 51.0'			
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".



DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.		SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2369175 Y-324123			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-50-88			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 7
5. NAME OF DRILLER C.D. Justiss			14. TOTAL NUMBER CORE BOXES		UNDISTURBED 0
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 11.4' (38.5' water)			16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK 0.0'			STARTED 8 Mar 1988		COMPLETED 8 Mar 1988
9. TOTAL DEPTH OF HOLE 49.9'			17. ELEVATION TOP OF HOLE 0.0'		
			18. TOTAL CORE RECOVERY FOR BORING N/A %		
			19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION 0.0'	DEPTH 0' b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			Water			NOTE: Scale change @ 35.0'; 1 in=5 ft.
			Bottom of Harbor 38.5'			NOTE: The weight of the rods drove the splitspoon from 38.5' to 39.4'.
	35		No sample recovered.			
			(SM) Dark grey, fine grained, silty SAND. With shell fragments.			
-38.5'						
-39.4'						
-40.0'	40		Light grey, calcareous.		1	
			(SC) Light grey, fine grained, clayey SAND. Calcareous, w/shell fragments.		2	
-43.9'					3	
			Dark green.		4	
-45.4'	45		(CL) Dark green, lean CLAY. Sandy.		5	
-46.5'					6	
-48.4'			(CH) Dark green, fat CLAY. Slightly sandy.		7	
-49.9'			Bottom of Boring 49.9'			
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) X-2369457 Y-323072		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW	
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-51-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 7
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES	UNDISTURBED 0
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 11.4' (39.2' water)		16. DATE HOLE STARTED 8 Mar 1988 COMPLETED 8 Mar 1988	
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 50.6'		18. TOTAL CORE RECOVERY FOR BORING N/A %	
19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>			

ELEVATION 0.0 ^a	DEPTH 0 ^b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) f BLOWS g
			Water			NOTE: Scale change @ 35.0'; 1 in=5 ft. NOTE: The weight of the rods drove the splitspoon from 39.2' to 41.6'
	35		Bottom of Harbor 39.2'			
			(SM) Light grey, fine grained silty SAND. Calcareous, slightly clayey, w/shell fragments.		1	0
			Predominantly shell fragments.		2	13
			(CL) Dark green, lean CLAY. Sandy.		3	12
	45		(CH) Dark green, fat CLAY. Sandy, slightly, calcareous.		4	9
-46.1'					5	3
-47.6'					6	15
-49.1'					7	17
-50.6'	50		Bottom of Boring 50.6'			
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			<u>BLOWS PER FOOT:</u> Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

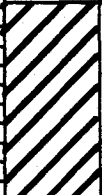
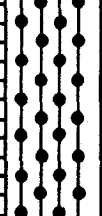
DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2370979 Y-323106		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-52-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 4	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 5.8' (44.1' water)		16. DATE HOLE	STARTED 14 Mar 1988	COMPLETED 14 Mar 1988
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 49.9'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>				

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) BLOWS
0.0'	0'	c	d	e	f	g
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.
	40		Bottom of Harbor 44.1'			NOTE: The weight of the rods drove the splitspoon from 44.1' to 45.4'.
-44.1'			(CH) Black, fat CLAY. Slightly sandy.			
-45.4'	45		(SC) Pale green, fine grained clayey SAND. Calcareous, slightly silty.		1	0
			Shell fragments.		2	13
					3	6
-49.9'	50				4	16
			Bottom of Boring 49.9'			
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			<u>BLOWS PER FOOT:</u> Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2	
2. LOCATION (Coordinates or Station) X-2371125 Y-322175		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW	
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-53-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 6 UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 8.5' (41.6' water)		16. DATE HOLE	STARTED 15 Mar 1988 COMPLETED 15 Mar 1988
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 50.1'		18. TOTAL CORE RECOVERY FOR BORING N/A %	
19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0	0'				JAR	BLOWS
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.
	40		Bottom of Harbor 41.6'			NOTE: The weight of the rods drove the splitspoon from 41.6' to 42.6'.
-41.6'			(SC) Dark grey, fine grained, clayey sand w/shell fragments.		1	0
-42.6'			(SM) Light grey, fine grained, silty SAND. Calcareous.		2	25
	45				3	37
			Pale green.		4	25
-48.6'					5	31
-50.1'	50				6	30
			Bottom of Boring 50.1'			
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) X-2372753 Y-322164			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtial MLW	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-54-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
		DISTURBED	5	UNDISTURBED
			0	0
5. NAME OF DRILLER C.D. Justiss			14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 11.3' (38.9' water)			16. DATE HOLE	
8. DEPTH DRILLED INTO ROCK 0.0'			STARTED	COMPLETED
9. TOTAL DEPTH OF HOLE 50.2'			15 Mar 1988	15 Mar 1988
			17. ELEVATION TOP OF HOLE 0.0'	
			18. TOTAL CORE RECOVERY FOR BORING N/A %	
			19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0a'	0'b	c	d	e	f	g
			Water			BLOWS
			Bottom of Harbor 38.9'			
			(CH) Black, fat CLAY. With lenses of calcareous sand.			NOTE: Scale change @ 35.0'; 1 in=5 ft. NOTE: The weight of the rods drove the splitspoon from 38.9' to 44.2'.
-38.9'			(SM) Grey, fine grained, silty SAND. Calcareous, slightly clayey w/shell fragments.		1	
-44.2'			Pale greenish grey.			
-45.7'					2	26
					3	26
					4	11
					5	32
-50.2'	50		Bottom of Boring 50.2'			
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".



DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.		SHEET 1
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		OF 1 SHEETS	
2. LOCATION (Coordinates or Station) X-2372890 Y-321196		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail			
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314			
4. HOLE NO. (As shown on drawing title and file number) EC-55-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 5	UNDISTURBED 0	
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A			
7. THICKNESS OF OVERBURDEN 8.4' (40.1' water)		16. DATE HOLE		STARTED 15 Mar 1988	COMPLETED 15 Mar 1988
8. DEPTH DRILLED INTO ROCK 1.5'		17. ELEVATION TOP OF HOLE 0.0'			
9. TOTAL DEPTH OF HOLE 50.0'		18. TOTAL CORE RECOVERY FOR BORING N/A %			
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	NO. OR SAMPLE	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'	c	d	e	f	g
			Water			BLOWS
			Bottom of Harbor 40.1'			NOTE: Scale change @ 40.0'; 1 in=5 ft.
-40.1'	40		(CH) Black, fat CLAY. w/lenses of calcareous sand.		1	NOTE: The weight of the rods drove the splitspoon from 40.1' to 44.0'.
-44.0'	45		(SP) Grey, fine grained, poorly graded SAND. Calcareous, w/shell fragments & lenses of brown silty sand.		2	
			Top of Rock 48.5'		3	
-48.5'			(LIMESTONE) Broken while sampling into a light grey, fine grained, silty sand. Calcareous.		4	
-50.0'	50		Bottom of Boring 50.0'		5	
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) X-2374498 Y-321196		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW	
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-56-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 4 UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 8.8' (41.4' water)		16. DATE HOLE	STARTED 18 Mar 1988 COMPLETED 18 Mar 1988
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 50.2'		18. TOTAL CORE RECOVERY FOR BORING N/A %	
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0' b	c	d	e	f	g BLOWS
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.
	40		Bottom of Harbor 41.4'			NOTE: The weight of the rods drove the splitspoon from 41.4' to 45.7'.
-41.4'			(SC) Dark grey, very fine grained, clayey SAND. With shell fragments.		1	0
	45		Lens of fat clay.			
-46.2'			(CH) Dark grey, fat CLAY. With lenses of calcareous sand.		2	6
-47.2'					3	4
-48.7'					4	15
-50.2'	50		(SM) Dark grey, very fine grained, silty SAND. Calcareous.			
			Bottom of Boring 50.2'			
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

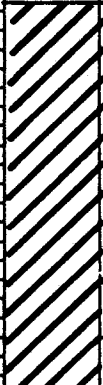
DRILLING LOG		DIVISION South Atlantic	INDUSTRIALIZATION Charleston, S.C.	SHEET 1 of 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2374600 Y-320240		11. METHOD FOR ELEVATION SHOWN (FSM or MSL) fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL falling 314		
4. HOLE NO. (As shown on drawing title and file number) EC-57-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
5. NAME OF DRILLER C.D. Justiss		DISTURBED 7 UNDISTURBED 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DES. FROM VERT.		14. TOTAL NUMBER CORE BOXES 0		
7. THICKNESS OF OVERBURDEN 2.9' (38.5' water)		15. ELEVATION GROUND WATER N/A		
8. DEPTH DRILLED INTO ROCK 9.0'		16. RATE HOLE		
9. TOTAL DEPTH OF HOLE 50.4'		STARTED 23 Mar 1988 COMPLETED 23 Mar 1988		
		17. ELEVATION TOP OF HOLE 0.0'		
		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION 0.0'	DEPTH 0'	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	NO. CORE RECOV. BY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
			Water			NOTE: Scale change @ 35.0'; 1 in=5 ft.	
	35		Bottom of Harbor 38.5'			NOTE: The weight of the rods drove the splitspoon from 38.5' to 41.4'.	
-38.5'			(CH) Black, fat CLAY. With a little sand.				
	40		Top of Rock 41.4'		1		0
-41.4'			(LIMESTONE) Broken while sampling into a greyish white, fine grained, silty SAND. Slightly clayey, w/shell fragments.		2		33
	45				3		46
					4		39
					5		34
					6		34
	50		Bottom of Boring 50.4'		7		30
-50.4'			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System:			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-320,241 E-2,374,587			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-57A-90			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED 2 UNDISTURBED 0	
5. NAME OF DRILLER D. Justiss			14. TOTAL NUMBER CORE BOXES 1	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 6.0' (40.0' water)			16. DATE HOLE STARTED 20 May 1990 COMPLETED 20 May 1990	
8. DEPTH DRILLED INTO ROCK 4.2'			17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 50.2'			18. TOTAL CORE RECOVERY FOR BORING 57 %	
			19. SIGNATURE OF INSPECTOR J. O'Kelley James Arthur, P.G.	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0 ^d	0' ^b	c	d	e	JAR	f BLOWS
			Water			NOTE: Scale change @ 40.5' & 45.0'
			Bottom of Harbor 40.0'			
-40.0'	40		(MH) Dark grey, clayey SILT. Trace of fine sand & large shell fragments, slightly calcareous, wet.		1	Set 6" casing by own weight to 44.2'. Weight of rods drove splitspoon to 44.5'. Made new batch of Zeogel mud at 44.5'.
-44.5'	45		(SM) Light grey, silty, fine to med. SAND. Trace of fine to coarse, soft, limestone gravel, wet.		2	
-45.4'			No Recovery.	REC 0.0%	Box 1	Pull #1 From 46.0' To 47.8' Run 1.8' (Blocked off) Rec. 0.0' C.D. 1.8' Taped 46.6' Drilling Time: 13 Min Hyd. Pressure: 100 PSI Water Return: 100%
-47.8'	47		Top of Rock 47.8'			
			(LIMESTONE) Light grey, med. to coarse grained, sandy, soft, friable, badly broken.	REC 100%		Pull #2 From 47.8' To 50.2' Run 2.4' Rec 2.4' Drilling Time: 13 Min. Taped 50.2'
-50.2'	49			RQD 0.0		
			Bottom of Boring 50.2'			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".
	51		NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2376212 Y-320234		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-58-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 5	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 10.2' (41.3' water)		16. DATE HOLE	STARTED 24 Mar 1988	COMPLETED 24 Mar 1988
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 51.5'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION 0.0' _a	DEPTH 0' _b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.	
			Bottom of Harbor 41.3'			NOTE: The weight of the rods drove the splitspoon from 41.3' to 45.5'.	
-41.3'	40		(CH) Grey, fat CLAY. With shell fragments & a little sand.		1		0
	45				2		9
					3		2
-48.5'					4		5
-50.0'	50		Thin lenses of calcareous (SP).		5		3
-51.5'			Lenses of calcareous, poorly graded sand.				
			Bottom of Boring 51.5'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2376383 Y-319254		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Falling 314		
4. HOLE NO. (As shown on drawing title and file number) EC-59-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 10	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 6.0' (36.6' water)		16. DATE HOLE STARTED 28 Mar 1988 COMPLETED 28 Mar 1988		
8. DEPTH DRILLED INTO ROCK 7.5'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 50.1'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'	c	d	e		g BLOWS
			Water			NOTE: Scale change @ 35.0'; 1 in=5 ft.
	35'		Bottom of Harbor 36.6'			
-36.6'			(CH) Black, fat CLAY. Sandy, w/shell fragments.		1	7
-38.1'			(SM) Dark grey, fine grained, silty SAND. Calcareous.		2	18
-39.1'					3	16
-39.6'					4	4
-42.6'			(SC) Light grey, fine grained, clayey SAND. Slightly calcareous.		5	15
					6	26
	45'		Blueish-green, grey.		7	33
			Top of Rock 42.6'		8	49
			(LIMESTONE) Broken while sampling into a greyish white, fine grained, silty sand, calcareous, slightly indurated.		9	58
-50.1'	50'		Bottom of Boring 50.1'		10	
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".



DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-319,263 E-2,376,390		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-59A-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		UNDISTURBED
5. NAME OF DRILLER D. Justiss		2		0
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		14. TOTAL NUMBER CORE BOXES 1		
7. THICKNESS OF OVERBURDEN 3.0' (43.0' water)		15. ELEVATION GROUND WATER N/A		
8. DEPTH DRILLED INTO ROCK 3.8'		16. DATE HOLE		STARTED 20 May 1990 COMPLETED 20 May 1990
9. TOTAL DEPTH OF HOLE 49.8'		17. ELEVATION TOP OF HOLE 0.0'		
		18. TOTAL CORE RECOVERY FOR BORING		95 %
		19. SIGNATURE OF INSPECTOR <i>James Arthur, P.G.</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'	c	d	e	JAR	g
			Water			
			Bottom of Harbor 43.0'			
	40		(MH) Dark grey, clayey SILT. Trace of fine sand & small shell fragments, slightly calcareous, wet.			
-43.0'			(GM) Light grey, silty, fine to coarse limestone GRAVEL. Calcareous, some fine to med. sand and small shell fragments, wet. Top of Rock 46.0'		1	NOTE: Scale change @ 40.0' & 45.0'. Set 6" casing by own weight at 45.8'. Weight of rods drove splitspoon to 45.8', cont'd. drive to 46.0'.
-45.8'	45				2	
-46.0'			(LIMESTONE) Light grey, med. to coarse grained, sandy, soft to mod. hard, porous. Badly broken from 46.0' to 46.3' & 48.2' to 49.1'. Intensely to highly jointed w/near horizontal open joints at 46.3', 46.7', 47.5', 47.9', 48.2', 49.1' & 49.6'. core loss from 49.6' to 49.8'.	REC 95%	Box 1	Pull #1 From 46.0' To 49.8' Run 3.8' Rec 3.6' C.L. 0.2' Drilling Time: 6 Min. Hyd. Pressure: 100 PSI Water Return: Lost all water at 48.5'. BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".
-49.8'	47					
	49					
			Bottom of Boring 49.8'			
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.		SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2377969 Y-319269			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Falling 314		
4. HOLE NO. (As shown on drawing title and file number) EC-60-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 7	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss			14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 9.7' (41.6' water)			16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK 0.0'			STARTED 19 Mar 1988		COMPLETED 19 Mar 1988
9. TOTAL DEPTH OF HOLE 51.3'			17. ELEVATION TOP OF HOLE 0.0'		
			18. TOTAL CORE RECOVERY FOR BORING N/A %		
			19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e	JAR	g	
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.	
	40'		Bottom of Harbor 41.6'			NOTE: The weight of the rods drove the splitspoon from 41.6' to 42.3'.	
-41.6'			(CH) Dark grey, fat CLAY. With shell fragments & lenses of calcareous sand.		1		0
-42.3'			Grey.		2		12
	45'				3		2
					4		7
					5		4
					6		8
-51.3'	50'		Bottom of Boring 51.3'		7		3
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling	



DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2378139 Y-318342		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-61-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 4	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 3.4' (42.1' water)		16. DATE HOLE STARTED 25 Mar 1988 COMPLETED 25 Mar 1988		
8. DEPTH DRILLED INTO ROCK 4.5'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 50.0'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. IAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e	f	g	h
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.	
	40'		Bottom of Harbor 42.1'			NOTE: The weight of the rods drove the splitspoon from 42.1' to 45.5'.	
-42.1'			(CH) Black, fat CLAY. Slightly sandy.		1		0
-45.5'	45'		Top of Rock 45.5'		2		32
			(LIMESTONE) Broken while sampling into a greyish white, fine grained, silty sand, Calcareous, slightly clayey.		3		27
					4		41
-50.0'	50'		Bottom of Boring 50.0'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) X-2379667 Y-318372		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail	
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-62-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 7
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES	UNDISTURBED 0
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 9.6' (41.6' water)		16. DATE HOLE	STARTED 25 Mar 1988
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE	COMPLETED 25 Mar 1988
9. TOTAL DEPTH OF HOLE 51.2'		18. ELEVATION TOP OF HOLE 0.0'	
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>	
		18. TOTAL CORE RECOVERY FOR BORING N/A %	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e	JAR		
			Water			NOTE: Scale change at 40.0'; 1 in=5 ft.	
	40		Bottom of Harbor 41.6'			NOTE: 0 means the weight of the rods drove the splitspoon through the sample.	
-41.6'			(CH) Grey, fat CLAY. Sandy w/ shell fragments.		1		0
-42.2'					2		4
-43.7'			(SM) Dark grey to black, very fine grained, silty SAND. Calcareous.		3		0
	45				4		5
			(CH) Dark grey, fat CLAY. With shell fragments.		5		6
					6		2
	50				7		8
-51.2'			Bottom of Boring 51.2'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			<u>BLOWS PER FOOT:</u> Number required to drive 1 3/8" ID splitspoon w/ 140 lb hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.		SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2379878 Y-317366			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-63-88			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 6
5. NAME OF DRILLER C.D. Justiss			14. TOTAL NUMBER CORE BOXES		UNDISTURBED 0
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER		N/A
7. THICKNESS OF OVERBURDEN 8.3' (40.0' water)			16. DATE HOLE		STARTED 25 Mar 1988
8. DEPTH DRILLED INTO ROCK 2.5'			17. ELEVATION TOP OF HOLE		COMPLETED 25 Mar 1988
9. TOTAL DEPTH OF HOLE 50.8'			18. TOTAL CORE RECOVERY FOR BORING		N/A %
			19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0 ^a	0 ^b	c	d	e	JAR	f	g
			Water			NOTE: Scale change @ 40.0'; 1 in=5 ft.	
			Bottom of Harbor 40.0'			NOTE: The weight of the rods drove the splitspoon from 40.0' to 44.8'.	
-40.0'	40		(SC) Dark grey, very fine grained, fat clayey SAND. Slightly calcareous, w/shell fragments.		1		0
	45		Top of Rock 48.3'		2		6
			(LIMESTONE) Broken while sampling into a greyish white fine grained silty sand. Calcareous, slightly indurated.		3		4
-48.3'					4		38
	50				5		
-50.8'					6		30
			Bottom of Boring 50.8'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) X-2381550 Y-317319		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-64-88		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 5	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 13.2' (37.9' water)		16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK 0.0'		STARTED 25 Mar 1988	COMPLETED 25 Mar 1988	
9. TOTAL DEPTH OF HOLE 51.1'		17. ELEVATION TOP OF HOLE 0.0'		
		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR Bob Green, Geologist <i>Bob Green</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e	f	g	h
	35		Water			NOTE: Scale change @ 35.0' 1 in=5 ft.	
	37.9'		Bottom of Harbor 37.9'			NOTE: 0 means the weight of the rods drove the splitspoon through the sample.	
-37.9'	40		(SM) Dark grey, fine grained, silty SAND. Calcareous, slightly clayey, w/shell fragments.		1		0
	45		(SC) Dark grey, fine grained, clayey SAND, calcareous, w/shell fragments.				
-46.6'	46.6'		(CH) Dark grey, fat CLAY. w/shell fragments.		2		4
-48.1'	48.1'				3		9
	50				4		0
-51.1'	51.1'		Bottom of Boring 51.1'		5		3
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5" fish-tail	
2. LOCATION (Coordinates or Station) N. 312,571 E. 2,328,876		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW	
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-65-89		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 5 UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 9.0' (45.7' water)		16. DATE HOLE	STARTED 14 Apr 1989 COMPLETED 14 Apr 1989
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 54.7'		18. TOTAL CORE RECOVERY FOR BORING N/A %	
		19. SIGNATURE OF INSPECTOR James Arthur, PG <i>[Signature]</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'	c	d	e	JAR	g BLOWS
	35		Water			NOTE: Set 6" casing to -46.7' MLW by own weight. Scale change @ 35.0'.
	40		Bottom of Harbor 45.7'			
	45		(CH) Greenish-light brown, fat CLAY. Soft, calcareous.			
	45		(SM) Light brown to tan, fine to med. calcareous SAND. Some small shell fragments & fine to coarse gravel of cemented sand & light grey to white streaks.		1	
-45.7'	45.9'				2	32
	47.2'				3	57
	50		No white streaks.			39
-50.2'	51.7'		No gravel.		4	43
	55		No shells.		5	56
-54.7'			Bottom of Boring 54.7'			29
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon & 5" fishtail		
2. LOCATION (Coordinates or Station) N-333,822 E-2,353,465		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-65-A-89		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 16	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 24.0' (30.9' water)		16. DATE HOLE	STARTED 10 Dec 1989	COMPLETED 10 Dec 1989
8. DEPTH DRILLED INTO ROCK -0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 54.9'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR David Belville, Geologist		

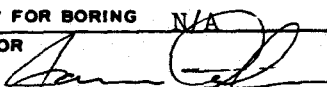
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) BLOWS
0.0'	0'	c	d	e		
			Water			NOTE: Set 6" casing to bottom of channel. NOTE: Scale change @ 30.0'. Mixed Zeogel mud.
-30.9'	30		Bottom of Harbor 30.9'			
			(SM) Grey, fine grained, silty SAND.		1	3
					2	9
-34.0'	35		(MH) Grey, fat SILT.		3	2
					4	4
					5	3
-38.3'			Olive green.		6	15
-40.5'	40		Olive green, very fine sandy.		7	10
-41.4'			Dark green, very fine & sandy.		8	2
					9	5
-45.5'	45		Olive green.		10	4
					11	8
					12	12
-48.9'			Dark green.		13	12
-50.4'	50				14	18
			Olive green.		15	21
					16	19
-54.9'	55		Bottom of Boring 54.9'			
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30". ATTACHMENT-J-1

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.		SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5" fish-tail		
2. LOCATION (Coordinates of Station) N. 312,927 E. 2,389,010			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-66-89			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 4 UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss			14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 7.5' (47.9' water)			16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK 0.0'			STARTED 16 Apr 1989		COMPLETED 16 Apr 1989
9. TOTAL DEPTH OF HOLE 55.4'			17. ELEVATION TOP OF HOLE 0.0'		
			18. TOTAL CORE RECOVERY FOR BORING N/A %		
			19. SIGNATURE OF INSPECTOR James Arthur, PG <i>[Signature]</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0d	0b	c	d	e		g
			Water			NOTE: Set 6" casing to -48.1' MLW by own weight. Scale change @ 35.0'. BLOWS
	35		Bottom of Harbor 47.9'			
	40		(SM) Light brown to tan, silty fine to med. calcareous SAND. Some small to large shell fragments, trace of fine to coarse gravel size cemented sand. Some light grey to white streaks.			
-47.9'			Tannish light grey, trace of fine gravel & small shell fragments.		1	92
-49.4'	50		Light grey, some small shell fragments, no gravel.		2	30
-52.4'			Light grey to grey, trace of fine to coarse gravel.		3	24
-53.9'					4	21
-55.4'	55		Bottom of Boring 55.4'			60
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 3/8" splitspoon & 5" fishtail		
2. LOCATION (Coordinates or Station) N-332 799 E-2 352 989		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-66 A-89		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 11	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 16.5' (38.4' water)		16. DATE HOLE STARTED 5 Dec 1989 COMPLETED 5 Dec 1989		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 54.9'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR <i>D.L. Beville</i> David Beville, Geologist		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'b	c	d	e			
			Water			NOTE: Scale change @ 35.0'. Weight of rods & hammer drove splitspoon from: -38.4' to -39.9'; -41.4' to -42.9'; and -44.4' to -45.9'.	
			Bottom of Harbor 38.4'				
-38.4'			(ML) Dark green & black, lean SILT.		1	Set 6" casing to bottom of channel. Mixed Zeogel mud.	0
-40.0'	40		Dark green lean silt.		2		4
-41.5'			Dark green, fine grained, sandy, lean silt.		3		0
					4		7
-45.9'	45		(CH) Dark green fat CLAY.		5		0
					6		15
-49.0'			Dark green, fine sandy.		7		12
-50.5'	50		(MH) Dark green, fat SILT.		8		9
					9		16
					10		23
					11		19
-54.9'	55		Bottom of Boring 54.9'			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	
			NOTE: Soils visually field classified in accordance with the Unified Soils Classification System.				

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5" fish-tail		
2. LOCATION (Coordinates or Station) N. 313,606 E. 2,387,684		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-67-89		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 6	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 9.0' (46.4' water)		16. DATE HOLE STARTED 16 Apr 1989 COMPLETED 16 Apr 1989		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.4'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, PG 		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e	JAR	f	g
			Water				
	35'		Bottom of Harbor 46.4'			NOTE: Set 6" casing to -46.4' MLW by own weight. NOTE: Splitspoon w/20' rods dropped inside casing to bottom of harbor. Weight caused splitspoon to penetrate soil from 46.4' to 47.9' cont'd. drive to 49.4'. Scale change @ 35.0'.	
	40'		(CH) Green, fat CLAY. Trace of small shell fragments, soft to med. stiff, slightly calcareous. (See remarks)				
	45'		(SM) Light brown to tan, silty, fine to med., calcareous SAND. Some small shell fragments. Trace of fine to coarse gravel size cemented sand.				
-46.4'					1		0
-48.5'			Grey, silty, fine to med. calcareous sand. Some small shell fragments.		2		32
	50'				3		27
					4		30
					5		50
-53.9'					6		100
-55.4'	55'		Bottom of Boring 55.4'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.		SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5" fish-tail,		
2. LOCATION (Coordinates or Station) N-332,682 E-2,354,573			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW 4X5 1/2" core bbl		
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Falling 314		
4. HOLE NO. (As shown on drawing title and file number) EC-67 A-89			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 18
5. NAME OF DRILLER D. Justiss			14. TOTAL NUMBER CORE BOXES		UNDISTURBED 0
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 27.0' (28.4' water)			16. DATE HOLE		STARTED 10 Dec 1989
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE 0.0'		COMPLETED 10 Dec 1989
9. TOTAL DEPTH OF HOLE 55.4'			18. TOTAL CORE RECOVERY FOR BORING N/A %		
			19. SIGNATURE OF INSPECTOR David Beville, Geologist		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0' b	c	d	e		g
			Water			NOTE: Scale change @ 25.0'. Weight of rods & hammer drove splitspoon from: 28.4' to 28.9'; 29.9' to 31.4'; 34.4' to 34.9'; and 41.9' to 42.9'.
-28.4'			Bottom of Harbor 28.4'			
-29.9'	30		(SM) Dark grey, fine to med, silty SAND. Some fine to med. shell fragments.		1	Set 6" casing to bottom of channel. Mixed Zeogel mud.
			No. Recovery.		2	
					3	
					4	
			(MI) Dark green, fine grained, sandy, fat silt.		5	
					6	
					7	
			Olive green, fat silt w/ stiff silt nodules.		8	
					9	
					10	
					11	
					12	
					13	
			(CH) Olive green, fat CLAY		14	
-50.0'	50		Continued on sheet #2 NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30". ATTACHMENT-J-1

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

0.0' MLW

Hole No. EC-67 A-89

PROJECT Charleston Harbor Entrance Channel
Deepening and Widening



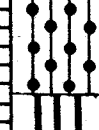


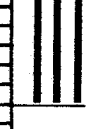

INSTALLATION

Charleston, S.C.

SHEET 2
OF 2 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-50.0'	50'	c	d	e	JAR 15	8 BLOWS
			(MH) Dark green, fat SILT.		16	
					17	
					18	
-55.4'	55		Bottom of Boring 55.4'			

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon & 5" fish-tail		
2. LOCATION (Coordinates or Station) N-331.560 E-2,354.018		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-68-89		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 17	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0.0'		
7. THICKNESS OF OVERBURDEN 25.5' (29.2' water)		16. DATE HOLE	STARTED 11 Dec 1989	COMPLETED 11 Dec 1989
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 54.7'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
19. SIGNATURE OF INSPECTOR David Belville, Geologist <i>DL Belville</i>				

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'		Water			NOTE: Scale change @ 25.0'. Weight of rods & hammer drove splitspoon from: 29.2' to 30.7'; 42.7' to 44.2'; and 45.7' to 47.2'	
-29.2'	25'		Bottom of Harbor 29.2'				
-30.7'	30'		(MH) Dark grey, fine sandy, fat SILT. Small shell fragments.		1	Set 6" casing to bottom of channel. Mixed Zeo-gel mud.	0
-33.7'	35'		(CH) Dark grey, fat CLAY.		2		4
-36.7'	40'		(SC) Green, fine grained, clayey SAND.		3		5
-39.7'	45'		(SM) Green & dark grey, fine to med. grained silty SAND.		4		12
-42.7'	50'		(MH) Olive green, fine grained, sandy, fat SILT. Cemented silt nodules up to 1/2" dia.		5		18
-44.2'			(ML) Dark green, fine grained, sandy lean SILT.		6		33
			(MH) Dark green, fine grained sandy, fat SILT.		7		23
					8		15
					9		8
					10		0
					11		3
					12		0
					13		12
					14		12
-50.0'	50'		Continued on sheet #2 NOTE: Soils visually field classified in accordance with the Unified Soils Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30". ATTACHMENT-J-1	

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

0.0' MLW

Hole No.

EC-68-89

PROJECT Charleston Harbor Entrance
Channel Deepening and Widening

INSTALLATION
Charleston, S.C.

SHEET 2
OF 2 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
-50.0'	50.6	c	d	e			
-54.7'	55		(MH) Cont'd. Dark green, fine grained, sandy, fat SILT.		15		10
					16		13
					17		20
			Bottom of Boring 54.7'				

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.		SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon & 5"		
2. LOCATION (Coordinates or Station) N-331,675 E-2,355,872			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-69-89			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		UNDISTURBED
5. NAME OF DRILLER D. Justiss			DISTURBED 25		0
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			14. TOTAL NUMBER CORE BOXES 0		
7. THICKNESS OF OVERBURDEN 37.5' (17.6' water)			15. ELEVATION GROUND WATER N/A		
8. DEPTH DRILLED INTO ROCK 0.0'			16. DATE HOLE		STARTED 6 Dec 1989 COMPLETED 6 Dec 1989
9. TOTAL DEPTH OF HOLE 55.1'			17. ELEVATION TOP OF HOLE 0.0'		
			18. TOTAL CORE RECOVERY FOR BORING N/A %		
			19. SIGNATURE OF INSPECTOR David Beville, Geologist		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'						
	15		Water			NOTE: Scale change @ 15.0'. Weight of rods & hammer drove splitspoon from: -17.6' to -19.1'.	
			Bottom of Harbor 17.6'				
-17.6'			(SM) Dark grey, fine grained, slightly clayey, silty, SAND. Fine to med. shell fragments.		1		0
-20.6'	20		(SC) Fine to med. clayey SAND. Approx. 50% med. shell fragments.		2	Set 6" casing to bottom of channel. Mixed Zeogel mud.	15
-22.0'			(SM) Dark grey, fine grained, silty SAND. Fine to med. shell fragments.		3		12
-25.0'	25		(MH) Dark green, fat SILT. Med. shell fragments.		4		20
-26.5'			(SC) Dark grey & brown, fine grained, clayey SAND.		5		4
-31.0'	30		Fine to med. shell fragments.		6		15
			(MH) Dark green & grey, fine grained, sandy, fat SILT. Fine to med. shell fragments.		7		12
					8		5
					9		6
					10		7
					11		8
					12		3
-35.6'	35		No Recovery.				3
-37.1'			(SC) Dark green, fine grained, clayey SAND.		14		7
-40.0'	40		Continued on sheet #2 NOTE: Soils visually field classified in accordance with the Unified Soils Classification System.		15		8

BLOWS PER FOOT:
Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".
ATTACHMENT-J-1

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

0.0' MLW

Hole No. EC-69-89

PROJECT Charleston Harbor Entrance
Channel Deepening and Widening

INSTALLATION
Charleston, S.C.

SHEET 2
OF 2 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
		c	d	e	JAR	g	
-40.0'	40'		(SC) Cont'd. clayey SAND.		16		6
-41.6'			(ML) Dark green, fine grained, sandy, lean SILT. Olive green, fine grained, sandy, lean silt. Dark green, fine grained, sandy, lean silt.		17		8
-43.1'				18	16		
-44.6'	45			19	2		
				20	5		
				21	4		
-49.1'	55		(MH) Dark green, fine grained, sandy, fat SILT.		22		11
				23	15		
				24	12		
				25	10		
-55.1'	55		Bottom of Boring 55.1'				

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5" fish-tail		
2. LOCATION (Coordinates or Station) N-330.428 E-2,355,642		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-70-89		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 17	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 25.5' (29.5' water)		16. DATE HOLE STARTED 11 Dec 1989 COMPLETED 11 Dec 1989		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.0'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR David Belville, Geologist <i>D. L. Belville</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0' b	c	d	e		f	g
			Water			NOTE: Scale change @ 25.0'	
	25		Bottom of Harbor 29.5'			Weight of rods & hammer drove splitspoon from:	
			(MH) Dark green, fat SILT. Small to med. shell fragments.			29.5' to 31.0'	
-29.5'	30		(SC) Grey, med. grained, clayey SAND. Med. shell fragments.		1	32.5' to 34.0'	
-31.0'			(MH) Green, fat SILT. Approx. 50% small to med. shell fragments.		2	34.0' to 35.5'	0
-32.5'			(SC) Dark green, fine grained, clayey SAND. Small shell fragments.		3	35.5' to 36.5'	6
-35.5'	35		(MH) Dark green to olive green, fine grained sandy fat SILT.		4	43.0' to 44.0'	0
-40.0'	40		Olive green fat silt w/ cemented nodules.		5		1
-43.0'			Dark green fine grained sandy silt w/ cemented nodules.		6		4
-46.0'	45				7		4
-50.0'	50				8		5
			Continued on sht #2		9		
			NOTE: Soils visually field classified in accordance with the Unified Soils Classification System.		10		
					11		19
					12		18
					13		4
					14		5
						BLOWS PER FOOT:	
						Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	
						ATTACHMENT-J-1	

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

0.0' MLW

Hole No. EC-70-89

PROJECT Charleston Harbor Entrance
Channel Deepening and Widening

INSTALLATION Charleston, S.C.

SHEET 2
OF 2 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
-50.0'	50'	c	d	e		f	
-52.0'			Cont'd. (MH) Dark green fine grained.		14		5
					15		14
			Dark green fat silt		16		11
					17		8
-55.0'	55		Bottom of Boring 55.0'				

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5" fish-tail		
2. LOCATION (Coordinates or Station) N-330,497 E-2,357,999		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-71-89		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 27	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 40.5' (15.7' water)		16. DATE HOLE STARTED 7 Dec 1989 COMPLETED 7 Dec 1989		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 56.2'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR <i>D. L. Bell</i> David Belville, Geologist		

ELEVATION 0.0'	DEPTH 0'b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS h
			Water Bottom of Harbor 15.7'			NOTE: Scale change @ 15' 0' Weight of rods & hammer drove splitspoon from: 29.2' to 30.7' 50.2' to 51.7'	
-15.7'	15		(SM) Dark green, fine grained, silty SAND. Fine to med. shell fragments.		1	Set 6" casing to bottom of channel. Mixed Zeogel mud.	12
	20				2		9
					3		8
					4		6
					5		21
					6		12
-24.7'	25		(ML) Dark green, fine grained, sandy lean SILT. Fine to med. shell fragments.		7		15
			Dark green, fine grained, sandy lean silt w/20-30% med. shell fragments.		8		2
				9		9	
				10		0	
-29.2'	30		(MH) Dark green, fine grained sandy fat SILT. Very thin lenses of light grey ML w/ small shell fragments.		11		8
				12		12	
				13		6	
				14		12	
			(SC) Dark green, fine grained, clayey SAND.		15		11
				16		7	
-39.7'	40		Continued on sht #2				
-40.0'			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

0.0' MLW

Hole No. EC-71-89

PROJECT Charleston Harbor Entrance
Channel Deepening and Widening

INSTALLATION Charleston, S.C.

SHEET 2
OF 2 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS			
-40.0'	40 b	c	Cont'd. d	e	JAR					
			(SC) Dark green, fine grained, clayey SAND.		17		4			
						18		5		
						19		5		
	45					20		9		
						21		7		
-47.2'				Very fine.		22		12		
							23		9	
	50						24		0	
							25		11	
-53.2'						(MH) Olive green, fat SILT.		26		4
								27		15
	55									
-56.2'			Bottom of Boring 56.2'							

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5" fish-tail		
2. LOCATION (Coordinates or Station) N-328,797 E-2,358,598		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-72-89		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 16	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 24.0' (31.6' water)		16. DATE HOLE STARTED 5 Dec 1989 COMPLETED 5 Dec 1989		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.6'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR <i>W. L. Belville</i> David Belville, Geologist		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0' b	c	d	e		g
			Water			NOTE: Scale change @ 30.0'.
	30		Bottom of Harbor 31.6'			
-31.6'			(SC) Dark grey, fine to med. clayey SAND. Fine to med. shell fragments.		1	Set 6" casing to bottom of channel. Mixed Zeogel mud.
-33.0'			(MH) Dark green, fine sandy fat SILT. Fine to med. shell fragments.		2	
-36.0'			Very fine, sandy.		3	
	35				4	
	40				5	
	45		(SC) Dark green, fine grained, clayey SAND.		6	
-43.6'			(MH) Dark green, fine, sandy, fat SILT.		7	
-46.6'			Lenses of mod. cemented silt nodules of 1/2" dia.		8	
-48.0'			Dark green, fat silt.		9	
-49.6'			(ML) Dark green, lean SILT.		10	
-51.1'					11	
	50				12	
	55				13	
					14	
					15	
					16	
-55.6'			Bottom of Boring 55.6'			
NOTE: Soils visually field classified in accordance with the Unified Soils Classification System.						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5" fish-tail	
2. LOCATION (Coordinates or Station) N-329,631 E-2,359,504			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-73-89			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 23
5. NAME OF DRILLER D. Justiss			14. TOTAL NUMBER CORE BOXES	UNDISTURBED 0
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 34.5' (21.0' water)			16. DATE HOLE STARTED 4 Dec 1989 COMPLETED 4 Dec 1989	
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 55.5'			18. TOTAL CORE RECOVERY FOR BORING N/A %	
			19. SIGNATURE OF INSPECTOR <i>D. L. B. Hill</i> David Belville, Geologist	

ELEVATION 0.0'	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			Water			NOTE: Scale change @ 20.0'. Weight of rods & hammer drove splitspoon from: 29.0' to 30.0'.
-21.0'	20		Bottom of Harbor 21.0'			
-24.0'	25		(SM) Grey, fine to med. grained, silty, SAND. Fine to med. shell fragments.		1	Set 6" casing to bottom of channel. Mixed Zeogel mud.
			(SC) Fine to med. grained, clayey SAND. Fine to med. shell fragments.		2	
			(MH) Dark grey, fat SILT. Fine shell fragments.		3	
			(SC) Fine to med. clayey SAND. Fine shell fragments.		4	
			(ML) Dark green, lean SILT.		5	
			(MH) Dark green, fine grained sandy fat SILT.		6	
					7	
					8	
					9	
					10	
					11	
					12	
					13	
					14	
					15	
					16	
-45.0'	45		Continued on sht #2 NOTE: Soils visually field classified in accordance with the Unified Soils Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

0.0' MLW

Hole No. EC-73-89

PROJECT Charleston Harbor Entrance
Channel Deepening and Widening

INSTALLATION
Charleston, S.C.

SHEET 2
OF 2 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g BLOWS
-45.0'	45'	c	Cont'd. d			
			(MH) Dark green, fine grained sandy fat SILT.		17	7
					18	8
					19	8
	50				20	26
					21	8
-52.5'			(ML) Olive green, fine grained, sandy lean SILT.		22	10
					23	8
-55.5'	55'					

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5" fish-		
2. LOCATION (Coordinates or Station) N-327,819 E-2,360,385		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-74-89		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 17	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 25.5 (29.5' water)		16. DATE HOLE STARTED 2 Dec 1989 COMPLETED 2 Dec 1989		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.0'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR <i>D. L. Belville</i> David Belville, Geologist		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0' b	c	d	e	JAR	g BLOWS
			Water			NOTE: Scale change @ 25.0'. Set 6" casing to bottom of channel. Mixed Zeogel mud.
	25					
-29.5'	30		Bottom of Harbor 29.5' (SM) Dark grey, fine to med silty SAND. Small shell fragments.		1	10
-31.0'			No Recovery.		2	3
-32.5'			(MH) Dark green, fine sandy, fat SILT. Small shell fragments.		3	8
-34.0'			(SC) Dark green, fine clayey SAND.		4	15
-35.5'	35				5	10
			(MH) Dark green, fine grained, sandy, fat SILT.		6	12
	40				7	9
					8	8
					9	10
					10	7
	45				11	5
-46.0'			(SC) Dark green, fine grained, clayey SAND.		12	5
					13	4
					14	7
-50.0'	50		Continued on sht #2 NOTE: Soils visually field classified in accordance with the Unified Soils Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30". ATTACHMENT-J-1

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

0.0' MLW

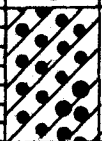


Hole No.

EC-74-89

PROJECT Charleston Harbor Entrance
Channel Deepening and Widening

INSTALLATION Charleston, S.C.

SHEET 2
OF 2 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
-50.0'	50'	c	d		14		
			(SC) Cont'd. Dark green, fine grained clayey SAND.		15		8
					16		7
-53.5'			(MH) Olive green, fat SILT. Cemented silt nodules of 1/2" dia.		17		32
-55.0'	55		Bottom of Boring 55.0'				

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 of 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5" fish-tail		
2. LOCATION (Coordinates or Station) N-328,242 E-2,361,971		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-75-89		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 17	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 25.6' (30.1' water)		16. DATE HOLE	STARTED 2 Dec 1989	COMPLETED 2 Dec 1989
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.6'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR David Beville, Geologist		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0' b	c	d	e	f	g	h
			Water				
			Bottom of Harbor 30.1'			NOTE: Scale change @ 30.0'.	
-30.1'	30		(SM) Grey, fine to coarse grained, slightly clayey SAND. Cemented sandy nodules up to 1/2" dia. & fine to med. shell fragments.		1	Set 6" casing to bottom of channel. Mixed Zeogel mud.	24
					2		28
					3		27
					4		36
					5		30
					6		25
					7		17
					8		4
-42.0'			(MH) Dark green, fine grained, sandy, fat SILT.		9		35
-44.0'			(SC) Dark green, fine grained clayey SAND.		10		14
	45				11		16
					12		8
					13		7
	50				14		8
					15		7
					16		9
					17		8
-55.6'	55		Bottom of Boring 55.6'			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30". ATTACHMENT-J-1	
			NOTE: Soils visually field classified in accordance with the Unified Soils Classification System				

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-328,254 E-2,361,967			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) <u>fish tail</u> MLW	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-75A-90			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 5 UNDISTURBED 0
5. NAME OF DRILLER D. Justiss			14. TOTAL NUMBER CORE BOXES 1	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 3.0' (30.1' water)			16. DATE HOLE	STARTED 31 May 1990 COMPLETED 31 May 1990
8. DEPTH DRILLED INTO ROCK 17.1'			17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 50.2'			18. TOTAL CORE RECOVERY FOR BORING 51%	
19. SIGNATURE OF INSPECTOR <i>V. Kelly</i> James Arthur, P.G.				

ELEVATION 0' (a)	DEPTH 0' (b)	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g BLOWS
			Water Bottom of Harbor 30.1'			NOTE: Scale changes @ 30.0' & 45.0'. Zeogel drilling mud used. Set 6" casing by own weight to 31.0'.
-30.1'	30		(SM) Dark grey & brown, silty fine to med. SAND. Some small to large shell fragments, slightly calcareous, trace of clay, wet.		1	Weight of rods drove splitspoon to 31.0', cont'd drive to 31.6'. 5
-31.6'	32		Light grey, some fine to coarse soft to mod. hard limestone gravel, trace of small to large shell fragments. Top of Rock 33.1'		2	21
-33.1'	34		(LIMESTONE) Light grey, fossiliferous, sandy, soft to mod. hard, friable, badly broken. 34.5'-37.1' Mod. hard, porous some small to large vugs, intensely to highly jointed. Badly broken at 34.5' to 34.6' & 35.6' to 36.0'. Near horizontal open joints at 34.6', 34.8', 35.2', 35.6', 36.0', 36.3', 36.6' & 37.1'.	REC 100% RQD 0.0	Box 1	Pull #1 From 33.1' To 34.5' Run 1.4' Rec 1.4' Taped 34.5' Drilling Time: 2 Min. Hyd. Pressure: 100 PSI Water Return: 100%
	36		(SM) Grey, silty, fine to med. SAND. Calcareous, some small large shell fragments, damp dense, stiff.	REC 75% RQD 29		Pull #2 From 34.5' To 39.0' Run 4.5' Rec 1.1' C.L. 3.4' Taped 30.9' Drilling Time: 7 Min. Hyd. Pressure: 100 PSI Water Return: 100%
-37.9'	38		Core Loss (See Remarks).	to C.D. 37.9'		NOTE: Recovered 2.3' of core loss during Pull #3
-39.0'			Continued on sheet #2 NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

0.0' MLW

Hole No. EC-75A-90

PROJECT Charleston Harbor Entrance Channel
Deepening and Widening

INSTALLATION
Charleston, S.C.

SHEET 2
OF 2 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
-39.0'	39'	c	d	e	f	g	
			No Recovery. (See Remarks) (LIMESTONE) Grey, fossiliferous	REC 0.0%		Pull #3 From 39.0' To 39.9'	
-39.9'			sandy, soft, friable, porous, badly broken.	REC 59%	Box 1	Run 0.9' Rec 2.3' C.G. 1.4' Taped 35.3'	
-40.5'	41		(SM) Grey, silty, fine to med. SAND. Calcareous, some small to large shell fragments, damp, dense, mod. stiff.	RQD 0.0		Blocked at 39.9' Drilling Time: 3 Min. Hyd. Pressure: 100 PSI Water Return: 100%	
-41.5'			Core Loss.			NOTE: Core recovery of 2.3' probably core left in hole from Pull #2.	
-42.6'	43		Core Loss.	REC 0.0%		Pull #4 From 39.9' To 42.6'	
					JARS	Run 2.7' Rec 1.6' C.L. 1.1' Taped 42.6'	
-45.7'	45		(SC) Olive green, clayey, fine SAND. Damp. (NON-Calcareous)		3	Blocked at 42.6' Drilling Time: 7 Min. Hyd. Pressure: 120 PSI Water Return: 100%	
					4	Pull #5	12
-48.7'			Dark brown to greenish-brown fine to med. sand.		5	From 42.6' To 45.7'	6
						Run 3.1' Rec 0.0'	5
-50.2'	50		Bottom of Boring 50.2'			C.L. 3.1' Taped 34.5'	
						Drilling Time: 2 Min. Hyd. Press: 150 PSI Water Return: 100%	
						Began splitspooning at 45.7'.	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon & 5" fishtail		
2. LOCATION (Coordinates or Station) N-326,967 E-2,361,965		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-76-89		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		UNDISTURBED
5. NAME OF DRILLER D. Justiss		16		0
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		14. TOTAL NUMBER CORE BOXES 0		
7. THICKNESS OF OVERBURDEN 24.0' (31.1' water)		15. ELEVATION GROUND WATER N/A		
8. DEPTH DRILLED INTO ROCK 0.0'		16. DATE HOLE		COMPLETED
9. TOTAL DEPTH OF HOLE 55.1'		1 Dec 1989		1 Dec 1989
		17. ELEVATION TOP OF HOLE 0.0'		
		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR <i>D. L. Belville</i> David Belville		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e	JAR	g	
			Water			NOTE: Scale change @ 30.0'. Set 6" casing to bottom of channel. Mixed Zeogel mud.	
	30		Bottom of Channel 31.1'				
-31.1'			(SC) Dark green, fine to med. grained, clayey SAND. Fine to med. shell fragments.		1		15
-34.0'			(SM) Grey, fine to med. grained silty SAND. Fine to med. shell fragments & calcareous reaction.		2		11
-35.6'	35		Cemented sand nodules up to 3/4" dia.		3		24
			Cemented sand nodules up to 3/4" dia, slightly clayey.		4		30
					5		17
					6		12
-42.0'	40				7		14
					8		16
					9		8
					10		12
					11		15
					12		11
					13		13
					14		17
-52.0'	50		(SC) Dark green, fine grained, calcareous, clayey SAND.		15		12
-53.5'			(ML) Dark green, fine grained, sandy, lean SILT.		16		9
-55.1'	55		Bottom of Boring 55.1' NOTE: Soils visually field classified in accordance with the Unified Soils Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30"	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-327,550 E-2,363,250		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-77-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 15	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 22.5' (33.0' water)		16. DATE HOLE	STARTED 28 Jan 1990	COMPLETED 28 Jan 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.5'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>				

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'						
			Water			NOTE: Scale change @ 30.0'.	
	30		Bottom of Harbor 33.0'				
			(SM) Grey to tannish-grey, silty, fine to med. SAND. Calcareous, some small & large shell fragments, wet.		1		22
-34.5'	35		Grey, trace of small shell fragments.		2	Set 6" casing by own weight to 33.5'.	31
-36.0'			Large amount of small & large shell fragments.		3		15
-37.5'					4		8
-39.0'	40		Greenish-grey, silty, fine to med. sand, some small shell fragments.		5		15
					6		15
	45		(CH) Dark greenish-brown, fat CLAY. Some fine sand, slightly calcareous, damp.		7		10
					8		11
					9		11
					10		11
-49.5'	50		(SC) Dark greenish-brown, clayey, fine to med. SAND. Damp.		11		10
					12		4
			Partially indurated & w/ several coarse size gravel particles at 55.0'.		13		4
-54.0'					14		5
-55.5'	55				15		9
			Bottom of Boring 55.5'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-325,939 E-2,363,829		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-78-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 15	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 22.5' (32.6' water)		16. DATE HOLE STARTED 1 Feb 1990 COMPLETED 1 Feb 1990		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.1'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>		

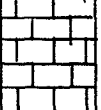

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'						
			Water				
			Bottom of Harbor 32.6			NOTE: Scale change @ 30.0'	
			(SM) Grey & light grey silty fine to med. SAND. Some fine to coarse limestone gravel, small shells & small shell fragments, calcareous, wet.				
-32.6'			Light grey, silty fine to med. sand, calcareous.		1	Set 6" casing by own weight to 33.1'	19
-34.1'			Grey, trace of fine to coarse limestone gravel.		2	Weight of rods drove splitspoon from 32.6' to 33.5', cont'd drive to 34.1'.	40
-35.6'			No gravel.		3		36
-38.6'			Trace of fine limestone gravel.		4		32
-40.1'			Trace of clay.		5	NOTE: Suspect thin limestone layers from 32.6' to 47.6'.	22
-41.6'			Trace of small & large shell fragments, no gravel.		6		20
-44.6'			Some small & large shell fragments, trace of fine limestone gravel & clay.		7		15
-46.1'					8		14
-47.6'					9		13
-50.6'			(SC) Greenish-grey, clayey, fine to med. SAND. Trace of small & large shell fragments, wet.		10		14
			Dark greenish brown clayey fine sand, damp		11		7
					12		9
					13		11
					14		8
					15		5
-55.1'	55'		Bottom of Boring 55.1'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-325, 938 E-2, 363, 831			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW 4x5 1/2" Dia. Bit Failing 314	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-78A-90			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED 3 UNDISTURBED 0	
5. NAME OF DRILLER D. Justiss			14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 4.5' (28.4' water)			16. DATE HOLE STARTED 21 May 1990 COMPLETED 21 May 1990	
8. DEPTH DRILLED INTO ROCK 17.5'			17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 50.4'			18. TOTAL CORE RECOVERY FOR BORING 70 %	
			19. SIGNATURE OF INSPECTOR <i>James Arthur, P.G.</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0' b	c	d	e	JAR	f	g
			Water			NOTE: Scale change @ 25.0' & 30.0'.	
	25		Bottom of Harbor 28.4'				
28.4'	30		(SM) Grey, silty, fine to med. SAND. Large amount of small shell fragments, calcareous, wet.		1	Set 6" casing to bottom of harbor. Weight of rods drove splitspoon to 28.9', cont'd. drive to 29.9' w/4 blows. No recovery.	0 4
-31.4'	32		Light grey to grey, trace of small shell fragments & fine to coarse limestone gravel.		2	Re-drove to 29.9' then cont'd. drive to 30.4' w/4 blows then 31.4' w/8 blows.	8 52
-32.9'			Top of Rock 32.9'				
	34		(LIMESTONE) Light grey, soft, friable, poorly cemented, sandy, clayey, badly broken 32.9'-35.0'.	REC 100% RQD 0.0		Pull #1 From 32.9' to 35.0' Run 2.1' Rec 2.1' Drilling Time: 16 Min. Hyd Pressure: 100 PSI Water Return: 100% Taped 35.0'	
			35.0'-37.8' Light grey to grey.				
	36		Intensely to highly jointed w/near horizontal open joints at 35.3', 35.7' & 36.1'. Mod. hard 35.0'-36.1'. Badly broken 36.1'-37.8'.	REC 64% RQD 0.0	Box 1	Pull #2 From 35.0' To 39.4' Run 4.4' Rec 2.8' C.L. 1.6' Drilling Time: 17 Min. Hyd. Pressure: 150 PSI Water Return: 100% Taped 38.5'	
38.0'	38		Continued on sheet #2 NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG (Cont Sheet) ELEVATION TOP OF HOLE 0.0' MLW Hole No. EC-78A-90

PROJECT Charleston Harbor Entrance Channel Deepening and Widening INSTALLATION Charleston, S.C. SHEET 2 OF 2 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-38.0'	38'	c	d	e	f	g
			Cont'd. (LIMESTONE)			Pull #2 Cont'd.
-39.4'	40		(SC) Grey to greenish-grey, clayey, fine to med. SAND. Trace of small to large shell fragments, calcareous, med. stiff & dense, wet.	REC 63%		Pull #3 From 39.4' To 44.6' Run 5.2' Rec 3.3' C.L. 1.9' Taped 39.5' Drilling Time: 16 Min. Hyd. Pressure: 150 PSI Water Return: 100%
	42			RQD 0.0	Box 2	
-44.6'	44		Greenish-grey.	REC 58%		Pull #4 From 44.6' To 48.9' Run 4.3' Rec 2.5' C.L. 1.8' Taped 48.7' Drilling Time: 14 Min. Hyd. Pressure: 150 PSI Water Return: 100%
	46			RQD 0.0		
-48.9'	48		Dark greenish-brown, clayey fine sand, slightly calcareous, damp.		JAR 3	Began using splitspoon @ 48.9'.
	50					10
-50.4'			Bottom of Boring 50.4'			

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-326,790 E-2,364,590		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-79-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 4	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 6.0' (31.7' water)		16. DATE HOLE STARTED 28 Jan 1990 COMPLETED 28 Jan 1990		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 37.7'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>		

ELEVATION 0.0'	DEPTH 0'	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			Water			NOTE: Boring terminated @ 37.7' due to strong currents causing casing to lean too much. NOTE: Scale change @ 30.0'.
-31.7'			Bottom of Harbor 31.7'			
-33.2'			(SM) Brown & light grey, silty fine to med. SAND. Calcareous, wet.		1	Set 6" casing by own weight at 31.9'.
			Light grey.		2	Weight of rods drove splitspoon from 31.7' to 33.2', cont'd. to 34.7'.
					3	
					4	
-37.7'			Bottom of Boring 37.7'			
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-326,784 E-2,364,601		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-79A-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 15	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 22.5' (32.4' water)		16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK 0.0'		STARTED 29 Jan 1990	COMPLETED 29 Jan 1990	
9. TOTAL DEPTH OF HOLE 54.9'		17. ELEVATION TOP OF HOLE 0.0'		
		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>		

ELEVATION 0.0'	DEPTH 0'	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS
			Water			NOTE: Scale change @ 30.0'.	
	30		Bottom of Harbor 32.4'				
-32.4'			(SM) Grey to light grey, silty, fine to med. SAND. Calcareous, trace of small & large shell fragments, wet.		1	Set 6" casing by own weight to 32.5'.	17
-33.9'			Light grey.		2		23
	35				3		19
					4		13
	40		(CH) Dark greenish-brown, fat CLAY. Some fine sand, slightly calcareous, damp.		5		8
-39.9'					6		29
					7		16
	45				8		13
			(SC) Dark greenish-brown, clayey fine to med. SAND. Damp.		9		17
-45.9'					10		7
					11		12
	50				12		9
					13		9
					14		5
	55				15		3
-54.9'			Bottom of Boring 54.9'			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			ATTACHMENT-J-1	
			J-1-74				

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2" fishtail	
2. LOCATION (Coordinates or Station) N-326,054 E-2,365,783			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-80-90			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED 17 UNDISTURBED 0	
5. NAME OF DRILLER D. Justiss			14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 24.5' (30.5' water)			16. DATE HOLE STARTED 15 May 1990 COMPLETED 15 May 1990	
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 54.5'			18. TOTAL CORE RECOVERY FOR BORING N/A %	
			19. SIGNATURE OF INSPECTOR for James Arthur, P.G. <i>J. McKelley</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e	JAK		
			Water			NOTE: Scale change @ 30.0'.	
			Bottom of Harbor 30.5'				
-30.5'	30		(SM) Grey & light grey, silty fine-med SAND. Large amount of small shell fragments, calcareous, wet.		1	Set 6" casing to 31.0' by own weight.	0
-32.0'			Light grey, trace of small shell fragments.		2	Weight of rods drove splitspoon from 30.5' to 31.5', cont'd. drive to 32.0'.	16
-33.5'			Trace of fine limestone gravel. (See remarks)		3	NOTE: Limestone gravel at 33.5' appears to be from occasional nodules rather than layers.	36
-35.0'	35		Grey.		4		32
			Some large shell fragments.		5		37
-39.5'			Trace of clay.		6		27
-40.5'	40		(SC) Olive green, clayey, fine med. SAND. Trace of large shell fragments, slightly calcareous, wet.		7		12
			(CL) Olive green to greyish-brown, lean CLAY. Some fine sand, slightly calcareous, damp.		8		6
-42.5'			(SC) Olive green to greyish-brown, clayey, fine SAND. Slightly calcareous, damp.		9		15
					10		15
					11		11
-47.0'	45				12		8
					13		9
					14		11
					15		9
					16		9
					17		9
-54.5'	55		Bottom of Boring 54.5' NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-325,052 E-2,365,620			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-81-90			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED 15 UNDISTURBED 0	
5. NAME OF DRILLER D. Justiss			14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 21.0' (34.5' water)			16. DATE HOLE STARTED 15 May 1990 COMPLETED 15 May 1990	
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 55.5'			18. TOTAL CORE RECOVERY FOR BORING N/A %	
			19. SIGNATURE OF INSPECTOR <i>James Arthur</i> James Arthur, P.G.	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e			
	30		Water			NOTE: Scale change @ 30.0'.	
	34.5'		Bottom of Harbor 34.5' (SM) Grey, silty, fine to med. SAND. Trace of small shell fragments, calcareous, wet.				
-34.5'	35		Trace of large shell fragments.		1	Set 6" casing to 34.5'.	20
-37.5'			No large shell fragments.		2		27
-39.0'			Trace of large shell fragments.		3		20
-40.5'	40		With some large shell fragments, & trace of clay.		4	Made new batch of Zeogel mud at 36.0'.	15
-42.0'			(SC) Olive green to greyish brown, clayey, fine SAND. Slightly calcareous, dry.		5		9
-43.2'			Damp.		6		4
-45.0'	45				7		18
					8		11
					9		13
					10		10
					11		11
					12		9
					13		8
					14		6
					15		
-55.5'	55		Bottom of Boring 55.5' NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			<u>BLOWS PER FOOT:</u> Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
LOCATION (Coordinates or Station) N-325,262 E-2,367,287		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-82-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 17	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 24.0' (31.4' water)		16. DATE HOLE	STARTED 14 May 1990	COMPLETED 14 May 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.4'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
19. SIGNATURE OF INSPECTOR Toni Nicholson, P.G. <i>Toni Nichol</i>				

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e	f	g	
			Water			NOTE: Scale change @ 30.0'. Mixed Zeogel drilling mud.	
-31.4'	30'		Bottom of Harbor 31.4'				
-32.9'			(SM) Dark grey, fine, saturated, slightly clayey silty SAND. Abundant shell fragments.		1		7
-34.4'			(SP) Light grey, fine to med., very calcareous, poorly graded SAND. Hard zones & trace of shell fragments, wet.		2	LAB CLASSIFICATION	32
			(SM) Light to med. grey, very fine to med., very calcareous, wet, silty SAND. Hard zones & trace of shell fragments.		3	No. Class LL PL PI	31
			Very fine to fine, more silt.		4	4 SM NP NP NP	34
			Grey, fine, more calcareous.		5	Specific Gravity=2.70	25
			Greenish-grey, very fine, w/ abundant shell fragments.		6		16
			(ML) Dark olive green, calcareous, glauconitic, slightly sandy, lean inorganic SILT. Damp, trace of shell fragments.		7		13
			Less sandy.		8		3
					9		11
					10		13
					11		15
					12		14
					13		11
					14		12
					15		9
					16		9
					17		
	55.4'		Bottom of Boring 55.4'			BLOWS PER FOOT:	
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-325,265 E-2,367,273			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-82A-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED 11 UNDISTURBED 0		
5. NAME OF DRILLER D. Justiss			14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 16.5' (33.5' water)			16. DATE HOLE STARTED 1 June 1990 COMPLETED 1 June 1990	
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 50.0'			18. TOTAL CORE RECOVERY FOR BORING N/A %	
			19. SIGNATURE OF INSPECTOR James Arthur, P.G.	

ELEVATION 0.0' _a	DEPTH 0' _b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g BLOWS
			Water Bottom of Harbor 33.5'			NOTE: Scale change @ 30.0'. Set 6" casing by own weight to 33.7'.
-33.5'	30		(SM) Light grey, silty, med. to coarse SAND. Calcareous, some small to large shell fragments & fine to coarse soft, sandy, limestone gravel, calcareous, wet.		1	26
-35.0'	35		Grey, trace of small shell fragments & fine limestone gravel.		2	Made new batch of Zeogel mud at 35.0'. 15
-36.5'			Fine to med. sand, trace of small to large shell fragments & fine to coarse, soft, limestone gravel.		3	25
-39.5'	40		Trace of fine limestone gravel, no shell fragments.		4	20
-41.0'			Light grey, large amount of small to large shell fragments, some soft, friable, fine to coarse limestone gravel.		5	17
-42.5'	45		(SC) Dark greenish-brown, clayey, fine SAND. Damp. (NON-Calcareous).		6	7
			Bottom of Boring 50.0'		7	4
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.		8	17
					9	14
					10	9
					11	12
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) 323,614 E2,368,177		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-83-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 13	UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 19.5' (35.0' water)		16. DATE HOLE	STARTED 11 May 1990	COMPLETED 11 May 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 54.5'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
19. SIGNATURE OF INSPECTOR Toni Nicholson, P.G. <i>Toni Nicholson</i>				

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'b	c	d	e			
			Water			NOTE: Scale change @ 35.0'. Mixed Zeogel drilling mud.	
-35.0'	35		Bottom of Harbor 35.0'				
			(SM) Grey, fine, slightly clayey, calcareous, silty SAND. Some shell fragments up to 3/4" dia., wet.		1		9
38.0			No recovery.		2	No recovery from 36.5' to 38.0'.	25
	40		Greenish-grey, w/small shell fragments, glauconitic.		3		52
					4		18
	45				5		16
					6		13
					7		8
-46.5'			(ML) Dark olive green, calcareous, damp, lean inorganic SILT. Sand grains. W/small phosphate nodules.		8		5
					9		
	50		Very little sand, no phosphate nodules found.		10		10
					11	LAB CLASSIFICATION	18
					12	No. Class LL PL PI	
					13	2 SM NP NP NP	15
					14	Specific Gravity=2.71	14
	55		Bottom of Boring 54.5'				13
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-323,609 E-2,368,186			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-83A-90			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER D. Justiss			DISTURBED 11 UNDISTURBED 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			14. TOTAL NUMBER CORE BOXES 0	
7. THICKNESS OF OVERBURDEN 15.0' (34.5' water)			15. ELEVATION GROUND WATER N/A	
8. DEPTH DRILLED INTO ROCK 0.0'			16. DATE HOLE	
9. TOTAL DEPTH OF HOLE 49.5'			STARTED 20 May 1990 COMPLETED 20 May 1990	
			17. ELEVATION TOP OF HOLE 0.0'	
			18. TOTAL CORE RECOVERY FOR BORING N/A %	
			19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>V. O'Keller</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS / (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'	c	d	e	JAR	f
			Water			
			Bottom of Harbor 34.5'			
	30		(SM) Grey, silty, med. SAND. Calcareous, some small to large shell fragments, wet.			NOTE: Scale change @ 30.0'. Made new batch of Zeogel mud.
	35		Trace of small to large shell fragments.		1	Set 6" casing by own weight to 35.4'. 18
-36.0'			Grey to greenish-grey, some small to large shell fragments, trace of clay.		2	24
-37.5'			Trace of fine, soft limestone gravel.		3	16
-40.5'			No limestone gravel.		4	16
	40				5	14
	45		(SC) Light greyish-green, clayey, med. SAND. Calcareous, large amount of small to large shell fragments, wet.		6	11
-45.0'					7	9
-46.0'			(CH) Dark greenish-brown, fat CLAY. Some fine to med. sand, slightly calcareous, damp.		8	7
	45				9	
-48.0'			Trace of fine sand.		10	14
	50				11	23
-49.5'			Bottom of Boring 49.5'			
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-324,422 E-2,368,832			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL MLW Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-84-90			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 16 UNDISTURBED 0
5. NAME OF DRILLER C.D. Justiss			14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 22.5' (33.0' water)			16. DATE HOLE STARTED 7 May 1990 COMPLETED 7 May 1990	
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 55.5'			18. TOTAL CORE RECOVERY FOR BORING N/A %	
			19. SIGNATURE OF INSPECTOR Toni Nicholson, P.G. <i>Toni Nicholson</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0d	0'b	c	d	e		g	
			Water			NOTE: Scale change @ 30.0'. Mixed Zeogel drilling mud.	
	30		Bottom of Harbor 33.0'				
	33.0'		(SM) Med. to dark grey, very fine to fine, silty SAND. Some shell fragments, wet, calcareous.		1		24
	34.5		W/minor sandy limestone chunks.		2		44
			Grey, fine.		3		40
			Slightly clayey, trace of shell fragments, no limestone chunks.		4		32
	40				5		24
					6		19
					7	LAB CLASSIFICATION	11
					8	No Class LL PL PI	11
	45		(SC) Grey, fine, calcareous, clayey SAND. Abundant shell fragments.		9	2 SM NP NP NP	3
	-45.0'				10		14
	-45.5'		(ML) Dark olive green, calcareous lean inorganic SILT. Trace of shell fragments.		11	Specific Gravity=2.71	19
					12		14
	50				13		15
					14		12
					15		11
	55		Bottom of Boring 55.5'		16		
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2" fishtail		OF 2 SHEETS
2. LOCATION (Coordinates or Station) N-324,421 E-2,368,823		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW 4X5 1/2" dia. bit		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-84A-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 4	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 1		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 3.0' (33.1' water)		16. DATE HOLE		STARTED 31 May 1990
8. DEPTH DRILLED INTO ROCK 13.6'		17. ELEVATION TOP OF HOLE 0.0'		COMPLETED 31 May 1990
9. TOTAL DEPTH OF HOLE 49.7'		18. TOTAL CORE RECOVERY FOR BORING 56 %		
		19. SIGNATURE OF INSPECTOR <i>James Arthur, P.G.</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'b	c	d	e	JAR	g
			Water			
			Bottom of Harbor 33.1'			NOTE: Scale change @30.0', 35.0' & 45.0'. Made new batch of Zeogel mud. Set 6" casing to 33.8'.
	30		(SM) Brown & light tannish grey, silty fine to med. SAND. Calcareous, trace of small shell fragments & fine, friable, limestone gravel, wet.			
-33.1'					1	Weight of rods drove splitspoon to 33.8'. 18
-34.6'	35		Grey, silty, med. to coarse, w/a trace of soft to mod. hard, fine to coarse limestone gravel & small shell fragments.		2	24
-36.1'			Top of Rock 36.1'	Rec 82%		Pull #1 From 36.1' To 37.8' Run 1.7' Rec 1.4' C.L. 0.3' Taped 37.8' Drilling Time: 10 Min. Hyd. Pressure: 100 PSI Water Return: 100%
	37		LIMESTONE- Grey, soft to mod. hard, sandy, clayey, friable, badly broken.	RQD 0.0		
	39				Box 1	Pull #2 From 37.8' To 42.3' Run 4.5' Rec 4.5' Taped 35.6' Drilling Time: 8 Min. Hyd. Pressure: 50 PSI Water Return: 100%
	41			RQD 0.0		
-42.3'			No Recovery.			Pull #3 From 42.3' To 46.7' Cont'd.
-43.0'	43		Continued on sheet #2 NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30". ATTACHMENT-J-1

DRILLING LOG (Cont Sheet)

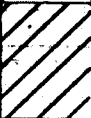
ELEVATION TOP OF HOLE 0.0' MLW

Hole No. EC-84A-90

PROJECT Charleston Harbor Entrance Channel, Deepening and Widening

INSTALLATION Charleston, S.C.

SHEET 2 OF 2 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY e	BOX OR SAMPLE NO. J&R	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	Blows
-43.0'	48'	c	Con't. d				
	45'		Cont'd. No Recovery	RQD 0.0	Box 1	Cont'd. Run 4.4' Rec 0.0' C.L. 4.4' Taped 36.8' Drilling Time: 2 Min. Hyd. Pressure: 50 PSI Water Return: 100%	
-46.7'			(CL)Olive green, lean CLAY. Some fine sand, slightly calcareous & damp.		3		15
-49.7'	50'				4		16
			Bottom of Boring 49.7'				

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5' fish-tail		
2. LOCATION (Coordinates or Station) N-303,360 E-2,407,447		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-85-89		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 10	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 15.0' (40.1' water)		16. DATE HOLE STARTED 12 Dec 1989 COMPLETED 12 Dec 1989		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.1'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR David Belville, Geologist <i>D. L. Belville</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'		Water			NOTE: Scale change @ 40.0'. Set 6" casing to bottom of channel. Mixed Zeogel mud.	
-40.1'	40		Bottom of Harbor 40.1'				
			(SM) Grey, fine grained, silty SAND. Less than 5% small shell fragments & less than 5% clay lenses up to 3/8" dia.		1		64
					2		38
					3		30
					4		34
					5		30
-47.6'			(SP) Light grey, slightly clayey, poorly graded SAND. Cemented calcareous rock fragments up to 3/8" dia.		6		74
					7		66
					8		54
					9		63
					10		43
-55.1'	55		Bottom of Boring 55.1'				
			NOTE: Soils visually field classified in accordance with the Unified Soils Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-303,360 E-2,407,432			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-85A-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES 0
5. NAME OF DRILLER D. Justiss		15. ELEVATION GROUND WATER N/A		16. DATE HOLE
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		17. ELEVATION TOP OF HOLE -0.0'		18. TOTAL CORE RECOVERY FOR BORING N/A %
7. THICKNESS OF OVERBURDEN 12.0'(38.8'water)		19. SIGNATURE OF INSPECTOR <i>James Arthur, P.C.</i>		19. SIGNATURE OF INSPECTOR <i>Robert V. O'Kelley</i>
8. DEPTH DRILLED INTO ROCK 0.0'		19. SIGNATURE OF INSPECTOR <i>James Arthur, P.C.</i>		19. SIGNATURE OF INSPECTOR <i>Robert V. O'Kelley</i>
9. TOTAL DEPTH OF HOLE 50.8'		19. SIGNATURE OF INSPECTOR <i>James Arthur, P.C.</i>		19. SIGNATURE OF INSPECTOR <i>Robert V. O'Kelley</i>

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'b	c	d	e			
			Water			NOTE: Made new batch Zeogel mud at start of boring.	
			Bottom of Harbor 38.8'				
	35		(SP) Brown, poorly graded, fine to med. SAND. Some shell fragments, trace of silt, slightly calcareous, wet.				
-38.8'			Grey and brown, trace of small shell fragments.		1	Set 6" casing by own weight to 40.5'.	1
-40.3'	40		(SM) Grey, silty, fine to med. SAND. Trace of small shell fragments, slightly calcareous, wet.		2	Weight of rods drove splitspoon to 40.1',	100
-41.8'					3	cont'd. drive to 40.3' w/one hammer blow.	40
-44.8'	45		(SP) Grey, poorly graded, fine SAND. Trace of silt & small shell fragments, slightly calcareous, wet.		4	Initial drive to 40.3' had no recovery.	38
-46.3'					5	Re-drove splitspoon to 40.3' then cont'd.	
-47.8'			Fine to med. sand, few light grey streaks.		6	drive to 41.8' w/good recovery from 38.8' to 41.8'. Blow count from 40.3' to 40.8' was 15 then 100 blows from 40.8' to 41.8'.	45
-50.8'	50		(SM) Light grey & tan, silty, med. to coarse SAND. Calcareous trace of fine to coarse, soft-mod. hard, friable limestone gravel & small to large shell fragments, wet.		7		61
					8		78
			Bottom of Boring 50.8'				
NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.							

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5" fish-tail, 4X5 core bbl		
2. LOCATION (Coordinates or Station) N-304,325 E-2,405,730		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-86-89		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 7	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 1		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 15.0' (40.1' water)		16. DATE HOLE STARTED 13 Dec 1989 COMPLETED 13 Dec 1989		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.1'		18. TOTAL CORE RECOVERY FOR BORING 80% %		
		19. SIGNATURE OF INSPECTOR <i>W. L. Bell</i> David Belville, Geologist		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0' b	c	d	e	JAR	g
			Water			
			Bottom of Harbor 40.1'			NOTE: Scale change @ 40.0'. Set 6" casing to bottom of channel. Mixed Zeogel mud.
-40.1'	40		(SM) Dark green, fine to med. silty SAND. Small shell fragments.		1	
-43.1'			Grey.		2	
	45		Greenish-grey.		3	
-46.1'					4	
-47.6'					5	
-49.1'			(SP) Light grey, fine to coarse fossiliferous, poorly graded SAND. Limestone rock fragments.		6	
-50.2'	50		Dark grey. Top of Rock 50.2'	100%	7	100/0.7
			(LIMESTONE) Dark grey, fine to coarse grained, sandy, porous, friable, fossiliferous w/ small to med. shell fragments.	100%	Box 1	100/0.6
-55.1'	55		Bottom of Boring 55.1'	62%		
			NOTE: Soils visually field classified in accordance with the Unified Soils Classification Systems.			
						Pull #1 From 50.2' To 51.3' Run 1.1' Rec 1.1' C.L. 0.0' Pull #2 From 51.3' To 52.5' Run 1.2' Rec 1.2' C.L. 0.0' Pull #3 From 52.5' To 55.1' Run 2.6' Rec 1.6' C.L. 1.0' BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5" fish-		
2. LOCATION (Coordinates or Station) N-303,940 E-2,404,050		11. DAYUM FOR ELEVATION SHOWN (TBM or MSL) MLW tail, 4X5 1/2" core		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-87-89		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 5	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 1		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 7.2' (41.3' water)		16. DATE HOLE STARTED 15 Dec 1989 COMPLETED 15 Dec 1989		
8. DEPTH DRILLED INTO ROCK 6.5'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.0'		18. TOTAL CORE RECOVERY FOR BORING 100% %		
19. SIGNATURE OF INSPECTOR <i>D. L. Belville</i> David Belville, Geologist				

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0' b	c	d	e		g BLOWS
			Water			NOTE: Scale change @ 40.0'. Set 6" casing to bottom of channel. Mixed Zeogel mud.
-41.3'	40		Bottom of Harbor 41.3'			
			(SM) Dark grey, fine grained silty SAND. Small shell fragments.		1	53
					2	38
	45		(SP) Light to dark grey, fine to coarse, slightly clayey poorly sorted fossiliferous limestone SAND & GRAVEL.		3	35
					4	24
-47.3'			Top of Rock 48.5'		5	100/0.8
-48.5'	50		(LIMESTONE) Light to dark grey, fine to coarse grained, sandy, porous, fossiliferous, w/small to med. shell fragments.	100%	Box 1	Pull #1 From 48.5' To 53.3' Run 4.5' Rec 4.5' C.L. 0.0'
				100%		Pull #2 From 53.3' To 55.0' Run 1.7' Rec 1.7' C.L. 0.0'
-55.0'	55		Bottom of Boring 55.0'			
			NOTE: Soils visually field classified in accordance with the Unified Soils Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-303,933 E-2,404,062		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-87A-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 6	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 1		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 7.5' (40.5' water)		16. DATE HOLE STARTED 3 June 1990 COMPLETED 3 June 1990		
8. DEPTH DRILLED INTO ROCK 2.4'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 50.4'		18. TOTAL CORE RECOVERY FOR BORING 100 %		
		19. SIGNATURE OF INSPECTOR <i>James Arthur, P.G.</i> <i>J. O'Kelley</i>		

ELEVATION 0.0' ^d	DEPTH 0' ^b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS
			Water		JAR	NOTE: Scale changes @ 40.0' and 45.0'. Set 6" casing by own weight to 43.1'.	
-40.5'	40		Bottom of Harbor 40.5'				
			(SP) Grey, poorly graded, fine to med. SAND. Trace of small shell fragments & silt, slightly calcareous, wet.		1	No initial recovery from 40.5' to 42.0'.	8
					2	Went back in w/split-spoon to 42.0' then	27
					3	drove to 43.5'.	82
-45.0'	45		Calcareous.			Rec. samples from 40.5' to 43.5'. Had blow count of 21 from 42.0' to 42.5' then 82 blows from 42.5' to 43.5'.	32
			(SM) Grey, silty, med. to coarse SAND. Calcareous, trace of mod. hard, sandy, fine limestone gravel & small shell fragments, wet.		4		24
-46.5'	47				5		
			Top of Rock 48.0'		6		94
-48.0'	49		(LIMESTONE) Tannish-grey, fossiliferous, hard, porous, large amount of small to large vugs, intensely to highly jointed w/low open joints at 48.5', 48.8', 48.9', 49.1', 49.3', 49.5' & 49.9'.	REC 100% RQD 50	BOX 1	Pull #1 From 48.0' To 50.4' Run 2.4' Rec 2.4' Taped 50.4' Drilling Time: 3 Min. Hyd. Pressure: 90 PSI Water Return: Lost about 80% @ 49.5'.	
-50.4'	51		Near vertical open joint from 48.0' to 48.4'.				
			Bottom of Boring 50.4'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5" fish-tail	
2. LOCATION (Coordinates of Station) N-305,220 E- 2,404,025		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW	
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-88-89		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: 10 UNDISTURBED: 0	
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 15.0' (40.4' water)		16. DATE HOLE STARTED: 15 Dec 1989 COMPLETED: 15 Dec 1989	
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 55.4'		18. TOTAL CORE RECOVERY FOR BORING N/A %	
		19. SIGNATURE OF INSPECTOR David Belville, Geologist	

ELEVATION 0.0' a	DEPTH 0' b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS h
			Water			NOTE: Scale change @ 40.0'. Weight of rods & hammer drove splitspoon from: 40.4' to 41.9'	
-40.4'	40		Bottom of Harbor 40.4'				
-41.9'			(SM) Dark grey, fine grained silty SAND.		1	Set 6" casing to bottom of channel. Mixed Zeogel mud.	
			Approx. 30% small shell fragments.		2		10
	45				3		33
					4		30
					5		26
-49.4'					6		24
-50.9'	50		(SP) Light grey, slightly clayey, poorly graded, calcareous SAND. & GRAVEL. Some small to coarse shell fragments.		7		27
					8		48
					9		34
					10		64
-55.4'	55		Limestone rock fragments.				
			Bottom of Boring 55.4'				
			NOTE: Soils visually field classified in accordance with the Unified Soils Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S. C.	SHEET 1 OF 1 SHEETS	
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW Fishtail	
2. LOCATION (Coordinates or Station) N-305,030 E-2,402,070		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314			
3. DRILLING AGENCY Savannah District		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 9	UNDISTURBED 0
4. HOLE NO. (As shown on drawing title and file number) EC-89-90		14. TOTAL NUMBER CORE BOXES 0			
5. NAME OF DRILLER D Justiss		15. ELEVATION GROUND WATER N/A			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		16. DATE HOLE		STARTED 24 Jan 1990	COMPLETED 24 Jan 1990
7. THICKNESS OF OVERBURDEN 13.5' (41.9' water)		17. ELEVATION TOP OF HOLE 0.0'			
8. DEPTH DRILLED INTO ROCK 0.0'		18. TOTAL CORE RECOVERY FOR BORING N/A %			
9. TOTAL DEPTH OF HOLE 55.4'		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>			

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0.0'		Water			BLOWS
			Bottom of Harbor 41.9'			NOTE: Scale change @ 40.0'.
	40		(SP) Greenish-grey, poorly graded fine to med. SAND, some small shell fragments, trace of silt, slightly calcareous, wet.			
-41.9'			Grey.			
-43.4'					1	Set 6" casing by own weight to 42.7'.
-44.9'	45		(SM) Grey, silty, fine to med. SAND. Some small shells & small shell fragments, calcareous, wet		2	NOTE: Suspect thin limestone layers from 47.9' to 55.4'
-46.4'					3	
-47.9'			Fine sand, trace of small shell fragments.		4	
-49.4'					5	
-50.9'	50		Grey to light grey, med. to coarse sand, trace of fine to coarse limestone, gravel		6	
			No gravel.		7	
-53.9'			Trace of fine to coarse limestone gravel.		8	
-55.4'	55		Dark grey.		9	
			Bottom of Boring 55.4'			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-305,044 E-2,402,054			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-89A-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. DISTURBED 7
5. NAME OF DRILLER D. Justiss			15. ELEVATION GROUND WATER N/A	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE STARTED 2 June 1990 COMPLETED 2 June 1990	
7. THICKNESS OF OVERBURDEN 9.0' (40.8' water)			17. ELEVATION TOP OF HOLE 0.0'	
8. DEPTH DRILLED INTO ROCK 0.0'			18. TOTAL CORE RECOVERY/FOR BORING N/A %	
9. TOTAL DEPTH OF HOLE 49.8'			19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>J. Arthur</i>	

ELEVATION 0.0d	DEPTH 0'b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS
			Water			NOTE: Scale change @ 40.0'. Set 6" casing by own weight to 41.8'.	
	40		Bottom of Harbor 40.8'				
-40.8'			(SP) Grey, poorly graded, fine to med. SAND. Trace of silt & small shell fragments, slightly calcareous, wet.		1	Made new batch of	26
			Med. to coarse sand. Some fine quartz gravel & trace of small to large shell fragments.		2	Zeogel mud at 42.3'.	34
	45				3		36
					4		28
-46.8'					5		
-47.3'					6		61
-48.3'			(SM) Light grey & grey, silty, med. to coarse SAND. Calcareous some small to large shell fragments, trace of fine to coarse, soft to mod. hard. sandy limestone gravel.		7		55
-49.8'	50		Light grey, some fine to coarse soft to mod. hard, friable limestone gravel.				
			Bottom of Boring 49.8'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-306,070 E-2,402,455		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW Fishtail	
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-90-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 11 UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 16.5' (39.2' water)		16. DATE MOLE STARTED 24 Jan 1990 COMPLETED 24 Jan 1990	
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 55.7'		18. TOTAL CORE RECOVERY FOR BORING N/A %	
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0' b	c	d	e		g
			Water			
			Bottom of Harbor 39.2'			NOTE: Scale change @ 35.0'.
	35		(SP) Greenish-grey, poorly graded fine to med. SAND. Some small shell fragments, trace of silt, slightly calcareous, wet.			
			Grey			
-39.2'			Fine sand, trace of small shell fragments		1	
-40.7'	40		(SM) Grey, silty, fine to med. SAND. Trace of small shell fragments calcareous, wet.		2	Set 6" casing by own weight to 40.1'.
-42.2'					3	Weight of rods drove splitspoon to 39.5'.
-43.7'			(SP) Grey, poorly graded, fine SAND. Trace of silt, calcareous, wet		4	cont'd drive to 40.7'.
	45				5	NOTE: Suspect thin limestone layers from 51.2' to 55.7'.
-46.7'			(SM) Grey to dark grey, silty fine to med SAND Trace of small shell fragments, calcareous, wet.		6	
-48.2'					7	
-49.7'	50		Medium to coarse sand, large amount of small shell fragments.		8	
-51.2'					9	
-52.7'			Light grey, some fine to coarse limestone gravel, trace of small shell fragments.		10	
	55				11	
-55.7'			Trace of limestone gravel, no shell fragments.			
			Bottom of Boring 55.7'			
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-306,086 E-2,402,452		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-90A-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 9	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 12.0' (38.0' water)		16. DATE HOLE		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0		
9. TOTAL DEPTH OF HOLE 50.0'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR <i>James Arthur, P.G.</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'b	c	d	e	JAR	g	
			Water				
			Bottom of Harbor 38.0'				
	35		(SP) Greenish-grey, poorly graded, fine to med. SAND. Some small shell fragments, trace of silt, slightly calcareous, wet.			NOTE: Scale change @ 35.0'	
-38.0'			Fine sand, trace of small shell fragments, calcareous.		1	Set 6" casing by own weight to 39.2'.	39
-41.0'	40		Grey to greenish-grey, fine to med. sand, some small shell fragments.		2		40
-42.5'			Fine sand, no shell fragments.		3	Made new batch of Zeogel mud at 39.5'.	17
-44.0'			Fine to med. sand, trace of small shell fragments.		4		26
-47.0'	45		(CH) Green fat CLAY. Slightly calcareous, trace of fine to coarse sand & small shell fragments, damp.		5		43
-48.5'					6		35
-48.7'					7		19
-50.0'	50		(SP) Grey to dark grey, poorly graded med. to coarse SAND. Large amount of small to large shell fragments, calcareous, trace of silt, wet.		8		20
			Bottom of Boring 50.0'		9		
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS				
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2" 11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail						
2. LOCATION (Coordinates or Station) 05,550 E-2,401,250		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314						
3. DRILLING AGENCY Savannah District		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN <table border="1"><tr><td>DISTURBED</td><td>9</td></tr><tr><td>UNDISTURBED</td><td>0</td></tr></table>			DISTURBED	9	UNDISTURBED	0
DISTURBED	9							
UNDISTURBED	0							
4. HOLE NO. (As shown on drawing title and file number) EC-91-90		14. TOTAL NUMBER CORE BOXES 0						
5. NAME OF DRILLER D. Justiss		15. ELEVATION GROUND WATER N/A						
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		16. DATE HOLE <table border="1"><tr><td>STARTED</td><td>27 Jan 1990</td></tr><tr><td>COMPLETED</td><td>27 Jan 1990</td></tr></table>			STARTED	27 Jan 1990	COMPLETED	27 Jan 1990
STARTED	27 Jan 1990							
COMPLETED	27 Jan 1990							
7. THICKNESS OF OVERBURDEN 13.5' (41.8' water)		17. ELEVATION TOP OF HOLE 0.0'						
8. DEPTH DRILLED INTO ROCK 0.0'		18. TOTAL CORE RECOVERY FOR BORING N/A %						
9. TOTAL DEPTH OF HOLE 55.3'		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>						

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e			g
			Water			NOTE: Scale change @ 40.0'.	
	40		Bottom of Harbor 41.8'				
-41.8'			(SP) Grey, poorly graded, fine to med. SAND. Trace of small shell fragments & silt, slightly calcareous, wet.		1	Set 6" casing by own weight to 43.6'. NOTE: Suspect thin limestone layers from 46.3' to 55.3'.	6
	44.8				2		72
	45				3		30
-46.3'			Trace of small & large shell fragments.		4		74
-47.8'					5		52
	50		(SM) Grey, silty, fine to med. SAND. Some small shell fragments, trace of fine to coarse limestone gravel, calcareous, wet.		6		38
					7		46
					8		30
	55		Light grey, med. to coarse sand, trace of small shell fragments.		9		62
-55.3'			Bottom of Boring 55.3'			<u>BLOWS PER FOOT:</u> Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-305,526 E-2,401,257			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW 4x5 1/2" dia bit	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-91A-90			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED 5 UNDISTURBED 0	
5. NAME OF DRILLER D. Justiss			14. TOTAL NUMBER CORE BOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 9.7'(40.7'water)			16. DATE HOLE STARTED 30 May 1990 COMPLETED 30 May 1990	
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 50.4'			18. TOTAL CORE RECOVERY FOR BORING 0 %	
			19. SIGNATURE OF INSPECTOR <i>James Arthur, P.G.</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0.0'	0'	c	d	e	JAR	g BLOWS
			Water			NOTE: Scale change @ 40.0'
			Bottom of Harbor 40.7'			Set 6" casing by own weight to 43.6'.
-40.7'	40		(SP) Grey, poorly graded, fine SAND. Trace of small shell fragments & silt, slightly calcareous, wet.		1	Weight of rods drove splitspoon to 41.2', cont'd drive to 42.2' w/one hammer blow. No recovery on initial drive to 42.2'. Re-drove to 42.2' then cont'd drive to 43.7' w/ five blows from 42.2' to 42.7' then fifteen blows from 42.7' to 43.7'. Used Zeogel mud.
-43.7'	45		Fine to med. sand.		2	
-46.7'			(SM) Light grey, silty, fine to med. SAND. Calcareous, trace of fine to coarse, soft, limestone fragments, wet.		3	
-48.2'					4	
			No Recovery.	REC 0.0%	5	
-50.4'	50		Bottom of Boring 50.4'			Pull #1 From 48.2' To 50.4' Run 2.2' Rec 0.0' C.L. 2.2' Taped 33.9' Drilling Time: 5 Min Hyd. Pressure: 100 PSI
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-306,685 E-2,401,300		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-92-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 12	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 18.0' (38.0' water)		16. DATE HOLE STARTED 27 Jan 1990		COMPLETED 27 Jan 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 56.0'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0' b	c	d	e			
			Water Bottom of Harbor 38.0'			NOTE: Scale change @ 35.0'.	
	35		(SP) Grey, poorly graded, fine to med. SAND. Trace of silt & small shell fragments, slightly calcareous, wet.				
			(SM) Grey, silty, fine to med. SAND. Some small shells & shell fragments, slightly calcareous, wet.		1	Set 6" casing by own weight to 38.8'.	35
-38.0'					2		24
-39.5'	40		(SP) Same as 38.0' to 39.5'.		3	NOTE: Suspect thin limestone layers from 48.5' to 56.0'.	19
-41.0'			(SM) Grey, silty, fine SAND. Calcareous, wet.		4		27
-44.0'			Fine to med. sand, trace of small shell fragments.		5		13
-45.5'	45		Fine sand, no shell fragments.		6		18
-47.0'					7		42
-48.5'			Light grey, silty fine to med. sand, calcareous, trace of fine to coarse limestone gravel & small shell fragments.		8		36
-50.0'	50				9		57
-51.5'			(GM) Light grey, silty, fine to coarse limestone GRAVEL. Calcareous, some med. to coarse sand, trace of small shell fragments, wet.		10		78
					11		50
	55				12		54
-56.0'			(SM) Light grey, silty, fine to med. SAND. Calcareous, trace of fine to coarse limestone gravel & small shell fragments, wet.				
			Bottom of Boring 56.0'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-306,100 E-2,400,240		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-93-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 10	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 15.0' (40.9' water)		16. DATE HOLE STARTED 8 Feb 1990 COMPLETED 8 Feb 1990		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.9'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'						
			Water				
	40		Bottom of Harbor 40.9'			NOTE: Scale change @ 40.0'.	
-40.9'			(SM) Grey, silty, fine SAND. Trace of small shell fragments, calcareous, wet.		1	Set 6" casing by own weight to 42.5'.	4
					2	Mixed Zeogel mud at 40.9'.	51
	45		Grey & light grey, fine to med. sand, trace of small & large shell fragments.		3	Weight of rods drove splitspoon from 40.9' to 41.6', cont'd drive to 42.4'.	22
-46.9'					4		38
					5		45
-48.4'			Light grey, med. to coarse sand, trace of fine limestone gravel.		6	NOTE: Suspect thin limestone layers from 48.4' to 55.9'.	51
-49.9'	50				7		44
					8		53
			Some fine to coarse limestone gravel.		9		41
	55				10		45
-55.9'			Bottom of Boring 55.9'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 3/8" splitspoon, 5 1/2"	
2. LOCATION (Coordinates or Station) N-306,080 E-2,400,250			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail	
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) EC-93A-90			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 6
5. NAME OF DRILLER D. Justiss			14. TOTAL NUMBER CORE BOXES	UNDISTURBED 0
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A	
7. THICKNESS OF OVERBURDEN 9.0' (41.5' water)			16. DATE HOLE STARTED 4 June 1990 COMPLETED 4 June 1990	
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE 0.0'	
9. TOTAL DEPTH OF HOLE 50.5'			18. TOTAL CORE RECOVERY FOR BORING N/A %	
			19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>J. O'Kelle</i>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e	f	g	
			Water		1/2"		
			Bottom of Harbor 41.5'			NOTE: Scale change @ 40.0'. Made new batch of Zeogel mud.	
-41.5'	40		(SP) Grey poorly graded, fine to med. SAND. Some small to large shell fragments, trace of silt, calcareous, wet.		1		25
-43.0'			Trace of small shell fragments.		2	Set 6" casing by own weight to 43.3'.	46
	45				3		29
-47.5'			(SM) Grey to light grey, silty, fine to med. SAND. Calcareous, trace of fine, soft to mod. hard, friable limestone gravel, clay & small shell fragments, wet.		4		28
-49.0'					5		19
-50.0'	50		(GM) Light grey, silty, soft to mod. hard, friable, fine to coarse limestone GRAVEL. Calcareous, trace of clay & small to large shell fragments, wet.		6		7
			Bottom of Boring 50.5'			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-307,150 E-2,400,360		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-94-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 12	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 18.0' (38.0' water)		16. DATE HOLE	STARTED 13 Feb 1990	COMPLETED 13 Feb 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 56.0'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e			
			Water			NOTE: Scale change @ 35.0'.	
	35		Bottom of Harbor 38.0'				
-38.0'			(SP) Grey, poorly graded fine to med. SAND. Large amount of small to large shell fragments, calcareous, trace of silt, wet.		1	Set 6" casing by own weight to 38.3'.	28
-39.5'	40		(SM) Grey, silty, fine to med. SAND. Trace of small shell fragments, calcareous, wet.		2		28
			Trace of small & large shell fragments.		3	NOTE: Suspect thin limestone layers from 48.5' to 56.0'.	31
			Grey & light grey.		4	Mixed Zeogel mud at 39.5'.	26
-45.5'	45		Light grey, med. to coarse sand, trace of fine to coarse limestone gravel & trace of small shell fragments.		5		28
-47.0'					6		25
-48.5'					7		61
	50				8		50
					9		66
					10		51
					11		67
	55				12		48
-56.0'			Bottom of Boring 56.0'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.		SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening			10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-306,570 E-2,399,400			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail		
3. DRILLING AGENCY Savannah District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number)		EC-95-90	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 10 UNDISTURBED 0
5. NAME OF DRILLER D. Justiss			14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 15.0' (40.7' water)			16. DATE HOLE STARTED 13 Feb 1990 COMPLETED 13 Feb 1990		
8. DEPTH DRILLED INTO ROCK 0.0'			17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.7'			18. TOTAL CORE RECOVERY FOR BORING N/A %		
			19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e			
			Water Bottom of Harbor 40.7'				
			(SP) Grey, poorly graded, fine to med. SAND. Trace of silt, large amount of small shell fragments, calcareous, wet.			NOTE: Scale change @ 40.0'.	
-40.7'	40		(SM) Grey, silty, fine SAND. Trace of small shell fragments, calcareous, wet.		1	Set 6" casing by own weight to 42.0'.	20
-42.2'			Grey to light grey, fine to med. sand.		2	Weight of rods drove splitspoon from 40.7' to 41.3', cont'd drive to 42.2'.	26
-46.7'	45		Light grey, med. to coarse sand, trace of fine to coarse limestone gravel.		3		30
-48.2'			(GM) Light grey, silty, fine to coarse limestone GRAVEL. Some med. to coarse sand, trace of small shell fragments, calcareous, wet.		4	Mixed Zeogel mud at 46.7'.	37
-49.7'	50		(SM) Light grey, silty, med. to coarse SAND. Some fine to coarse limestone gravel, trace of small shell fragments, calcareous, wet.		5	NOTE: Suspect thin limestone layers from 48.2' to 55.7'.	83
-52.7'					6		42
-55.7'	55				7		48
					8		63
					9		64
					10		31
			Bottom of Boring 55.7'			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-307,720 E-2,399,315		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-96-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 9	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 13.5' (41.2' water)		16. DATE HOLE STARTED 14 Feb 1990 COMPLETED 14 Feb 1990		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 54.7'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>				

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'	c	d	e			g
			Water			NOTE: Scale change @ 40.0'.	
	40		Bottom of Harbor 41.2'				
-41.2'			(SP) Grey, poorly graded, fine to med. SAND. Trace of small shell fragments & silt, calcareous, wet.		1	Set 6" casing by own weight to 41.8'.	12
					2	Weight of rods drove splitspoon from 41.2' to 41.6', cont'd to 42.7'. Mixed Zeogel mud at 44.2'.	34
-45.7'	45				3		17
			(SM) Grey to light grey, silty med. to coarse SAND. Large amount of small & large shell fragments, calcareous, some fine limestone gravel, wet.		4		40
-47.2'					5	NOTE: Suspect thin lime-stone layers from 45.7' to 51.7'.	5
-48.7'					6		16
-50.2'	50		Some fine quartz & limestone gravel.		7		23
-51.7'			Some small shell fragments. Light grey, silty, med. to coarse sand, trace of fine limestone gravel & small shell fragments, calcareous, wet.		8		66
					9		91
-54.7'	55		No gravel.				
			Bottom of Boring 54.7'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-307, 171 E-2, 398, 168		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) fishtail MLW		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-97-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 9	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 13.5' (41.8' water)		16. DATE HOLE STARTED 14 Feb 1990 COMPLETED 14 Feb 1990		
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.3'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0'						
			Water Bottom of Harbor 41.8'			NOTE: Scale change @ 40.0'.	
	40'		(SP) Tannish-grey, poorly graded fine to med. SAND. Large amount of small shell fragments, trace of SILT. Calcareous, wet.				
-41.8'			Grey, trace of small shell fragments.		1	Mixed Zeogel mud at 41.8'. Set 6" casing by own weight to 42.5'.	30
-43.3'			(SM) Grey, silty, fine to med. SAND. Large amount of small & large shell fragments, calcareous, wet.		2		27
-44.8'	45'		(SC) Grey, clayey, fine to med. SAND. Some small shell fragments, calcareous, wet.		3	NOTE: Suspect thin limestone layers from 47.8' to 55.3'.	15
-46.3'			(SM) Grey, silty, med. to coarse SAND. Large amount of small shell fragments, trace of fine limestone gravel, calcareous, wet.		4		21
-47.8'			(SM) Grey, silty, med. to coarse SAND. Large amount of small shell fragments, trace of fine limestone gravel, calcareous, wet.		5		17
-49.3'	50'		(SM) Grey, silty, med. to coarse SAND. Large amount of small shell fragments, trace of fine limestone gravel, calcareous, wet.		6		18
-50.8'			(SM) Grey, silty, med. to coarse SAND. Large amount of small shell fragments, trace of fine limestone gravel, calcareous, wet.		7		3
-52.3'			(SM) Grey, silty, med. to coarse SAND. Large amount of small shell fragments, trace of fine limestone gravel, calcareous, wet.		8		2
-53.8'			Light grey to grey, some small shell fragments, trace of fine to coarse limestone gravel.		9		11
-55.3'	55'		(GM) Grey, silty, fine to coarse limestone GRAVEL. Some med. to coarse sand & small to large shell fragments, trace of clay, calcareous, wet.				
			Light grey, trace of small shell fragments.				
			(SM) Light grey, silty, med. to coarse SAND. Some fine to coarse limestone gravel, calcareous, wet.				
			Bottom of Boring 55.3'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				
						BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-307,980 E-2,397,825		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-98-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 6	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 9.0' (46.6' water)		16. DATE HOLE	STARTED 15 Feb 1990	COMPLETED 15 Feb 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 55.6'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>				

ELEVATION 0.0'	DEPTH 0' b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	BLOWS
			Water			NOTE: Scale change @ 45.0'.	
			Bottom of Harbor 46.6'				
	45		(SM) Tannish-grey, grey & light grey, silty med, to coarse SAND. Some small & large shell fragments, calcareous, trace of fine limestone gravel, wet.		1	Set 6" casing by own weight to 47.0'.	36
-46.6'					2	Suspect thin layers of limestone from 46.6' to 55.6'.	32
-48.1'			Light grey, trace of small shell fragments and fine to coarse limestone gravel.		3		30
-49.6'	50		Trace of clay.		4		38
-50.1'			No clay.		5		49
	55				6		60
-55.6'			Bottom of Boring 55.6'				
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston, S.C.	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Entrance Channel Deepening and Widening		10. SIZE AND TYPE OF BIT 1 3/8" splitspoon, 5 1/2"		
2. LOCATION (Coordinates or Station) N-308,840 E-2,397,360		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MLW Fishtail		
3. DRILLING AGENCY Savannah District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) EC-99-90		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 6	UNDISTURBED 0
5. NAME OF DRILLER D. Justiss		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER N/A		
7. THICKNESS OF OVERBURDEN 9.0' (47.1 water)		16. DATE HOLE	STARTED 6 Mar 1990	COMPLETED 6 Mar 1990
8. DEPTH DRILLED INTO ROCK 0.0'		17. ELEVATION TOP OF HOLE 0.0'		
9. TOTAL DEPTH OF HOLE 56.1'		18. TOTAL CORE RECOVERY FOR BORING N/A %		
		19. SIGNATURE OF INSPECTOR James Arthur, P.G. <i>James Arthur</i>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO. JAR	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	BLOWS
0.0'	0' b	c	d	e			
			Water			NOTE: Scale change @ 45.0'.	
	45		Bottom of Harbor 47.1'				
-47.1'			(SM) Light grey, silty, med. to coarse SAND. Calcareous, some fine to coarse limestone gravel, wet.		1	Set 6" casing to 47.1'	26
-48.6'				2	52		
	50			3	52		
				4	68		
				5	64		
	55			6	42		
			Trace of fine limestone gravel.				
			Bottom of Boring 56.1'			BLOWS PER FOOT: Number required to drive 1 3/8" ID splitspoon w/ 140 lb. hammer falling 30".	
			NOTE: Soils visually field classified in accordance with the Unified Soil Classification System.				

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 of 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT Mean Low Water (MLW)		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DAYUM FOR ELEVATION SHOWN (FBM or MSL)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-10-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN N.A.	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE 8/4/86		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -26.6' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 87 %		
		19. SIGNATURE OF INSPECTOR		

NADA 27
X 2,318,849
Y 307,912

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-26.6	1		Black Organic Clayey SILT (ML) with 1" to 1 1/2" lenses of fine sand every 3" to 4"		Top	Start Time: 8:37 Stop Time: 8:37
	2					
	3				C' C	Sample #1
	4					
	5					Penetrometer = 0.10 TSF
	6					
	7					
-33.8	8		Black Organic Clayey SILT (ML) with 1/16" to 1/8" thick layers of sand occurring randomly		B' B	Sample #2
	9					
	10					Penetrometer = 0.10 TSF
	11					
-38.8	12		Gray Organic Clayey SILT (MH) with a very few random lenses of sand. Last 6" high shell hash.		A' A	Sample #3
	13					
	14					Penetrometer = 0.25 TSF
	15					
-43.0	16		Olive Calcareous Clayey Silty Fine SAND (SC/SM) (Cooper Marl)			Sample #4
	17				Bottom	
-44.2	18					
	19					
-46.6	20					

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHOVC-11-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 8/2/86 COMPLETED Same		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -35.1' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 100 %		
19. SIGNATURE OF INSPECTOR				

NADA 27
X 2,320,549
Y 375,498

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-35.1	1		Gray Clayey SILT with organic odor (MH)		Top	Sample #1 Start Time: 10:16 Stop Time: 10:20 Penetrometer = .25 TSF
-37.2	2		Gray Silty Fine SAND with shell hash (SP/SM) and 1/8" to 1/2" thick lenses of clay occurring at 1/2" to 5" spacing.		C'	Sample #2
	3				C	
	4					
	5					
-42.9	8		Gray Clayey SILT with organic odor (MH)		B'	Sample #3 Penetrometer = 1.75 TSF
	9				B	
	10					
	11					
	15				A'	Sample #4
	16				A	
	17					
	18					
	19					
-55.1	20				Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT Mean Low Water (MLW)	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-1-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED: 8/20/86 COMPLETED: Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -36.9' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 93 %	
			19. SIGNATURE OF INSPECTOR	

NAD 27
 X-0,320,102
 Y-364,329

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-36.9			Gray Clayey Fine SAND and shell hash for first 11" (SC/SHELL)		Top	Start Time: 12:45 Stop Time: 12:50
-38.0	1					
	2		2" to 3" Layers of Gray Clayey Fine SAND (SM/SC) with 1/2" to 1" lenses of gray clay in between			Sample #1
	3				C'	
	4		5'-5.6' - shell hash		C	
-41.5	5		Gray Fine SAND (SP)			
-42.4	6		2" to 3" Layers of Gray Silty Fine to Medium SAND (SM) with 1" to 4" zones of 1/16" to 3/16" thick lenses of interbedded sand and clay			Sample #2
	7				B'	
	8				B	
	9					
	10					
-47.7	11		Gray Medium to Fine SAND with shell hash (SP/SHELL)			Sample #3
-48.9	12		Gray Clayey Medium SAND (SC) with shell hash & phosphate nodules		A'	
-49.5	13		Gray Organic Clayey SILT (MH) with 1/8" thick lense of sand every 0.2' to 0.4'		A	
	14					
	15					
-53.0	16		Above Clay & underlying sand intact			Sample #4
-53.2	17		Gray Slightly Silty Fine SAND (SP/SM)			
	18				Bottom	
-55.4	19					
	20					

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (FSM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-12-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER DMB			DISTURBED N.A. UNDISTURBED N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			14. TOTAL NUMBER CORE BOXES N.A.	
7. THICKNESS OF OVERBURDEN N/A			15. ELEVATION GROUND WATER 0 MLW	
8. DEPTH DRILLED INTO ROCK N/A			16. DATE HOLE 8/2/86	
9. TOTAL DEPTH OF HOLE 20'			STARTED 8/2/86 COMPLETED Same	
			17. ELEVATION TOP OF HOLE -42.6' MLW	
			18. TOTAL CORE RECOVERY FOR BORING 19.4' Pen/20' Rec	
			19. SIGNATURE OF INSPECTOR	

NADA 27
X 2323,744
Y 372,770

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-42.6	1	[Stippled pattern]	Black Medium SAND and shell hash (SP)		Top	Sample #1 Start Time: 8:57 Stop Time: 9:18
-45.2	3	[Vertical lines pattern]	Gray Clayey SILT with organic odor (MH)		C'	
-49.1	6	[Vertical lines pattern]			C	Sample #2
-49.1	7	[Stippled pattern]	Dark Gray Slightly Silty Medium SAND with shell hash (SP/SM)			Sample #3
-51.0	9	[Stippled pattern]	Gray Silty Fine SAND (SP) with three 2" thick lenses of gray organic clay about 8" apart		B'	
-51.0	10	[Stippled pattern]			B	Sample #4
-53.9	12	[Horizontal lines pattern]	Olive Calcareous Clayey Silty Fine SAND (SM/SC) (Cooper Marl) with phosphate nodules		A'	
-53.9	15	[Horizontal lines pattern]			A	Sample #5
-62.6	20	[Horizontal lines pattern]			Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHUVC-13-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE	STARTED 8/2/86	COMPLETED Same
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -39.2' MLW		
9. TOTAL DEPTH OF HOLE 12.7'		18. TOTAL CORE RECOVERY FOR BORING 100 %		
19. SIGNATURE OF INSPECTOR				




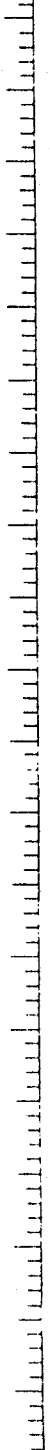
NADA 27
X 2,328,749
Y 367,783

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-39.2	0		Dark Gray Silty Fine SAND (SM) with some shell hash		Top	Start Time: 11:10 Stop Time: 11:21 Sample #1
	1				B'	
	2				B	Penetrometer = 0.50 TSF
	3					
	4					
-44.2	5		Olive Calcareous Slightly Sandy Clayey SILT (MH) (Cooper Marl)			Penetrometer = 2.30 TSF Sample #2
	6				A'	
	7				A	
	8					
	9					
-48.4	10		Olive Calcareous Sandy Clayey SILT (ML) (Cooper Marl)			Penetrometer = 2.0 TSF Sample #3
	11					
	12					
-51.9	13				Bottom	
	14					
	15					
	16					
	17					
	18					
	19					
-59.2	20					

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (FSM or NSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-13A-1-2		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 8/2/86 COMPLETED Same		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -39.2 MLW		
9. TOTAL DEPTH OF HOLE 23.4'		18. TOTAL CORE RECOVERY FOR BORING 8' Pen/12.4' Rec		
		19. SIGNATURE OF INSPECTOR		

NAD 27
X 2,328,749
Y 367,783

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-39.2	0		Jet to 11'			Start Time: 11:58 Stop Time: 12:11
	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
-50.2	11		Olive Calcareous Sandy Clayey SILT (ML/MH) (Cooper Marl)		Top	
	12					Penetrometer = 1.35 TSF
	13				B'	
	14				B	Sample #1
	15					
	16					
	17					
	18				A'	
	19				A	Sample #2
	20					

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		-39.2' MLW		Hole No. CHDVC-13A-2-2	
PROJECT			INSTALLATION			SHEET	
Charleston Harbor Deepening						2	
						OF 2 SHEETS	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
a	b	c	d	e	f	R	
	21		Olive Calcareous Sandy Clayey SILT (ML/MH) (Cooper Marl)				
	22						
	23						
-62.6					Bottom		
	24						

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-14-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A. UNDISTURBED N.A.
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED 8/2/86 COMPLETED Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -24.2 MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 88 %	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,332,229
Y 358,197

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
-24.2	0		Gray Organic Clayey SILT (MH) with 3"-4" zones of shell hash and sand within the first 1.9'. After 1.9', to 7' the silt has a few random 1/16" thick lenses of sand		Top	Start Time: 14:27 Stop Time: 14:31 Penetrometer = 0.75 TSF	
	1						
	2						
	3				C'		
	4				C		Sample #1
	5						
	6						
	7				B'		
-31.8	8		Green & White Fine SAND and shell hash (SP/SHELL)		B	Sample #2	
	9						
	10						
	11						
	12				A'		
	13				A		
	14						
-38.8	15		Olive Drab Calcareous Slightly Sandy Silty CLAY (CH) (Cooper Marl)			Sample #3	
	16						
	17						
-41.8	18				Bottom		
	19						
	20						

CHDVC-15-1-1

DRILLING LOG		DIVISION	INSTALLATION	SHEET OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-15-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 8/2/86 COMPLETED Same		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -33.3' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 100 %		
		19. SIGNATURE OF INSPECTOR		

NAD 29
X 2,332,629
Y 357,516

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-33.3	1		Gray Slightly Silty Medium SAND with shell hash (SP/SM) and 1/4" thick lenses of clay every 1" to 1 1/2".		Top	Start Time: 14:56 Stop Time: 15:13 Sample #1
-36.3	3		Brown Slightly Silty Medium SAND with shell hash (SP/SM) and 1/8" thick lenses of gray clay every 1" to 6".		C'	Sample #2
	4				C	
-39.2	6		Transitional Zone - - Marl & Shell Hash			
-39.8	7		Olive Calcareous Sandy Clayey SILT (ML/MH) (Cooper Marl)			Penetrometer = 1.25 TSF
	8					
	9					
	10				B' B	Sample #3
	11					
	12					
	13					
	14					
	15				A' A	Sample #4
	16					
	17					Penetrometer = 2.5 TSF
	18					
	19					
-53.3	20				Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHOVC-16-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 8/2/86		
8. DEPTH DRILLED INTO ROCK N/A		COMPLETED Same		
9. TOTAL DEPTH OF HOLE 20'		17. ELEVATION TOP OF HOLE -38.4' MLW		
		18. TOTAL CORE RECOVERY FOR BORING 92		
		19. SIGNATURE OF INSPECTOR		

NAD 27
X - 2,332,891
Y - 356,920

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
-38.4	0				Top	Start Time: 15:59 Stop Time: 16:15	
	1		Black Organic Clayey SILT becoming Silty Fine SAND (SM) with shell hash in last 2"				
	2						
	3					C'	Sample #1
-41.7	3				C		
	4		Olive Calcareous Sandy Clayey SILT (ML/MH) (Cooper Marl)				
	5						
	6						Penetrometer = 1.25 TSF to 1.50 TSF
	7						
	8					B'	Sample #2
	9					B	
	10						
	11						
	12						
	13				A'	Sample #3	
	14				A		
	15					Penetrometer = 2.5 TSF to 3.0 TSF	
	16						
	17		Last 4' has higher clay content and no sand				
	18				Bottom	Sample #4	
-56.7	18						
	19						
-58.4	20						

DRILLING LOG		DIVISION	INSTALLATION		SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT Mean Low Water (MLW)		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-17-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED N.A. UNDISTURBED N.A.
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES		N.A.
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER		0 MLW
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE		STARTED 8/2/86 COMPLETED Same
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE		-35.9' MLW
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING		100 %
			19. SIGNATURE OF INSPECTOR		

NAD 27
X-2,332,891
Y 356,920

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-35.9	1		Black Organic Sandy Clayey SILT (MH/OH)		Top	Sample #1 Start Time: 15:07 Stop Time: 17:21
-38.3	2					
	3		Olive Brown Clayey Silty Fine SAND (SM) (Cooper Marl) with shell and fossil hash			Penetrometer = 0.8 TSF
	4				C'	
-41.3	5				C	Sample #2
	6		Olive Calcareous Sandy Clayey SILT (MH) (Cooper Marl)			
	7					
	8					
	9					
	10				B'	Penetrometer = 1.7 TSF
	11				B	Sample #3
	12					
	13					
	14					
	15				A'	
	16				A	Sample #4
	17					
	18					Penetrometer = 2.75 TSF
	19					
-55.920					Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT 11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
3. DRILLING AGENCY Ocean Surveys, Inc.			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED N.A. UNDISTURBED N.A.	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-18-1-1			14. TOTAL NUMBER CORE BOXES N.A.	
5. NAME OF DRILLER DMB			15. ELEVATION GROUND WATER 0 MLW	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE STARTED 8/3/86 COMPLETED Same	
7. THICKNESS OF OVERBURDEN N/A			17. ELEVATION TOP OF HOLE -42.5' MLW	
8. DEPTH DRILLED INTO ROCK N/A			18. TOTAL CORE RECOVERY FOR BORING 14.8' Pen/18.5' Rec	
9. TOTAL DEPTH OF HOLE			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,329,893
Y 352,826

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-42.5			Brown Sandy CLAY (CL)		Top	Sample #1 Start Time: 11:31 Stop Time: 11:56 Sample #2
-43.3	1		Brown Silty Fine SAND (SM)	100		
-44.2	2		Brown Medium SAND with shell hash & Phosphate Nodules (SP/SHELL)		C'	Sample #3
-45.6	3		Gray Clayey Fine SAND (SC) 6.8 to 7.2-shell hash, fossils, pebbles, phosphate nodules	100	C	
-46.8	4		Gray Clayey Fine SAND (SC) 6.8 to 7.2-shell hash, fossils, pebbles, phosphate nodules			Sample #4
	5		Olive Calcareous Sandy Clayey SILT (MH) (Cooper Marl)			
	6				B'	Penetrometer = 1.3 TSF to 4.5 TSF
	7				B	
	8					Sample #5
	9			100		
	10					Sample #6
	11				A'	
	12				A	Sample #6
	13			100		
	14					Sample #6
	15					
	16					Sample #6
	17				Bottom	
-59.6	17					
	18					
	19					
	20					

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT Mean Low Water (MLW)	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHUVC-19-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED: 8/3/86 COMPLETED: Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -23.6' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 100 %	
			19. SIGNATURE OF INSPECTOR	

MAD 27
 X 2,330,574
 Y 352,012

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
a	b	c	d	e	f	g
-23.6	1		Gray Clayey SILT with organic odor (ML/MH) and 1/8" to 2" thick layers of fine sand, shell hash or organic material occurring randomly throughout the core.		Top	Start Time: 13:06:00 Stop Time: 13:06:45
-26.4	3		Shell Hash, Sand and Organic Material			
-27.2	4		Gray Clayey SILT with organic odor (ML/MH) and 1/8" to 2" thick layers of fine sand, shell hash or organic material occurring randomly throughout the core.		C'	Sample #1
	5				C	
	6					
	7					
	8					Penetrometer = 0.35 TSF
	9					
	10				B'	Sample #2
	11				B	
	12					
	13					
	14					
	15				A'	Sample #3
	16				A	
	17					
	18					
	19					
-43.6	20				Bottom	Sample #4

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT 11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
3. DRILLING AGENCY Ocean Surveys, Inc.			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
4. HOLE NO. (As shown on drawing title and file number) CHOVC-20-1-1			14. TOTAL NUMBER CORE BOXES N.A.	
5. NAME OF DRILLER DMB			15. ELEVATION GROUND WATER 0 MLW	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE STARTED: 8/3/86 COMPLETED: Same	
7. THICKNESS OF OVERBURDEN N/A			17. ELEVATION TOP OF HOLE -22.2' MLW	
8. DEPTH DRILLED INTO ROCK N/A			18. TOTAL CORE RECOVERY FOR BORING 98 %	
9. TOTAL DEPTH OF HOLE 20'			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,331,105
Y 351,871

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-22.2	1	[Hatched pattern]	Gray Silty CLAY (CL) with 1/8" to 2" thick layers of fine sand, organic material and shell hash occurring randomly throughout the core		Top	Start Time: 14:02 Stop Time: 14:03
	2				Sample #1	
	3					
	4					
-27.2	5	[Vertical line pattern]	Gray Clayey SILT (MH) with 1/8" to 2" thick layers of fine sand, organic material and shell hash occurring randomly throughout the core			C'
	6				C	
	7					
	8				Sample #2	
	9					
	10					
	11				B'	
	12					
	13				B	
	14					
	15					
	16				A'	
	17					
	18				A	
	19					
-41.8	20				Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHOVC-21-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES	N.A.
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER	0 MLW
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE	STARTED 8/3/86 COMPLETED Same
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -24.9' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 97.5 %	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,330,921
Y 351,299

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
-24.9			Gray Slightly Silty Medium SAND with shell hash (SP/SM)		Top	Sample #1 Start Time: 16:00:14 Stop Time: 16:00:52	
-24.1	1		Gray Slightly Sandy Clayey SILT (ML/MH) with 1/16" to 3" lenses of sand and shell hash randomly occurring through the core		C'	Penetrometer = 0.25 TSF	
	2				C		Sample #2
	3						
	4						
	5						
	6						
	7						
	8						
	9						
	10						B'
	11				B	Sample #3	
	12						
	13						
	14						
	15				A'		
	16				A	Sample #4	
	17						
	18						
	19						
-44.4	20				Bottom		

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 of 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-2-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED: 7/31/86 COMPLETED: Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -23.8' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 100 %	
			19. SIGNATURE OF INSPECTOR	

NADAR
X 2321, 798
Y 391, 302

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-23.8'	0		Gray Sandy Clayey SILT (MH) with 1/8" to 1" layers of fine sand every 1" to 1 1/2". Layers of shell hash and organic material at 1.8'-1.9' and 2.4'-2.6'.		Top	Sample #1 Start Time: 10:11 Stop Time: 10:12
-26.7	3		1" to 3" layers of Gray Silty Fine SAND (SM) separated by 1/2" to 1 1/2" thick lenses of gray clay. Layers of organic material at 3.5' to 3.6' and 7.2' to 7.3'.		C'	Sample #2
	5				C	
	6					
	7					
	8					
	9					
-33.8	10		Gray Silty Fine SAND (SP/SM)		B'	Sample #3
	11				B	
	12					
	13					
-37.0	14		Gray Slightly Clayey Silty Fine SAND (SM) with 1/8" to 1" thick lenses of gray clay evenly spaced throughout.		A'	Sample #4
	15				A	
	16					
-40.6	17		Gray Clayey SILT with organic odor (MH)			Penetrometer = 1.0 TSF
	18					
	19					
-43.8	20				Bottom	Sample #5

CHDVC-22-1-1

1018 FORM NO. 10-66 SHEET 1 OF 1 SHEETS

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates of Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-22-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN N.A.	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 8/3/86	COMPLETED Same	17. ELEVATION TOP OF HOLE -27.2' MLW
8. DEPTH DRILLED INTO ROCK N/A		18. TOTAL CORE RECOVERY FOR BORING 98 %		
9. TOTAL DEPTH OF HOLE 20'		19. SIGNATURE OF INSPECTOR		

NAD 27
X 2,331,441
Y 351,112

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
-27.2	0		Gray Organic Clayey SILT with 1/8" to 1" thick layers of fine sand or shell hash occurring randomly every 4" to 2' (MH).		Top	Start Time: 15:14 Stop Time: 15:15 Penetrometer = 0.2 TSF	
	1						
	2						
	3						
	4						
	5					C'	Sample #1
	6					C	
	7						
	8						
	9						
	10					B'	Sample #2
	11					B	
	12						
	13						
	14						
	15					A'	Sample #3
	16					A	
	17						
	18						
	19						
-47.2	20				Bottom	Sample #4	

CHDVC-23-1-1

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-23-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN N.A.	DISTURBED N.A.
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	UNDISTURBED N.A.
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE 8/5/86	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -38.4' MLW	
9. TOTAL DEPTH OF HOLE 18.7			18. TOTAL CORE RECOVERY FOR BORING 97.0 %	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,331,232
Y 350,561

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
-38.4	1		Gray Organic Clayey SILT with 1/16" to 2" thick lenses of sand and shell hash occurring randomly throughout the sample (ML/MH).		Top	Start Time: 14:17 Stop Time: 14:18 Penetrometer = 0.25 to 0.30 TSF	
	2						
	3						
	4					C C	Sample #1
	5						
	6						
	7						
	8						
	9					B' B	Sample #2
	10						
	11						
	12						
	13						
	14					A' A	Sample #3
	15						
	16						
	17						
	18						
	19					Bottom	
-57.1	20						

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 of 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 11. DAYUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
3. DRILLING AGENCY Ocean Surveys, Inc.		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED N.A. UNDISTURBED N.A.		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-24-1-1		14. TOTAL NUMBER CORE BOXES N.A.		
5. NAME OF DRILLER DMB		15. ELEVATION GROUND WATER 0 MLW		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		16. DATE HOLE STARTED 8/3/86 COMPLETED Same		
7. THICKNESS OF OVERBURDEN N/A		17. ELEVATION TOP OF HOLE -33.6' MLW		
8. DEPTH DRILLED INTO ROCK N/A		18. TOTAL CORE RECOVERY FOR BORING 100 %		
9. TOTAL DEPTH OF HOLE 20'		19. SIGNATURE OF INSPECTOR		

NAD 27
X 3,331,738
Y 350,380

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
-33.6	0		Gray Organic Clayey SILT (ML/MH) with 1/8" to 4" zones of sand or shell hash layers at random intervals		Top	Start Time: 9:22 Stop Time: 9:22	
	1						
	2						
	3						Penetrometer = 0.25 TSF throughout
	4						Sample #1
	5					C' C	
	6						
	7						
	8						
	9						Sample #2
	10					B' B	
	11						
	12						
	13						
	14						Sample #3
	15					A' A	
	16						
	17						
	18						
	19						Sample #4
-53.6	20				Bottom		

CHDVC-25-1-1

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-25-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE	STARTED 8/12/86	COMPLETED Same
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -41.6' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 18.2' Pen/20' Rec		
		19. SIGNATURE OF INSPECTOR		

NAD 27
X 2,331,275
Y 347,953

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
-41.6	1		Dark Gray Organic Silty Sandy CLAY (CL)		Top	Start Time: 10:28 Stop Time: 10:44	
	2					Penetrometer = 0.25 TSF	
	3						
	4						
	5					C'	Sample #1
-47.1	6		Olive Calcareous Sandy Clayey SILT (COOPER MARL) (ML/MH)		C		
	7					Penetrometer = 1.5 TSF	
	8						
	9						
	10					B'	Sample #2
	11					B	
	12						Penetrometer = 3.5 TSF
	13						
	14						Sample #3
	15					A'	
-57.5	16		Olive Calcareous Slightly Sandy Clayey SILT (COOPER MARL) (MH)		A		
	17					Penetrometer = 2.75 TSF	
	18						
	19						Sample #4
-61.6'	20						Bottom

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-26-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED 8/3/86 COMPLETED Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -41.0' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 100 %	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 3332,328
Y 349,491

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
-41.0					Top	Start Time: 10:21 Stop Time: 10:21	
	1		Gray Organic Clayey SILT (ML) with 1/16" to 3/4" thick lenses of fine sand occurring randomly through- out the sample			Penetrometer = 0.35 TSF	
	2						
	3						
	4						
	5			C'	Sample #1		
	6			C			
	7						
	8						
	9						Sample #2
	10			B'			
	11		B				
	12						
	13						
	14				Sample #3		
	15		A'				
	16		A				
	17						
	18						
	19				Sample #4		
-61.020					Bottom		

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-27-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED 8/5/86	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -39.1' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 18.2' Pen/20' Rec	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,331,241
V 346,252

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-39.1			Black Organic Silty Clayey Fine SAND (SC)		Top	Sample #1 Start Time: 16:13 Stop Time: 16:31
-39.9	1		Dark Olive Calcareous Clayey Fine SAND (SC) (Cooper Marl)			Sample #2
	2					Penetrometer = 1.5 TSF
	3		Olive Calcareous Sandy Clayey SILT (MH) (Cooper Marl)			
-42.4	4					Penetrometer = 1.25 TSF
	5				C'	
	6			C		Sample #3
	7					
	8					
	9					
	10				B'	
	11				B	Sample #4
	12					
	13					
	14					
	15				A'	
	16				A	Sample #5
	17					
	18					
	19					
-59.1	20				Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-28-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 8/12/86 COMPLETED Same		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -40.3' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 80 %		
		19. SIGNATURE OF INSPECTOR		

NAD 27
X 2,339,225
Y 344,584

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
a	b	c	d	e	f	g
-40.3	0		Light Gray Slightly Silty Fine SAND (SP/SM)		Top	Start Time: 8:27 Stop Time: 8:29
	1				C'	
	2				C	
	3					
	4					
	5					
	6				B'	Sample #1
	7				B	
	8					
-48.6	9		Gray Fine to Medium SAND (SP)			Sample #2
	10				A'	
	11				A	
	12		Layer of Phosphate Nodules			
-52.5	13		Gray Fine to Medium SAND and shell hash (SP)			Sample #3
	14					
	15					
-56.1	16				Bottom	
	17					
	18					
	19					
	20					

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and title number) CHDVC-29-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE 8/8/86	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -35.2' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 100	
			19. SIGNATURE OF INSPECTOR	

NAD 29
X 2,341,483
Y 342,252

ELEVATION e	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-35.2	0		Black Organic Clayey SILT (OH/MH)		Top	Start Time: 17:14 Stop Time: 17:15
	1					
	2					
	3					
	4					
	5				C'	Sample #1
-40.4	5		Gray Sandy CLAY with shell hash (CL with shell)		C	Penetrometer = 0.2 TSF
	6					
	7					
	8					
	9					
	10				B'	Sample #2
	11				B	
	12					
-47.4	12		Gray Clayey Fine SAND (SC)			
	13					
	14					
	15				A'	Sample #3
	16				A	
-51.4	16		Dark Olive Calcareous Silty Fine SAND (SP/SM) (Cooper Marl)			Penetrometer = 1.10 TSF
	17					
	18					
	19					
-55.2	20				Bottom	Sample #4

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-30-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 8/11/86		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -34.2' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 94 %		
		19. SIGNATURE OF INSPECTOR		

NAD 27
X 2,341,524
Y 341,371

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-34.2	1		Black Organic Clayey SILT (MH)		Top	Start Time: 12:46 Stop Time: 12:47
	2				C'	Sample #1
	3				C	
	4					
	5					
-39.9	6		Gray Silty Fine SAND (SM) with 1" to 2" thick lenses of clay about 10" apart		B'	Sample #2
	7				B	
	8					
	9					
	10					
	11					
	12					
	13				A'	
-47.6	14		Gray Organic Clayey Medium SAND with rare 1" thick lenses of clay		A	Sample #3
	15					
	16					
	17					
-51.6	18		Olive Calcareous Clayey Silty Fine SAND (SM/SC) (Cooper Marl)		Bottom	Sample #4
	19					
-53.0	20					

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-31-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED: 8/11/86 COMPLETED: Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -34.7' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 100 %	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,341,304
Y 340,611

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-34.7	1		Black Organic Clayey SILT (MH)		Top	Sample #1 Start Time: 14:11 Stop Time: 14:12
	2					
	3					
	4					
-39.2	5		Gray Silty Fine SAND (SP/SM) with 1" to 2" layers of clay every 6" to 10"		C'	
	6				C	Sample #2
	7					
	8					
	9					
	10				B'	
	11				B	Sample #3
-45.7	12		Gray Organic Clayey SILT (MH) with 1/16" to 1" layers of sand every 4" to 5"			Penetrometer = 0.25 TSF to 0.50 TSF
	13					
	14					
	15				A'	
	16				A	Sample #4
	17					
	18					
	19					
-54.7	20				Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-3-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN N.A.	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 7/31/86 COMPLETED Same		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -43.1' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 100		
		19. SIGNATURE OF INSPECTOR		

NAD A 27
X 2,321,145
Y 391,703

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
a	b	c	d	e	f	g
-43.1	1		Gray Sandy Clayey SILT (MH) with 1/8" to 2" thick layers of fine sand every 1" to 4".		Top	Start Time: 11:31 Stop Time: 11:32
	2					
	3					Sample #1 Penetrometer = .65 TSF
-46.7	4		Gray Slightly Clayey Silty Fine SAND (SM)			Sample #2
-47.7	5		Gray Sandy Clayey SILT (MH) with 1/8" to 2" thick layers of fine sand every 1" to 4".		C'	
	6				C	
	7					
	8					
	9					
-52.7	10		Gray Slightly Clayey Silty Fine SAND (SM) with shell hash		B'	Sample #3
	11				B	
-54.2	12		Gray Slightly Sandy Clayey SILT (MH) with 1/8" to 2" thick layers of fine sand every 1" to 4".			Penetrometer = .85 TSF
	13					
	14					
	15				A'	Sample #4
	16				A	
	17					
	18					
	19					
-63.1	20				Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-32-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES		UNDISTURBED N.A.
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		N.A.
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE		STARTED 8/11/86
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE		COMPLETED Same
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING		100
		19. SIGNATURE OF INSPECTOR		

NAD 27
X 2,343,483
V 342,387

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-36.4	1	[Vertical lines pattern]	Alternating Layers of Gray Clayey SILT (MH) and Gray Silty Fine SAND (SP/SM) with shell hash. Layers vary from 1/4" to 1' and neither predominates		Top	Start Time: 17:08 Stop Time: 17:09
	2					
	3					
	4					
	5			Sample #1		
-41.4	6			C'		
	7			C		
	8					
	9			Sample #2		
	10			B'		
-46.4	11			B		
	12					
	13					
	14			Sample #3		
-51.4	15	A'	Gray Silty Coarse Sandy SHELL HASH (SP/SM)		A	
	16					
	17					
	18					
	19	[Diagonal lines pattern]	Gray Sandy CLAY (CL) with 1/2" intervals of medium sand and shell hash every 1" to 5"			Sample #4
-56.4	20				Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinate or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-33-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 8/15/86 COMPLETED Same		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -39.4' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 98.5 %		
		19. SIGNATURE OF INSPECTOR		

NAD 27
X 2,342,788
Y 341,363

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
-39.4	1		Black Organic Clayey SILT (MH)		Top	Sample #1 Start Time: 16:29 Stop Time: 16:30	
-42.6	3		Alternating 1/8" to 5" Layers of Gray Silty CLAY and Gray Clayey Silty FINE SAND and SHELL HASH (CL/SC/SM)		C'	Sample #2	
	4			C			
	5						
	6					Penetrometer = 0.25 TSF to 1.25 TSF	
	7						
	8						
	9						
	10					B'	Sample #3
	11					B	
	12						
	13						
	14						
	15					A'	Sample #4
	16					A	
	17						
	18						
	19						
-59.4	20				Bottom		

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-34-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED N.A. UNDISTURBED N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED 8/15/86 COMPLETED Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -30.5' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 98 %	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,341,891
Y 339,459

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-30.5	1		Black Organic Clayey SILT (ML)		Top	Sample #1 Start Time: 10:13:00 Stop Time: 10:13:51
-33.7	4		Gray Silty Fine SAND (SP/SM)			
	5				C'	
	6				C	Sample #2
	10				B'	
	11				B	Sample #3
	15				A'	
	16				A	Sample #4
-50.5	20				Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates of Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-35-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER OMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEC. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED: 8/15/86 COMPLETED: Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -30.3' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 98 %	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,342,129
Y 339,608

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-30.3	1	[Dashed pattern]	Brown Silty Fine SAND (SM) with 1" to 2" thick layers of black organic clayey silt occurring every 2" to 10"		Top	Start Time: 10:49 Stop Time: 10:50
	2					
	3					
	4					
	5				C'	
	6				C	
	7					
-38.0	8	[Dotted pattern]	Gray Silty Fine SAND (SP/SM)			Sample #2
	9					
	10				B'	
	11				B	
	12					
	13					
	14					
	15				A'	
	16				A	
	17					
-45.5	16	[Vertical lines]	Gray Clayey SILT (ML/MH) with 1" to 2" thick layers of coarse sand within 1" to 9" of each other			Sample #3
	17					
	18					
	19					
	20				Bottom	
-50.3	20					Sample #4

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-36-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN N.A.	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 9/14/86	COMPLETED Same	
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -37.7' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 100 %	19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,343,009
Y 340,371

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
-37.7	1	[Pattern]	Gray Organic Clayey SILT (MH) with 1/16" to 1/4" thick layers of sand every 1/2" to 3"		Top	Sample #1 Start Time: 13:42 Stop Time: 13:49	
	2	[Pattern]					
	3	[Pattern]					Penetrometer = 0.50 TSF
	4	[Pattern]					
-42.5	5	[Pattern]	Olive Calcareous Clayey Silty Fine SAND (SM/SC) (Cooper Marl)		C'	Sample #2	
	6	[Pattern]			C		
	7	[Pattern]					Penetrometer = 1.5 TSF
	8	[Pattern]					
	9	[Pattern]					
	10	[Pattern]				B'	Sample #3
	11	[Pattern]			B		
	12	[Pattern]					
	13	[Pattern]					
	14	[Pattern]					
-52.7	15	[Pattern]	Olive Calcareous Sandy Clayey SILT (MH) (Cooper Marl)		A'	Sample #4	
	16	[Pattern]			A		
	17	[Pattern]					
	18	[Pattern]					
	19	[Pattern]					
-57.7	20	[Pattern]			Bottom		

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-37-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED 8/15/86 COMPLETED Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -38.0' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 96.5 %	
			19. SIGNATURE OF INSPECTOR	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
a	b	c	d	e	f	g
-38.0	1		Black Organic Clayey SILT (ML)		Top	Start Time: 12:32 Stop Time: 12:32
	2					
	3					Sample #1
-41.5	4		Gray Silty Fine SAND (SP/SM) with 1" to 1/8" thick layers of clay 3" to 6" apart		C'	
	5				C	
	6					
	7					Penetrometer = 1.5 TSF
	8					
	9					Sample #2
	10				B'	
	11				B	
	12					
	13					Sample #3
	14					
	15				A'	
	16				A	
	17					
	18					
-56.5	19		Olive Calcareous Clayey Silty Fine SAND (SM) (Cooper Marl)			Sample #4
	20				Bottom	Penetrometer = 4.0 TSF

NAD 27
X 2,342,704
Y 339,587

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT 11. DAYUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
3. DRILLING AGENCY Ocean Surveys, Inc.			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED N.A. UNDISTURBED N.A.	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-38-1-1			14. TOTAL NUMBER CORE BOXES N.A.	
5. NAME OF DRILLER DMB			15. ELEVATION GROUND WATER 0 MLW	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE STARTED 8/15/86 COMPLETED Same	
7. THICKNESS OF OVERBURDEN N/A			17. ELEVATION TOP OF HOLE -31.3' MLW	
8. DEPTH DRILLED INTO ROCK N/A			18. TOTAL CORE RECOVERY FOR BORING 98 %	
9. TOTAL DEPTH OF HOLE 20'			19. SIGNATURE OF INSPECTOR	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
a	b	c	d	e	f	g
-31.3	1		Black Organic Clayey SILT (ML) with lenses of sand occurring randomly		Top	Sample #1 Start Time: 11:25 Stop Time: 11:25
-34.7	4		Gray Silty Fine SAND (SP/SM) with lenses of clay from 1" to 1/8" at variable distances.		C'	Sample #2 Penetrometer = 1.25 TSF
	5			C		
	10				B'	Sample #3
	11				B	
	15				A'	Sample #4
	16				A	
-51.320	20				Bottom	

NAD 27
X 2342,536
Y 339,292

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and title number) CHDVC-39-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 8/15/86 COMPLETED Same		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -27.7' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 92 %		
		19. SIGNATURE OF INSPECTOR		

NAD 27
X 2,342,428
Y 339,068

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-27.7	1		Black Organic Slightly Sandy Clayey SILT (MH)		Top	Start Time: 11:54 Stop Time: 11:54
	2					
	3					
	4				C' C	Penetrometer - 0.25 TSF Sample #1
	5					
	6					
	7		At 7', thin 1/4" to 1/2" thick lenses of sand occurring randomly			
	8				B' B	Sample #2
	9					
	10		At 10', sand lenses occurring every 1" to 4"			
	11					
	12					
	13				A' A	Sample #3
	14		At 14', sand lenses are 1/4" to 2" thick and occur from 1/4" to 3" apart			
	15					
	16					
	17					Penetrometer = 0.25 TSF
	18				Bottom	
-46.1	19					
	20					

CHDVC-40-1-1

Hole No. CHDVC-40-1-1

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-40-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN N.A.	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE 8/15/86	STARTED Same	COMPLETED Same
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -27.5' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 83 %		
		19. SIGNATURE OF INSPECTOR		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
a	b	c	d	e	f	g	
-27.5	1		Black Organic Clayey SILT (ML) with 1/2" to 1" thick layers of sand with 1" to 1' of clay between		Top	Start Time: 13:06 Stop Time: 13:06	
	2			C'			Sample #1
	3			C			
	4						
	5						
	6						
	7					B'	Sample #2
	8					B	
	9						
	10						
	11						
	12					A'	Sample #3
	13					A	
	14						
	15						
	16						
	17					Bottom	
-44.7	18						
	19						
	20						

NAD 27
X 2,342,340
Y 338,747

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHOVC-4 -1-1*			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER DMB * 2nd Attempt			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED: 7/31/86 COMPLETED: Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -41.7 MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 12.2' Pen/20' Rec	
			19. SIGNATURE OF INSPECTOR	

NADA27
X 2,319,767
Y 390,244

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-41.7			Olive Calcareous Sandy Clayey SILT (ML/MH) (Cooper Marl)		Top	Start Time: 13:45 Stop Time: 12:41
	1					
	2					
	3					Penetrometer = 1.75 TSF
	4					Sample #1
	5				C' C	
	6					
	7					
	8					
	9					Sample #2
	10				B' B	
	11					
	12					
	13					
	14					Sample #3
	15				A' A	
	16					
	17					
	18					
	19					Sample #4
-61.7	20				Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 of 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (FBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-41A-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMS		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 8/17/86 COMPLETED Same		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -38.0' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 98 %		
		19. SIGNATURE OF INSPECTOR		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g		
-38.0					Top	Start Time: 9:50 Stop Time: 9:51		
	1	[Hatched Pattern]	Alternating 1" to 3" Layers of Gray CLAY and Gray Fine SAND with shell hash (SM/SHELL)					
	2							
	3							
	4							
	5						Sample #1	
	6						C'	Penetrometer = 0.25 TSF to 0.50 TSF
	7						C	
	8							
	9							
	10						B'	Sample #2
	11						B	
	12							
	13							
	14							Sample #3
	15						A'	
	16						A	
	17							
	18							
	19							Sample #4
-58.0	20						Bottom	

NAD 27
 X 2,344,116
 Y 340,447

DRILLING LOG		DIVISION		INSTALLATION		SHEET 1 OF 1 SHEETS	
1. PROJECT Charleston Harbor Deepening				10. SIZE AND TYPE OF BIT Mean Low Water (MLW)			
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel				11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
3. DRILLING AGENCY Ocean Surveys, Inc.				12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500			
4. HOLE NO. (As shown on drawing title and title number) CHDVC-42-1-1				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		14. TOTAL NUMBER CORE BOXES	
				DISTURBED N.A.		UNDISTURBED N.A.	
5. NAME OF DRILLER DMB				15. ELEVATION GROUND WATER 0 MLW			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				16. DATE HOLE 8/15/86		17. ELEVATION TOP OF HOLE -30.7' MLW	
7. THICKNESS OF OVERBURDEN N/A				18. TOTAL CORE RECOVERY FOR BORING 86 %		19. SIGNATURE OF INSPECTOR	
8. DEPTH DRILLED INTO ROCK N/A							
9. TOTAL DEPTH OF HOLE 20'							

NAD 27
X 2,342,941
Y 339,016

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
-30.7	0		Black Organic Clayey SILT with 1/16" to 2" layers of sand appearing @ 10.3' with 1" to 3" of clay between (ML/MH)		Top	Start Time: 14:23:30 Stop Time: 14:23:45	
	1					C'	
	2					C	Sample #1
	3						
	4						
	5						Penetrometer < 0.25 TSF
	6						
	7					B'	
	8					B	Sample #2
	9						
	10						
	11					A'	
	12					A	Sample #3
	13						
	14						
	15						
	16						
-47.7	17				Bottom		
	18						
	19						
	20						

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT Mean Low Water (MLW)		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DAYON FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-43-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN N.A.	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE 8/15/86		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -28.4' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 82.5 %		
		19. SIGNATURE OF INSPECTOR		

NAD 27
X 2,342,930
Y 338,714

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
-28.4	0		Black Organic Clayey SILT with 1/14" to 1" thick lenses of sand occurring within 1/4" to 7" of each other (ML/MH)		Top	Start Time: 15:27:45 Stop Time: 15:27:59	
	1			C'			
	2			C		Sample #1	
	3						
	4					Penetrometer = .25 TSF	
	5						
	6					B'	
	7					B	Sample #2
	8						
	9						
	10						
	11					A'	
	12					A	Sample #3
	13						
	14						
	15						
	16				Bottom		
-44.9	17						
	18						
	19						
	20						

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT 11. DATUM FOR ELEVATION SHOWN (YBM or MSL) Mean Low Water (MLW)	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
3. DRILLING AGENCY Ocean Surveys, Inc.			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-44-1-1			DISTURBED N.A. UNDISTURBED N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED 8/17/86 COMPLETED Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -28.5' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 92.5 %	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,343,302
Y 338,746

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
-28.5	0		Black Organic Silty CLAY (MH) with 1/4" to 1" thick layers of sand from 1/2" to 1' apart		Top	Start Time: 10:37:05 Stop Time: 10:37:14	
	1						
	2						Penetrometer < 0.25 TSF
	3					C'	
	4					C	Sample #1
	5						
	6						
	7						
	8					B'	
	9					B	Sample #2
	10						
	11						
	12						
	13					A'	
	14					A	Sample #3
	15						
	16						
	17						
	18					Bottom	
-47.0	19						
	20						

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (YBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-45-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN N.A.	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW	STARTED 8/17/86	COMPLETED Same
7. THICKNESS OF OVERBURDEN N/A		17. ELEVATION TOP OF HOLE -38.4' MLW		
8. DEPTH DRILLED INTO ROCK N/A		18. TOTAL CORE RECOVERY FOR BORING 87.5 %	19. SIGNATURE OF INSPECTOR	
9. TOTAL DEPTH OF HOLE 20'				

NAD 27
X 2,344,289
Y 339,340

ELEVATION e	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-38.4	1		Black Organic Clayey SILT with sand lenses (SM/ML)		Top	Start Time: 10:13 Stop Time: 10:14
	2					
	3				C'	
	4				C	Sample #1
-42.8	5		Gray Silty Fine SAND (SM)			
	6					
	7					
	8				B'	
	9				B	Sample #2
	10					
	11					
	12				A'	
	13				A	
-52.3	14		Gray Slightly Silty Fine to Medium SAND (SP/SM) with shell hash			Sample #3
	15					
	16					
	17					
-55.9	18				Bottom	
	19					
	20					

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (FBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and title number) CHDVC-46-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 8/17/86 COMPLETED Same		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -40.5' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 100 %		
19. SIGNATURE OF INSPECTOR				

NAD 2-7
X 2347,528
Y 339,479

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g		
-40.5	1	[Hatched pattern]	Gray Brown Silty Clayey Fine SAND with shell hash, phosphate nodules and lumps of Cooper Marl (SM/SC)		Top	Sample #1 Start Time: 09:19 Stop Time: 09:22		
	2						Penetrometer = 0.25 TSF	
	3							
	4							
	5						C'	
	6						C	Sample #2
	7							
	8							Penetrometer = 1.0 TSF
	9							
	10						B'	
	11		Higher Marl Content		B	Sample #3		
-53.0	13	[Horizontal line pattern]	Olive Calcareous Clayey Very Silty Fine SAND (COOPER MARL) (SM)			Penetrometer = 1.5 TSF		
	14							
	15						A'	
	16						A	Sample #4
	17							
	18							
	19							
-60.5	20						Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS	
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-48-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. DATE HOLE		STARTED 9/16/86
7. THICKNESS OF OVERBURDEN N/A			16. ELEVATION GROUND WATER 0 MLW		
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -41.2' MLW		
9. TOTAL DEPTH OF HOLE 17.5'			18. TOTAL CORE RECOVERY FOR BORING 11.3' Perc/17.5' Recv		
			19. SIGNATURE OF INSPECTOR		

NAD 27
X 2,348,237
Y 338,209

ELEVATION e	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
-41.2	0		Dark Olive Calcareous Sandy Clayey SILT (ML) with hard layers of silt in the first 2' (Cooper Marl)		Top	Start Time: 12:59 Stop Time: 13:17	
	1						
	2						
	3					C' C	Sample #1
	4						Penetrometer = 1.75 TSF to 2.50 TSF
	5						
	6						
	7						
	8					B' B	Sample #2
	9						
	10						
	11						
	12						Penetrometer = 1.75 TSF
	13					A' A	
	14						
	15						
	16						
	17						
-58.7	17				Bottom		
	18						
	19						
	20						

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-48A-1-2			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES	UNDISTURBED N.A.
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER	N.A.
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE	STARTED 8/16/86
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE	COMPLETED Same
9. TOTAL DEPTH OF HOLE 20.3'			18. TOTAL CORE RECOVERY FOR BORING 7' Pen / 9.4' Rec	
			19. SIGNATURE OF INSPECTOR T.E. J. F. H. E. C.	

NAD 27
X 2348,237
Y 338,209

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-41.2	1		Jet to 11'			Start Time: 16:36 Stop Time: 17:20
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
-52.2	11		Dark Olive Calcareous Sandy Clayey SILT (ML) (Cooper Marl)		Top	
	12					
	13					
	14					
	15				A'	Sample #1
	16				A	
	17					
	18					Penetrometer = 2.0 TSF
	19					
	20					Sample #2

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 of 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and title number) CHDVC-49-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 8/16/86 COMPLETED Same		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -41.4' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 15.3' Pen/20' Rec		
		19. SIGNATURE OF INSPECTOR		



NAD 27
X 2,353,856
Y 333,176

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-41.4	1	[Pattern]	Dark Olive Calcareous Silty Fine SAND (SM) (Cooper Marl)		Top	Sample #1 Start Time: 10:54 Stop Time: 11:08
-43.1	2	[Pattern]	Dark Olive Calcareous Silty Clayey Fine SAND (SC) (Cooper Marl)			Penetrometer = 1.25 TSF
	3	[Pattern]				
	4	[Pattern]				
	5	[Pattern]				
	6	[Pattern]			C' C	Sample #2
-48.8	7	[Pattern]	Dark Olive Calcareous Very Sandy Clayey SILT (ML) (Cooper Marl)			Penetrometer = 2.0 TSF
	8	[Pattern]				
	9	[Pattern]				
	10	[Pattern]				
	11	[Pattern]			B' B	Sample #3
-55.6	14	[Pattern]				Penetrometer = 1.5 TSF
	15	[Pattern]				
	16	[Pattern]				
	17	[Pattern]				
	18	[Pattern]			A' A	Sample #4
-61.4	20	[Pattern]			Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-49A-1-2		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 8/16/86 COMPLETED Same		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -41.4' MLW		
9. TOTAL DEPTH OF HOLE 22.4'		18. TOTAL CORE RECOVERY FOR BORING 6' Pen/8.4' Rec		
		19. SIGNATURE OF INSPECTOR		

NAD 27
X 2,353,856
Y 333,176




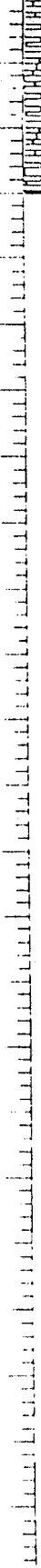
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-41.4	1		Jet to 14'			Start Time: 11:48 Stop Time: 12:05
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					
	13					
-55.4	14		Dark Olive Calcareous Very Sandy Clayey SILT (ML) (Cooper Marl)		Top	
	15					
	16					
	17				A'	
	18				A	Sample #1
	19					
	20					

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		Hole No. CHDVC-49A-2-2		
PROJECT Charleston Harbor Deepening			INSTALLATION		SHEET 2 OF 2 SHEETS	
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV. e	BOX OR SAMPLE NO f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	21		Dark Olive Calcareous Very Sandy Clayey SILT (ML) (Cooper Marl)			
63.8	22				Bottom	
	23		$\begin{array}{r} 41.4 \\ 22.4 \\ \hline 63.8 \end{array}$			

DRILLING LOG		DIVISION	INSTALLATION		SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHOVC-4A-1-2			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. DATE HOLE 8/5/86		15. ELEVATION GROUND WATER 0 MLW
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED 8/5/86		
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -41.5' MLW		
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 7.8' Pen / 10.8' Rec		
19. SIGNATURE OF INSPECTOR					

NADA 27
2,319,767
X
Y 390,244

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-41.5	0		Jet to 12.2'			Start Time: 8:55 Stop Time: 9:22
	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					
-53.7	12					
	13		Olive Calcareous Clayey SILT (ML) (Cooper Marl)		Top B' B	Sample #1
	14					
	15					
	16					
	17					
	18				A' A	Penetrometer = 1.5 TSF Sample #2
	19					
	20					

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		-41.5' MLW		Hole No. CHDVC-4A-2-2	
PROJECT			INSTALLATION			SHEET	
Charleston Harbor Deepening						2	
						OF 2 SHEETS	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
a	b	c	d	e	f	R	
	21		Olive Calcareous Clayey SILT (ML) (Cooper Marl)				
	22						
-64.5	23				Bottom		
							

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (YBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-50-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED 8/16/86 COMPLETED Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -41.7' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 18.5' Pen / 20' Rec %	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,355,011
Y 330,966

ELEVATION e	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY a	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-41.7	1		Dark Olive Calcareous Clayey Silty Fine SAND (SM) (Cooper Marl)		Top	Start Time: 10:04 Stop Time: 10:21 Sample #1 Penetrometer = 1.0 TSF
-44.0	2					
	3		Dark Olive Calcareous Very Sandy Clayey SILT (SM/ML) (Cooper Marl)			
	4					
	5				C'	Penetrometer = 1.5 TSF
	6				C	
	7					Sample #2
	8					
	9					
	10				B'	Sample #3
	11				B	
	12					
	13					
	14					
	15				A'	Penetrometer = 2.5 TSF
	16			A		
	17				Sample #4	
	18					
	19				Penetrometer = 1.5 TSF	
-61.7	20			Bottom		

DRILLING LOG		DIVISION	INSTALLATION	OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT Mean Low Water (MLW)		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-51-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN N.A.	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE 8/16/86		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -34.1' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 100 %		
		19. SIGNATURE OF INSPECTOR		

CHDVC-51-1-1

NAD 27
X 2,356,704
Y 330,468

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
a	b	c	d	e	f	g
-34.1			Dark Olive Calcareous Very Clayey Silty Fine SAND (COOPER MARL) (SM)		Top	Start Time: 08:56 Stop Time: 09:00
	1					
	2					Penetrometer = 0.75 TSF
	3					
	4					
	5				C'	Sample #1
	6				C	
	7					
	8					
	9					
	10		10.2' to 12.2' lenses of cemented marl		B'	Sample #2
	11				B	
	12					
	13					
	14					
	15				A'	Sample #3
	16				A	
	17					
	18					
	19					
-54.1	20				Bottom	Sample #4

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 of 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-5-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED: 7/31/86 COMPLETED: Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -34.4' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 13.9' Per 19.3 Perc	
			19. SIGNATURE OF INSPECTOR	

NADA 27
X 3319285
Y 3384248

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-34.4	1		Black Organic Clayey SILT (MH/OH)		Top	Start Time: 15:04 Stop Time: 15:33
	2					
	3					
	4					
	5					
	6		Olive Calcareous Sandy Clayey SILT (MH) (Cooper Marl)		C' C	Sample #1
-40.6	7					
	8					
	9					
	10					
	11					
	12					
	13					
	14					
	15					
	16				B' B	Sample #3
	17					Penetrometer = 1.5 TSF to 2.75 TSF
	18					
	19				A' A	Sample #4
-54.4	20				Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-52-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE	STARTED 8/8/86	COMPLETED 8/8/86
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -44.2' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 15.8' Pen/20' Rec		
19. SIGNATURE OF INSPECTOR				

NAD 27
X 2,357,830
Y 329,463

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-44.2			Clayey Fine SAND with shell hash		Top	Sample #1 Start Time: 12:27 Stop Time: 12:38
-44.3	1		Dark Olive Calcareous Silty Fine SAND (SM) and Sandy Clayey SILT (ML) (Cooper Marl)			Penetrometer = 0.7 TSF
	2					
	3					
	4		3.4' to 5.8' - Thick lenses of extremely hard calcareous SILT			
	5				C'	
	6				C	Sample #2
	7					
	8					
	9					
	10				B'	
	11				B	Sample #3
	12					
-56.6	13		Dark Olive Calcareous Sandy Clayey SILT (ML) (Cooper Marl) with 1" to 1/2" pods of olive calcareous very sandy SILT occurring randomly			
	14					
	15				A'	
	16				A	Sample #4
	17					Penetrometer = 1.5 TSF to 2.0 TSF
	18					
	19					
-64.2	20				Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT 11. DAYUM FOR ELEVATION SHOWN (TBM or NSL) Mean Low Water (MLW)	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
3. DRILLING AGENCY Ocean Surveys, Inc.			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
4. HOLE NO. (As shown on drawing title and file number) CHOVC-53-1-1			14. TOTAL NUMBER CORE BOXES N.A.	
5. NAME OF DRILLER DMB			15. ELEVATION GROUND WATER 0 MLW	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE STARTED: 8/9/86 COMPLETED: Same	
7. THICKNESS OF OVERBURDEN N/A			17. ELEVATION TOP OF HOLE -31.6' MLW	
8. DEPTH DRILLED INTO ROCK N/A			18. TOTAL CORE RECOVERY FOR BORING 100 %	
9. TOTAL DEPTH OF HOLE 20'			19. SIGNATURE OF INSPECTOR	

NAD 29
X 2,360,546
Y 329,013

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
a	b	c	d	e	f	g
-31.6			Dark Olive Clayey Silty Fine SAND (COOPER MARL) (SC/SM)		Top	Start Time: 11:03 Stop Time: 11:11
	1					
	2					Penetrometer = 1.5 TSF
	3					
	4					
	5				A'	Sample #1
	6				A	
	7					
	8					
	9					
	10				B'	Sample #2
	11				B	
	12					Penetrometer = 0.5 TSF
	13					
	14					
	15				A'	Sample #3
	16				A	
	17					
	18					
	19					
-51.6	20				Bottom	Sample #4

(TRANSLUCENT)

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and title number) CHDVC-54-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 8/7/86		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -37.1' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 17.3' Pen/20' Rec		
		19. SIGNATURE OF INSPECTOR		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-37.1	1	[Hatched Pattern]	Gray Cemented Silty Fine SAND and shell hash (SM/SHELL) with high concentrations of scallop shells		Top	Sample #1 Start Time: 14:55 Stop Time: 15:08
-41.1	4	[Horizontal Line Pattern]	Dark Brown/Olive Calcareous Clayey Silty Fine SAND (SM) (Cooper Marl)		C'	
	5	[Horizontal Line Pattern]			C	Sample #2
	10	[Horizontal Line Pattern]			B'	
	11	[Horizontal Line Pattern]			B	Sample #3
	15	[Horizontal Line Pattern]			A'	
	16	[Horizontal Line Pattern]			A	Sample #4
-57.1	20				Bottom	

NAD 27
X 2,361,137
Y 327,607

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-54A-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED: 8/7/86 COMPLETED: Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -37.1' MLW	
9. TOTAL DEPTH OF HOLE 21'			18. TOTAL CORE RECOVERY FOR BORING 3' Pen/4' Rec	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 3,361,137
Y 327,607

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
a	b	c	d	e	f	g
-37.1	0		Jet to 17'			Start Time: 15:30 Stop Time: 15:33
	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					
	13					
	14					
	15					
	16					
-54.1	17		Dark Green Calcareous Clayey Sandy SILT (ML) (Cooper Marl)		top	Sample #1
	18					
	19					
	20					

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		Hole No. CHDVC-54A-2-2		
PROJECT Charleston Harbor Deepening			INSTALLATION		SHEET 2 OF 2 SHEETS	
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
58.1	21		Dark Green Calcareous Clayey Sandy SILT (ML) (Cooper Marl)		Bottom	Penetrometer = 0.6 TSF
			$\begin{array}{r} 37.1 \\ + 21 \\ \hline 58.1 \end{array}$			

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT 11. DAYUM FOR ELEVATION SHOWN (YBM or MSL) Mean Low Water (MLW)	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
3. DRILLING AGENCY Ocean Surveys, Inc.			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED N.A. UNDISTURBED N.A.	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-55-1-1			14. TOTAL NUMBER CORE BOXES N.A.	
5. NAME OF DRILLER DMB			15. ELEVATION GROUND WATER 0 MLW	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE STARTED 8/7/86 COMPLETED Same	
7. THICKNESS OF OVERBURDEN N/A			17. ELEVATION TOP OF HOLE -32.1' MLW	
8. DEPTH DRILLED INTO ROCK N/A			18. TOTAL CORE RECOVERY FOR BORING 17.2' Pen/20' Rec	
9. TOTAL DEPTH OF HOLE 20'			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,361,323
Y 327,439

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-32.1	1		Gray Cemented Silty Fine SAND and shell hash (SM/SHELL) (Coquina)		Top	Start Time: 11:13 Stop Time: 11:33
	2					
	3					
	4					
	5		Dark Olive Calcareous Clayey Silty Fine SAND (SC/SM) (Cooper Marl)		C'	Sample #1
-37.0	6				C	
	7					
	8					
	9					
	10					
	11					
	12					
	13					
	14					
	15					
	16					
	17					
	18					
	19					
	20					
					B'	Sample #2
					B	
					A'	Sample #3
					A	
					Bottom	Sample #4

DRILLING LOG		DIVISION		INSTALLATION		SHEET 1 OF 1 SHEETS	
1. PROJECT Charleston Harbor Deepening				10. SIZE AND TYPE OF BIT			
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel				11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)			
3. DRILLING AGENCY Ocean Surveys, Inc.				12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500			
4. HOLE NO. (As shown on drawing title and file number) CHDVC-55A-1-1				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER OMB				14. TOTAL NUMBER CORE BOXES		14. TOTAL NUMBER CORE BOXES	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEG. FROM VERT.				15. ELEVATION GROUND WATER		15. ELEVATION GROUND WATER	
7. THICKNESS OF OVERBURDEN N/A				16. DATE HOLE		16. DATE HOLE	
8. DEPTH DRILLED INTO ROCK N/A				17. ELEVATION TOP OF HOLE		17. ELEVATION TOP OF HOLE	
9. TOTAL DEPTH OF HOLE 20.0'				18. TOTAL CORE RECOVERY FOR BORING		18. TOTAL CORE RECOVERY FOR BORING	
				19. SIGNATURE OF INSPECTOR			

NAD 27
X 2,361,323
Y 327,439

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
a	b	c	d	e	f	g
-32.1	1		Jet to 17'			Start Time: 12:02 Stop Time: 12:16
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					
	13					
	14					
	15					
	16					
-49.1	17		Dark Green Calcareous Clayey Sandy SILT (ML) (Cooper Marl)		Top	Sample #1
	18					
	19				Bottom	
-50.9	19					
	20					

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHOVC-56-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN N.A.	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 8/6/86 COMPLETED Same		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -33.3' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 17.4' Pen/20' Rec		
		19. SIGNATURE OF INSPECTOR		

NAD 27
X 2,364,247
Y 325,820

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-33.3	1		Gray Cemented Silty Fine SAND and shell hash (SP/SM/SHELL) (Coquina)		Top	Start Time: 10:41 Stop Time: 10:55
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					
	13					
	14					
	15					
	16					
	17					
	18					
-52.3	19		Dark Olive Calcareous Clayey Silty Fine SAND (SM/SC) (Cooper Marl)		Sample #4	Penetrometer = 1.5 TSF
-53.3	20				Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-56A-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE		STARTED 8/6/86 COMPLETED Same
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -33.3' MLW		
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING 100 %		
		19. SIGNATURE OF INSPECTOR		

NAD 27
X 2,364,247
Y 325,820

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-33.3	0		Jet to 16'			Start Time: 11:19 Stop Time: 11:24
	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					
	13					
	14					
	15					
-49.3	16		Gray Cemented Fine SAND & shell hash (SP/SHELL) (Coquina)		Top	Sample #1
-50.3	17		Dark Green Calcareous Sandy Clayey SILT (ML) (Cooper Marl)			
	18					
	19					
-53.3	20				Bottom	Sample #2 Penetrometer = 0.75 TSF

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT 11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
3. DRILLING AGENCY Ocean Surveys, Inc.			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-57-1-1			14. TOTAL NUMBER CORE BOXES N.A.	
5. NAME OF DRILLER DMB			15. ELEVATION GROUND WATER 0 MLW	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE STARTED: 9/10/86 COMPLETED: Same	
7. THICKNESS OF OVERBURDEN N/A			17. ELEVATION TOP OF HOLE -33.8' MLW	
8. DEPTH DRILLED INTO ROCK N/A			18. TOTAL CORE RECOVERY FOR BORING 100 %	
9. TOTAL DEPTH OF HOLE 20'			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,366,610
Y 325,535

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-33.8	1	[Dotted pattern]	Light Gray Calcareous Cemented Silty Fine SAND and shell hash (SM/SHELL) (Coquina)		Top	Sample #1 13 Start Time: 13:30 Stop Time: 13:04
-36.1	2	[Dotted pattern]	Dark Olive Calcareous Very Sandy Clayey SILT (COOPER MARL) (ML/MH)			
	3	[Horizontal line pattern]				
	4	[Horizontal line pattern]				
	5	[Horizontal line pattern]			C'	
	6	[Horizontal line pattern]			C	Sample #2
	7	[Horizontal line pattern]				
	8	[Horizontal line pattern]				Penetrometer = 2.25 TSF
	9	[Horizontal line pattern]				
	10	[Horizontal line pattern]			B'	
	11	[Horizontal line pattern]			B	Sample #3
	12	[Horizontal line pattern]				
	13	[Horizontal line pattern]				
	14	[Horizontal line pattern]				
	15	[Horizontal line pattern]			A'	
	16	[Horizontal line pattern]			A	Sample #4
	17	[Horizontal line pattern]				
	18	[Horizontal line pattern]				
	19	[Horizontal line pattern]				
-53.8	20	[Horizontal line pattern]			Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinate or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-58-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED: 9/10/86 COMPLETED: Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -37.7' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 100 %	
			19. SIGNATURE OF INSPECTOR	

NAD 2.7
X 2,366,754
Y 324,515

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)		
e	b	c	d	a	f	g		
-37.7	1		Dark Olive Calcareous Very Sandy Clayey SILT (COOPER MARL) (SM/ML)		Top	Sample #1 Start Time: 14:23 Stop Time: 14:35		
	2							
	3							
	4							
	5						C'	
	6						C	Sample #2
	7							
	8							Penetrometer = 1.25 TSF
	9							
	10						B'	
	11						B	Sample #3
	12							
	13							
	14							
	15						A'	
	16						A	Sample #4
	17							
	18							Penetrometer = 0.75 TSF
	19							
-57.7	20						Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHOVC-59-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A. UNDISTURBED N.A.
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED 9/10/86 COMPLETED Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -35.2' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 100 %	
			19. SIGNATURE OF INSPECTOR	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-35.2	1		Gray Calcareous Loosely Cemented Silty Fine SAND and shell hash with scallop shells (Coquina) (SM/SHELLS)		Top	Sample #1 Start Time: 16:18 Stop Time: 16:26
-39.0	4		Dark Olive Calcareous Very Sandy Clayey SILT (COOPER MARL) (ML/SM)		C'	
	5				C	Sample #2
	10				B'	
	11				B	Sample #3
	15				A'	
	16				A	Sample #4
-55.2	20				Bottom	

NAD 27
 * 2368, 431
 Y 324, 622

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-5A-1-2			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED: 8/5/86 COMPLETED: Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -34.7' MLW	
9. TOTAL DEPTH OF HOLE 24.8'			18. TOTAL CORE RECOVERY FOR BORING 8' Pen/12.8' Rec	
			19. SIGNATURE OF INSPECTOR	

NADA 27
X 2,319,279
Y 389,251

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-34.7	1		Jet to 12'			Start Time: 10:01 Stop Time: 10:29
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
-46.7	12		Olive Calcareous Sandy Clayey SILT (MH) (Cooper Marl)		Top	
	13					
	14					
	15				B'	Penetrometer = 1.5 TSF to 2.75 TSF
	16				B	
	17					
	18					
	19					Sample #1
	20					

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE -35.2 MLW		Hole No. CHDVC-5A-2-2		
PROJECT Charleston Harbor Deepening			INSTALLATION		SHEET 2 OF 2 SHEETS	
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV- ERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	21		Olive Calcareous Sandy Clayey SILT (MH) (Cooper Marl)			
	22					
	23					
	24					
-59.5	24.8					

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
3. DRILLING AGENCY Ocean Surveys, Inc.		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-60-1-1		14. TOTAL NUMBER CORE BOXES N.A.		
5. NAME OF DRILLER OMB		15. ELEVATION GROUND WATER 0 MLW		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		16. DATE HOLE STARTED: 9/10/86 COMPLETED: Same		
7. THICKNESS OF OVERBURDEN N/A		17. ELEVATION TOP OF HOLE -35.2' MLW		
8. DEPTH DRILLED INTO ROCK N/A		18. TOTAL CORE RECOVERY FOR BORING 100		
9. TOTAL DEPTH OF HOLE 20'		19. SIGNATURE OF INSPECTOR		

NAD 27
X 2,360,483
Y 323,459

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-35.2	1	[Dotted pattern]	Light Gray Calcareous Loosely Cemented Silty Fine SAND and shell hash with hi-scallop shells (SM/SHELL) (Coquina)		Top	Sample #1 Start Time: 18:20 Stop Time: 18:30
	2	[Dotted pattern]				
	3	[Dotted pattern]				
	4	[Dotted pattern]				
	5	[Dotted pattern]			C'	
	6	[Dotted pattern]			C	Sample #2
-41.9	7	[Horizontal lines]	Olive Calcareous Sandy Clayey SILT (ML) (Cooper Marl)			
	8	[Horizontal lines]				Penetrometer = 0.75 TSF
-44.2	9	[Horizontal lines]	Olive Calcareous Silty Clayey Fine SAND (SM/SC) (Cooper Marl)		B'	
	10	[Horizontal lines]			B	Sample #3
	11	[Horizontal lines]				
	12	[Horizontal lines]				
	13	[Horizontal lines]				
	14	[Horizontal lines]				
	15	[Horizontal lines]			A'	
	16	[Horizontal lines]			A	Sample #4
	17	[Horizontal lines]				
	18	[Horizontal lines]				
	19	[Horizontal lines]				
-55.2	20	[Horizontal lines]			Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHOVC-61-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES	UNDISTURBED N.A.
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER	0 MLW
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE	STARTED 9/11/86 COMPLETED Same
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -39.5' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 100 %	
			19. SIGNATURE OF INSPECTOR	

CHOVC
61-1-1

NAD 27
X 2370,116
Y 323,565

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g			
-39.5	1		Dark Olive Calcareous Very Sandy Clayey SILT (ML/SM) (Cooper Marl)		Top	Sample #1 Start Time: 10:39 Stop Time: 10:46			
2									
3								Penetrometer = 1.5 TSF	
4									
5								C'	
6								C	Sample #2
7									
8									
9									
10								B'	
11								B	Sample #3
12									
13									
14									
15								A'	
16								A	Sample #4
17									
18									
19									
-59.5	20							Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-6-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. DATE HOLE	
7. THICKNESS OF OVERBURDEN N/A			16. ELEVATION GROUND WATER 0 MLW	
8. DEPTH DRILLED INTO ROCK N/A			17. DATE HOLE STARTED 8/1/86 COMPLETED Same	
9. TOTAL DEPTH OF HOLE 15.8'			18. ELEVATION TOP OF HOLE -24.2 MLW	
			19. TOTAL CORE RECOVERY FOR BORING 10.5' Pen/15.8' Rec	
			20. SIGNATURE OF INSPECTOR	

NADAR 7
X 2,317,559
Y 383,305

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-24.2			Brown Silty Fine SAND with phosphate nodules (SP/SM)		TOP	Sample #1
-24.6	1		Olive Calcareous Sandy Clayey SILT (MH) (Cooper Marl)		C'	Start Time: 11:29
	2				C	Stop Time: 11:52
	3					Penetrometer = 1.75 TSF to 2.75 TSF
	4					
	5					Sample #2
	6				B'	
	7				B	
	8					
	9					
-34.0	10					Sample #3
	11				A'	
	12				A	Penetrometer = 2.0 TSF to 3.0 TSF
	13					
	14					
	15					Sample #4
-40.0	16				Bottom	
	17					
	18					
	19					
	20					

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (FBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-62-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN N.A.	UNDISTURBED N.A.	
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 9/11/86 COMPLETED Same		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -37.9' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 100 %		
		19. SIGNATURE OF INSPECTOR		

NAD 27
X 2370,256
Y 322,591

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
-37.9	1		Gray & Green Calcareous Loosely Cemented Silty Fine SAND and SHELL HASH (SP/SM/SHELL) (Coquina)		Top	Sample #1 Start Time: 11:32 Stop Time: 11:45	
	2						
	3						
	4						
	5					C'	
	6					C	Sample #2
	7						
-45.2	8		Dark Olive Calcareous Very Sandy Clayey SILT (SM/ML) (Cooper Marl)				
	9						
	10					B'	
	11					B	Sample #3
	12						
	13						
	14						
	15					A'	
	16					A	Sample #4
	17						
	18						
	19						
-57.9	20				Bottom		

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-63-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED: 9/11/86 COMPLETED: Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -27.3' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 100 %	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,371,927
Y 322,766

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
-27.3	1		Blue-Gray Organic Silty Fine SAND with concentrations of shell hash (SM/SHELL)		Top	Start Time: 13:04 Stop Time: 13:07	
	2						
	3						
	4						
	5						
	6						
	7						
	8						
	9		Light Green Calcareous Very Loosely Cemented Silty Fine SAND and SHELL HASH (SM/SHELL) (Coquina)		C'	Sample #1	
	10						
	11						
	12						
	13						
	14						
	15						
	16						
	17						
	18						
	19						
	20						
-36.3	9				B'	Sample #2	
	10				B		
	11						
	12						
	13						
	14						
	15				A'	Sample #3	
	16				A		
	17						
	18						
	19						
	20				Bottom	Sample #4	
-47.3							

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (FBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHOVC-64-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES		N.A.
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER		0 MLW
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE		STARTED 9/11/86 COMPLETED Same
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE		-33.1 MLW
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING		100 %
		19. SIGNATURE OF INSPECTOR		

NAD 27
X 2,371,993
Y 321,581

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g		
-33.1	0				Top	Start Time: 13:40 Stop Time: 13:54		
	1		Dark Gray Calcareous Silty Fine SAND and shell hash (SP/SM/SHELL) (Coquina)					
	2							
	3							
	4							
	5						C'	Sample #1
	6						G	
	7							
	8							
	9							
	10						B'	Sample #2
	11						B	
	12							
	13							
	14							
	15						A'	Sample #3
	16						A	
	17							
	18							
-51.6	19				Dark Olive Calcareous Slightly Sandy Clayey SILT (ML)			Sample #4
-53.1	20					Bottom		

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT Mean Low Water (MLW)	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-65-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED N.A. UNDISTURBED N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED 9/11/86 COMPLETED Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -34.4 MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 96 %	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2373,654
Y 321,709

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-34.4	1		Dark Brown Organic Silty Fine SAND (SP/SM)		Top	Sample #1 Start Time: 14:44 Stop Time: 14:48
-37.6	4		Gray/Brown Clayey Fine SAND (SC)		C' C	Sample #2
-39.3	5		Light Gray Calcareous Loosely Cemented Silty Fine SAND and shell hash (SM/SHELL) - extremely high in scallop shells (Coquina)		B' B	Sample #3
	14		13.6' - Light Green instead of Light Gray but same comp.		A' A	Sample #4
-53.6	19				Bottom	
-54.4	20					

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT 11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
3. DRILLING AGENCY Ocean Surveys, Inc.		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-66-1-1		DISTURBED N.A.	UNDISTURBED N.A.	
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 9/11/86 9/11/86		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -39.1 MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 93.5 %		
19. SIGNATURE OF INSPECTOR				

NAD 27
X 2,373,796
Y 320,714

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-39.1	1		Black Organic Sandy Clayey SILT (MH)		Top	Sample #1 Start Time: 15:31 Stop Time: 15:34
-42.6	4		Gray Calcareous Cemented Fine SAND and shell hash (SP/SHELL) high in scallops (Coquina)		C' C	Sample #2
	9				B' B	Sample #3
	14		Turns Greenish in last 5'		A' A	Sample #4
-57.6	18				Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT Mean Low Water (MLW)		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (YBM or MSL)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and title number) CHDVC-67-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE 9/11/86		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -30.2' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 100 %		
		19. SIGNATURE OF INSPECTOR		

NAD 27
X 3375,474
Y 320,820

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-30.2	1		Gray Silty Fine SAND with shell hash (SP/SM/SHELL)		Top	Sample #1 Start Time: Stop Time:
-33.4	4		Gray Slightly Sandy Clayey SILT (ML)		C' C	Sample #2
	10				B' B	Sample #3
-46.0	16		White Calcareous Cemented Fine SAND and shell hash (SP/SHELL) (Coquina)		A' A	Sample #4
-50.2	20				Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-68-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER OMB			DISTURBED N.A. UNDISTURBED N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			14. TOTAL NUMBER CORE BOXES N.A.	
7. THICKNESS OF OVERBURDEN N/A			15. ELEVATION GROUND WATER 0 MLW	
8. DEPTH DRILLED INTO ROCK N/A			16. DATE HOLE	
9. TOTAL DEPTH OF HOLE 20'			STARTED _____ COMPLETED _____	
			17. ELEVATION TOP OF HOLE -36.0' MLW	
			18. TOTAL CORE RECOVERY FOR BORING 92.5 %	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,375,472
Y 319,629

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-36.0	1		Gray Organic Clayey SILT (MH)		Top	Start Time: 08:19 Stop Time: 08:42 Penetrometer = 0.5 TSF
-39.5	3				C'	Sample #1
	4		Cemented Slightly Silty Fine SAND and shell hash (SP/SM/SHELL) with occasional high concentrations of scallop shells (Coquina)		C	
	5					
	6					
	7					
	8				B'	Sample #2
-44.4	9				B	
	10					
	11					
	12					
	13					Sample #3
-49.4	14				A'	
	15				A	
	16					
	17					
	18		Gray Cemented Silty Fine SAND (SP/SM)			Sample #4
-54.5	18				Bottom	
	19					
	20					

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-69-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED: 9/11/86 COMPLETED: Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -36.5' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 100 %	
19. SIGNATURE OF INSPECTOR				

NAD 27
X 2,377,155
Y 319,740

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
-36.5	0		Dark Gray Silty CLAY (CL) with 1/8" to 1" layers of sand and shells from 1/2" to 1' apart		Top	Sample #1 Start Time: 17:01 Stop Time: 17:02	
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
-56.5	20				Bottom		

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT Mean Low Water (MLW)	
2. LOCATION (Coastwise or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-6A-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED: 8/1/86 COMPLETED: 8/1/86	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -24.0 MLW	
9. TOTAL DEPTH OF HOLE 13.3'			18. TOTAL CORE RECOVERY FOR BORING %	
19. SIGNATURE OF INSPECTOR				





ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-24.0	0		Olive Calcareous Sandy Clayey SILT (MH) (Cooper Marl)		Top	Start Time: 12:34 Stop Time:
	1					
	2					Penetrometer = 2.75 TSF
	3					
	4					
	5				B'	Sample #1
	6				B	
	7					
	8					Penetrometer = +4.5 TSF
	9					
	10				A'	Sample #2
	11				A	
	12					
-37.3	13				Bottom	
	14					
	15					
	16					
	17					
	18					
	19					
	20					

NADA 27
X 2317,596
Y 383,349

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-6B-1-2		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 8/1/86 COMPLETED Same		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -24.0' MLW		
9. TOTAL DEPTH OF HOLE 23.5'		18. TOTAL CORE RECOVERY FOR BORING 10' Pen/13.5' Rec		
		19. SIGNATURE OF INSPECTOR		

NADA 27
X 2317, 596
Y 383, 349

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
a	b	c	d	e	f	g
-24.0	0		Jet to 10'			Start Time: 15:41 Stop Time: 16:30
	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
-34.0	10		Jet to 10'			
	11		Olive Calcareous Cemented Sandy Clayey SILT (ML) (Cooper Marl)		Top	Penetrometer = +4.5 TSF
	12					
	13					
-37.5	14		Olive Calcareous Sandy Clayey SILT (ML) (Cooper Marl)		B'	Sample #1 Penetrometer = 1.5 TSF
	15				B	
	16					
	17					
	18					Sample #2
	19				A'	
	20				A	

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		HOLE NO.		SHEET	
PROJECT		INSTALLATION		HOLE NO.		OF 2 SHEETS	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
a	b	c	d	e	f	g	
	21		Olive Calcareous Sandy Clayey SILT (ML) (Cooper Marl)	100			
	22					Sample #3	
-47.5	23				Bottom		
							

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (YBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-70-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 9/11/86 COMPLETED Same		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -37.3' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 100 %		
		19. SIGNATURE OF INSPECTOR		

NAD 27
X 2,377,334
Y 318,754

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
-37.3	1		Gray Organic Clayey SILT with 1/16" thick sand layers 1/2" to 5" apart (MH)		Top	Start Time: 17:56 Stop Time: 18:02	
	2						Penetrometer = 0.75 TSF
	3						
	4						
	5					C'	Sample #1
-43.3	6		Light Gray Calcareous Sandy SILT and SHELL HASH (ML/SHELL)		C	Sample #2	
	7						Penetrometer = 0.25 TSF
	8						
-45.8	9		Light Gray Calcareous Cemented Slightly Silty Fine SAND and SHELL HASH (SP/SM/SHELL) (Coquina)		B'	Sample #3	
	10				B		
	11						
	12						
	13						
	14						
	15					A'	Sample #4
	16					A	
	17						
	18						
	19						
-57.3	20						

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-71-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED: 9/12/86 COMPLETED: Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -35.1' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 100 %	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,378,974
Y 318,879

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-35.1	1		Gray Clayey Silty Fine SAND (SC/SM) with high concentration of shell hash in first 2'		Top	Sample #1 Start Time: 8:40 Stop Time: 8:41
	2					
	3					
	4					
	5					
	6					
-41.3	7		Gray Slightly Sandy Clayey SILT (ML)		C' C	Sample #2
	8					
	9					
	10					
	11					
	12					
	13					
	14					
	15					
	16					
	17					
	18					
	19					
-55.1	20				A' A	Sample #4
					Bottom	

DRILLING LOG		DIVISION	INSTALLATION		SHEET OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (FBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-7-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	16. DATE HOLE	
7. THICKNESS OF OVERBURDEN N/A			17. ELEVATION TOP OF HOLE -24.0' MLW	STARTED 8/4/86	
8. DEPTH DRILLED INTO ROCK N/A			18. TOTAL CORE RECOVERY FOR BORING 9' Pen / 13.3' Rec	COMPLETED Same	
9. TOTAL DEPTH OF HOLE 13.3'			19. SIGNATURE OF INSPECTOR		

NADAR7
X 2,317,529
Y 382,331

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV. e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-24.0			Black Organic Silty Fine SAND (SM) with shells & phosphate nodules		Top	Sample #1
-24.7			Gray Cemented Calcareous Fine SAND (SP)			Sample #2
-25.1	1		Olive Calcareous Sandy Clayey SILT (ML/MH) (Cooper Marl)			Start Time: 14:19 Stop Time: 14:39
	2					Penetrometer = 1.5 TSF to 2.5 TSF
	3				B'	
	4				B	Sample #3
	5					
	6					
	7		At 6.5', becomes higher in clay			
	8				A'	
	9				A	Sample #4
	10					
	11					Penetrometer = 2.8 TSF
	12					
-37.3	13				Bottom	
	14					
	15					
	16					
	17					
	18					
	19					
	20					

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-72-1-1		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN N.A.	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE 9/12/86	STARTED Same	COMPLETED Same
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -38.6' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 100		
19. SIGNATURE OF INSPECTOR				

NAD 27
X 2,379,000
Y 317,720

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
-38.6	0		Gray Clayey Silty Fine SAND with shell hash in first 1' (SM/SC/SHELL)		Top	Sample #1 Start Time: 09:43 Stop Time: 09:50	
	1						
	2						
	3						
	4						
	5					C'	
	6					C	Sample #2
	7						
	8						
	9						
-49.0	10		Light Gray Calcareous Cemented Fine SAND & SHELL HASH (SP/SHELL) (Coquina)		B'		
	11					B	
	12						
	13						
	14						
	15					A'	
	16					A	Sample #4
	17						
	18						
	19						
-58.6	20				Bottom		

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-73-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES	UNDISTURBED N.A.
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER	0 MLW
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE	STARTED 9/12/86
8. DEPTH DRILLED INTO ROCK N/A			COMPLETED Same	
9. TOTAL DEPTH OF HOLE 20'			17. ELEVATION TOP OF HOLE -38.5' MLW	
			18. TOTAL CORE RECOVERY FOR BORING 100 %	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,380,290
Y 318,062

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-38.5	1		Gray Slightly Sandy Clayey SILT (ML/MH)		Top	Sample #1 Start Time: 10:42 Stop Time: 10:44
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
-50.5	12		Gray Very Clayey Fine SAND with shell hash (SC/SHELL)		C'	Sample #2
	13					
	14					
	15					
	16					
	17					
	18					
	19					
-58.5	20				B'	Sample #3
					B	
					A'	Sample #4
					A	
					Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT 11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
3. DRILLING AGENCY Ocean Surveys, Inc.			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
4. HOLE NO. (As shown on drawing title and file number) CHOVC-74-1-1			14. TOTAL NUMBER CORE BOXES N.A.	
5. NAME OF DRILLER DMB			15. ELEVATION GROUND WATER 0 MLW	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE STARTED: 9/12/86 COMPLETED: Same	
7. THICKNESS OF OVERBURDEN N/A			17. ELEVATION TOP OF HOLE -41.5' MLW	
8. DEPTH DRILLED INTO ROCK N/A			18. TOTAL CORE RECOVERY FOR BORING 100 %	
9. TOTAL DEPTH OF HOLE 20'			19. SIGNATURE OF INSPECTOR	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-41.5	1		Gray Silty Clayey Fine SAND (SC)		Top	Start Time: 11:39 Stop Time: 11:46
	2					
	3					
	4					
	5				Sample #1	
	6				C'	
	7				C	
-49.2	8		Gray-Green Calcareous Cemented Slightly Silty Fine SAND & Shell Hash (SP/SM/SHELL) (Coquina)			Sample #2
	9					
	10				B'	
	11				B	
	12					
	13					
	14				Sample #3	
	15				A'	
	16				A	
	17					
	18					
	19				Sample #4	
-61.5	20				Bottom	

NAD 27
X 2,389,808
Y 316,848

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-75-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER DMB			DISTURBED N.A. UNDISTURBED N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			14. TOTAL NUMBER CORE BOXES N.A.	
7. THICKNESS OF OVERBURDEN N/A			15. ELEVATION GROUND WATER 0 MLW	
8. DEPTH DRILLED INTO ROCK N/A			16. DATE HOLE STARTED 9/12/86 COMPLETED Same	
9. TOTAL DEPTH OF HOLE 20'			17. ELEVATION TOP OF HOLE -40.6' MLW	
			18. TOTAL CORE RECOVERY FOR BORING 100 %	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,382,762
Y 316,729

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)		
-40.6	1		Gray Organic Sandy Silty CLAY with bands of shell hash (CL/SHELL)		Top	Sample #1 Start Time: 13:21 Stop Time: 13:29		
	2							
	3							
	4						Penetrometer = 0.5 TSF	
	5						C'	
	6						C	Sample #2
	7							
-48.0	8		Light Gray Calcareous Cemented Silty Fine SAND and shell hash (SM/SHELL) (Coquina)		B'			
	9							
	10						B	Sample #3
	11							
	12							
	13							
	14							
	15						A'	
	16						A	Sample #4
	17							
	18							
	19							
-60.6	20				Bottom			

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-76-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER DMB			DISTURBED N.A. UNDISTURBED N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			14. TOTAL NUMBER CORE BOXES N.A.	
7. THICKNESS OF OVERBURDEN N/A			15. ELEVATION GROUND WATER 0 MLW	
8. DEPTH DRILLED INTO ROCK N/A			16. DATE HOLE	
9. TOTAL DEPTH OF HOLE 20'			STARTED 9/12/86 COMPLETED Same	
			17. ELEVATION TOP OF HOLE -41.3' MLW	
			18. TOTAL CORE RECOVERY FOR BORING 100 %	
			19. SIGNATURE OF INSPECTOR	

ELEVATION e	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-41.3	1		Gray Clayey SILT (ML) with layers of shell hash and sand in the first 1.5'		Top	Start Time: 14:17 Stop Time: 14:24
	2					
	3					
	4					Sample #1
	5					C'
	6					C
	7					
	8					
-49.7	9		Light Gray Calcareous Cemented Silty Fine SAND and shell hash (SP/SM/SHELL) (Coquina)			Sample #2
	10					
	11					B
	12					
	13					
	14					Sample #3
	15					A'
	16					A
	17					
	18					
	19					Sample #4
-61.3	20					Bottom

NAD 27
X 2,383,790
Y 315,221

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT 11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
3. DRILLING AGENCY Ocean Surveys, Inc.			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-77-1-1			14. TOTAL NUMBER CORE BOXES N.A.	
5. NAME OF DRILLER DMB			15. ELEVATION GROUND WATER 0 MLW	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE STARTED: 9/12/86 COMPLETED: Same	
7. THICKNESS OF OVERBURDEN N/A			17. ELEVATION TOP OF HOLE -40.6' MLW	
8. DEPTH DRILLED INTO ROCK N/A			18. TOTAL CORE RECOVERY FOR BORING 81.5 %	
9. TOTAL DEPTH OF HOLE 20'			19. SIGNATURE OF INSPECTOR	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-40.6	1		Alternating 4" Layers of Gray Silty Fine SAND and Gray SAND (SP/SM)		Top	Sample #1 Start Time: 15:19 Stop Time: 15:26
	2					
-43.2	3		Light Gray Calcareous Loosely Cemented Fine SAND and shell hash (SP/SHELL) (Coquina)		B'	
	4					
	5			B	Sample #2	
	6					
	7					
	8					
	9					
	10			A'	Sample #3	
	11			A		
	12					
	13					
	14					
-55.6	15			Bottom		
	16					
	17					
	18					
	19					
-60.6	20					

NAD 27
X 2,386,327
Y 314,847

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT 11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
3. DRILLING AGENCY Ocean Surveys, Inc.			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED N.A. UNDISTURBED N.A.	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-78-1-1			14. TOTAL NUMBER CORE BOXES N.A.	
5. NAME OF DRILLER OMB			15. ELEVATION GROUND WATER 0 MLW	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE STARTED 9/12/86 COMPLETED Same	
7. THICKNESS OF OVERBURDEN N/A			17. ELEVATION TOP OF HOLE -41.7' MLW	
8. DEPTH DRILLED INTO ROCK N/A			18. TOTAL CORE RECOVERY FOR BORING 90 %	
9. TOTAL DEPTH OF HOLE 20'			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,387,040
Y 313,348

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-41.7	1		Gray Silty Fine SAND (SP/SM)		Top	Sample #1 Start Time: 16:00 Stop Time: 16:16
-43.7	2		Tan Calcareous Loosely Cemented Silty Fine SAND and shell hash (SP/SM/SHELL) (Coquina)		C'	Sample #2
	3			C		
	4					
	5					
	6					
	7					
	8				B'	
	9				B	
	10		At 9.5', turns gray, but same sediment			Sample #3
	11					
	12					
	13				A'	
	14				A	
	15					Sample #4
	16					
	17					
-59.7	18				Bottom	
	19					
	20					

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates of Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-79-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED: 9/12/86 COMPLETED: Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -37.8' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 100 %	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,389,25.2
Y 313,120

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
-37.8	1	[Stippled pattern]	Gray Silty Fine SAND with shell hash (SP/SM/SHELL)		Top	Sample #1 Start Time: 17:35 Stop Time: 17:39	
	2						
	3			3.2' - Becomes Red-Iron Stained			
	4						
-42.8	5	[Stippled pattern]			C'	Sample #2	
	6				C		
	7						
	8						
	9						
-47.1	10	[Stippled pattern]	Gray Silty Fine SAND (SP/SM) with 1/2" to 1/8" thick layers of clay 1" to 3" apart		B'	Sample #3	
	11				B		
	12						
	13						
	14						
	15					A'	Sample #4
	16					A	
	17						
	18						
	19						
-57.8	20				Bottom		

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DAY OF YEAR FOR ELEVATION SHOWN (YBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHOVC-7A-1-2			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER DMB			DISTURBED N.A. UNDISTURBED N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			14. TOTAL NUMBER CORE BOXES N.A.	
7. THICKNESS OF OVERBURDEN N/A			15. ELEVATION GROUND WATER 0 MLW	
8. DEPTH DRILLED INTO ROCK N/A			16. DATE HOLE	
9. TOTAL DEPTH OF HOLE 29'			STARTED 8/4/86 COMPLETED Same	
			17. ELEVATION TOP OF HOLE -24.0 MLW	
			18. TOTAL CORE RECOVERY FOR BORING 10' Pen/20' Rec	
			19. SIGNATURE OF INSPECTOR	

NADA 27
X 2,317,529
Y 382,331

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-24.0	1		Jet to 9'			Start Time: 15:09 Stop Time: 15:41
	2					
	3					
	4					
	5					
	6					
	7					
	8					
-33.0	9				Top	Sample #1
	10		Olive Calcareous Sandy Clayey SILT (ML/MH) (Cooper Marl)			
	11					Penetrometer = 1.75 TSF
	12					
	13					Sample #2
	14				C'	
	15				C	Sample #3
	16					
	17					
	18					
	19				B'	
	20				B	Sample #4

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE -24.0 MLW		Hole No. CHDVC-7A-2-2				
PROJECT Charleston Harbor Deepening			INSTALLATION		SHEET OF 2 SHEETS 2 SHEETS			
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g		
	21		Olive Calcareous Sandy Clayey SILT (ML/MH) (Cooper Marl)					
	22							
	23							
	24						A'	
	25						A	Sample #5
	26							
	27							
	28							
	29							
-53.0							Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DAY/UN FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-80-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 9/13/86		COMPLETED Same
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -39.7' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 100 %		
		19. SIGNATURE OF INSPECTOR		

NAD 27
X 2,390,269
Y 311,658

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-39.7	1	[Dotted pattern]	Gray Fine SAND with concentration of shell hash in top 4". (SP/SHELL)		Top	Sample #1 Start Time: 10:02 Stop Time: 10:04
-41.9	2	[Diagonal lines]	Gray Silty CLAY with 3 random layers of shell hash (CL)			Penetrometer = 0.75 TSF
	3					
	4					
	5				C'	Sample #2
	6				C	
	7					
	8					
-47.9	9	[Diagonal lines]	Gray Sandy CLAY and Silty Fine SAND with shell hash (SM/SHELL)		B'	Sample #3
	10				B	
	11					
	12					
-51.7	13	[Dotted pattern]	White Calcareous Loosely Cemented SAND and shell hash (SP/SHELL) (Coquina)		A'	Sample #4
	14				A	
	15					
	16					
	17					
	18					
	19					
-59.7	20					

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and title number) CHDVC-81-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED: 9/13/86 COMPLETED: Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -39.9' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 100 %	
			19. SIGNATURE OF INSPECTOR	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
-39.9	1	[Dotted pattern]	Gray Fine SAND (SP)		Top	Sample #1 Start Time: 10:39 Stop Time: 10:42	
-42.0	2	[Diagonal lines]	Gray Slightly Sandy Silty CLAY (CL)			Penetrometer = 0.35 TSF	
	3						
	4						
	5				C'	Sample #2	
	6				C		
	7						
-47.7	8	[Dotted pattern]	Light Gray Calcareous Cemented Silty Fine SAND and shell hash (SP/SM/SHELL) (Coquina)		B'	Sample #3	
	9						B
	10						
	11						
	12						
	13						
	14						
	15				A'	Sample #4	
	16				A		
	17						
	18						
	19						
-59.9	20				Bottom		

NAD 27
X 2,392,037
Y 311,566

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT Mean Low Water (MLW)	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-8-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEC. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED: 8/4/86 COMPLETED: Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -26.3' MLW	
9. TOTAL DEPTH OF HOLE 17.6'			18. TOTAL CORE RECOVERY FOR BORING 16' Pen/17.6' Rec.	
19. SIGNATURE OF INSPECTOR				

NADA 27
X 2,317,732
Y 381,134

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-26.3	0		Dark Gray Organic Slightly Silty Fine SAND (SP/SM)		Top	Sample #1 Start Time: 11:19 Stop Time: 11:38
-28.1	2		Dark Brown Highly Organic Silty Fine SAND (SM)		C'	Sample #2
-29.5	3		Light Brown Organic Calcareous Clayey Silty Fine SAND (SM/SC) mix of above silt & underlying marl		C	Sample #3
-31.3	5		Tan Calcareous Slightly Sandy Silty CLAY (CL)		B'	Sample #4 Penetrometer = 2.0 TSF to 3.75 TSF
-35.1	9		Olive Calcareous Sandy Clayey SILT (ML/MH) (Cooper Marl)		B	Sample #5 Penetrometer = 2.0 TSF
-43.9	17				A'	Sample #6
					A	
					Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (FBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHOVC-82-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 9/13/86 COMPLETED Same		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -40.7 MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 100 %		
		19. SIGNATURE OF INSPECTOR		

NAD 27
X 2,393,367
Y 309,797

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-40.7	1	[Dotted pattern]	Gray Slightly Silty Fine SAND (SP)		Top	Sample #1 Start Time: 11:20 Stop Time: 11:24
-44.2	4	[Diagonal lines]	Gray Sandy CLAY with shell hash (CL/SHELL)		C'	
	5				C	Sample #2
-48.6	8	[Vertical lines]	Gray Clayey SILT (MH)		B'	
	10				B	Sample #3
	15				A'	
	15				A	Sample #4
	20				Bottom ?	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT 11. DAYUM FOR ELEVATION SHOWN (FBM or MSL) Mean Low Water (MLW)	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
3. DRILLING AGENCY Ocean Surveys, Inc.			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED N.A. UNDISTURBED N.A.	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-83-1-1			14. TOTAL NUMBER CORE BOXES N.A.	
5. NAME OF DRILLER DMB			15. ELEVATION GROUND WATER 0 MLW	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			16. DATE HOLE STARTED 9/13/86 COMPLETED Same	
7. THICKNESS OF OVERBURDEN N/A			17. ELEVATION TOP OF HOLE -40.7' MLW	
8. DEPTH DRILLED INTO ROCK N/A			18. TOTAL CORE RECOVERY FOR BORING 90 %	
9. TOTAL DEPTH OF HOLE 20'			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,395,573
Y 309,671

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-40.7	1	[Pattern: Gray Fine SAND with shell hash (SP/SHELL)]	Gray Fine SAND with shell hash (SP/SHELL)		Top	Start Time: 12:00 Stop Time: 12:10
	2					
	3				C'	
	4	[Pattern: White Calcareous Loosely Cemented Fine SAND and SHELL HASH (SP/SHELL) (Coquina)]	White Calcareous Loosely Cemented Fine SAND and SHELL HASH (SP/SHELL) (Coquina)		C	Sample #1
-44.7	5					
	6					
	7					
	8				B'	
	9				B	Sample #2
	10					
	11					
	12				A'	
	13				A	Sample #3
	14					
	15					
	16					
	17					
-58.7	18				Bottom	
	19					
	20					

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-84-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED: 9/13/86 COMPLETED: Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -43.2' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 88 %	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,397,980
Y 307,427

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-43.2	1		Light Gray Silty Fine SAND (SM/SHELL) with shell hash		Top	Start Time: 15:21 Stop Time: 16:10
-45.8	3		Light Gray Calcareous Cemented Slightly Silty Fine SAND (SP/SM/SHELL) and shell hash (Coquina)		C' G'	Sample #1
	4					
	5					
	6					
	7					
	8				B' B	Sample #2
	9					
	10					
	11					
	12					
	13				A' A	Sample #3
	14					
	15					
	16					
	17					
-61.2	18				Bottom	
	19					
	20					

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHOVC-85-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED N.A. UNDISTURBED N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED 9/13/86 COMPLETED Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -41.9' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 15' Pen/19.9' Rec	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,399,644
Y 307,531

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-41.9	1		Light Gray Silty Fine SAND with shell hash (SM/SHELL)			Sample #1 Start Time: 17:31 Stop Time: 17:51
	2					
	3					
	4		Light Gray Calcareous Cemented Silty Fine SAND with shell hash (SM/SHELL) (Coquina)			
-45.9	5				C'	Sample #2
	6				C	
	7					
	8					
	9					
	10				B'	Sample #3
	11				B	
	12					
	13					
	14					
	15				A'	Sample #4
	16				A	
	17					
	18					
	19					
-61.9	20				Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-86-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: N.A. UNDISTURBED: N.A.	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED: 9/13/86 COMPLETED: Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -39.0' MLW	
9. TOTAL DEPTH OF HOLE 20'			18. TOTAL CORE RECOVERY FOR BORING 97 %	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2401,621
Y 305,330

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-39.0	1	[Stippled pattern]	Gray Calcareous Silty Fine SAND and shell hash (SP/SM/SHELL)		Top	Sample #1 Start Time: 18:32 Stop Time: 18:45
	2					
	3					
	4					
	5					
	6					
	7					
-46.5	8	[Dotted pattern]	Gray Calcareous Cemented SAND and shell hash (SP/SHELL) (Coquina)		C'	Sample #2
	9					
	10					
	11					
	12					
	13					
	14					
	15					
	16					
	17					
	18					
	19					
-59.0	20				A'	Sample #4
					A	
					Bottom	

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHDVC-87-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 9/14/86 COMPLETED Same		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -39.7' MLW		
9. TOTAL DEPTH OF HOLE 20'		18. TOTAL CORE RECOVERY FOR BORING 100 %		
		19. SIGNATURE OF INSPECTOR		

NAD 27
X 2,402,999
Y 305,709

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-39.7	0		Gray Calcareous Silty Fine SAND with shell hash (SP/SM/SHELL)		Top	Sample #1 Start Time: 8:25 Stop Time: 8:41
	1					
	2					
	3					
	4					
	5				C'	
	6				C	Sample #2
	7					
	8					
-48.6	9		Gray Calcareous Cemented Fine SAND with shell hash (SP/SHELL) (Coquina)		B'	
	10				B	Sample #3
	11					
	12					
	13					
	14					
	15				A'	
	16				A	Sample #4
	17					
	18					
	19					
-59.7	20				Bottom	

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DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and title number) CHDVC-88-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES N.A.	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER 0 MLW	
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE STARTED 9/14/86 COMPLETED Same	
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -38.8' MLW	
9. TOTAL DEPTH OF HOLE			18. TOTAL CORE RECOVERY FOR BORING 9' Pen/10.2' Rec	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,404,999
Y 304,037

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
-38.8	1	[Patterned Legend]	Gray Fine SAND (SP)		Top	Start Time: 9:26 Stop Time: 9:34
	2					
	3					
	4					
	5				A'	
	6				A	
	7					
	8					
-47.7	9	[Patterned Legend]	White-Gray Calcareous Cemented Fine SAND and shell hash (SP/SHELL) (COQUINA)		Bottom	Sample #2
-48.8	10					
	11					
	12					
	13					
	14					
	15					
	16					
	17					
	18					
	19					
-58.8	20					

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 1 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT Mean Low Water (MLW)	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-89-1-1			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES	UNDISTURBED N.A.
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER	N.A.
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE	STARTED 9/14/86
8. DEPTH DRILLED INTO ROCK N/A			COMPLETED Same	
9. TOTAL DEPTH OF HOLE			17. ELEVATION TOP OF HOLE -39.9' MLW	
			18. TOTAL CORE RECOVERY FOR BORING 75	
			19. SIGNATURE OF INSPECTOR	

NAD 27
X 2,406,442
Y 303,705

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
-39.9	1		Gray Fine SAND with some shell hash (SP/SHELL)		Top	Start Time: 11:08 Stop Time: 11:12
	2					
	3					
	4					
	5					
-45.3	6		Gray Calcareous Cemented Silty Fine SAND and shell hash (SP/SM/SHELL) (Coquina)		Bottom	Sample #1
	7					
-47.4	8					
	9					
	10					
	11					
	12					
	13					
	14					
	15					
	16					
	17					
	18					
	19					
	20					

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 2 SHEETS
1. PROJECT Charleston Harbor Deepening			10. SIZE AND TYPE OF BIT	
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel			11. DATUM FOR ELEVATION SHOWN (YBM or MSL) Mean Low Water (MLW)	
3. DRILLING AGENCY Ocean Surveys, Inc.			12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500	
4. HOLE NO. (As shown on drawing title and file number) CHDVC-8A-1-2			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.
5. NAME OF DRILLER DMB			14. TOTAL NUMBER CORE BOXES	N.A.
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.			15. ELEVATION GROUND WATER	0 MLW
7. THICKNESS OF OVERBURDEN N/A			16. DATE HOLE	STARTED 8/4/86 COMPLETED Same
8. DEPTH DRILLED INTO ROCK N/A			17. ELEVATION TOP OF HOLE -26.3' MLW	
9. TOTAL DEPTH OF HOLE 25'			18. TOTAL CORE RECOVERY FOR BORING 5' Pen/10' Rec	
19. SIGNATURE OF INSPECTOR				

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
a	b	c	d	e	f	g
-26.3	0		Jet to 15'			Start Time: 13:34 Stop Time: 13:51
	1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					
	13					
	14					
-41.3	15		Olive Calcareous Sandy Clayey SILT (ML/MH) (Cooper Marl)		Top	Sample #1 Penetrometer = +4.5 TSF
	16					
	17					
-43.8	18		Olive Calcareous Very Silty Clayey Fine SAND (SC) (Cooper Marl)			Penetrometer = 1.25 TSF to 2.25 TSF
	19					
	20				A'	

NADA 27
X 2317,732
Y 381,134

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		-26.3 MLW		Hole No. CHDVC-8A-2-2	
PROJECT			INSTALLATION			SHEET	
Charleston Harbor Deepening						2	
ELEVATION		DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS
a	b	c	d	e	f	g	
				Olive Calcareous Very Silty Clayey Fine SAND (SC) (Cooper Marl)			Sample #2
	21						
	22						
	23						
	24						
	25					Bottom	
-51.3							

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 of 1 SHEETS
1. PROJECT Charleston Harbor Deepening		10. SIZE AND TYPE OF BIT		
2. LOCATION (Coordinates or Station) Charleston Harbor & Entrance Channel		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Mean Low Water (MLW)		
3. DRILLING AGENCY Ocean Surveys, Inc.		12. MANUFACTURER'S DESIGNATION OF DRILL OSI Model 1500		
4. HOLE NO. (As shown on drawing title and file number) CHOVC-9-1-1		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED N.A.	UNDISTURBED N.A.
5. NAME OF DRILLER DMB		14. TOTAL NUMBER CORE BOXES N.A.		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 0 MLW		
7. THICKNESS OF OVERBURDEN N/A		16. DATE HOLE STARTED 8/4/86 COMPLETED Same		
8. DEPTH DRILLED INTO ROCK N/A		17. ELEVATION TOP OF HOLE -25.6' MLW		
9. TOTAL DEPTH OF HOLE 16.4'		18. TOTAL CORE RECOVERY FOR BORING 10.9' Pen/16.5 Rec'd		
		19. SIGNATURE OF INSPECTOR		

WADA 27
 X 2,317,731
 Y 378,784

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
-25.6			Gray Clayey Fine SAND (SC) with shell hash & phosphate nodules		Top	Sample #1 Start Time: 9:09 Stop Time: 9:26	
-26.1	1		Brown & Olive Calcareous Sandy Clayey SILT (ML/MH) (Cooper Marl)	100	C'		
	2					C	
	3						
	4				100		Sample #2
	5						Penetrometer = 2.5 TSF
	6					B'	
	7					B	
	8				100		Sample #3
	9						
	10						
	11		Last 5' has much lower silt content		A'		
	12					A	
	13						
	14				100		Sample #4
	15						
-42.0	16				Bottom		
	17						
	18						
	19						
-45.6	20						