A B C D E F G H

DRILLING LOG — HOLE NO. CB-S-79-8

DEPARTMENT OF THE ARMY
DIVISION Corps of Engineers
INSTALLATION Jacksonville, Florida

1. PROJECT Central & Southern Florida - Structure 79 — SHEET 1 OF 2
2. LOCATION (Coordinates or Station) Sta: Rge: x - 600,175 y - 867,958
3. DRILLING AGENCY Corps of Engineers
4. HOLE NO. CB-S-79-8
5. NAME OF DRILLER G. M. Lineberger
6. DIRECTION OF HOLE [X] VERTICAL [ ] INCLINED — DEGREES WITH VERTICAL
7. THICKNESS OF OVERBURDEN — 8. DEPTH DRILLED INTO ROCK — 9. TOTAL DEPTH OF HOLE 83.0'
10. SIZE AND TYPE OF BIT 2" I.D. Spoon - See Remarks
11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL
12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN — DISTURBED — UNDISTURBED
14. TOTAL NO. CORE BOXES 1
15. ELEV. GROUND WATER +1.8
16. DATE HOLE STARTED 8/23/60 COMPLETED 8/25/60
17. ELEV. TOP OF HOLE +5.3
18. TOTAL CORE RECOVERY FOR BORING (%) 82.0%
19. Geologist R. G. Kretchman

ELEVATION	DEPTH	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
					Bit & Barrel — Bls/Ft
+5.3	0.0				+5.3
		SAND, medium to fine, quartz, brown, silty and firm from +1.3 to -0.9, (SP)	25	1	2" I. D. Spoon: 1, 2, 8, 12, 14; +0.3
-0.9	6.2	CLAY, fat, gray, slightly sandy, fine and small pebble phosphate from -0.9 to -9.7, limestone fragments from -22.0 to -23.7 and from -63.2 to -68.7, (CH)	90	2, 3	" ": 20, 9, 5, 4, 4; -4.7
			100	4	" ": 1, 2, 2, 3, 4; -9.7
			100	5	" ": 3, 4, 6, 6, 9; -14.7
			100	6	" ": 3, 4, 6, 8, 10; -19.7
			100	7	" ": 1, 2, 30, 52, 34; -24.7
			100	8	" ": 5, 7, 12, 16, 18; -29.7
			100	9	" ": 1, 2, 3, 5, 6; -34.7
			100	10	2" I. D. Spoon: 2, 3, 3, 3, 4; -39.7
			100	11	" ": Pushed ↓, 2, 2, 5; -44.7
			100	12	" ": 1/3, 1/3, 1/3, 5, 4; -49.7
			100	13	" ": 1/2, 1/2, 4, 4, 7; -54.7
			100	14	" ": 1, 1, 3, 4, 4; -59.7
			100	15, 16	" ": 5, 7, 8, 9, 13; -64.7
62.2	67.5	SAND - clayey, gray (SC)	75	17	" ": 14, 8, 3, 8, 93; -69.7
-68.7	74.0	LIMESTONE, medium hard, gray, fossiliferous, sandy, porous, permeable, friable			
-69.7	75.0	LIMESTONE, hard, grayish tan, fossiliferous, sandy, porous, permeable, easily friable, solution holes, dense, massive and impermeable from -72.8 to -73.8	50		-73.0 Dia NX
			50		-75.2 Dia NX
			50		-77.7 Dia NX
-77.7	83.0	Artesian Flow at 70.0 ft.			

ENG FORM 1 JUN 57 1836 (TRANSLUCENT) PREVIOUS EDITIONS ARE OBSOLETE — PROJECT C&SF-Struct. 79 — HOLE NO. 8

DRILLING LOG — HOLE NO. CB-S-79-9

DEPARTMENT OF THE ARMY
DIVISION Corps of Engineers
INSTALLATION Jacksonville, Florida

1. PROJECT Central & Southern Florida - Structure 79 — SHEET 1 OF 2
2. LOCATION (Coordinates or Station) Sta: Rge: x - 600,174 y - 868,458
3. DRILLING AGENCY Corps of Engineers
4. HOLE NO. CB-S-79-9
5. NAME OF DRILLER G. M. Lineberger
6. DIRECTION OF HOLE [X] VERTICAL [ ] INCLINED — DEGREES WITH VERTICAL
7. THICKNESS OF OVERBURDEN — 8. DEPTH DRILLED INTO ROCK — 9. TOTAL DEPTH OF HOLE 78.1'
10. SIZE AND TYPE OF BIT 2" I.D. Spoon - See Remarks
11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL
12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN — DISTURBED — UNDISTURBED
14. TOTAL NO. CORE BOXES 1
15. ELEV. GROUND WATER +2.0
16. DATE HOLE STARTED 9/6/60 COMPLETED 9/8/60
17. ELEV. TOP OF HOLE +4.0
18. TOTAL CORE RECOVERY FOR BORING (%) 85.9%
19. Geologist R. G. Kretchman

ELEVATION	DEPTH	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
					Bit & Barrel — Bls/Ft
+4.0	0.0				+4.0
		SAND, medium to fine, quartz, gray to brown, firm and clayey from +2.0 to -1.0, (SP)	60	1, 2	2" I. D. Spoon: 1, 2, 4, 9, 20; -1.0
			85	3	" ": 16, 28, 41, 43, 35; -6.0
			88	4, 5	" ": 26, 44, 35, 38, 28; -11.0
-9.0	13.0	CLAY, fat, gray, high plasticity, phosphate fragments from -11.0 to -21.0, slightly sandy in thin streaks from -9.0 to -21.0 and from -51.0 to -56.0, limestone fragments and sandy from -61.0 to -62.6, (CH)	100	6	" ": 1, 3, 5, 13, 23; -16.0
			100	7	" ": Pushed, 3, 3, 3, 4; -21.0
			100	8	" ": 3, 22, 13, 15, 25; -26.0
			100	9	" ": 2, 3, 4, 5, 8; -31.0
			100	10	" ": 1, 1, 3, 5, 6; -36.0
			100	11	2" I. D. Spoon: 1, 1, 3, 3, 5; -41.0
			100	12	" ": 1, 1, 10, 5, 5; -46.0
			100	13	" ": Pushed, 2, 3, 6; -51.0
			100	14	" ": Pushed, 2, 2, 5, 5; -56.0
			100	15	" ": 1, 2, 6, 8, 20; -61.0
-61.0	65.0				
-62.6	66.6	SAND - clayey, gray (SC)	80	16	" ": 9, 13, 15, 20, 12; -66.0
		LIMESTONE, medium hard, gray, fossiliferous, sandy, porous, permeable, friable	50		-67.0 " ": 40
-67.0	71.0	LIMESTONE, hard, gray, fossiliferous, sandy, porous, permeable, friable, solution holes, layer of sand from -69.0 to -71.5	25		-70.5 Dia NX
			30		-74.0 Dia NX
-74.0	78.0	1. Artesian flow started at elevation -66.0. 2. 21.4 gals/min was rate of flow with casing at elevation -66.3. 3. 10.6 ft. of head was maximum maintained with 3" pipe (NX casing).			300# Hammer W/18" Drop Used on 2" I. D. Spoon

ENG FORM 1 JUN 57 1836 (TRANSLUCENT) (EM 1110-2-1801) PREVIOUS EDITIONS ARE OBSOLETE — PROJECT C&SF-Struct. 79 — HOLE NO. 9

DRILLING LOG — HOLE NO. CB-S-79-10

DEPARTMENT OF THE ARMY
DIVISION Corps of Engineers
INSTALLATION Jacksonville, Florida

1. PROJECT Central & Southern Florida - Structure 79 — SHEET 1 OF 2
2. LOCATION (Coordinates or Station) Sta: Rge: x - 600,174 y - 868,558
3. DRILLING AGENCY Corps of Engineers
4. HOLE NO. CB-S-79-10
5. NAME OF DRILLER G. M. Lineberger
6. DIRECTION OF HOLE [X] VERTICAL [ ] INCLINED — DEGREES WITH VERTICAL
7. THICKNESS OF OVERBURDEN — 8. DEPTH DRILLED INTO ROCK — 9. TOTAL DEPTH OF HOLE 75.0'
10. SIZE AND TYPE OF BIT 2" I.D. Spoon - See Remarks
11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL
12. MANUFACTURER'S DESIGNATION OF DRILL Sprague & Henwood 142
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN — DISTURBED — UNDISTURBED
14. TOTAL NO. CORE BOXES 1
15. ELEV. GROUND WATER +2.7
16. DATE HOLE STARTED 10/13/60 COMPLETED 10/14/60
17. ELEV. TOP OF HOLE +3.2
18. TOTAL CORE RECOVERY FOR BORING (%) 89.0%
19. Geologist R. G. Kretchman

ELEVATION	DEPTH	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
					Bit & Barrel — Bls/Ft
+3.2	0.0				+3.2
		SAND, medium to fine, quartz, brown, black organic stained upper 1.0, (SP)	60	1	2" I. D. Spoon: 1, 1, 5, 5, 9; -1.8
			81	2	" ": 4, 4, 5, 20, 29; -6.8
			95	3, 4	" ": 3, 4, 4, 10, 14; -11.8
-9.1	12.3	CLAY, gray, slightly sandy in thin layers between -9.1 and -11.8, between -16.8 and -26.8 and between -51.8 and -61.8; slightly shelly from -43.8 to -45.8, firm layer from -42.8 to -43.8, limestone fragments bottom 3.0, (CH)	100	5	" ": 4, 8, 7, 10, 11; -16.8
			100	6	" ": 2, 4, 2, 3, 3; -21.8
			100	7	" ": 14, 14, 13, 13, 16; -26.8
			100	8	" ": 1, 2, 3, 3, 5; -31.8
			100	9	" ": Pushed ↓, 2, 3, 4; -36.8
			100	10	2" I. D. Spoon: Pushed ↓, 2, 8, 4; -41.8
			100	11	" ": Pushed, 5, 1, 1, 2; -46.8
			100	12	" ": Pushed, 1, 4, 3, 3; -51.8
			100	13	" ": 1, 2, 3, 4, 6; -56.8
			100	14, 15	" ": Pushed, 1, 5, 8, 15; -61.8
-59.8	63.0	SAND - clayey, gray (SC)			
-61.8	65.0	LIMESTONE, medium hard, gray, sandy, fossiliferous, porous, friable	65		" ": 5, 13, 13, 10, 11; -66.3
-66.3	69.5	LIMESTONE, hard, gray, sandy, fossiliferous, porous, friable, solution holes throughout, thin sandy layers throughout	50		-68.8 Dia NX
			15		-71.8 Dia NX
-71.8	75.0	1. Artesian flow began elev. -61.8. 2. 19 Gals/Min was rate of flow with casing at elev. -69.8. 3. 11.0 ft. of head was maximum maintained with 3" pipe (NX casing). 4. Bottom piezometer pipe (1½" Dia.) at elev. -61.8			300# Hammer W/18" Drop Used on 2" I. D. Spoon

ENG FORM 1 JUN 57 1836 (TRANSLUCENT) (EM 1110-2-1801) PREVIOUS EDITIONS ARE OBSOLETE — PROJECT C&SF-Struct. 79 — HOLE NO. 10

DRILLING LOG — HOLE NO. CB-S-79-11

DEPARTMENT OF THE ARMY
DIVISION Corps of Engineers
INSTALLATION Jacksonville, Florida

1. PROJECT Central & Southern Florida - Structure 79 — SHEET 1 OF 2
2. LOCATION (Coordinates or Station) Sta: Rge: x - 600,174 y - 868,658
3. DRILLING AGENCY Corps of Engineers
4. HOLE NO. CB-S-79-11
5. NAME OF DRILLER G. M. Lineberger
6. DIRECTION OF HOLE [X] VERTICAL [ ] INCLINED — DEGREES WITH VERTICAL
7. THICKNESS OF OVERBURDEN — 8. DEPTH DRILLED INTO ROCK — 9. TOTAL DEPTH OF HOLE 77.0'
10. SIZE AND TYPE OF BIT 2" I.D. Spoon - See Remarks
11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL
12. MANUFACTURER'S DESIGNATION OF DRILL Sprague & Henwood 142
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN — DISTURBED — UNDISTURBED
14. TOTAL NO. CORE BOXES 1
15. ELEV. GROUND WATER +2.9
16. DATE HOLE STARTED 10/7/60 COMPLETED 10/10/60
17. ELEV. TOP OF HOLE +4.2
18. TOTAL CORE RECOVERY FOR BORING (%) 84.0%
19. Geologist R. G. Kretchman

ELEVATION	DEPTH	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
					Bit & Barrel — Bls/Ft
+4.2	0.0				+4.2
		SAND, medium to fine, quartz, tan to brown, organic stained upper 1.0 (SP)	68	1	2" I. D. Spoon: ½, ½, 3, 8, 6; -0.8
			75	2	" ": 3, 8, 20, 23, 15; -5.8
		clayey from -5.8 to -9.3	90	3, 4	" ": 1, 3, 4, 4, 8; -10.8
-9.3	13.5	CLAY, gray, moist, very slightly sandy in thin streaks (CH)	100	5	" ": 3, 5, 6, 7, 6; -15.8
			100	6	" ": Pushed, 1, 4, 3, 2; -20.8
			100	7	" ": 1, 14, 11, 5, 7; -25.8
			100	8	" ": 2, 2, 3, 3, 4; -30.8
			100	9	" ": Pushed, 1, 2, 3, 3; -35.8
			100	10	2" I. D. Spoon: Pushed, 2, 2, 3, 4; -40.8
			100	11	" ": Pushed, 1, 3, 2, 2; -45.8
			100	12	" ": Pushed, 3, 3, 7; -50.8
			100	13	" ": Pushed, 2, 3, 3, 4; -55.8
			100	14	" ": Pushed, 1, 1, 3, 10; -60.8
-58.8	63.0	SAND - clayey, gray (SC)			
-60.8	65.0	LIMESTONE, medium hard, gray, sandy, fossiliferous, porous, friable	50		" ": 3, 6, 9, 11, 15; -65.8
			25		-67.0 " ": 20
-67.0	71.2	LIMESTONE, hard, grayish tan, sandy, fossiliferous, porous, friable, solution holes throughout, thin sandy layers throughout	37		-70.8 Dia NX
			25		-72.8 Dia NX
-72.8	77.0	(1) Artesian flow began at elev. -61.8. (2) 18.7 gals/min was rate of flow with casing at elev. -65.8. (3) 11.2 ft. of head was maximum maintained with 3" pipe (NX casing).			300# Hammer W/18" Drop Used on 2" I. D. Spoon

ENG FORM 1 JUN 57 1836 (TRANSLUCENT) (EM 1110-2-1801) PREVIOUS EDITIONS ARE OBSOLETE — PROJECT C&SF - Struct. 79 — HOLE NO. 11

DRILLING LOG — HOLE NO. CB-S-79-12

DEPARTMENT OF THE ARMY
DIVISION Corps of Engineers
INSTALLATION Jacksonville, Florida

1. PROJECT Central & Southern Florida - Structure 79 — SHEET 1 OF 2
2. LOCATION (Coordinates or Station) Sta: Rge: x - 600,175 y - 868,982
3. DRILLING AGENCY Corps of Engineers
4. HOLE NO. CB-S-79-12
5. NAME OF DRILLER W. D. Roppel & G. M. Lineberger
6. DIRECTION OF HOLE [X] VERTICAL [ ] INCLINED — DEGREES WITH VERTICAL
7. THICKNESS OF OVERBURDEN — 8. DEPTH DRILLED INTO ROCK — 9. TOTAL DEPTH OF HOLE 61.4'
10. SIZE AND TYPE OF BIT 2" I.D. Spoon - See Remarks
11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL
12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN — DISTURBED — UNDISTURBED
14. TOTAL NO. CORE BOXES
15. ELEV. GROUND WATER Tidal
16. DATE HOLE STARTED 12/2/60 COMPLETED 12/5/60
17. ELEV. TOP OF HOLE -14.9
18. TOTAL CORE RECOVERY FOR BORING (%) 99.0%
19. Geologist R. G. Kretchman

ELEVATION	DEPTH	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
					Bit & Barrel
-14.9	0.0	SAND, medium to fine, quartz, gray, silty, 15% organic (SM)			-14.9
-19.3	4.4	CLAY (CH)			-20.30 Washed
			100	Osterberg #1	-22.19
-22.19	7.29	shelly, resistant layer, failed to press			
-23.75	8.85	tube parted from sampler upon withdrawal, sample was destroyed			-23.75 Washed
				Lost	-26.26
-26.26	11.36				-27.35 Washed
			100	Osterberg 2	-29.86; -30.36 Washed
			100	Osterberg 3	-32.87; -33.37 Washed
			100	Osterberg 4	-35.88; -36.38 Washed
			100	Osterberg 5	-38.89; -39.39 Washed
			100	Osterberg 6	-41.90
-41.90	27.00	shelly, semi-indurated layer, failed to press			-43.30 Washed
-43.30	28.40	CLAY (CH), 1.8' of sample put in stove pipe, remainder discarded	100	Osterberg 7	-45.81; -46.50 Washed
			100	Osterberg 8	-49.01; -49.50 Washed
			100	Osterberg 9	-52.01; -52.50 Washed
			100	Osterberg 10	-55.01; -55.50 Washed
-55.0	40.1	2.1' of sample put in stove pipe, remainder discarded. SAND - clayey, gray (SC)	100	Osterberg 11	-58.01; -58.50 Washed
			92	Osterberg 12	-60.91
-60.91	46.01				

ENG FORM 1 JUN 57 1836 (TRANSLUCENT) (EM 1110-2-1801) PREVIOUS EDITIONS ARE OBSOLETE — PROJECT C&SF-Struct. 79 — HOLE NO. 12

RECORD DRAWING NOTE: "Shall be," "Provide," "Install," "Remove," etc., indicates work was accomplished under the contract

NOTE: For location of Core Borings see sheet No. 9

AS BUILT
APPROVED BY: C. [signature]
DATE: 6-? 6?

REVISION	DATE	DESCRIPTION	BY

U. S. ARMY ENGINEER DISTRICT, JACKSONVILLE
CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

DRAWN BY
TRACED BY
CHECKED BY RRT
PREPARED BY Victor E. [signature] — CHIEF, FOUNDATIONS SEC.
SUBMITTED BY [signature] — CHIEF F. & MATERIALS BRANCH

CENTRAL AND SOUTHERN FLORIDA PROJECT
FOR FLOOD CONTROL AND OTHER PURPOSES

STRUCTURE 79

LOG OF BORINGS CB-S-79-8,9,10,11 & 12

APPROVAL RECOMMENDED: [signature] — CHIEF ENGINEERING DIVISION
APPROVED: [signature] — COL C E — DISTRICT ENGINEER — 21 MAR. 1962 DATED

TO ACCOMPANY INVITATION NO. CIV. ENG. 08-123-62-44 DATED 2 APRIL 1962

SCALE — SHEET 5 OF 98 — D.O. FILE NO. ~~471-27,606-5~~

US ARMY CORPS OF ENGINEERS
JACKSONVILLE DISTRICT

SAFETY ON THIS JOB DEPENDS ON YOU

NO.	SYMBOL	ZONE	DESCRIPTION	APPROVED
1	A	ALL	REVISED TO ACCOMPANY AMENDMENT NO. 0001	

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

URS
URS GROUP INC.
7650 WEST COURTNEY CAMPBELL CAUSEWAY
TAMPA, FL 33607-1462
NO. 00000002

DESIGNED BY: — DWN BY: — Ckd by:
Inv. No. DACW17-02-B-0007
Dated:
Scale: AS SHOWN
Plot date:
Plot scale:

FILE NAME: 15-2.DGN
REFERENCE FILES: G-BRDR01.DGN

DATED: AUG 2001
D.O.FILE NO471-38,227

CENTRAL AND SOUTHERN FLORIDA PROJECT
FOR FLOOD CONTROL AND OTHER PURPOSES
REPLACEMENT OF TIMBER GUIDE WALLS AT W.P. FRANKLIN LOCK
STRUCTURE S-79

STRUCTURE S-79 (AS BUILT)
LOG OF BORINGS CB-S-79- 8,9,10,11&12

DRAWING NO.
15/2

.../contract/15-2.dgn 06/20/2002 11:16:15 AM