

MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

AD-A149 732

6

LAKE MOULTRIE AND SANTEE RIVER
SOUTH CAROLINA

COOPER RIVER REDIVERSION PROJECT

INTAKE AND TAILRACE CANALS

APPENDIX A
BORING LOGS AND LABORATORY TESTS

APR 1976



U.S. ARMY ENGINEER DISTRICT, CHARLESTON
CORPS OF ENGINEERS
CHARLESTON, SOUTH CAROLINA
JUNE, 1976

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COOPER RIVER REDIVERSION PROJECT
INTAKE AND TAILRACE CANALS

APPENDIX A
(PARTIAL)

BORING LOGS

Accession For		
NTIS GRA&I	<input checked="" type="checkbox"/>	
DTIC TAB	<input type="checkbox"/>	
Unannounced	<input type="checkbox"/>	
Justification		
By		
Date		
Availability Codes		
Avail and/or		
Dist		
A-1		

U. S. ARMY ENGINEER DISTRICT, CHARLESTON
CORPS OF ENGINEERS
CHARLESTON, SOUTH CAROLINA

Hole No. IT-1

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
1. PROJECT		South Atlantic		Charleston District		1 OF 2 SHEETS	
Cooper River Rediversion		2. LOCATION (Coordinates or Station)		10. SIZE AND TYPE OF BIT		MSL	
N 580, 140 E 2, 323, 590		3. DRILLING AGENCY		11. DAYUM FOR ELEVATION SHOWN (TBM or MSL)		MSL	
Mobile District		4. HOLE NO. (As shown on drawing title and title number)		12. MANUFACTURER'S DESIGNATION OF DRILL		Pailine 314	
IT-1		5. NAME OF DRILLER		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 5 UNDISTURBED --	
Parden		6. DIRECTION OF HOLE		14. TOTAL NUMBER CORE BOXES		0	
<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		7. THICKNESS OF OVERBURDEN		15. ELEVATION GROUND WATER		62.8	
43.5		8. DEPTH DRILLED INTO ROCK		16. DATE HOLE		STARTED 14 Mar 75 COMPLETED 14 Mar 75	
0		9. TOTAL DEPTH OF HOLE		17. ELEVATION TOP OF HOLE		72.7	
43.5				18. TOTAL CORE RECOVERY FOR BORING		%	
				19. SIGNATURE OF INSPECTOR		C. Davis	
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	
72.7	0.0		Top of Hole			Blows FT	
			Sm-silty fine sand tan	MC 21.1	1	3 20	
67.7	5.0		SC-Clayey fine sand red & tan	MC 5.0	2	40 40	
			ML-Clayey silt gray & tan			48 17 18 17 17	
62.7	10.0			MC 29.8	3		
			CH-Flat clay - gray & pink			20 22 20	
57.7	15.0			MC 30.0	4		
						15	
52.7	20.0		SM-Silty fine sand w/clay-layers - tan & red	MC 21.1	5	12 8 9 12 31 39	
47.7	25.0					19	
42.7	30.0						
			continue on sheet 2				

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		Hole No.		
PROJECT		INSTALLATION		SHEET 2 OF 2 SHEETS		
Cooper River Rediversion		Charleston District				
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
						Blows/FT
						21
						20
37.7	33.0					19
						18
						23
						28
32.7	40.					38
						24
29.2	43.5					32
			Bottom of hole 43.5'			

2


Hole No. IT-1A

DRILLING LOG		DIVISION	INSTALLATION	SHEET		
		South Atlantic	Charleston District	1 OF 1 SHEETS		
1. PROJECT		10. SIZE AND TYPE OF BIT 1 3/8" ID Spitspoon & 4x				
Cooper River Rediversion		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Core Bhl				
2. LOCATION (Coordinates or Station)		MSL				
N 580, 440 2, 373, 470		12. MANUFACTURER'S DESIGNATION OF DRILL				
3. DRILLING AGENCY		Falling 314				
Mobile District		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN				
4. HOLE NO. (As shown on drawing title and file number)		DISTURBED 5 UNDISTURBED				
IT-1A		14. TOTAL NUMBER CORE BOXES 0				
5. NAME OF DRILLER		15. ELEVATION GROUND WATER 49.2				
Parden		16. DATE HOLE				
6. DIRECTION OF HOLE		STARTED 17 Jun 75 COMPLETED				
<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		17. ELEVATION TOP OF HOLE 58.2				
7. THICKNESS OF OVERBURDEN 30.0'		18. TOTAL CORE RECOVERY FOR BORING				
8. DEPTH DRILLED INTO ROCK 0		19. SIGNATURE OF INSPECTOR				
9. TOTAL DEPTH OF HOLE 30.0'		C. Davis				
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
58.2	0.0		Top of hole			Blows FT
			Sm - Top soil - brown			6
53.2	5.0		Sm/SP-Mixed colors but 1 color not layered Red Brown	MC 11.8		12 28
			Becomes more coarse w/ rock frags.		1	33 25
48.2	10.0		SM-SC Water Table @ 9.0(6-17-75) coarse w/small rocks & frags			15 13
43.2	15.0		Coarse to med. w/small rocks and gravel - SM	MC 15.5	2	20 31
38.2	20.0		Med. to fine-mixed colors clay lenses 1 continuous across ss drive but range 3 1/10 inch thick. Med. - Gray to black SM-gray		3	26 36 47 35
33.2	25.0		w/clay lenses & rock fragments gray w/Decomp. limestone w/large amounts of shale frags	MC 16.4	4 5	39 37 43 48 54 49
28.2	30.0		Bottom of hole 30.0'			57

3

Hole No. 11-12

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 2 SHEETS
1 PROJECT Cooper River Rediversion		10 SIZE AND TYPE OF BIT 1 3/8" D Splitspoon & 4x5 1/2" Core Bbl		
2 LOCATION (Coordinates or Station) N 580, 080 E, 125, 190		11 DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3 DRILLING AGENCY Navajo District		12 MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4 HOLE NO (As shown on drawing title and file number) 11-12		13 TOTAL NO OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 8 UNDISTURBED -		
5 NAME OF DRILLER Parden		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 54.2		
7 THICKNESS OF OVERBURDEN 40.5		16 DATE HOLE STARTED 9 Jun 75 COMPLETED 9 Jun 75		
8 DEPTH DRILLED INTO ROCK 20.0		17 ELEVATION TOP OF HOLE 58.7'		
9 TOTAL DEPTH OF HOLE 60.5		18 TOTAL CORE RECOVERY FOR BORING 85.0 %		
		19 SIGNATURE OF INSPECTOR C. Davis		

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
58.7	0.0					Blows F
58.7	0.0		SM-Brown		1	5
58.7	0.0		SC-Colors are intermixed not layered-all material is clayey sand		2	12
48.7	10.0		Water table @ 4.5(6-10-75)		X	19
			Colors are intermixed but not layered		3	24
						29
						30
48.7	12.0		Sm-water table @ 9.0 (6-9-75) coarse to med sand - Brown	MC 19.0	4	12
						13
						9
						14
						8
						15
38.7	20.0		Med. to fine sand with gray clay pockets-Brown with small gray pockets soil colors intermixed but not layered		X	9
					5	16
						25
						30
33.7	25.0		Med. to fine sand with gray clay pockets (more sandy) clay pocket are sporadic but not layered		X	16
					6	23
						30
23.7	30.0					23
						24
			continue on sheet 2			

4

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		Hole No.		
PROJECT		58.7		11-1B		
INSTALLATION		Charleston District		SHEET 2		
Loop River Rejuvenation				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	g
			Med. to fine sand w/gray clay pockets (more sandy) Brown			Blows/FT 20
23.7	33.0		SM-more coarse Red Brown	MC 19.2		10 18
						28
						27
18.7	40.0		SM-course has a few layers of dark gray ch ranges 1" to 2" thick. Top of rock 40.5'	MC 22.1	8	20 58
13.7	45.0		Limestone 18" thick-small ch layers 1-3" then sand & shale layers-sand & shale dk gray in color.	52		Pull - 1 40.5 - 45.5 Run 5.0 Rec 2.6 C/L 2.4
8.7	50.0		SM-silty sand w/Limestone fragments (ranges from small rocks to 1-2" layers)	100		Pull - 2 45.5 - 50.5 Run 5.0 Rec 5.0 C/L 0.0
3.7	55.0		Silty sand - 1 piece sandstone 1 1/2" thick SM color mixed	94	Core Box 1	Pull - 3 50.5 - 55.5 Run 5.0 Rec 4.7 C/L 0.3
1.3	60.0		Silty sand mixed-color bottom 6" dk gray CL	94		Pull - 4 55.5 - 60.5 Run 5.0 Rec 4.7 C/L 0.3
-1.3	60.7		Bottom of hole 60.7'			

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 2 SHEETS
1 PROJECT Cooper River Rediversion		10. SIZE AND TYPE OF BIT 3/8" Ø S 4x5 1/2 BBL		
2 LOCATION (Coordinates or Station) N 579, 820 E2, 323, 660		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3 DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4 HOLE NO. (As shown on drawing title and file number) 1T-2		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: 3 UNDISTURBED: -		
5 NAME OF DRILLER Parden		14. TOTAL NUMBER CORE BOXES 0		
6 DIRECTION OF HOLE VERTICAL <input checked="" type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 62.9'		
7 THICKNESS OF OVERBURDEN 42.0		16. DATE HOLE STARTED 12 Mar 75		
8 DEPTH DRILLED INTO ROCK 0		17. ELEVATION TOP OF HOLE 72.2'		
9 TOTAL DEPTH OF HOLE 42.0'		18. TOTAL CORE RECOVERY FOR BORING %		
		19. SIGNATURE OF INSPECTOR C. Davis		

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
	0.0		Top of hole			Blows FT
			Sm-silty fine sand Tan		1	7 6
07.2	5.0		SC - Clayey fine sand Red & Tan		2	27 40
			ML-Micaceous clayey silt - Gray & Pink		3	32 15 14 18 22 25
			CH-Fat clay w/thin sand lenses - Gray & Pink		4	17 19
	20.0		SM- silty fine sand Pink & Tan		5	3 5 11 14 14 13 17 19
	20.0		continue on sheet 2			


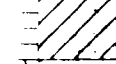
DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE 72.2		Hole No. 11-2		
PROJECT Cooper River Rediversion			INSTALLATION Charleston District		SHEET 2 OF 2 SHEETS	
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOV ERY e	BOX OR SAMPLE NO f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			Tan			Blows/FT
						8
						9
	35.0					27
						16
						18
	40.0					12
						39
	42.0					39
			Bottom of hole 42.0'			

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET OF 2 SHEETS
1 PROJECT Cooper River Rediversion		10. SIZE AND TYPE OF BIT 1 7/8" 0 SSS 6 4X5' 3BL		
2 LOCATION (Coordinates or Station) N579, 790 E2, 324, 700		11 DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3 DRILLING AGENCY Mobile District		12 MANUFACTURER'S DESIGNATION OF DRILL Falling 314		
4 HOLE NO. (As shown on drawing title and file number) IT-2A		13 TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: 10 UNDISTURBED: -		
5 NAME OF DRILLER Parlan		14. TOTAL NUMBER CORE BOXES 0		
6 DIRECTION OF HOLE X VERTICAL O INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 53.0		
7 THICKNESS OF OVERBURDEN 45.0'		16. DATE HOLE STARTED: 2 Jun 75 COMPLETED:		
8 DEPTH DRILLED INTO ROCK 0		17. ELEVATION TOP OF HOLE 68.0'		
9 TOTAL DEPTH OF HOLE 45.0'		18. TOTAL CORE RECOVERY FOR BORING %		
		19. SIGNATURE OF INSPECTOR C. Davis		

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
68.0'	0.0		Top of hole			Blows FT
			5m - Tan to gray	MC 9.3	1	11 16
63.0	5.0		5C-Mixed color	MC 24.9	2	32 23 14
			4E-(Gray, Brown, Tan color)	MC 30.4	3	19 12 9
			Tan & Red		4	10 8 4
			5M-Silty Tan & Gray		5	7 7 4
45.0	20.0		Tan & Red	MC 21.2	6	6 26
43.0	25.0		Find silty sand			14 12 12
38.0	30.0					15
continue on sheet 2						8

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		68.0'		Hole No.		1-11	
PROJECT			INSTALLATION			SHEET		OF 2 SHEETS	
Cooper River Rediversion			Charleston District						
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth weathering etc. if significant)			
a	b	c	d	e	f	k			
				MC					Blows/FT
				28.0					32
									13
33.0	35.0							No recovery from 33.0 - 34.5'	
									14
			Brown						82
			Med to fine sand - Gray						25
28.0	40.0								73
			Very dense - Lt Gray						35
									57
23.0	45.0								115
			Bottom of hole 45.0'						

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET OF SHEETS
1. PROJECT Upper River Rediversion		10. SIZE AND TYPE OF BIT 3 1/2" Solid		
2. LOCATION (Coordinates or Station) N 79° 57' 0" E 325.130		11. DATUM FOR ELEVATION SHOWN (TBM or BSL) Cape Bl.		
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Falling 414		
4. HOLE NO. (As shown on drawing title and file number) 10-2B		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN 0		
5. NAME OF DRILLER Pardon		14. TOTAL NUMBER CORE BOXES 0		
6. DIRECTION OF HOLE VERTICAL		15. ELEVATION GROUND WATER 48.3		
7. THICKNESS OF OVERBURDEN 28.5		16. DATE HOLE STARTED / COMPLETE 13 Jun 75		
8. DEPTH DRILLED INTO ROCK 0		17. ELEVATION TOP OF HOLE 54.8		
9. TOTAL DEPTH OF HOLE 28.5		18. TOTAL CORE RECOVERY FOR BORING 0		
		19. SIGNATURE OF INSPECTOR C. Davis		

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 FT
54.8	0.0		top of hole				
54.8	5.0		SC-texture remains uniform through sample-colors mixed but not layered Gray, Black & Tan		1		20
							22
							12
							10
						water table @ 6.5	19
			clay to Black		2		12
							11
			sh - green		3		20
							13
39.5	10.0		sh/clay lenses & rock fragments clay lenses do not make seams clay in small pockets - Gray		4		16
							11
							13
							9
34.8	14.0		gray & Black		5		12
							7
							4
24.5	24.0		sh/clay lenses & rock fragments (lim stone) clay seams range 1/4" thick interbedded w/ sh		6		9
							9
24.5	24.0						12
							12
			Bottom of hole 28.5'				

Hole No. IT-2B-1

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 2 SHEETS
1 PROJECT Cooper River Rediversion	10. SIZE AND TYPE OF BIT 1 3/8" ID Splitspoon & 1/2"		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Core BH 1
2 LOCATION (Coordinates of Station) N579,870 E2,325,135	MSL		
3 DRILLING AGENCY Mobile District	12. MANUFACTURER'S DESIGNATION OF DRILL Falling 314		
4 HOLE NO. (As shown on drawing title and file number) IT-2B-1	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN 33		DISTURBED UNDISTURBED
5 NAME OF DRILLER Parden	14. TOTAL NUMBER CORE EXES 1		
6 DIRECTION OF HOLE VERTICAL INCLINED _____ DEG. FROM VERT.	15. ELEVATION GROUND WATER 54.8		STARTED COMPLETED
7 THICKNESS OF OVERBURDEN 46.5	16. DATE HOLE 2 Oct		
8 DEPTH DRILLED INTO ROCK 10.0	17. ELEVATION TOP OF HOLE 54.8		
9. TOTAL DEPTH OF HOLE 56.5	18. TOTAL CORE RECOVERY FOR BORING		
19. SIGNATURE OF INSPECTOR Lawson			

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, weathering, etc., if significant) g
54.8	0.0		Top of Hole			Water table @ Ground Level
			SM - Tan to Black Highly Organic	MC 27.2%	1	
			CL - Tan to Gray Mixed Colors		2	
49.8	5.0				3	
				MC 20.3%	4	
			SM - Black		5	
					6	
44.8	10.0		Gray to white		7	LAB CLASSIFICATION
					8	ELEV. CLASS
					9	48.8 - 46.3 ML-CL 24
			Green, very fine sand		10	51.8 - 50.3 CH 15
					11	46.3 - 44.3 SC-SM 15
					12	42.8 - 39.8 SC 20
39.8	15.0				13	30.3 - 27.8 SC 21
					14	21.2 - 18.8 SC 21
					15	52.8 - 48.8 CH 18
					16	
34.8	20.0		Gray to Black W/Clay Binder Very Fine Sand		17	
					18	
					19	
					20	
29.8	25.0			MC 42.7%	21	
					22	
			Gray - Silt W/Shale Fragments		23	
24.8	30.0					

Continue Pg. 2

//

DRILLING LOG (Cont. Sheet)

34.8

Hole No. 1

NS

JK

Charleston

MAINTAIN

30' - clay

31' - Ity Sand

Sand & Shale Fragments

SP-ent - white sh. Limestone

with Marble Gray

Bottom of 41.5 Top of Rock

No recovery

Sand & clay, cemented Sand


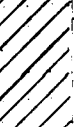




Bottom of hole 56.5'

Notes: When 41.5' was reached recovery was
 obtained. 41.5' to 42.0' was lost to 38.5'
 42.0' to 43.0' went to 40.0' and 43.0' to
 44.0' went to 41.5'. 44.0' to 45.0' was
 lost under weight of the hammer. A sand
 layer was hit at 47.0' to 48.5'. The core
 was carried to 55.0' and sp. logging was
 continued to 56.5' (Bottom of hole).






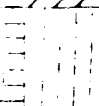
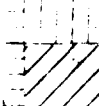
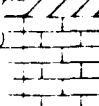
Full - 1
 41.5 - 51.5
 Run 10.0
 Rec 11.5
 Core Box 1

Hole No. IT-2C

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET OF 1 SHEETS
1. PROJECT Cooper River Redivers on		10. SIZE AND TYPE OF BIT 1 3/8" ID Splitspoon & 4x5" Core Bbl		
2. LOCATION (Coordinates or Station) N 580, 210 E 324, 760		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) IT-2C		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN 6		UNDISTURBED -
5. NAME OF DRILLER Parden		14. TOTAL NUMBER CORE JOXES 0		
6. DIRECTION OF HOLE VERTICAL <input checked="" type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 46.0'		
7. THICKNESS OF OVERBURDEN 30.0'		16. DATE HOLE STARTED 18 Jun 75 COMPLETED 18 Jun 75		
8. DEPTH DRILLED INTO ROCK 0		17. ELEVATION TOP OF HOLE 58.0'		
9. TOTAL DEPTH OF HOLE 30.0'		18. TOTAL CORE RECOVERY FOR BORING %		
		19. SIGNATURE OF INSPECTOR C. Davis		

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
58.0	0.0		Top of hole			Blows FT
			SC-clayey (fine sand) - color mixed but not layered-clay binder mixed not layered Tan & Red		1	4 5 10
53.0	5.0		Red Tan		2	21 24 14
48.0	10.0		Clay & sand w/sand layers 1/8 to 1/4" thick-strong clay binder - Tan, Red & Brown	MC 25.3	3	11 12 Water Table 12.0'
43.0	15.0		Fine and med color mixed not layered. Tan & Red	MC 23.0	4	8 9 LAB CLASSIFICATION SPL. ELEV CLASS 2 53.0-48.0 CL 11 4 15.0-20.0 SC
38.0	20.0		Med to fine w/small rocks frags & gravel		5	10 11 12 14
33.0	25.0		SM-silty fine w/clay pockets approx 1/8 to 1/4" thick. Tan		6	22 28 26 31
28.0	30.0		Bottom of hole 30.0'			13



DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 1 SHEETS
PROJECT Coper River Rediversion		10. SIZE AND TYPE OF BIT 5/8" ID Split Spout		
LOCATION (Coordinates of Station) 334.710		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Core bed		
1. DRILLING AGENCY M. A. C. Project		12. MANUFACTURER'S DESIGNATION OF DRILL Fuelling 314		
3. HOLE NO. As shown on drawing title and file number 11-20		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 6		
5. NAME OF RILLER		14. TOTAL NUMBER CORE BOXES 1		
6. DEPTH OF HOLE Vertical Inclin'd DEG FROM VERT.		15. ELEVATION GROUND WATER 52.0'		
7. THICKNESS OF OVERBURDEN 24.0'		16. DATE HOLE STARTED COMPLETED 20 Jun 75 20 Jun 75		
8. DEPTH LINED INTO ROCK 5.0'		17. ELEVATION TOP OF HOLE 50.0'		
9. TOTAL DEPTH OF HOLE 29.0'		18. TOTAL CORE RECOVERY FOR BORING 42.0'		
		19. SIGNATURE OF INSPECTOR C. Davis		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS <i>Drilling time, water loss, depth of weathering, etc., if significant</i>
50.0	1.0		Top of Hole			Blows Ft
54.0	5.0		SC - Clayey Fine Sand - Colors Mixed but not Layered Clay Binder Mixed not Layered Gray & Tan	MC 14.5	1	
			Tan		2	
49.0	10.0		Clayey Fine Sand and Contains Small Rocks & Rock Frags. Gray & Tan	MC 21.2	3	
44.0	15.0				4	
39.0	20.0		SM - Silty Fine Sand w/Clay Layers 1/8" Thick	MC 30.5	5	
35.0	24.0		SC-Carcaceous Clayey Sand w/Limestone Decomposed, Clay Layers 1/8" to 1/4" Thick Gray	MC 20.1	6	
34.0	25.0		Top of Rock 24.0'			
30.0	29.0		Limestone, Gray, very sandy in spots 25.6 to 29.0'		Core Box 1	Pull - 1 24.0 - 29.0 Run 5.0 Rec 2.1 C/L 2.9
			Bottom of Hole 29.0'			

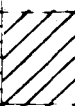
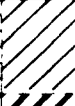

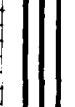

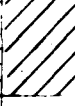




Hole No. IT-2E

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 2 SHEETS
1 PROJECT Cooper River Rediversion		10. SIZE AND TYPE OF BIT 1 3/8" ID Spoons & 4x1/2"		
2 LOCATION (Coordinates or Station) N579,720 E2,324,330		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Core Bbl		
3 DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL MSI Failing 314		
4 HOLE NO. (As shown on drawing title and file number) IT-2E		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 6	UNDISTURBED -
5. NAME OF DRILLER Parden		14. TOTAL NUMBER CC E BOXES 1		
6 DIRECTION OF HOLE X] VERTICAL [] INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 56.1		
7 THICKNESS OF OVERBURDEN 43.0		16. DATE HOLE STARTED 19 Jun 75 COMPLETED 19 Jun 75		
8 DEPTH DRILLED INTO ROCK 7.2		17. ELEVATION TOP OF HOLE 66.1		
9 TOTAL DEPTH OF HOLE 50.2		18. TOTAL CORE RECOVERY FOR BORING 27.8 %		
		19. SIGNATURE OF INSPECTOR C. Davis		

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
66.1	0.0		Top of Hole			Blows Ft
			CL-Fine Sandy Clay - Tan		1	7
				12		
61.1	5.0			18		
				24		
				18		
			Silty Clay W/Silt Layers about 1/2" Thick Average - Layers of CL & Silt, Alternate. Tan, Red & Gray.		2	18
56.1	10.0			19		
				18		
			SC-Clayey Fine and Med. Sand with Gravel - Tan		3	18
51.1	15.0			18		
				10		
				8		
			Clay Fine Sand and Clay Mixed, Bun not Layered Sand Tan, Clay Lt. Gray		4	9
46.1	20.0			8		
				7		
				9		
				10		
41.1	25.0				5	7
						8
						9
						10
36.1	30.0					
Continue on Sheet 2						15

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		Hole No.		
PROJECT		INSTALLATION		SHEET		
Cooper River Rediversion		Charleston District		OF 2 SHEETS		
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	BOX OR SAMPLE NO	REMARKS <i>(Drilling time, water loss, depth of weathering, etc. if significant)</i>
53.1	31.0		Rock Fragments: Open Cavity From 30.0 to 31.0 - Tan			Top of Rock
			Limestone W/Sand Layers (Hard Limestone) Gray		Core	Pull - 1 Rec 0.3 31.0 - 33.3 C/L 2.0 Run 2.3
31.2	35.0		Sandstone, calcareous with shelf fragments.		Box 1	Pull - 2 33.3 - 38.3 Run 4.9 Rec 1.7 C/L 3.2
						Blow/Ft
26.1	40.0		SM - silty Fine Sand Tan & Gray			47
						50
						48
21.1	45.0					41
						55
						46
						57
13.9	50.2					85
Bottom of Hole 50.2'						

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 2 SHEETS
1. PROJECT Cooper River Rediversion		10. SIZE AND TYPE OF BIT 1 3/8" ID Spirlspon & 4x3"	
2. LOCATION (Coordinates of Station) N580,290 E2,324,230		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL Core Bbl	
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) IT-3		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED 8 UNDISTURBED -	
5. NAME OF DRILLER Parden		14. TOTAL NUMBER CORE JOXES 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 10.0'	
7. THICKNESS OF OVERBURDEN 24.0'		16. DATE HOLE STARTED 28 Mar 75	
8. DEPTH DRILLED INTO ROCK 0		17. ELEVATION TOP OF HOLE 64.5	
9. TOTAL DEPTH OF HOLE 24.0'		18. TOTAL CORE RECOVERY FOR BORING %	
		19. SIGNATURE OF INSPECTOR C. Davis	

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
64.5	0.0		Top of Hole			
61.5	3.0		SC-Clayey Fine Sand - Tan	MC 26.1	1	7
59.5	5.0		CL-Fine Sandy Clay - Red & Tan	MC 25.0	2	10 46 25
			CH-Fat Clay- Red & Tan	MC 30.9	3	15 10
54.5	10.0		MH-Silty Clay - Tan	MC 32.0	4	15 12 15
49.5	15.0					22
			SC - Clayey Fine Sand - Tan & Gray	MC 18.0	5	25 12
44.5	20.0					9
			SP-Gray - Coarse & Med. Sand W/Gravel	MC 24.6	6	7 6
40.5	24.0					13
39.5	25.0		SM-Silty Fine Sand W/Thin Clay Lenses - Tan	MC 32.4	7	19 24
34.5	30.0					46 38
			Continue on Sheet 2			17

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		Hole No.		
PROJECT		INSTALLATION		SHEET		
Cooper River Rediversion		Charleston District		OF 2 SHEETS		
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	BOX OR SAMPLE NO	REMARKS <i>(Drilling time, water loss, depth of weathering, etc. if significant)</i>
a	b	c	d	e	f	g Blows/Ft
			SM - Silty Fine Sand w/Thin Clay Lenses & Cemented Layer			46
						35
29.5	35.0				7	19
						14
						14
24.5	40.0		Tan & Black			16
						15
			SC - Calcareous Clayey and Sand w/Cemented Layers	MC 22.7	8	32
21.0	43.5					100/0.16
			Bottom of Hole 43.5			

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 2 SHEETS
1 PROJECT Cooper River Redive sion		10. SIZE AND TYPE OF BIT 1 3/8" 6 sss & 4x5 1/2 BBL		
2 LOCATION (Coordinates or Station) N57W 030 E 324,030		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3 DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4 HOLE NO. (As shown on drawing title and file number) IT-3A		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN 19		UNDISTURBED -
5 NAME OF DRILLER Parden		14. TOTAL NUMBER CORE BOXES 0		
6 DIRECTION OF HOLE X VERTICAL INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 61.2		
7 THICKNESS OF OVERBURDEN 86.0'		16. DATE HOLE STARTED 3 Jun 75 COMPLETED 4 Jun 75		
8 DEPTH DRILLED INTO ROCK 0		17. ELEVATION TOP OF HOLE 64.7		
9 TOTAL DEPTH OF HOLE 86.0'		18. TOTAL CORE RECOVERY FOR BORING %		
		19. SIGNATURE OF INSPECTOR C. Davis		

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 Ft
a	b	c	d	e	f	g	
64.7	0.0		Top of Hole				
		///	SC-Organic-Top Soil Brown & Gray	MC 20.1%	1		6
			SM-Medium to Fine Sand Lt. Tan	MC 14.9%	2	Water Table 4.0'	7 15
59.7	5.0		Contains Impurities-Small Amts of clay-Lt Tan to Brown		3		15
			ML-Low Plasticity Lt. Gray	MC 18.9%	4		32
			SM - Lt. Gray		5		27
54.7	10.0		More Coarse Material - Tan & Lt. Brown	MC 16.1%	6		9 9
							8
49.7	15.0		Contains Lt. Gray Lenses - Brown, Becomes More Coarse		7		17 10
44.7	20.0		Med. to Fine Sand Lt. Gray & Brown		8		4 5
			More Coarse Material		9		8 13
39.7	25.0		Almost Pure Sand - Gray	MC 25.4%	10		23 33
			W/Clay Lense & Seams Gray				
					11		26
34.7	30.0		Med. to Fine Sand - Tan		12		26
			Continue on Sheet 2				

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		Hole No.		
PROJECT		INSTALLATION		SHEET 2		
Cooper River Rediversion		Charleston District		OF 3 SHEETS		
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS <i>Description</i>	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS <i>(Drilling time, water loss, depth of weathering, etc., if significant)</i>
a	b	c	d	e	f	B
						32
						29
29.7	35.0		Contains Large Clay Seam-Gray			33
					13	22
			ML - Soft - Gray	MC 55.2%	14	8
24.7	40.0		SM - Med. to Fine Sand		15	28
				MC 21.5%	16	47
			Contains Small Amts of Mica		17	28
			Plastic		18	33
19.7	45.0		Non Plastic		19	26
			Bottom of Hole 86.0'			Augered to Refusal

Hole No. IT-3B

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
		South Atlantic		Charleston District		OF 2 SHEETS	
1. PROJECT Cooper River Rediversio:				10. SIZE AND TYPE OF BIT 1 3/8" ϕ sss G 4x5 1/2 B31			
2. LOCATION (Coordinates or Station) N578,840 E2,324,350				11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL			
3. DRILLING AGENCY Mobile District				12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314			
4. HOLE NO. (As shown on drawing title and file number) IT-3B				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: 11		DISTURBED UNDISTURBED	
5. NAME OF DRILLER Parden				14. TOTAL NUMBER COR. BOXES 0			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER 61.4		STARTED COMPLETED	
7. THICKNESS OF OVERBURDEN 45.0'				16. DATE HOLE 6 Jun 75		17. ELEVATION TOP OF HOLE 65.9	
8. DEPTH DRILLED INTO ROCK 0				18. TOTAL CORE RECOVERY FOR BORING %			
9. TOTAL DEPTH OF HOLE 45.0'				19. SIGNATURE OF INSPECTOR C. Davis			
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	
65.9	0.0		Top of Hole				Blows Ft
			SM - Brown		1		4
60.9	5.0		SC - Lt. Brown & Lt. Gray	MC 19.2%	2		5
			MH - Lt. Gray		3	Water Table 6.4'	17
			SM - Coarse to Med. Sand Brown	MC 29.3%			22
			SM - Coarse to Med. Sand Brown		4		15
			SM - Coarse to Med. Sand Brown	MC 19.9%			6
59.9	15.0		SC - Brown				4
			SC - Brown	MC 18.9%	5		3
			SC - Brown				8
45.9	20.0		SC - Brown				20
			SC - Brown				22
			SM - Silty - Gray	MC 24.8%	6		24
			SM - Silty - Gray		7		37
			SM - Silty - Gray				19
			SM - Silty - Gray				22
31.9	30.0		SM - Silty - Gray				18
Continue on Sheet 2							

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		65.9		Hole No.		11-3B	
PROJECT			INSTALLATION			SHEET		OF 2 SHEETS	
Cooper River Rediversion			Charleston District						
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		g			
									17
									21
30.9	35.0				8				22
									36
									32
									45
28.9	40.0				9				38
			MH - No Recovery					No Recovery	16
								10 from 40.5-43.5	6
20.9	45.0		SM - Gray	23.1%	11				12
			Bottom of Hole 45.0'						

Hole No. 5111

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District
1. PROJECT Cooper River Rediversion		10. SIZE AND TYPE OF BIT 1 3/8" Ø SSS	
2. LOCATION (Coordinates or Station) 579,240 12,323,600		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) IT-3C		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN 10	
5. NAME OF DRILLER Parden		14. TOTAL NUMBER CORE LOGS 0	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERT CAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 60.7	
7. THICKNESS OF OVERBURDEN 45.0		16. DATE HOLE STARTED 5 Jun 75	
8. DEPTH DRILLED INTO ROCK 0		17. ELEVATION TOP OF HOLE 75.7	
9. TOTAL DEPTH OF HOLE 45.0		18. TOTAL CORE RECOVERY FOR BORING	
		19. SIGNATURE OF INSPECTOR C. Davis	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, hole weathering, etc.) g
75.7	0.0		Top of Hole			
			SM			Top Soil
			SM - Brown	MC 3.8%	1	
70.7	5.0		SC--Red Brown	MC 25.6%	2	Slightly Plastic
			SM - contains Mica Brown			
				MC 28.5%	3	
60.7	15.0		SC-Plastic -Contains Mica Red, Brown & Orange	MC 32.8%	4	Water Table 11.0
			w/Sand Lenses		5	
			MH-Contains Mica Red Brown	MC 35.4%	6	
			SM - Med. to Coarse Sand Lt. Brown	MC 15.8%	7	
50.7	25.0					
			SC-Coarse with Slight Clay Binder - Brown	MC 17.7%	8	
45.7	30.0					

Continue on Sheet 2

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE 75.7


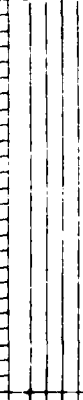
Hole No. 11-50

Upper River Rediversion

INSTALLATION Charleston District

SHEET 2 OF 2 SHEETS


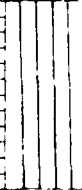

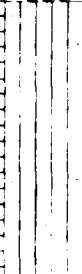

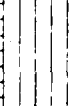
DEPTH	LEGEND	CLASSIFICATION OF MATERIALS <i>Designation</i>	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS <i>(If time and water permit, specify weathering etc. at intervals.)</i>
0					
5.0		SM-Brown			
10.0		Clay Lenses & Small Amt. of Mica - Brown	MC 34.6%	10	
15.0					
20.0					
25.0					
30.0					
35.0					
40.0					
45.0		Bottom of Hole 45.0'			

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
1. PROJECT		South Atlantic		Charleston District		1 OF 2 SHEETS	
2. LOCATION (Coordinates or Station)		N579,700 E2,322,160		10. SIZE AND TYPE OF BIT		1 3/8" 6 SSS & 4x5 1/2 BBL	
3. DRILLING AGENCY		Mobile District		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		MSL	
4. HOLE NO. (As shown on drawing title and file number)		IT-3D		12. MANUFACTURER'S DESIGNATION OF DRILL		Failing 314	
5. NAME OF DRILLER		Parden		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED: 6 UNDISTURBED: -	
6. DIRECTION OF HOLE		<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		14. TOTAL NUMBER C. RE BOXES		0	
7. THICKNESS OF OVERBURDEN		45.0'		15. ELEVATION GROUND WATER		57.6'	
8. DEPTH DRILLED INTO ROCK		0		16. DATE HOLE		STARTED: 17 Jul 75 COMPLETED: 17 Jul 75	
9. TOTAL DEPTH OF HOLE		45.0'		17. ELEVATION TOP OF HOLE		68.6'	
				18. TOTAL CORE RECOVERY FOR BORING		%	
				19. SIGNATURE OF INSPECTOR		C. Davis	
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
68.6	0.0					Blows Ft	
63.6	5.0		SC-Clay & Sand - Tan			8 12 16 30	
58.6	10.0		ML-Gray, Red & White	MC 34.7%	1 2	Water Table 11.0'	
53.6	15.0					4 6 6 9	
48.6	20.0		SM-Oil Tan SM - Tan to Red	MC 19.1%	3	3 5 4 7 7 6 7	
43.6	25.0					6 7	
38.6	30.0					6 7	

Continue on Sheet 2

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		Hole No.		
Cooper River Rediversion		68.6		IT-3D		
INSTALLATION		Charleston District		SHEET		
				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) g Blow/Ft
			ML- Mixed Color	MC		5
				33.1%		5
33.6	35.0				4	4
						10
						20
28.6	40.0				5	40
						6
						8
			SM-Tan Silty Sand From	MC		
			41.9 - 42.5	18.7%	6	Gray & Black-Very Fine
23.6	45.0					17
						22
Bottom of Hole 45.0'						

Hole No. IT-3E

DRILLING LOG		DIVISION		INSTALLATION		SHEET 1	
		South Atlantic		Charleston District		OF 2 SHEETS	
1 PROJECT Cooper River Rediversion				10. SIZE AND TYPE OF BIT 1 3/8" ϕ SSS & 4x5" BBL			
2 LOCATION (Coordinates or Station) N580,180 E2,521,280				11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL			
3 DRILLING AGENCY Mobile District				12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314			
4 HOLE NO. (As shown on drawing title and file number) IT-3E				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 7	
5. NAME OF DRILLER Parden				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		57.8'	
7 THICKNESS OF OVERBURDEN 45.0'				16. DATE HOLE		STARTED 18 Jul 75 COMPLETED 18 Jul 75	
8 DEPTH DRILLED INTO ROCK 0				17. ELEVATION TOP OF HOLE 70.8'			
9. TOTAL DEPTH OF HOLE 45.0'				18. TOTAL CORE RECOVERY FOR BORING %			
				19. SIGNATURE OF INSPECTOR R. Lawson			
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	
70.8	0.0		Top of Hole				Blows Ft
65.8	5.0		SC-Tan to Red		1		9 16 26 38
60.8	10.0		ML-White		2		13 28 10
55.8	15.0		MH-White		3		9 17
50.8	20.0		SM-Bottom .2' of Drive (Silty) Tan		4		7 10 17 10
45.8	25.0		Gray				12 21
40.8	30.0				5		Very Fine Sand 27.0' 17 20
Continue on Sheet 2				27			

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE 70.8'

Hole No. IT-3E

PROJECT Cooper River Rediversion

INSTALLATION Charleston District

SHEET 2
OF 5 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS <i>Description</i>	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS <i>Drilling time, water, etc. if significant</i>
a	b	c	d	e	f	g
						27
						37
35.8	35.0					38
			W/Decomp. Limestone		X	69
					6	70
30.8	40.0		W/Clay Lenses		X	34
						32
					7	64
25.8	45.0					110
						110
			Bottom of Hole 45.0'			

Hole No. IT-4

DRILLING LOG		DIVISION	INSTALLATION	SHEET	
		South Atlantic	Charleston District	OF 2 SHEETS	
1 PROJECT		Cooper River Redye Station		10 SIZE AND TYPE OF BIT 1 3/8" ø SSS & 4x5 1/2 BPI	
2 LOCATION (Coordinates or Station)		N 78.030 E 12,325,340		11 DATUM FOR ELEVATION SHOWN (TBM or MSL)	
3 DRILLING AGENCY		Mobile District		MSL	
4 HOLE NO. (As shown on drawing title and file number)		IF-4		12 MANUFACTURER'S DESIGNATION OF DRILL	
5 NAME OF DRILLER		Parden		Failing 314	
6 DIRECTION OF HOLE		X-Y-Z-A-N-E		13 TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	
7 THE KNEE SIDE OF OVERBURDEN		45.0'		DISTURBED	
8 DEPTH DRILLED INTO ROCK		0		UNDISTURBED	
9 TOTAL DEPTH OF HOLE		45.0'		6	
ELEVATION		DEPTH		14 TOTAL NUMBER CORE BOXES	
75.1		0.0		0	
70.1		5.0		15 ELEVATION GROUND WATER	
65.1		10.0		(Not Obtained)	
60.1		15.0		16 DATE HOLE	
55.1		20.0		STARTED	
50.1		25.0		COMPLETED	
45.1		30.0		17 ELEVATION TOP OF HOLE	
				75.1	
				18 TOTAL CORE RECOVERY FOR BORING	
				4	
				19 SIGNATURE OF INSPECTOR	
				C. Davis	
ELEVATION	DEPTH	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
75.1	0.0	Top of Hole			Blows
		St-Clayey Fine Sand Tan & Gray		1	Ft
70.1	5.0	Tan & red	MC 21.3	2	6
		ME-Micaceous Clayey Silt Tan & Gray			10
65.1	10.0				14
		Or-Fat Clay w/Sand Layers Tan & Gray	MC 33.7	3	19
60.1	15.0				10
			MC 26.9	4	LAB CLASSIFICATION
55.1	20.0				Spl. Class. 4 CH
		St-Clayey Fine and Med. Sand - Tan	MC 16.9	5	6
50.1	25.0				11
					12
45.1	30.0				12
					12

Continue on Sheet 2

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

75.1

Hole No. IT-4

INSTALLATION

SHEET 2

OF 2 SHEETS

Cooper River Rediversion

Charleston District

ELEVATION DEPTH LEGEND

CLASSIFICATION OF MATERIALS
Description

% CORE BOX OF
RECOVERY SAMPLE
ERY NO

REMARKS
*Drilling time, water level, depth,
bearing, etc. if significant.*

ft. Blow/Ft.

SM-Silty Fine Sand W/Clay
Layers - Dark Gray

MC
24.5%

40.1 35.0

35.1 40.0

30.1 45.0





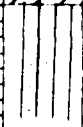
8
9
7
13
12
14
24
37
73
95

6

Bottom of Hole 45.0'

Hole No. 11-5

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 2 SHEETS
1 PROJECT Cooper River Rediversi...		10 SIZE AND TYPE OF BIT 1 3/8" ϕ SSS & 4 x 5 1/2 HBI		
2 LOCATION (Coordinates or Station) N 578,390 E 2,322,760		11 DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3 DRILLING AGENCY Mobile District		12 MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4 HOLE NO. (As shown on drawing title and file number) 11-5		13 TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN 6	DISTURBED -	UNDISTURBED -
5 NAME OF DRILLER Pardon		14 TOTAL NUMBER CORE BOXES 0		
6 DIRECTION OF HOLE VERTICAL UNCLINED DEG. FROM VERT.		15 ELEVATION GROUND WATER 61.3		
7 THICKNESS OF OVERBURDEN 45.0		16 DATE HOLE STARTED 16 Jun 75		
8 DEPTH DRILLED INTO ROCK 0		17 ELEVATION TOP OF HOLE 75.3'		
9 TOTAL DEPTH OF HOLE 45.0		18 TOTAL CORE RECOVERY FOR BORING %		
		19 SIGNATURE OF INSPECTOR C. Davis		

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
75.3	0.0		Top of Hole			Blows Ft
			SC - Clayey Fine Sand Tan & Gray	MC 17.5%	1	LAB CLASSIFICATION Spl. 1 Class. CL
70.3	5.0				2	6 10 15
			ML - Micaceous Clayey Silt Gray		3	7 12
65.3	10.0				4	7 4
			CH - Fat Clay-Gray & Tan Gray & Tan		4	4 5 7
60.3	15.0				5	6
			SC - Clayey Fine and Medium Sand - Tan	MC 21.0%	5	3 4 5
55.3	20.0				6	8
			SM - Silty Fine Sand - Tan	MC 20.8%	6	28 32
50.3	25.0					33
45.3	30.0					
			Continue on Sheet 2			31

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE 75.3'

Hole No. IT - 5

PROJECT Cooper River Rediversion

INSTALLATION Charleston District

SHEET 2 OF 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 level, depth of weathering, etc. if significant R
			SM-Silty Fine Sand - Tan			27
						23
40.3	35.0					34
						14
					6	17
35.3	40.0					20
						20
						22
						25
30.3	45.0					18
			Bottom of Hole 45.0'			

Hole No. 1T-5A

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
1. PROJECT Cooper River Rediversion		South Atlantic		Charleston District		OF 2 SHEETS	
2. LOCATION (Coordinates or Station) N579,630 E2,520,850		3. DRILLING AGENCY Mobile District		10. SIZE AND TYPE OF BIT 1 3/8" ϕ sss & 4x5 1/2 RMI		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
4. HOLE NO. (As shown on drawing title and file number) 1T-5A		5. NAME OF DRILLER Parden		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: 6 UNDISTURBED: --	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		7. THICKNESS OF OVERBURDEN 43.5		14. TOTAL NUMBER CORE BOXES 0		15. ELEVATION GROUND WATER 58.5	
8. DEPTH DRILLED INTO ROCK 2.4		9. TOTAL DEPTH OF HOLE 45.9		16. DATE HOLE 24 Jun 75		17. ELEVATION TOP OF HOLE 73.2	
				18. TOTAL CORE RECOVERY FOR BORING 72 %		19. SIGNATURE OF INSPECTOR C. Davis	
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	
73.2	0.0		Top of Hole				Blows Ft
			SM - Silty Fine Sand Black & Gray		1		4 5
68.2	5.0		CL - Fine Sandy Clay W/Mica Tan, Red & Gray		2		9 15
63.2	10.0		MH - Micaceous Silty Clay Gray & Tan		3		8 10 7 3
58.2	15.0		SC - Clayey Fine Sand-Tan		4		5 6 10
53.2	20.0		W/Rock Fragments		5		22 14
			Top of Rock 23.0'				
48.2	25.0		Limestone, "coquina" gray moderately hard; vuggy, sandy, dense.		72	Pull - 1 23.0-25.4 Run 2.4	Rec 1.8 C/L 0.6
			SM - Silty Fine Sand W/Clay Layers - Gray		6		21 25
43.2	30.0						43
Continue on Sheet 2							

33

DRILLING LOG (Cont Sheet)

ELEVATION OF SURFACE

75.2

Hole No. II-3A

Sheet 2

Cooper River Rediversion

STATION

Charleston District

100' 2' 3'

REMARKS

Drilling time water in hole
Leakage at 100' 2' 3'

g Blow/Ft

DEPTH (ft)	LEGEND	CLASSIFICATION OF MATERIALS	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS
35.2 - 35.0	[Vertical lines]	SM - Silty Fine Sand w/Clay Layers - Gray			58
					89
					80
					133
	[Horizontal lines]	Shale, consolidated gray- very sandy			154
					157
38.2 - 40.0	[Horizontal lines]				103
		SM			60
					58
45.2 - 45.0	[Vertical lines]				51
47.3 - 45.9	[Vertical lines]				
Bottom of Hole 45.9'					

Hole No. IT-6

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston District	SHEET OF 2 SHEETS
1. PROJECT Cooper River Rediversion		10. SIZE AND TYPE OF BIT 3/8" Ø SSS G 1X5; DBL	
2. LOCATION (Coordinates or Station) N578,390 E2,321,350		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) IT-6		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: - UNDISTURBED: -	
5. NAME OF DRILLER Parden		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 61.5	
7. THICKNESS OF OVERBURDEN 33.3		16. DATE HOLE STARTED 11 Jun 75	
8. DEPTH DRILLED INTO ROCK 12.0		16. DATE HOLE COMPLETED 11 Jun 75	
9. TOTAL DEPTH OF HOLE 45.3		17. ELEVATION TOP OF HOLE 75.5	
		18. TOTAL CORE RECOVERY FOR BORING 64.2 %	
		19. SIGNATURE OF INSPECTOR C. Davis	

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
75.5	0.0		Top of Hole			Blows Ft
			SM - Silty Fine Sand - Tan	MC 5.2%	1	3 5 6
70.5	5.0		SC - Clayey Fine Sand W/ Strong Binder - Tan, Red & Gray		2	25 18 9
65.5	10.0		MH - Silty Clay W/Thin Sand Lenses - Gray, Red & Tan	MC 31.1%	3	8 6
60.5	15.0		W/Thin Sand Lenses & Mica		4	Water Table 16.0'
55.5	20.0		SC - Clayey Fine Sand W/High Liquid Limit - Gray	MC 21.8	5	1 5
50.5	25.0		Tan		6	6
45.5	30.0				6	6

Continue on sheet

DRILLING LOG (Cont Sheet)





ELEVATION TOP OF HOLE 75.5

Hole No. IT - 6

Sheet 2 of 2

INSTALLATION Charleston District

Cooper River Rediversion

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS <i>Description</i>	% CORE RECOVERY <i>e</i>	BOX OR SAMPLE NO <i>f</i>	REMARKS <i>(Drilling time, water, depth, weathering, etc.)</i> <i>g</i> Blow/Ft
			MI - Silty Clay W/Sand Layers Dark Gray Top of Hole 33.3'	MC 27.5%	7	14 +16
40.3	35.0		Shale, dark gray with some sand laminations; sand lamina are partially cemented	96	Core Box 1	Pull - 1 33.3 - 38.2 Run 4.9 Rec 4.7 C/L 0.2
35.5	40.0		CL - dark gray consolidated interbedded with sand Sandstone, dark gray, (SP)	54	Core Box 2	Pull - 2 38.2 - 42.8 Run 4.6 Rec 2.5 C/L 2.1
30.2	45.3		Shale, dark gray with layers of sandstone - not recovered Bottom of Hole 45.9'	20		Pull - 3 42.8 - 45.3 Rec 0.5 Run - 2.5 C/L 1.5

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 2 SHEETS
1 PROJECT Cooper River Rediversion		10 SIZE AND TYPE OF BIT 1 3/8" ϕ SSS & 1x5' BBL		
2 LOCATION (Coordinates of Station) N377,750 E1,322,250		11 DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3 DRILLING AGENCY Mobile District		12 MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4 HOLE NO. (As shown on drawing title and file number) IT-6A		13 TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED: _____ UNDISTURBED: _____		
5 NAME OF DRILLER PARDEN		14 TOTAL NUMBER OF CORE BOXES 0		
6 DIRECTION OF HOLE VERTICAL: _____ INCLINE: _____ DEG. FROM VERT. _____		15 ELEVATION GROUND WATER 63.1		
7 THICKNESS OF OVERBURDEN 45.0'		16 DATE HOLE STARTED 12 Jun 75 COMPLETED 12 Jun 75		
8 DEPTH DRILLED INTO ROCK 0		17 ELEVATION TOP OF HOLE 78.1'		
9 TOTAL DEPTH OF HOLE 45.0'		18 TOTAL CORE RECOVERY FOR BORING %		
		19 SIGNATURE OF INSPECTOR C. Davis		

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
78.1	0.0		Top of Hole			Blows Ft
			SC - Clayey Fine Sand W/- Strong Binder Tan, Red & Gray	MC 14.3%	1	8 15
73.1	5.0		Clayey Fine Sand-Tan & Gray		2	18 25
68.1	10.0		ML - Micaceous Silt Tan & Gray	MC 36.5%	3	16 14 8
63.1	15.0		Micaceous Clayey Silt			Water Table 15.0' 9
58.1	20.0		CH - Fat Clay W/Sand layers Tan & Gray	MC 30.8%	4	12 10
53.1	25.0		SM - Silty Fine Sand - Tan	MC 25.4%	5	15 9
48.1	30.0		Continue on Sheet 2			16 20 22

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE 78.1'

Hole No. IT - 6A

INSTALLATION

SHEET 2

Cooper River Rediversion

Charleston District

OF 2 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, etc., if significant)	g	
	b		d	e	f		Blow/Ft	
							50	
							49	
43.1	35.0				6		45	
							52	
							60	
38.1	40.0						92	
							123	
					7		136	
							144	
55.1	45.0						145	
			Bottom of Hole 45.0'					

DRILLING LOG		DIVISION	INSTALLATION		SHEET 1 OF 2 SHEETS	
1. PROJECT Cooper River Rediversion		South Atlantic	Charleston District			
2. LOCATION (Coordinates or Station) N579,070 E2,320,610		10. SIZE AND TYPE OF BIT 1 3/8" Ø sss 4 AXS ₂ PBL		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 6
4. HOLE NO (As shown on drawing title and file number) IT-6B		14. TOTAL NUMBER CORE BOXES 4		15. ELEVATION GROUND WATER 63.2		UNDISTURBED -
5. NAME OF DRILLER Parden		16. DATE HOLE STARTED 17 Jun 75		17. ELEVATION TOP OF HOLE 74.7		COMPLETED 17 Jun 75
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		7. THICKNESS OF OVERBURDEN 28.5		18. TOTAL CORE RECOVERY FOR BORING 65.95		
8. DEPTH DRILLED INTO ROCK 18.5		9. TOTAL DEPTH OF HOLE 47.0'		19. SIGNATURE OF INSPECTOR C. Davis		
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
74.7	0.0		Top of Hole			Blows Ft
			SC - Tan & Black			3
69.7	5.0			MC 17.7%	1	5
						8
						16
						16
64.7	10.0					22
						6
						9
59.7	15.0			MC 32.4%	2	Water Table 12.5'
						9
						5
						12
54.7	20.0		MH - Tan, Red & White	MC 30.7%	3	
			SM - Tan & White		4	
						5
			Black			1
49.7	25.0			MC 15.7%	5	
						1
						2
						7
						25
44.7	30.0		Fine Sand & Decomposed Limestone Limestone, "Coquina" gray hard, well cemented, vuggy.		6	Top of Rock 28.5'
						25

Continue on Sheet 2

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

74.7

Hole No.

IT - 6B

SHEET 2

INSTALLATION

OF 2 SHEETS

PROJECT
Cooper River Rediversion

CHARLESTON DISTRICT

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOY OR SAMPLE NO	REMARKS <i>(Drilling time, water level, weathering, etc., if applicable)</i>
a	b	c	d	e	f	g
			Shale, Clay-dark gray to blue black, sandy, soft friable, broken, containing numerous leached shell fragments (CH-SP)		40	Pull - 1 28.5 - 33.5 Run 5.0 Rec 2.0 C/L 3.0
39.7	37.0		Sand, gray green to gray-highly calcareous silty sand, friable, unconsolidated, loose, contains scans of calcareous cemented shell material at 34-34.3 - 34.3-34.5 seam of clay shale		50	Pull - 2 33.5' - 38.5' Run 5.0' Rec 2.5' C/L 2.5'
34.7	40.0		34.5-34.7 seam of calcareous cemented sandstone. 41-42.7 friable argillaceous sandstone.		77	Pull - 3 38.5 - 42.0' Run 3.5' Rec 2.7' C/L 0.8'
29.7	45.0		Sand-clayey-alternating layers of sand and clay SP-CL		100	Pull - 4 42.0 - 47.0' Run 5.0' Rec 5.0' C/L 0.0
27.7	47.0		Bottom of Hole 47.0'			

DRILLING LOG		DIVISION	INSTALLATION	SHEET 1		
		South Atlantic	Charleston District	OF 2 SHEETS		
1 PROJECT Cooper River Rediversion		10. SIZE AND TYPE OF BIT 1 3/8" ϕ sss & 4x5 1/2 EBL				
2 LOCATION (Coordinates or Station) N577,770 E2,321,000		11 DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL				
3 DRILLING AGENCY Mobile District		12 MANUFACTURER'S DESIGNATION OF DRILL Failing 314				
4 HOLE NO. (As shown on drawing title and file number) IT-7		13. TOTAL NO OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 6, UNDISTURBED -				
5 NAME OF DRILLER Parden		14. TOTAL NUMBER CORE BOXES 3				
6 DIRECTION OF HOLE VERTICAL INCLINED _____ DEG. FROM VERT.		15 ELEVATION GROUND WATER 62.6				
7 THICKNESS OF OVERBURDEN 25.0		16. DATE HOLE STARTED 10 Jun 75, COMPLETED 10 Jun 75				
8 DEPTH DRILLED INTO ROCK 20.5		17. ELEVATION TOP OF HOLE 76.1				
9 TOTAL DEPTH OF HOLE 45.5		18. TOTAL CORE RECOVERY FOR BORING 68.5 %				
		19. SIGNATURE OF INSPECTOR C. Davis				
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
76.1	0.0		Top of Hole			Blows Ft
			SC - Clayey Fine sand - Tan	MC 15.1%	1	7 11 25
71.1	5.0		W/Strong Binder - Tan & Red		2	27 18
66.1	10.0		MH - Silty Clay W/Thin Sand Lenses - Gray	MC 29.4%	3	12 14 LAB CLASSIFICATION Spl. 4 Class. CH 10
61.1	15.0		Gray & Tan	MC 34.2%	4	7 6 5
56.1	20.0		SM - Silty Fine and Med. Sand W/Clay Layers - Tan		5	3 2 4
51.1	25.0		SC-Calcareous Clayey Sand W/ Limestone		6	0 Top of Hole 25.0' +100
45.2	29.1		Limestone, shell, light gray, composed of small shell fragments	100	Core Box 1	Pull - 1 25.0 - 29.1 Run 4.1 Rec 4.1 C/L 0.0
46.1	30.0		Sand with cemented layers			
Continue on Sheet 2						

DRILLING LOG (Cont Sheet) ELEVATION TOP OF HOLE 76.1 Hole No. IT-7

PROJECT Cooper River Rediversion INSTALLATION Charleston District SHEET 2 OF 2 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth, weathering, etc. if significant)
41.1	35.0		Sand, light gray with layers of calcareous sandstone Hard, dense sand contains some shell fragments (SP)	29		Pull - 2 29.1 - 34.0 Run 4.9 Rec 1.4 C/L 3.5
				100	Core Box 2	Pull - 3 34.0 - 36.7 Rec 0.0 Run 2.7 C/L 2.7
36.1	40.0			71		Pull - 4 36.7 - 40.5 Run 3.8 Rec 2.7 C/L 1.1
30.6	45.5			80	Core Box 3	Pull - 5 40.5 - 45.5 Run 5.0 Rec 4.0 C/L 1.0

Bottom of Hole 45.5'

DRILLING LOG	VISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 2 SHEETS
1 PROJECT Cooper River Rediversion	10 SIZE AND TYPE OF BIT 1 3/8" ϕ sss & 4x5 1/2 B&I		11 DATUM FOR ELEVATION SHOWN (YBM or MSL) MSL
2 LOCATION (Coordinates or Station) N577,550 E2,520,170	12 MANUFACTURER'S DESIGNATION OF DRILL Felling 314		13 TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN 5
3 DRILLING AGENCY Mobile District	14 TOTAL NUMBER CORE BOXES 4		15 ELEVATION GROUND WATER 63.2
4 HOLE NO. (As shown on drawing title and file number) 11-8	16 DATE HOLE STARTED 6 Jun 75		COMPLETED 9 Jun 75
5 NAME OF DRILLER Parden	17 ELEVATION TOP OF HOLE 75.2		18 TOTAL CORE RECOVERY FOR BORING 67.1 %
6 DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG FROM VERT	19 SIGNATURE OF INSPECTOR C. Davis		
7 THICKNESS OF OVERBURDEN 21.0	8 DEPTH DRILLED INTO ROCK 24.3		9 TOTAL DEPTH OF HOLE 45.3

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
75.2	0.0		Top of Hole			Blows Ft
			SC - Clayey Fine Sand - Tan		1	6 8
70.2	5.0			MC 22.4%	2	14 25 28
65.2	10.0		MH - Silty Clay W/Thin Sand Layers - Gray		3	8 7 4
60.2	15.0			MC 28.6%	4	2 3
55.2	20.0		SM - Silty Fine Sand W/Clay Layers - Gray & Tan	MC 20.5%	5	3 4 7
54.2	21.0		Limestone, light gray "coquina" hard well cemented, porous, contains medium to large shell fragments - Plio-pleistocene	78	Core Box 1	Top of Rock 21.0' 117 Pull - 1 21.0 - 23.3 Rec 1.8 Run 2.3 C/L 0.5
50.2	25.0		Clay-Sandy, dark gray to black contains highly leached shell fragments		Core Box 2	Pull - 2 23.3 - 28.3 Run 5.0 Rec 4.6 C/L 0.4
45.2	30.0		Limestone, light gray, well cemented with the except. of a few pockets of sandy clay Limestone, shell light gray, argillaceous well cemented	92		

Continue on Sheet 2

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE
75.2

Hole No. IT-8

PROJECT

Cooper River Rediversion

INSTALLATION

Charleston District

SHEET 2
OF 2 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water level, depth of weathering, etc. if significant)
a	b	c	d	e	f	g
40.2	35.0		SM-silty, light gray interbedded with clay, soft.	100	Core Box 3	Pull - 3 28.3 - 33.3 Run 5.0 Rec 5.0 C/L 0.0
				85		Pull - 4 33.3 - 37.1 Run 3.8 Rec 2.1 C/L 1.7
35.2	40.0		SM-sand, silty, medium grain contains shell fragments.	34	Core Box 4	Pull - 5 37.1 - 41.8 Run 4.7 Rec 1.6 C/L 3.1
				85		Pull - 6 41.8 - 45.3 Run 3.5 Rec 3.0 C/L 0.5
29.9	45.3		Bottom of Hole 45.3'			

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Charleston District		SHEET OF 2 SHEETS	
1. PROJECT Cooper River Rediversion				10. SIZE AND TYPE OF BIT 1 3/8" ϕ SSS G 4X5 1/2 BBL			
2. LOCATION (Coordinates or Station) N577,300 E2,319,420				11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL			
3. DRILLING AGENCY Mobile District				12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314			
4. HOLE NO. (As shown on drawing title and file number) IT-9				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 5	UNDISTURBED -
5. NAME OF DRILLER Parden				14. TOTAL NUMBER CORE BOXES 4			
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER 67.0'			
7. THICKNESS OF OVERBURDEN 24.5				16. DATE HOLE STARTED 2 Jun 75 COMPLETED 2 Jun 75			
8. DEPTH DRILLED INTO ROCK 20.8				17. ELEVATION TOP OF HOLE 77.0'			
9. TOTAL DEPTH OF HOLE 45.3'				18. TOTAL CORE RECOVERY FOR BORING 78.8 %			
				19. SIGNATURE OF INSPECTOR C. Davis			
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	
77.0	0.0		Top of Hole			Blows Ft	
			SC - Clayey Fine Sand - Tan	MC 18.3%	1		5 8 15
72.0	5.0		Tan & Gray		2		18 18 14
67.0	10.0		ML - Micaceous Clayey Silt Tan & Gray	MC 36.5%	3	Water Table @ 10.0'	5 4
62.0	15.0		MH - Silty Clay w/Thin Sand Lenses - Tan & Gray	MC 34.2%	4		5 5 5
57.0	20.0		SM - Silty Fine and Med. Sand-Gray	MC 19.5%	5		1 3 2 3
52.0	25.0		Top of Rock 24.5'				
			Limestone, light gray "coquina" well cemented, hard	86	Core Box 1	Pull - 1 24.5 - 29.1 Run 4.6 Rec 4.0 C/L 0.6	
47.0	30.0		Sand-Transition zone, light gray, clayey, contains numerous shell fragments.				
Continue on Sheet 2							

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE 77.0'

Hole No. IT-9

PROJECT Cooper River Rediversion INSTALLATION Charleston District 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, weathering, etc. of materials) g
42.0	35.0		Shale, Gray, soft interbedded with SP, contains some highly leached shell fragments.	56	Core Pull - 2 Box 2 29.1 - 33.5 Run 4.4 Rec 2.5	C/L 1.9
				50	Core Pull - 3 Box 3 33.5 - 38.1 Run 4.6 Rec 3.7	C/L 0.9
37.0	40.0			100	Core Pull - 4 Box 4 38.1 - 42.8 Run 4.7 Rec 4.7 C/L 0.0	
				40	Pull - 5 42.8 - 45.3 Run 2.5	Rec 1.5 C/L 1.0
31.7	45.3			Bottom of Hole 45.3'		

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DRILLING LOG		DIVISION South Atlantic		INSTALLATION Charleston District		SHEET OF 2 SHEETS	
1. PROJECT Cooper River Rediversion				10. SIZE AND TYPE OF BIT 1 3/8" ϕ SSS 4 4x5 1/2 EBL			
2. LOCATION (Coordinates or Station) N576,890 E2,319,760				11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL			
3. DRILLING AGENCY Mobile District				12. MANUFACTURER'S DESIGNATION OF DRILL Pailing 314			
4. HOLE NO. (As shown on drawing title and file number) IT-9A				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 4	
5. NAME OF DRILLER Parden				14. TOTAL NUMBER CORE BOXES 5		UNDISTURBED -	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15. ELEVATION GROUND WATER 66.8			
7. THICKNESS OF OVERBURDEN 20.0				16. DATE HOLE STARTED 5 Jun 75			
8. DEPTH DRILLED INTO ROCK 25.1				17. ELEVATION TOP OF HOLE 75.8			
9. TOTAL DEPTH OF HOLE 45.1				18. TOTAL CORE RECOVERY FOR BORING 84.9 %			
				19. SIGNATURE OF INSPECTOR C. Davis			
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	
75.8	0.0		Top of Hole			Blows Ft	
			SC - Clayey Fine Sand - Tan		1	6	
			Red & Tan		2	14	
70.8	3.0					25	
						24	
						23	
65.8	10.0		MH - Silty Clay W/Mica and Sand Layers - Gray		3	8	
						5	
						3	
60.8	15.0		W/Sand Layers		4	4	
						3	
55.8	20.0			MC 35.5%		1	
						8	
						9	
			Clay-gray, sandy, calcareous, highly fossiliferous, soft to firm with zones of well cemented limestone. Ref. soft zones Log 68		Core Box 1	Pull - 1 20.0 - 23.8 Run 3.8 Rec 2.6 C/L 1.2	
50.8	25.0		23.33A Powerhouse site B 24.8 to 25.4 zone of large shells		Core Box 2	Pull - 2 23.8 - 27.8 Run 4.0 Rec 4.5 C/G 0.5	
			Sand, clayey, gray glauconitic contains numerous leached shells				
			Limestone, gray, well cemented hard. "coquina"				
45.8	30.0		SC-gray, some glauconitic, leached fossils-Transition zone				
			sand, clay contains numerous leache fossil fragments				

Continue on Sheet 2

INSTALLATION Cooper River Rediversion Charleston District SHEET 2 OF 2

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS <i>Description</i>	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS <i>Drilling time, water loss, depth weathering, etc. if significant</i>
			Shale-Dark gray, soft to firm interbedded with fine grain light gray sand	81	Core Pull-3 Box 27.8 - 32.7 3 Run 4.9	Rec 4.0 C/L 0.0
41.8	35.0			100	Core Pull-4 Box 32.7-37.3 4 Run 4.6	Rec 4.6 C/L 0.0
35.8	40.0			83	Core Pull-5 Box 37.3-40.3 3 Run 3.0	Rec 2.5 C/L 0.5
30.7	45.1			64	Core Pull - 6 Box 40.3 - 45.1 5 Run 4.8 Rec 3.1 C/L 1.7	

Bottom of Hole 45.1

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Mobile District	SHEET OF 2 SHEETS
1. PROJECT Cooper River Rediversion		10. SIZE AND TYPE OF BIT 3 8" SSS & 4x5 1/2 BIT	
2. LOCATION (Coordinates or Station) N577 820 E2 319 21		11. MOUNTING FOR ELEVATION SHOWN (TBM or MSL) MSL	
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Halliburton 314	
4. HOLE NO. (As shown on drawing title and file number)		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 0	
5. NAME OF DRILLER Parden		14. TOTAL NUMBER CORE BOXES 4	
6. DIRECTION OF HOLE Vertical		15. ELEVATION GROUND WATER 78.1	
7. THICKNESS OF OVERBURDEN 24'		16. DATE HOLE STARTED COMPLETED 29 May 1975 30 May 1975	
8. DEPTH OF GROUND WATER 31.7'		17. ELEVATION TOP OF HOLE 78.1	
9. TOTAL DEPTH OF HOLE 30.0'		18. TOTAL CORE RECOVERY FOR BORING 84.7%	
		19. SIGNATURE OF INSPECTOR	

ELEVATION	DEPTH (ft)	CLASSIFICATION OF MATERIALS Description	CORE RECOVERY %	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	Blows Ft
78.1	0.0	Top of Hole				
		Clayey fine sand Tan & Red		1		4
						8
						13
73.1	5.0		MC 21.9%	2		19
						23
68.1	10.0	MH-Tan and gray micaceous silty clay		3		4
						9
						4
63.1	15.0	CH-Tan and gray-fat clay		4		3
						2
						5
						2
58.1	20.0	SC-Gray clayey fine and medium sand	MC 20.1%	5		3
						5
						6
					Refusal at 24.5	14
53.1	25.0	Limestone, light gray "coquina" weathered slightly sandy to clayey appears reworked	100	Core Box 1	Scale Change Pull - 1 24.5' - 28.6'	
		Transition Zone-SC			Run 4.1	
48.1	30.0	Shale-dark gray soft interbedded with sand layers note			Rec 4.1	

Continue on Sheet 2

DEPTH (FEET)	LEGEND	CLASSIFICATION OF MATERIALS	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS
33.5		(Continued) some of the layers are well cemented sandstone 33.5'-33.9'	74	Core Pull - 2 Box 28.6-33.6 2 28.6 - 33.6	Rec 2.7 C/L 1.3
39.0		39.0 - 39.2 Poorly sorted sand with shell fragments and lamina of peat lignite	91	Core Pull - 3 Box 33.6 - 38.4 3 Run 4.8 Rec 4.4 C/L 0.4	
38.4		Sandstone, gray medium, grain		↓ Pull - 4 38.4 - 43.7	
40.0		Shale-dark gray, soft interbedded with sand layers	75	Core Run 5.3 Box Rec 4.0 4 C/L 1.3	
43.7			86	↓ Pull - 5 43.7 - 46.0	Rec 2.0
46.0				Run 2.3	C/L 0.5

Bottom of Hole 46.0'

DRILLING LOG		DIVISION	INSTALLATION	SHEET		
		South Atlantic	Charleston District	OF 2 SHEETS		
1. PROJECT Cooper River Re diversion		10. SIZE AND TYPE OF BIT 1 3/8" ø sss & 4x5" BBL		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
2. LOCATION (Coordinates or Station) N 578, 500 E 12, 319, 270		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED (0) UNDISTURBED -		
3. DRILLING AGENCY Mobile District		14. TOTAL NUMBER CORE BOXES 2		15. ELEVATION GROUND WATER 67.3'		
4. HOLE NO. (As shown in drawing title and file number) IT-9C		16. DATE HOLE STARTED COMPLETED 23 June 1975 24 June 1975		17. ELEVATION TOP OF HOLE 77.3		
5. NAME OF DRILLER Garden		18. TOTAL CORE RECOVERY FOR BORING 89.5 %		19. SIGNATURE OF INSPECTOR C. Davis		
6. DIRECTION OF HOLE X VERTICAL Y NONE DEG. FROM VERT.		7. THICKNESS OF OVERBURDEN 33.0		8. DEPTH DRILLED INTO ROCK 11.7		
9. TOTAL DEPTH OF HOLE 44.7						
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
77.3	0.0		Top of Hole			Blows Ft
			SM-Silty fine sand - tan	MC 7.8%	1	4
						5
72.3	5.0		SC-Clayey fine sand - tan		2	6
						10
						12
67.3	10.0		ML-Micaceous clayey silt tan & gray		3	7
						8
						9
62.3	15.0		CH-fat clay with thin sand lenses	MC 35.1%	4	4
						6
						8
57.3	20.0		SM-Silty fine sand with shell green & gray	MC 36.2%	5	4
			Top of Rock 22.5'			19
54.8	22.5					
52.3	25.0		Limestone, Coquina, gray, hard	100	Core Box 1	Scale Change Pull - 1 22.5 - 25.3 Rec 2.8 C/L 0.
			SM-sand, clayey sand, gray, sand with shell & limestone layers SW-SC	100		Run 2.8 Pull - 2 25.3 - 29.8 Run 4.5 Rec 4.5 C/L 0.0
47.3	30.0					
Continue on Sheet 2						51

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE	77.3		Hole No.	1 F-9C
		INSTALLATION	Charleston District		SHEET	
Upper River Rediversion				TOP SHEETS		
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS <i>(Drilling time, water loss, etc. or test data)</i>
35.1	34.2		SM - Sand, gray, laminated with clays	61	Core Full - 3 Box 29.8 - 34.2	
42.3	35.0				Rm 4.4 Rec 2.7 C/L 1.7	Scale Change
			SM-Silty fine sand - gray			150
						165
						159
37.5	41.0				6	180
						59
						45
32.0	44.7					48
Bottom of Hole 44.7'						

DRILLING LOG		DIVISION	INSTALLATION	SHEET		
		South Atlantic	Charleston District	OF 2 SHEETS		
1. PROJECT Cooper River Reversion		10. SIZE AND TYPE OF BIT 3/8" ϕ sss & 4x5		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
2. LOCATION (Coordinates or Station) N579,290 E2,318,930		12. MANUFACTURER'S DESIGNATION OF DRILL Falling 314		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 7		
3. DRILLING AGENCY Mobile District		14. TOTAL NUMBER CORE BOXES 1		15. ELEVATION GROUND WATER 70.0'		
4. HOLE NO. (As shown on drawing title and file number) IT-90		16. DATE HOLE STARTED 21 July 1975		17. ELEVATION TOP OF HOLE 80.0		
5. NAME OF DRILLER Parden		18. TOTAL CORE RECOVERY FOR BORING 29.3%		19. SIGNATURE OF INSPECTOR C. Davis		
6. DIRECTION OF HOLE X VERTICAL <input type="checkbox"/> INCLINED <input type="checkbox"/> DEG. FROM VERT. _____		17. ELEVATION TOP OF HOLE 80.0		18. TOTAL CORE RECOVERY FOR BORING 29.3%		
7. THICKNESS OF OVERBURDEN 38.7		18. TOTAL CORE RECOVERY FOR BORING 29.3%		19. SIGNATURE OF INSPECTOR C. Davis		
8. DEPTH DRILLED INTO ROCK 5.8		19. SIGNATURE OF INSPECTOR C. Davis				
9. TOTAL DEPTH OF HOLE 44.5		19. SIGNATURE OF INSPECTOR C. Davis				
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
80.0	0.0		Top of Hole			Blows Ft
			SM-Silty fine sand - tan		1	4
						4
75.0	5.0		SC-Clayey fine sand-tan		2	6
						7
						13
			ML-Micaeous clayey silt tan & gray		3	6
						7
						6
						6
65.0	15.0		CH-Fat clay with thin sand lenses - Red & Tan		4	7
						4
						5
60.0	20.0		MH-Silty clay - gray		5	2
						1
						2
						4
55.0	25.0		SC-calcareous clayey sand w/ shell gray		6	4
						5
51.5	26.5		Top of Rock 26.5			+100
			Limestone, tan highly argillaceous shell rock, glauconitic with local high % of clay.	27	Core Box 1	Pull -1 26.5 - 30.8 Run 4.3 Rec 1.2 C/L 3.1
50.0	30.0					
		Continue on Sheet 2				53

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE	Hole No.			
		80.0	IT-9D			
INSTALLATION		SHEET				
Cooper River Rediversion		2				
Charleston District		of 2 SHEETS				
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water, logs, weathering, etc. at bottom)
				e	f	Blows/Ft
47.5	32.5		Limestone, gray "coquina" hard sound shell rock, vuggy	29		Pull - 2 30.8 - 32.5 Rec 0.5 Run 1.5 C/L 1.0
45.0	35.0		SM-Silty fine sand with clay layers - gray		7	10 29 33 61 144 175 181 166
40.0	40.0					
35.5	44.5		Bottom of Hole 44.5'			

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DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston District	SHEET OF 2
1. PROJECT Cooper River Rediversion		10. SIZE AND TYPE OF BIT 1 3/8" ID Split	
2. LOCATION (Coordinates or Station) N577,020 E2,318,490		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) 11-10		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 5	
5. NAME OF DRILLER Parden		14. TOTAL NUMBER CORE BOXES 4	
6. DIRECTION OF HOLE X VERTICAL		15. ELEVATION GROUND WATER 69.8	
7. THICKNESS OF OVERBURDEN 24.5		16. DATE HOLE STARTED 28 May 75	
8. DEPTH DRILLED INTO ROCK 22.1		17. ELEVATION TOP OF HOLE 78.8	
9. TOTAL DEPTH OF HOLE 46.6		18. TOTAL CORE RECOVERY FOR BORING 86.4	
		19. SIGNATURE OF INSPECTOR C. Davis	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth weathering, etc., if significant) g
a	b	c	d			
78.8	0.0		Top of Hole			
			SC-Clayey fine sand tan & gray		1	
73.8	5.0					
			Mi-Micaeous silty Clay		2	
68.8	11.0					
			CH-Fat clay - gray		3	LAB CLASSIFICATION SPL. CLASS. CL
63.8	15.0					
			SC-Calcareous clayey sand with limestone - green & gray		4	
58.8	20.0					
			Top of Rock 24.5'			
54.3	24.5					
			Limestone, light tan weathered, slightly sandy to clayey. Material appears to be re-worked. Irregular contact	49	Core Box 1	Ph11 - 1 24.5 - 29.2 Rim 4.7 Rec 4.7 C/L 0.0
48.8	30.0		Limestone "coquina" well cemented hard			

Continue on Sheet 2

(Cont Sheet)

ELEVATION TOP OF HOLE

78.8

Hole No. 11-10

for rediversion

INSTALLATION

Charleston District

SHEET 2

OF 2 SHEETS

DEPTH	CLASSIFICATION OF MATERIALS	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS
1	Limestone, dark gray "coquina" well cemented-hard	100	1	Pull - 2 29.2 - 33.6
2	Clay-transition zone-dark gray with shell fragments leached, consolidated	100	2	Run 4.4 Rec 4.4 C/L 0.0
3	Shale, dark gray with sand (SM) paper. Thin lamina to 3' tjocl beds. Some sand layers are partially cemented and some areas contain pockets of sand.	74	3	Pull - 3 35.6 - 38.6 Run 5.0 Rec 3.7 C/L 1.3
42.3-42.5	Sand Casts	80	4	Pull - 4 38.6 - 43.6 Run 5.0 Rec 4.0 C/L 1.0
76			5	Pull - 5 43.6 - 46.6 Run 3.0 Rec 2.3 C/L 0.7

Bottom of Hole 46.6'

Hole No. 11-11

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET OF 2 SHEETS
1. PROJECT Cooper River Redfish 101		10. SIZE AND TYPE OF BIT 1 3/8" A SSS 4000 BIT		
2. LOCATION (Coordinates or Station) N576,830 E2,317,830		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) 11-11		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 0		
5. NAME OF DRILLER Parden		14. TOTAL NUMBER CORE BOXES 3		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> IN LINED _____ DEG FROM VERT		15. ELEVATION GROUND WATER 75.9		
7. THICKNESS OF OVERBURDEN 35.0		16. DATE HOLE STARTED _____ COMPLETED 23 May 1975 27 May 1975		
8. DEPTH DRILLED INTO ROCK 12.3		17. ELEVATION TOP OF HOLE 79.9		
9. TOTAL DEPTH OF HOLE 45.3		18. TOTAL CORE RECOVERY FOR BORING 91.9		
		19. SIGNATURE OF INSPECTOR C. Davis		

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
79.9	0.0		Top of Hole			Blows Ft
			SC-Clayey fine sand		1	
74.9	5.0			MC 19.1%	2	
					3	
69.9	10.0					
			MI-Silty clay - dark gray		4	
64.9	15.0			MC 61.1%		
			SM-silty fine sand with clay layers - gray		5	
59.9	20.0			MC 26.6%		
					6	
54.9	25.0					
			SC-calcareous clayey sand with limestone - gray	MC 22.9%		
49.9	30.0					






Continue on sheet 2

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DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE 79.9

Hole No. 11-11

PROJECT		INSTALLATION		DATE		
Cooper River Rediversion		Charleston District		11-11-60		
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS Description	% COP RECOVERY	FOOT- CANDLES SAMPLE NO.	MARKS CORRECTION CORRECTION
			Top of Rock 33.0'			11
			Limestone, light gray, "coquina" zone of large shells 33.0-33.5'			60
33.0-33.5'			Sand, clayey, transition zone dark gray contains numerous pieces of shells	78	Core Box 1 33.0-33.5 33.5-34.0	C/L 0.6
33.5-40.0'			Sand, silty, light gray, inter- bedded with clay layers, soft-	111	Core Box 2 34.0-34.5 34.5-35.0	Rec 4.0 C/G 0.1
			Shale, dark gray, soft, inter- bedded with sand lamina		Core Box 3 35.0-35.5 35.5-36.0	
35.0-45.3'			Sand, light gray, poorly sorted (Sp)	87	Core Box 3 36.0-36.5 36.5-37.0	Rec 1.5 C/L 0.6
			Shale-dark gray, soft interbedded with sand (Sp)			
			Bottom of Hole 45.3'			

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET OF 2 SHEETS
1 PROJECT Cooper River Rediversion		10. SIZE AND TYPE OF BIT 1 5/8" MASS. 4 1/2"		
2 LOCATION (Coordinates or Station) N577,760 E2,317,300		11 DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3 DRILLING AGENCY Mobile District		12 MANUFACTURER'S DESIGNATION OF DRILL Fairing 514		
4 HOLE NO. (As shown on drawing title and file number) IT-11A		13 TOTAL NO. OF OVERBURDEN, DISTURBED, AND UNDISTURBED BURDEN SAMPLES TAKEN		
5 NAME OF DRILLER Pardon		14 TOTAL NUMBER CORE BOXES 1		
6 DIRECTION OF HOLE X VERTICAL INCLINED _____ DEG. FROM VERT		15 ELEVATION GROUND WATER 76.1		
7 THICKNESS OF OVERBURDEN 46.5		16 DATE HOLE STARTED COMPLETED 23 Jan 1955 23 Jun 1955		
8 DEPTH DRILLED INTO ROCK 0		17 ELEVATION TOP OF HOLE 85.1		
9 TOTAL DEPTH OF HOLE 46.5		18 TOTAL CORE RECOVERY FOR BORING		
		19 SIGNATURE OF INSPECTOR Lawson		

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
85.1	0.0		Top of Hole			Blows Ft
			SM-Silty sand - tan	MC 13.2	1	
80.1	5.0		SC-Sand with clay lenses tan & red			
			ML-Very fine silt (Mixed colors)	MC 29.1	2	Water table 9.0'
75.1	10.0					
70.1	15.0		SM-tan	MC 32.9	3	
65.1	20.0		MH-gray		4	
60.1	25.0					
55.1	30.0		SM-with highly decomp. limestone green	MC 24.5	5	
Continue on Sheet 2						

DRILLING LOG (Cont Sheet) ELEVATION TOP OF HOLE 85.1' Hole No. IT-11A

PROJECT Cooper River Rediversion INSTALLATION Charleston District 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 Blow/ft
						55
						75
50.1	55.0				5	24
			White		6	89
45.1	40.0		With Shale Layers (1/2" to 1" Thick)		7	58
						91
40.1	45.0					45
						74
39.5	46.5					49
						52
						66

Bottom of Hole 46.5'

60

DRILLING LOG		DIVISION	INSTALLATION	SHEET
		South Atlantic	Charleston District	OF 2 SHEETS
1. PROJECT Cooper River Revision		10. SIZE AND TYPE OF BIT 1 3/8" x 3 3/8" x 4255		
2. LOCATION (Coordinates or Station) N578,280 E2,316,710		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Falling Blt		
4. HOLE NO. (As shown on drawing title and file number) IT-116		13. TOTAL NO. OF OVERBURDEN DISTURBED UNDISTURBED BURDEN SAMPLES TAKEN 8 -		
5. NAME OF DRILLER Pardner		14. TOTAL NUMBER CORE BOXES 2		
6. DIRECTION OF HOLE VERTICAL INCLINED DEG. FROM VERT.		15. ELEVATION GROUND WATER 75.8		
7. THICKNESS OF OVERBURDEN 37.0		16. DATE HOLE STARTED COMPLETED 16 July 17 July		
8. DEPTH DRILLED INTO ROCK 8.0		17. ELEVATION TOP OF HOLE 54.8		
9. TOTAL DEPTH OF HOLE 45.0'		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR C. Davis		

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
84.8	0.0		Top of hole			
			SM-silty fine sand - tan	MC 7.0%	1	
79.8	5.0		SC-clayey fine sand tan & red		2	
74.8	10.0		tan & gray	MC 18.1%	3	
69.8	15.0		MH-silty clay w/ thin sand layers - tan		4	
			gray	MC 58.4%	5	
64.8	20.0					
59.8	25.0		SC-clayey fine and med. sand gray	MC 30.9%	6	
54.8	30.0					

continue on Sheet 2

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

84.8

Hole No. IT-11b





INSTALLATION

Charleston District

SHEET 2

OF 2 SHEETS

Water for Silver Rediversion

DEPTH	LEGEND	CLASSIFICATION OF MATERIALS <i>Description</i>	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS <i>(Drilling time, water loss, depth of weathering, etc., if significant)</i>	R	Blow/Ft
		SC-calcareous clayey sand w/shell - gray					31 +100
		Top of Rock 32.5					
		Limestone, "Coquina" dark gray-small % of argillaceous cement, hard, sound rock luggy		Core Box 1	Pull-1 32.5-35.5 Run 3.0 Rec 0.5		C/L 2.5
		Sandstone & claystone, dark gray to blue black, soft con- solidated, massive initially calcareous with leached shells then grade into friable, friable sandstone.		Core Box 2	Pull-2 35.5-40.5 Run 5.0 Rec 4.7 C/L 0.3		
		Clay-sandy, laminated layers of clay and sand, SP-CH-CL	MC 37.2%				68 69
		Bottom of Hole 45.0'					73

62

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 2 SHEETS
1 PROJECT COOPER COAST GUARD STATION		10 SIZE AND TYPE OF BIT 3 1/2" A.S.		
2 LOCATION 3576-11		11 DATUM FOR ELEVATION SHOWN TBM to MSL		
3 DRILLING AGENCY Mobile District		12 MANUFACTURER'S DESIGNATION OF DRILL Felling 314		
4 HOLES IN (A) (B) (C) (D) (E) (F) (G) (H) (I) (J) (K) (L) (M) (N) (O) (P) (Q) (R) (S) (T) (U) (V) (W) (X) (Y) (Z) (AA) (AB) (AC) (AD) (AE) (AF) (AG) (AH) (AI) (AJ) (AK) (AL) (AM) (AN) (AO) (AP) (AQ) (AR) (AS) (AT) (AU) (AV) (AW) (AX) (AY) (AZ) (BA) (BB) (BC) (BD) (BE) (BF) (BG) (BH) (BI) (BJ) (BK) (BL) (BM) (BN) (BO) (BP) (BQ) (BR) (BS) (BT) (BU) (BV) (BW) (BX) (BY) (BZ) (CA) (CB) (CC) (CD) (CE) (CF) (CG) (CH) (CI) (CJ) (CK) (CL) (CM) (CN) (CO) (CP) (CQ) (CR) (CS) (CT) (CU) (CV) (CW) (CX) (CY) (CZ) (DA) (DB) (DC) (DD) (DE) (DF) (DG) (DH) (DI) (DJ) (DK) (DL) (DM) (DN) (DO) (DP) (DQ) (DR) (DS) (DT) (DU) (DV) (DW) (DX) (DY) (DZ) (EA) (EB) (EC) (ED) (EE) (EF) (EG) (EH) (EI) (EJ) (EK) (EL) (EM) (EN) (EO) (EP) (EQ) (ER) (ES) (ET) (EU) (EV) (EW) (EX) (EY) (EZ) (FA) (FB) (FC) (FD) (FE) (FF) (FG) (FH) (FI) (FJ) (FK) (FL) (FM) (FN) (FO) (FP) (FQ) (FR) (FS) (FT) (FU) (FV) (FW) (FX) (FY) (FZ) (GA) (GB) (GC) (GD) (GE) (GF) (GG) (GH) (GI) (GJ) (GK) (GL) (GM) (GN) (GO) (GP) (GQ) (GR) (GS) (GT) (GU) (GV) (GW) (GX) (GY) (GZ) (HA) (HB) (HC) (HD) (HE) (HF) (HG) (HH) (HI) (HJ) (HK) (HL) (HM) (HN) (HO) (HP) (HQ) (HR) (HS) (HT) (HU) (HV) (HW) (HX) (HY) (HZ) (IA) (IB) (IC) (ID) (IE) (IF) (IG) (IH) (II) (IJ) (IK) (IL) (IM) (IN) (IO) (IP) (IQ) (IR) (IS) (IT) (IU) (IV) (IW) (IX) (IY) (IZ) (JA) (JB) (JC) (JD) (JE) (JF) (JG) (JH) (JI) (JJ) (JK) (JL) (JM) (JN) (JO) (JP) (JQ) (JR) (JS) (JT) (JU) (JV) (JW) (JX) (JY) (JZ) (KA) (KB) (KC) (KD) (KE) (KF) (KG) (KH) (KI) (KJ) (KK) (KL) (KM) (KN) (KO) (KP) (KQ) (KR) (KS) (KT) (KU) (KV) (KW) (KX) (KY) (KZ) (LA) (LB) (LC) (LD) (LE) (LF) (LG) (LH) (LI) (LJ) (LK) (LL) (LM) (LN) (LO) (LP) (LQ) (LR) (LS) (LT) (LU) (LV) (LW) (LX) (LY) (LZ) (MA) (MB) (MC) (MD) (ME) (MF) (MG) (MH) (MI) (MJ) (MK) (ML) (MM) (MN) (MO) (MP) (MQ) (MR) (MS) (MT) (MU) (MV) (MW) (MX) (MY) (MZ) (NA) (NB) (NC) (ND) (NE) (NF) (NG) (NH) (NI) (NJ) (NK) (NL) (NM) (NN) (NO) (NP) (NQ) (NR) (NS) (NT) (NU) (NV) (NW) (NX) (NY) (NZ) (OA) (OB) (OC) (OD) (OE) (OF) (OG) (OH) (OI) (OJ) (OK) (OL) (OM) (ON) (OO) (OP) (OQ) (OR) (OS) (OT) (OU) (OV) (OW) (OX) (OY) (OZ) (PA) (PB) (PC) (PD) (PE) (PF) (PG) (PH) (PI) (PJ) (PK) (PL) (PM) (PN) (PO) (PP) (PQ) (PR) (PS) (PT) (PU) (PV) (PW) (PX) (PY) (PZ) (QA) (QB) (QC) (QD) (QE) (QF) (QG) (QH) (QI) (QJ) (QK) (QL) (QM) (QN) (QO) (QP) (QQ) (QR) (QS) (QT) (QU) (QV) (QW) (QX) (QY) (QZ) (RA) (RB) (RC) (RD) (RE) (RF) (RG) (RH) (RI) (RJ) (RK) (RL) (RM) (RN) (RO) (RP) (RQ) (RR) (RS) (RT) (RU) (RV) (RW) (RX) (RY) (RZ) (SA) (SB) (SC) (SD) (SE) (SF) (SG) (SH) (SI) (SJ) (SK) (SL) (SM) (SN) (SO) (SP) (SQ) (SR) (SS) (ST) (SU) (SV) (SW) (SX) (SY) (SZ) (TA) (TB) (TC) (TD) (TE) (TF) (TG) (TH) (TI) (TJ) (TK) (TL) (TM) (TN) (TO) (TP) (TQ) (TR) (TS) (TT) (TU) (TV) (TW) (TX) (TY) (TZ) (UA) (UB) (UC) (UD) (UE) (UF) (UG) (UH) (UI) (UJ) (UK) (UL) (UM) (UN) (UO) (UP) (UQ) (UR) (US) (UT) (UU) (UV) (UW) (UX) (UY) (UZ) (VA) (VB) (VC) (VD) (VE) (VF) (VG) (VH) (VI) (VJ) (VK) (VL) (VM) (VN) (VO) (VP) (VQ) (VR) (VS) (VT) (VU) (VV) (VW) (VX) (VY) (VZ) (WA) (WB) (WC) (WD) (WE) (WF) (WG) (WH) (WI) (WJ) (WK) (WL) (WM) (WN) (WO) (WP) (WQ) (WR) (WS) (WT) (WU) (WV) (WW) (WX) (WY) (WZ) (XA) (XB) (XC) (XD) (XE) (XF) (XG) (XH) (XI) (XJ) (XK) (XL) (XM) (XN) (XO) (XP) (XQ) (XR) (XS) (XT) (XU) (XV) (XW) (XX) (XY) (XZ) (YA) (YB) (YC) (YD) (YE) (YF) (YG) (YH) (YI) (YJ) (YK) (YL) (YM) (YN) (YO) (YP) (YQ) (YR) (YS) (YT) (YU) (YV) (YW) (YX) (YZ) (ZA) (ZB) (ZC) (ZD) (ZE) (ZF) (ZG) (ZH) (ZI) (ZJ) (ZK) (ZL) (ZM) (ZN) (ZO) (ZP) (ZQ) (ZR) (ZS) (ZT) (ZU) (ZV) (ZW) (ZX) (ZY) (ZZ)				
5 NAME OF DRILLER Parden		14 TOTAL NUMBER CORE BOXES		
6 DIRECTION OF HOLE X VERTICAL		15 ELEVATION GROUND WATER		
7 THICKNESS OF OVERBURDEN 56.7		16 DATE HOLE STARTED 21 May 1952		
8 DEPTH OF GROUND ROCK 8.3		17 ELEVATION TOP OF HOLE 81.7		
9 TOTAL DEPTH OF HOLE 15.0		18 TOTAL CORE RECOVERY FOR BORING 14.7		
		19 SIGNATURE OF INSPECTOR C. Davis		

ELEVATION	DEPTH	THICKNESS	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
51.7	0		Top of Hole			
			M-Silty fine sand - tan		1	
			MC-clayey fine sand tan, red & gray	MC 20.2%	2	
			S-Silty fine sand - tan & gray		3	
			Cl-Fat clay - tan	MC 40.2%	4	
			MH-Silty clay - dark gray	MC 65.7%	5	LAB CLAY Spl.
			SH-Silty fine and med. sand green		6	
			with shell			

Continue on Sheet 2

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE 84.7

Hole No. I1-12

PROJECT		INSTALLATION	SHEET
Cooper River Rediversion		Charleston District	2
CLASSIFICATION OF MATERIALS		% CORE RECOVERY	BOX OR SAMPLE NO
Description		e	
			REMARKS <i>(Drilling time, water loss, depth of weathering, etc., if significant)</i>
			R Blow/Ft
	SM-silty fine and med. sand with shell - green		14
			20
		7	31
49.7	55.0		38
	Top of Rock 36.7'		+100
48.0	56.7		36.7
	limestone, "coquina" light gray, well cemented; note zone of large shells at 37.5 to 38.2'		100/05' Refusal @ Pull-1 36.7-40.3 Run 3.6 Rec 3.6 C/L 0.0
44.7	49.9		
	Sand, transition zone, clayey dark gray containing numerous shells		Pull-2 40.3-45.0 Run 4.7 Rec 3.4 C/L 1.3
39.7	44.9		
	Sand, light gray - silty SM		
	Bottom of Hole 45.0'		

67

Hole No

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Harris
1 PROJECT Cooper River Redirection		10 SIZE AND TYPE OF BIT 11 DATUM FOR ELEVATION SHOWN FROM (M)	
2 LOCATION (Coordinates of Station) N576, 570 E2, 315, 850		12 MANUFACTURER DESIGNATION OF CORE	
3 DRILLING AGENCY Mobile District		13 TOTAL NUMBER OF BURDEN SAMPLES TAKEN	
4 HOLE NO. (As shown on drawing title and file number)		14 TOTAL NUMBER OF CORE BOXES	
5 NAME OF DRILLER Parden		15 ELEVATION OF GROUND WATER	
6 DIRECTION OF HOLE VERTICAL		16 DATE HOLE STARTED	
7 THICKNESS OF CORE BOXES		17 ELEVATION ON TOP OF HOLE	
8 DEPTH OF CORE BOXES		18 TOTAL CORE RECOVERY FOR BORING	
9 TOTAL DEPTH OF HOLE		19 SIGNATURE OF INSPECTOR C. Davis	

ELEVATION	DEPTH OF END	DESCRIPTION OF WATER AND	CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS <i>Drilling time, water loss, sample weathering, etc. not significant</i>
83.4	0.0				
				11.0	
78.4	5.0	Layer of sand			
73.4	10.0	Medium fine sand with clay layers - yellow			
68.4	15.0	Coarse clay - tan			
63.4	20.0	Medium fine sand - tan			
58.4	25.0	Medium fine sand with green clay		22.1	
53.4	30.0	NO-Calcareous clayey fine shell - green			

Continue on Sheet 2

65

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 67
1. PROJECT Copper River Rediversion		10. SIZE AND TYPE OF BIT 1 3/8" A		
2. LOCATION (Coordinates of Station) N577,800 E2,315,260		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Falling 314		
4. HOLE NO. (As shown on drawing title and file number) IT-13A		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 0		
5. NAME OF DRILLER Parden		14. TOTAL NUMBER CORE BOXES 1		
6. DIRECTION OF HOLE VERTICAL INCLINED DEG. FROM VERT.		15. ELEVATION GROUND WATER 73		
7. THICKNESS OF OVERBURDEN 34.0		16. DATE HOLE STARTED 24 July		
8. DEPTH DRILLED INTO ROCK 11.4		17. ELEVATION TOP OF HOLE 84.0		
9. TOTAL DEPTH OF HOLE 45.4		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR C. Davis		

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 weathering, etc., if significant) g
84.0	0.0		top of hole			
			SM-silty fine sand-tan		1	
79.0	5.0		SC-clayey fine sand-tan&gray		2	
74.0	10.0			MC 39.4	3	
69.0	15.0		MH-silty clay w/sand layers gray		4	
64.0	20.0			MC 61.0		
59.0	25.0				5	
			SC-alveolous clayey sand w/ Limestone gray			

Continue on Sheet 2

DRILLING LOC (Cont Sheet)

DEPTH OF HOLE 84.0'

Hole No. IT-13A

Upper River Rediversion


Charleston District

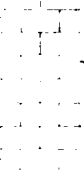
LEGEND

CLASSIFICATION OF MATERIALS

CORE BOX BY RECOVERY SAMPLE

MAPAS


 SC-Gray calcareous, clayey sand with limestone


 Limestone "Coquina" gray wuggy shrap rock. Moderately hard, slightly glauconitic, argillaceous and sandy. Competent rock to 36.9, thereafter, oddly broken, highly argillaceous

No Recovery

Core Box 1

	Blow/Ft
0	30
6	30
+100	
Pull-1	
34.0-36.4	Rec 2.4
Run 2.4	C/L 0.0
Pull-2	
36.4-41.4	
Run 5.0	
Rec 1.2	
C/L 3.8	
Pull-3	
41.4-45.4	
Run 4.0	
Rec 0.0	
C/L 4.0	

Bottom of Hole 45.4'

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET OF 2
1 PROJECT Cooper River Redirection		10. SIZE AND TYPE OF BIT: 3 7/8" x S&W 440		
2 LOCATION (Coordinate or Station) N576.080 713.0172		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3 DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Falling 314		
4 HOLE NO. (As shown on drawing title and title sheet)		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 7		
5 NAME OF DRILLER Parker		14. TOTAL NUMBER CORE BOXES 2		
6 DIRECTION OF HOLE VERTICAL		15. ELEVATION GROUND WATER 76		
7 TH. KNIFE OF OVERBURDEN 32.0		16. DATE HOLE STARTED: 19 May 1977 COMPLETED: 19 May 1977		
8 DEPTH DRILLED (ft) BELOW 13.1		17. ELEVATION TOP OF HOLE 85.1		
9 TOTAL DEPTH OF HOLE 45.1		18. TOTAL CORE RECOVERY FOR BORING 40		
		19. SIGNATURE OF INSPECTOR C. Davis		

ELEVATION (DEPTH) (FEET)		CLASSIFICATION OF MATERIALS (Description)	CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
a	b				
85.1	0.0	Top of Hole			
		SM-Silty fine sand - tan		1	
80.6	5.0	MC-Clayey fine sand with string binder - tan, red & gray	MC 19.0%	2	
75.0	10.0	SM-Silty fine sand with mica - tan & red	MC 40.0%	3	
70.0	15.0	CH-Fat clay - tan & gray		4	
65.0	20.0	MH-Silty Clay	MC 68.1%	5	
60.0	25.0	SM-Silty fine sand med. sand green	20.0%	6	
55.0	30.0	Continue on Sheet 2			

DRILLING LOG (Cont Sheet)

ELEVATION OF TO

85.0

Hole No. IT-14

SHEET 2

Cooper River Rediversion

Charleston District

OF 2 SHEETS

DEPTH	LEGEND	CLASSIFICATION OF MATERIAL	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS <i>Drilling time, water loss, depth of weathering, etc. if significant</i>	Blow/Ft
33.0	32.0	SO-Calcareous clayey sand with shell-green Top of Rock 32.0'				27
32.0	31.0	Limestone, light gray "coquina" well cemented porous (similar to 11-10) 32.1-33.1 zone of large shells 33.1-39.1 "coquina" with sandy argillaceous material some glauconite also present		Core Box 1	Pull-1 32.0-36.1 Run 4.1 Rec 3.1 C/L 1.0	
31.0	30.0	Sand, clayey-transition zone, dark gray, contains numerous leached shells		Core Box 1	Pull-2 36.1-38.3 Run 2.2 Rec 0.9 C/L 1.3	
30.0	29.0	Sand, clayey-transition zone, dark gray, contains numerous leached shells		Core Box 1	Pull-3 38.3-40.3 Run 2.0 Rec 0.0 C/L 0.0	
29.0	28.0	Sand, clayey-transition zone, dark gray, contains numerous leached shells		Core Box 1	Pull-4 40.3-45.1 Run 4.8 Rec 0.0 C/L 4.8	
Bottom of Hole 45.1'						

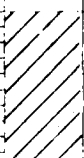

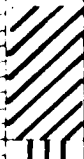
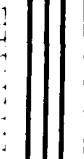
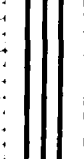
Hole No. 7144A

DRILLING LOG		DIVISION	INSTALLATION	SHEET		
PROJECT Cooper River Rediversion		South Atlantic	Charleston District	OF 2 SHEETS		
LOCATION (Coordinates or Station) N 577,180 E 2,315,540		10. SIZE AND TYPE OF BIT 1 3/8" SSS 4-3/4" DIA.				
DRILLING AGENCY Mobile District		11. DATUM FOR ELEVATION SHOWN (TRM or MSL) MSL				
HOLE NO. (As shown on drawing title and file number) IT-14A		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314				
NAME OF DRILLER Parden		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED: 0 UNDISTURBED: 0				
DIRECTION OF HOLE X VERTICAL INCLINED _____ DEG. FROM VERT.		14. TOTAL NUMBER CORE BOXES 1				
THICKNESS OF OVERBURDEN 31.0		15. ELEVATION GROUND WATER 78.0				
DEPTH DRILLED INTO ROCK 13.5		16. DATE HOLE STARTED COMPLETED 24 June 75 24 June 75				
TOTAL DEPTH OF HOLE 44.5'		17. ELEVATION TOP OF HOLE 83.5				
		18. TOTAL CORE RECOVERY FOR BORING				
		19. SIGNATURE OF INSPECTOR C. Davis				
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
83.5	0.0		Top of Hole			
			SM-Gray to Tan	MC 14.5%	1	
78.5	5.0		Very silty		2	Mix color - contain some (water table) Clay bind
73.5	10.0		MH-Silty - Gray	MC 44.6%	3	
68.5	15.0		Gray Sand Layers @ 0.3 ft. - SM			
63.5	20.0		MH-Silty - Gray	MC 74.7%	4	
58.5	25.0		SM-Gray & green sand	MC 22.7%	5	Gray sand (0.2 ft. thick)
53.5	30.0				6	
continue on sheet 2						71

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		83.5		Hole No. IT-14A	
PROJECT		INSTALLATION		SHEET		2	
Cooper River Rediversion		Charleston District		OF 2 SHEETS			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV- ERY	BOX OR SAMPLE NO	REMARKS <i>Drilling time, water loss, depth of weathering, etc. if significant</i>	
			Top of Rock 31.0		7		R Blow/Ft
38.5	35.0		Limestone, gray, crumbly consists of pebble sieze shell rubble.			Pull-1 31.0-35.0	58
						Run 4.0	92
						Rec 2.0	
						C/L 2.0	
43.5	40.0		Limestone, gray, moderately hard coquina, sound rock		Core Box 1	Pull-2 35.0-39.5	
						Run 4.5	
						Rec 2.7	
						C/L 1.8	
39.0	44.5		Sandstone, gray, soft to moderately hard friable, calcareous			Pull-3 39.5-44.5	
						Run 5.0	
						Rec 2.5	
						C/L 2.5	
			Bottom of Hole 44.5'				

Hole No. 17-17

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET OF 2 SHEETS
1. PROJECT Cooper River Rediversion			10. SIZE AND TYPE OF BIT 1 5/8" ϕ SSS c. 1X5, H	
2. LOCATION (Coordinates or Station) N 876,250 E 2,515,950			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
3. DRILLING AGENCY Mobile District			12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) IT-15			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN 0	
5. NAME OF DRILLER Parden			14. TOTAL NUMBER CORE BOXES 5	
6. DIRECTION OF HOLE A VERTICAL B INCLINED DEG. FROM VERT.			15. ELEVATION GROUND WATER 75.5	
7. THICKNESS OF OVERBURDEN 54.4			16. DATE HOLE STARTED COMPLETED 16 May 75 16 May 75	
8. DEPTH RILLED INTO ROCK 12.6			17. ELEVATION TOP OF HOLE 84.5	
9. TOTAL DEPTH OF HOLE 47.0			18. TOTAL CORE RECOVERY FOR BORING 81.0	
19. SIGNATURE OF INSPECTOR C. Davis				

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
84.5	0.0		Top of Hole			
			SC-Clayey fine sand - tan		1	
79.5	5.0				2	
			SM-Silty fine sand w/clay layers - tan & gray		3	
69.5	15.0				4	
			CH-Fat clay - tan		5	
64.5	20.0					
			MH-Silty clay - dark gray			
59.5	25.0					
			SC-Calcareous clayey sand w/shell - green			
54.5	30.0					

Continue on Sheet 2

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

84.5'

hole No. IT-15

INSTALLATION

SHEET

2

Company or Reversion

Charleston District

OF 2

SHEETS

DEPTH	RECENT	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS <i>(Drilling water level - depth of water table, etc. if applicable)</i>	Blow/ft
a	b	c	d	e	f	g
		SC-falcareous clayey sand w. shell - green				46
						55
		Top of Rock 54.4'			Remsa. 34 100/04'	126
		Limestone, light gray well cemented, rock consists of numerous small shell fragments with few large snells		Core Box 1	Pl 11 - 1 31.4 - 37.1 Rec. 2.7	C/L 0.0
11.3	10.1	37.3-37.4 zone of loose glauconitic sand.		Core Box 2	Pl 11 - 2 37.1 - 42.6 Run 4.5 Box 4.7 C/L 0.0	
52.3	51.1	Sand clayey-light gray contains numerous large shells & fragments.			Pl 11 - 3 42.6 - 47.0	
57.3	56.1	Contains numerous leached fossil fragments (Like IT-9A 20-25.4)		Core Box 3	Run 4.4 Rec. 2.2 C/L 0.0	
		Bottom of hole 47.0'				

Hole No. 11

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET OF SHEETS
1. PROJECT		10. SIZE AND TYPE OF BIT		
2. LOCATION OF BOREHOLE		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3. LOCATION OF Estimates or Station		MSL		
4. HOLE NO. As shown on drawing, the and the number		12. MANUFACTURER'S DESIGNATION OF DRILL Fairing 511		
5. NAME OF AGENCY		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		
6. NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES		
7. DIRECTION OF HOLE VERTICAL OR OTHER		15. ELEVATION GROUND WATER		
8. THICKNESS OF LEAD PIPE		16. DATE HOLE STARTED COMPLETED		
9. DEPTH PENETRATED INTO ROCK		17. ELEVATION TOP OF HOLE		
10. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR C. Davis		

ELEVATION	DEPTH OF BEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
85.5	0.0	Top of Hole			
85.5	1.0	SC-Clayey fine sand tan & gray	18.5%	1	
84.5	2.0			2	
83.5	10.0	SM-Silty fine and med. sand gray & tan	52.2%	3	
73.5	12.5			4	
68.8	15.0	MH - Silty Clay - Gray		5	
64.3	20.0			6	
58.5	27.0	SM-Silty fine and med. sand w/ gravel - Green & Brown			
56.3	27.5				
53.8	30.0				

Continue on sheet 2

75

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

83.8'

hole No.

11-10

SHEET 2

OF 2 SHEETS

Cooper River Re diversion

Charleston District

ELEVATION (FT)	DEPTH (FT)	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	SAMPLE NO.	REMARKS (Notes on soil, water, or other conditions)	Blow/Ft
		SM-silty fine and med. sand with gravel- green & brown	MC	20.1		9
						12
						22
43.5	39.0	SC-Calcareous clayey sand with limestone				34
						38
43.6	40.0					43
						48
						54
						57
						52

Bottom of Hole 45.0'

76

DRILLING LOG		INSTALLATION	SHEET
1. PROJECT		2. SIZE AND TYPE OF BIT	3. SHEET
4. LOCATION		5. DATE	6. ELEVATION SHOWN (THM. L.M.N.)
7. DRILLING AGENCY		8. MANUFACTURER'S DESIGNATION OF DRILL	9. DATE
10. NAME OF WELLER		11. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	12. DATE
13. NAME OF INSPECTOR		14. TOTAL NUMBER CORE BOXES	15. ELEVATION GROUND WATER
16. DIRECTION OF FLOW		17. DATE HOLE STARTED	18. DATE COMPLETED
19. NAME OF SITE SUPERVISOR		20. ELEVATION TOP OF HOLE	21. TOTAL CORE RECOVERY FOR RERING
22. TOTAL DEPTH OF HOLE		23. SIGNATURE OF INSPECTOR	24. REMARKS

ELEVATION (DEPTH) (FEET)	CLASSIFICATION OF MATERIALS (Description)	CORE BOX OR RECOVERY SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc. if significant)
0.0	top of hole		
30.0	SM-silty fine sand - tan		
40.0	SC-clayey fine and with strong binder - tan & red		
75.7	SM-silty fine and med. sand tan & red	21	
70.7	with clay layers		
65.7	Yellow		
60.7			
55.7	SC-clayey fine sand with high liquid limit - tan	22	
50.0			

Continue on Sheet 78

DRILLING LOG (Cont Sheet)

DEPTH TAKEN TOP OF HOLE 85.7'

Hole No. 117-23

DEPTH	DESCRIPTION	REMARKS
117.0	gray clayey fine sand with high liquid limit - gray	Blow 11
117.5		
118.0		
118.5	with some shell fragments	
119.0	gray, green & brown	
120.0	Bottom of Hole 36.0'	Top of Rock

DRILLING LOG		HOLE NO.	
PROJECT		DATE	
LOCATION		MAP REF.	
DRILLING AGENCY		DRILLER	
HOLE NO. (SEE SHEET NUMBER and this sheet)		DEPTH (FEET)	
NAME OF DRILLER		DIRECTION OF HOLE	
DIRECTION OF HOLE		X Vertical	
TYPE OF DRILL		ELEVATION	
DEPTH OF HOLE		TOTAL DEPTH OF HOLE	
ELEVATION (DEPTH) (FOOT)		DESCRIPTION	
53.7	0.0	Top of hole	
75.1	21.4	6" layer fine sand with strong binder - yellowish	
73.1	19.4	Silt	
70.6	16.9	1/2" to 1" clay and med. sand	
68.1	14.4	Mudstone clay - dark gray	
65.1	11.4		
62.1	8.4		
59.1	5.4		
56.1	2.4		
53.7	0.0		

DRILLING LOG (Cont Sheet)

State No. 1-7-70
 Date 1-7-70
 Loc. 1-7-70
 Flow/ft

15-20 Silty fine and med. sand
 green

53

20-25 Green clays, clayey fine sand
 with limestone - gray

51

50

49

39

38

37

37

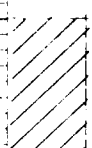
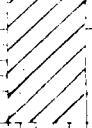





31

30

Bottom of hole 30'

Hole No.

DRILLING LOG		DIVISION SOUTH ATLANTA	INSTALLATION SOUTH ATLANTA DISTRICT	SHEET OF 25
1. PROJECT Cooper River Bedrock		10. SIZE AND TYPE OF BIT 1 1/2" A		
2. LOCATION (Coordinates of Station) 8873.80 88319.10		11. DATUM FOR ELEVATION SHOWN (TBM, MSL)		
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL 314		
4. HOLE NO. (As shown on drawings and file number)		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN		
5. NAME OF DRILLER Harden		14. TOTAL NUMBER CORE BOXES		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL		15. ELEVATION GROUND WATER 72.7		
7. THICKNESS OF OVERBURDEN 8.25		16. DATE HOLE STARTED / COMPLETED May 2		
8. DEPTH DRILLED INTO ROCK 9		17. ELEVATION TOP OF HOLE		
9. TOTAL DEPTH OF HOLE 87.9		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 weathering, etc., if significant)
a	b	c	d	e	f	g
80.2	0.0		Top of Hole			
			SC-clayey fine sand - tan		1	
75.2	5.0		Gray & tan		2	
70.2	10.0		SN-silty fine and gray, red & tan		3	
65.2	15.0		gray & yellow		4	
60.2	20.0				5	
55.2	25.0				6	
50.2	30.0				7	

81

DRILLING LOG (Cont Sheet)

Hole No. 11-17

Location: Redvers, Ia.

Geological District: 1

Section: 33.0

Classification: SM

Remarks: silty fine sand with clay layers gray

Remarks: silty fine sand with clay layers gray

SM-silty fine sand with clay layers gray

10

11

12

13

14

15

16

17

18

19

20





SM-silty fine sand with clay layers gray

SM-silty fine sand with clay layers gray
with thin sand lenses

32

Hole No. 1-11

DRILLING LOG		DIVISION	INSTALLATION	SHEET
PROJECT Cooper River Pollution Station		South Atlantic	Charleston District	OF 2 SHEETS
2. LOCATION (Coordinates of Station) N 57° 37' E, 311, 950		10. SIZE AND TYPE OF BIT 1 3/4" A BSS G		
3. DRILLING AGENCY Mobile District		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
4. HOLE NO. (As shown on drawing title and file number) 11-18		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
5. NAME OF DRILLER Parden		13. TOTAL NO. OF OVERBURDEN DISTURBED AND UNDISTURBED BURDEN SAMPLES TAKEN 0		
6. DIRECTION OF HOLE * VERTICAL		14. TOTAL NUMBER CORE BOXES 0		
7. THICKNESS OF OVERBURDEN 45.0'		15. ELEVATION ON GROUND WATER 69.2'		
8. DEPTH DRILLED INTO ROCK 0		16. DATE HOLE STARTED 29 Apr 75		
9. TOTAL DEPTH OF HOLE 45.0'		17. ELEVATION TOP OF HOLE 78.2'		
		18. TOTAL CORE RECOVERY FOR BORING 0		
		19. SIGNATURE OF INSPECTOR C. Davis		

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
78.2	0.0		Top of Hole			Blow FT
			CL-Fine Sandy Clay Gray & Tan	MC	1	
73.2	5.0			18.4		
			SM-Silty Fine Sand w/Clay Layers - Gray		2	
68.2	10.0				3	
			w/Medium Sand		4	
63.2	15.0			MC		
				21.3		
58.2	20.0				5	
53.2	25.0					
48.2	30.0					

continue on Sheet 2

83

DRILLING LOG (Cont Sheet)

Hole No. IT-18

SHEET 2

LOG 2

REMARKS

Blow/Ft

Siltstone fine and Med. sand
Gray

14

21

21

22

31

40

16

W/Sand layers - Dark Gray

10

MC
29.4%

12

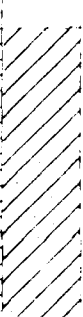

0.0

11

Bottom of hole 45.0'

Hole No. 1-19

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET OF 2 SHEETS
1 PROJECT Copper River Addition		10 SIZE AND TYPE OF BIT: 3 8" x 455 & 4x5 1/2 BBL		
2 LOCATION (Coordinates, Elevation) N576,150 30,30,100		11 DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3 DRILLING AGENCY Mobile District		12 MANUFACTURER'S DESIGNATION OF DRILL Falling 314		
4 HOLE NO. (As shown on drawing, etc. and file number) 1-19		13 TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 7		
5 NAME OF DRILLER Parden		14 TOTAL NUMBER CORE BOXES 5		
6 DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT		15 ELEVATION GROUND WATER 92.5		
7 THICKNESS OF OVERBURDEN 45.0'		16 DATE HOLE STARTED 30 Apr 72		
8. DEPTH DRILLED INTO ROCK 0'		17 ELEVATION TOP OF HOLE 78.5		
9. TOTAL DEPTH OF HOLE 45.0'		18 TOTAL CORE RECOVERY FOR BORING 5		
		19 SIGNATURE OF INSPECTOR C. Davis		

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
78.5	0.0		Top of Hole			78.5 Ft
			SC-clayey fine sand with strong binder - tan & red		1	9
73.5	5.0			MC 18.3%	2	11 16 18
68.5	10.0		SM-silty fine sand with clay layers - gray	MC 22.5%	3	10 14 5
63.5	15.0		Silty fine sand - yellow & gray		4	16 13
58.5	20.0		Gray & tan		5	14 17
53.5	25.0					15 19
48.5	30.0					18 13

Continue on sheet 2

85

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

78.5



Hole No. IT-19

SHEET 2

OF 2 SHEETS

Upper River Rediversion

INSTALLATION Charleston District

DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOVERY NO.	REMARKS (Blow/ft)
0.0 - 13.0		SC-calcareous clayey sand-tan	1 MC 17.4	13 17 24
13.0 - 17.0			6	27
17.0 - 30.0		SM-silty fine sand with clay layers - dark gray	1 MC 33.5	19 17 30
30.0 - 31.0			7	28
31.0 - 38.0				31 38
38.0 - 45.0		Bottom of Hole 45.0'		

Hole No. _____

DRILLING LOG		DIVISION	INSTALLATION	SHEET		
1 PROJECT		South Atlantic	Grand Street	34 OF 40 SHEETS		
2 LOCATION (Coordinates or Station)		10 SIZE AND TYPE OF BIT				
N57°17'0" E, 311,180		11 DATUM FOR ELEVATION SHOWN (TRM, MSL)				
3 DRILLING AGENCY		12 MANUFACTURER & DESIGNATION OF DRILL				
Mobil Oil Co.		13 TOTAL NO. OF OVERBURDEN UNSTURBED				
4 HOLE NO. (As shown on drawing and file number)		14 TOTAL NUMBER CORE BOXES				
5-20		15 ELEVATION GROUND WATER				
5 NAME OF DRILLER		16 DATE HOLE STARTED				
Gordon		25				
6 DIRECTION OF HOLE		17 ELEVATION ON TOP OF HOLE				
X VERTICAL		18 TOTAL CORE RECOVERY PER BORING				
7 THICKNESS OF OVERBURDEN		19 SIGNATURE OF INSPECTOR				
8 DEPTH DRILLED INTO ROCK		C. Davis				
9 TOTAL DEPTH OF HOLE						
ELEVATION	DEPTH	REMARKS	CLASSIFICATION OF MATERIALS (Description)	NO. CORE RECOVERED	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
78.1	0.0		Top of Hole			
72.0	6.1		SC-clayey fine sand with strong binder - tan & gray	MC		
68.1	10.1		SM-silty fine and med. sand with clay layers - gray & tan	MC		
65.0	13.1		MS-silty clay with sand layers - gray	MC		
63.1	15.1		SM-silt. fine sand - tan	MC		
58.0	20.1		MS-silty clay with sand layers - gray	MC		
48.1	30.0					

Continued on sheet _____

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DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

78.1

Hole No. IT-20

Upper River Rediversion

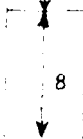
INSTALLATION

Charleston District

SHEET 2
OF 2 SHEETS

DEPTH (Feet)	LEGEND	CLASSIFICATION OF MATERIALS <i>(Description)</i>	% CORE RECOVERY c	BOX OR SAMPLE NO	REMARKS <i>(Drilling time, water loss, depth, weathering, etc. if significant)</i>	Blow/Ft
37.0		SM-silty fine sand with clay layers - gray				22
43.0			MC	7		12
			24.9%			10
						10
		Dark gray				12
						14
40.5						16

Bottom of Hole 40.5'



Hole No:

DRILLING LOG		DIVISION South Atlantic	INSTALLATION DET	DATE
1 PROJECT COOPER RIVER ALLEVIATION		2 LOCATION (Continuation of Station)		
3 DRILLING AGENCY		4 HOLE NO. (As shown on drawing and file number)		
5 NAME OF DRILLER Parker		6 DIRECTION OF HOLE X VERTICAL		
7 THICKNESS OF SOIL COVER		8 DEPTH OF SOIL COVER		
9 TOTAL DEPTH OF HOLE		ELEVATION OF BOTTOM OF HOLE		

ELEVATION	DEPTH	CLASSIFICATION OF MATERIALS (Description)	CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Dist. to top, water, etc., depth, weathering, etc., significant)
a	b	c	d	e	f
79.0	0.0	Top of Hole			
74.5	5.0	SC-clayey fine sand with strong binder - tan & gray			
69.5	10.0				
64.5	15.0	SM-silty fine sand - tan & gray			
59.5	20.0	MI-silty clay - dark gray			
54.5	25.0	SM-silty fine and med. sand yellow & gray			
52.0	27.5	MI-silty clay with sand layers			
49.5	30.0	OH-Fat clay - gray			
		SM-silty fine sand - gray			

Continue on Sheet 2

89

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE 79.5

Hole No IT-21

Sheet 2

Super River Rediversion

Charleston District

1272 sheets

CLASSIFICATION OF WATER

% CORE RECOVERY

REMARKS

DEPTH	CLASSIFICATION OF WATER	% CORE RECOVERY	REMARKS
0	SM-silty fine sand - gray		4
1.5		9	2
3.5	and med. sand - light gray		35
5.5		10	34
7.5		14	
10.5	with sand layers	11	3
12.5			7

bottom of Hole 40.5'

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

79.0'

Hole No. 11-22

INSTALLATION

Charleston District

SHEET 2

OF 2 SHEETS

Water Reclamation

CLASSIFICATION OF MATERIALS
Description

% CORE BODY OR
RECOVERY SAMPLE
ERY NC

REMARKS
Notes, and results of
analyzing the samples
in blow/ft

SM-silty fine and med. sand
gray

9

22

29

36

45

48

62

74

82

84

MC
11.8%

Bottom of Hole 45.0'

DRILLING LOG

NO. 100

1. PROJECT: [Blank]

2. LOCATION: [Blank]

3. HOLE NO. AND DATE: [Blank]

4. HOLE DEPTH: [Blank]

5. NAME OF DRILLER: [Blank]

6. DIRECTION OF DRILL: [Blank]

7. TYPE OF DRILL: [Blank]

8. [Blank]

9. TOTAL DEPTH: [Blank]

ELEVATION (FEET)	CLASSIFICATION OF MATERIALS	REMARKS
10.00
11.00
12.00
13.00
14.00
15.00
16.00
17.00
18.00
19.00
20.00

DRILLING LOG (Cont Sheet)

78.3

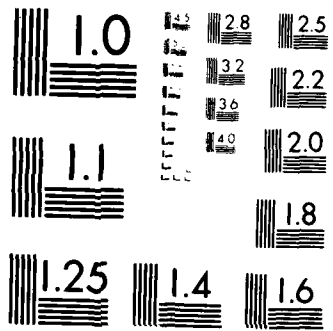
Hole No. 11-20

Location: In reversion

Charleston District

LITHOLOGICAL DESCRIPTION	CORRECTION	DEPTH	REMARKS	CORRECTION	DEPTH	REMARKS
fine and med. sand gray		7				
		28				
		43				
		46				
		57				
		45				
		45				
		39				
with gravel		46				
		52				
bottom of hole 45.0'						

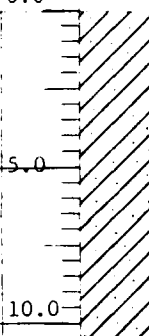
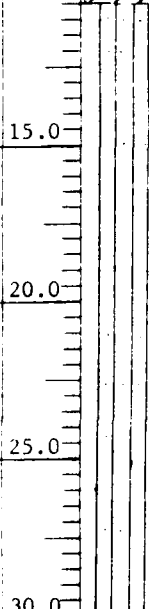
MC
15.4



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

Hole No. 1470

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET Of 2 SHEETS
1 PROJECT Cooper River Rediversion		10. SIZE AND TYPE OF BIT 3/8" 6 SSS A 4578 DSS		
2 LOCATION (Coordinates or Station) N574,840 E2,308,920		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3 DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4 HOLE NO. (As shown on drawing title and file number) IT-24		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN n -		
5 NAME OF DRILLER Parden		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 76.0'		
7 THICKNESS OF OVERBURDEN 36.0'		16. DATE HOLE STARTED COMPLETED 22 Apr 75 23 Apr 75		
8 DEPTH DRILLED INTO ROCK 0		17. ELEVATION TOP OF HOLE 79.0		
9 TOTAL DEPTH OF HOLE 36.0'		18. TOTAL CORE RECOVERY FOR BORING -		
		19. SIGNATURE OF INSPECTOR C. Davis		

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
79.0	0.0		Top of Hole			
74.0	5.0		SC-Clayey fine sand with strong binder - gray, tan & red	MC 18.0%	1 2	
69.0	10.0		SM-Silty fine sand - gray & tan	MC 27.7%	3	
64.0	15.0				4	
59.0	20.0				5	
54.0	25.0			MC 22.2%		
49.0	30.0					
			Continue on Sheet 2			

95

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

79.0

Hole No. IT-24

PROJECT: Cooper River Rediversion



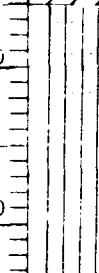
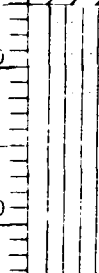
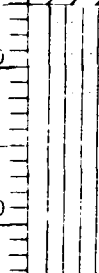
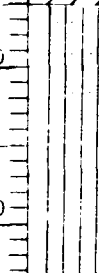
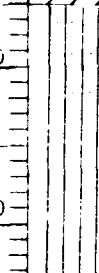
INSTALLATION: Charleston District

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)	Blow/Ft.
			SM-Silty fine and med. sand tan		5		14
							13
44.0	35.0						42
43.0	36.0						48
Bottom of Hole 36.0'							

Hole No. 1t-25

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET OF 2 SHEETS
1 PROJECT Cooper River Redirection		10. SIZE AND TYPE OF BIT 3/8" Ø SSS & 4x5" Bbl		
2 LOCATION (Coordinates or Station) N573,970 E1,307,760		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3 DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4 HOLE NO. (As shown on drawing title and file number) 1T-25		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED: 6 UNDISTURBED: -		
5 NAME OF DRILLER Parden		14. TOTAL NUMBER CORE BOXES 0		
6 DIRECTION OF HOLE * VERTICAL * INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 67.4		
7 THICKNESS OF OVERBURDEN 40.5'		16. DATE HOLE STARTED: 21 Apr 75 COMPLETED: 21 Apr 75		
8 DEPTH DRILLED INTO ROCK 0		17. ELEVATION TOP OF HOLE 75.0		
9 TOTAL DEPTH OF HOLE 40.5'		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR C. Davis		

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
74.9	0.0		Top of Hole			Blow- Ft
69.9	5.0		SC-Clayey fine sand gray & tan		1	13
66.9	8.0			MC 10.5%	2	14
64.9	10.0		SM-Silty fine sand gray & tan		3	15
59.9	15.0				4	16
54.9	20.0			MC 21.3%	5	17
49.9	25.0					18
44.9	30.0					19
			Continue on Sheet 2			97

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

74.9

Hole No. IT-25

PROJECT

Cooper River Rediversion

INSTALLATION

Charleston District



SHEET 2

OF 2 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS <i>(Drilling time, water loss, depth of weathering, etc. of subsurface)</i>
			SM-Silty fine sand Tan & Gray			Blow/Ft 48
						50
						57
34.4	35.0					52
						42
30.4	38.0		MH-Silty clay with thin sand lenses dark gray	MC 32.2%		32
34.4	40.5					32
Bottom of Hole 40.5'						

Hole No. IT-26

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 2 SHEETS
1. PROJECT Cooper River Rediversion		10. SIZE AND TYPE OF BIT 3/8" SSS & 4x5 1/2 BBL	
2. LOCATION (Coordinates or Station) N572,740 E2,306,670		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) IT-26		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED 11 UNDISTURBED -	
5. NAME OF DRILLER Parden		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 89.1	
7. THICKNESS OF OVERBURDEN 45.2		16. DATE HOLE STARTED 7 Apr 75 COMPLETED 7 Apr 75	
8. DEPTH DRILLED INTO ROCK 0		17. ELEVATION TOP OF HOLE 79.1	
9. TOTAL DEPTH OF HOLE 45.2		18. TOTAL CORE RECOVERY FOR BORING 19. SIGNATURE OF INSPECTOR C. Davis	

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
79.1	0.0		Top of Hole			Blows Ft
			SC-Clayey fine sand tan & red		1	4
74.1	5.0		Tan & Gray	MC 19.5%	2	14 35 47
69.1	10.0				3	13 18 22
	12.5		SM-Silty fine sand Pink & Gray	MC 28.0%	4	15 5
64.1	15.0		with clay layers - Pink		5	12 2
59.1	20.0		with thin clay lenses pink, gray & tan	MC 15.6%	6	7 12 19
54.1	25.0					6 16 15
49.1	30.0					8 16 12
Continue on sheet 2						99

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		79.1		Hole No. IT-26	
PROJECT			INSTALLATION			SHEET 2	
Cooper River Rediversion			Charleston District			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	g Blow/Ft	
			SM-gray & yellow		7		20
							23
44.1	35.0		ML-clayey silt - tan	MC 40.0%	8		6
			SM-silty fine & med. sand with clay layers - yellow	MC 22.3%	9		34
			Green & tan		10		18
39.1	40.0		39.0'-45.0 4" Fishtail No Sample				19
33.9	45.2		45.0-45.2 Limestone - gray Bottom of Hole 45.2'				

100

Hole No. IT-27

DRILLING LOG		DIVISION	INSTALLATION	SHEET
		South Atlantic	Charleston District	OF 3 SHEETS
1. PROJECT Cooper River Rediversion		10. SIZE AND TYPE OF BIT 1 3/8" A S.S. G. 433		
2. LOCATION (Coordinates or Station) N572 380 E2 306 940		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Falling 314		
4. HOLE NO. (As shown on drawing title and file number) IT-27		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 18		
5. NAME OF DRILLER Parden		14. TOTAL NUMBER CORE BOXES 15		
6. DIRECTION OF HOLE X VERTICAL INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 67.7'		
7. THICKNESS OF OVERBURDEN 54.0'		16. DATE HOLE STARTED COMPLETED 8 Apr 75 9 Apr 75		
8. DEPTH DRILLED INTO ROCK 104.0'		17. ELEVATION TOP OF HOLE 76.7'		
9. TOTAL DEPTH OF HOLE 158.0'		18. TOTAL CORE RECOVERY FOR BORING 89.7'		
		19. SIGNATURE OF INSPECTOR C. Davis		

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
76.7	0.0		Top of Hole			
			SC-Clayey Fine Sand W/Strong Binder - Tan & Gray		1	
			Tan, Gray & Red		2	
71.7	5.0				3	
			Tan & Gray		4	
66.7	10.0				5	
			MH-Soft Silty Clay - Tan & Dark Gray		6	
64.2	12.5				7	
			Dark Gray		8	
61.7	15.0				9	
			SC-Clay Fine and Med. Sand Tan		10	No Recovery for Bag Sample
56.7	20.0					
			SM-Silty Fine Sand - Tan & Gray			No Recovery for Bag Sample
51.7	25.0					
			W/Gravel			No Recovery for Bag Sample
46.7	30.0					
Continue on Sheet 2						

101

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE 76.7		Hole No. IT-27		
PROJECT Cooper River Rediversion			INSTALLATION Charleston District		SHEET 2 OF 5 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) Blow/Ft
			SM-Silty Fine and Med. Sand W/Gravel - Tan & Gray			No Recovery for Bag Sample 32
41.7	35.0				11	32
					12	54
					13	65
36.7	40.0		SC-Clayey Fine Sand W/Gravel Green & Brown		14	54
34.2	42.5		SM-Silty Fine Sand - Gray		15	55
31.7	45.0		W/Shell Fragments - Gray		16	74
					17	83
26.7	50.0		SC-Clayey Fine Sand W/Traces of Shell - Gray		18	45
24.2	52.5		SM-Clayey Fine Sand W/Traces of Shell-Gray		18	46
21.7	55.0		Sandstone, Gray, hard, dense, calcareous, Sand, Lt. Gray, interbedded with clay, dk. gray, laminae range in thickness of to 0.2' Sandstone, argillaceous, fossiliferous, reworked		Core Box 1	72
			Sandstone, dk. gray, argillaceous, contains some shell frags, also some zones of well cemented calcareous sandstone.		Core Box 2	79
16.7	60.0		Sand, Lt. gray, slightly consolidated, interbedded with clay & dk. gray. Laminae are not continuous, but mingled material contains some shell frags.		Core Box 3	
11.7	65.0		Sandstone, lt. gray, argillaceous, with discontinuous consolidated clay laminae. 61.3 to 61.9 zone of slight displacement dipping well healed this is probably due to consolidation.			
6.7	70.0		Claystone, lt gray, chalkey, dense, Massive, Hard Sandstone, Lt. Gray, Dense;			

Continued on Sheet 3

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		Hole No.		
PROJECT		INSTALLATION		SHEET		
Cooper River Rediversion		76.7		3		
		Charleston District				
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth, weathering, etc. of significant)
3.9	72.8		Well cemented, interbedded with shale soft to firm, fissil. Some of the shale contains pebbles of sandstone. Sandstone and shale laminae are colorbed.		Pull-5 08.1-72.8 Run 4.7	See 2.7 C/L 0.0
1.7	75.0		Claystone, Lt. Gray, Chalkey, Dense.		Pull-6 72.8-82.0	
			Sandstone, Lt. Gray, argillaceous, calcareous, hard well cemented, interbedded with shale laminae.		Core Run 9.2 Box Rec 8.7	
			Limestone, Lt. Gray, slightly fossiliferous, w/ large shell frags.		C/L 0.0	
-3.3	80.0		Sand, Lt. Gray, slightly mica-ceous, cemented, interbedded with clay, consolidated.			
-5.3	82.0					
			Siltstone, Lt. Gray, hard, with sand.		Pull-7 82.0-90.5	
-3.3	85.0		Shale, Dk. Gray, fissil, with mica, sand.		Run 8.5	
			Sandstone, Argillaceous		Core Rec 8.5	
			Shale, Dk. Gray, w/Mica, sand		Box C/L 0.0	
			Sandstone, well cemented, shell frags, argillaceous, friable		6	
			Limestone, Gray, fossiliferous, w/shells, well cemented			
-13.3	90.0		Sandstone, Lt. Gray, calcareous, cemented, med. to coarse grain, with shale layers.		Pull-8 90.5-100.5	
			Sand, Lt. Gray, slightly cemented in zones, interbedded with shale and clay with some lignite laminae		Core Run 10.0 Rec 7.7	
-18.3	95.0				Box C/L 2.3	
			Shale, Dk. Gray, with sand laminae		7	
			Sand, Lt. Gray, slightly cemented with shale laminae, Dk. Gray			
-23.3	100.0				Pull-9 100.5-108.5	
					Core Run 8.0 Rec 5.3	
-28.3	105.0				Box C/L 2.7	
			Shale, Lt. Gray, Dense, hard massive		8	
			Sandstone, Lt. Gray, argillaceous, calcareous, contains some fossils.			
-33.3	110.0					

Continue on Sheet 4

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE 76.7		Hole No. IT-27		
PROJECT		INSTALLATION		SHEET 4		
Cooper River Reliversion		Charleston District		OF 5 SHEETS		
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS <i>Description</i>	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS <i>(Drilling time, water loss, depth of weathering etc. if significant)</i>
			Sandstone (Continued)			Pull-10 108.5-113.5
			Limestone, sandy, dense		Core Box 9	Run 5.0 Rec 6.2 C/G 1.2
-38.3	115.2		Sandstone, Dk. Gray, argill- aceous, calcareous, contains shell frags.			Pull-11 113.5-123.5
			Sandstone, Lt. Gray, well to poorly cemented, contains a few shell frags.		Core Box 10	Run 10.0 Rec 5.3 C/L 4.7
-43.3	120.0					
-48.3	125.0					Pull-12 123.5-133.5
					Core Box 11	Run 10.0 Rec 9.2 C/L 0.8
-53.3	130.0					
-58.3	135.0					Pull-13 133.5-143.0
					Core Box 12	Run 9.5 Rec 9.5 C/L 0.0
-63.3	140.0		Limestone, Sandy, Lt. Gray			
			Sandstone, Lt. Gray, well to poorly cemented.			
			Sandstone, Greenish Gray, Glaucousitic, hard, well cemented.			Pull-14 143.0-148.0
-68.3	145.0					Run 5.0 Rec 5.6 C/G 0.6
			Limestone, Lt. Gray, Hard, Well Cemented, Fossiliferous, Sand, Glaucousitic.			
-73.3	150.0					

Continue on Sheet 5

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DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		76.7		Hole No.		105	
PROJECT			INSTALLATION			SHEET			
Copper River Rediversion			Charleston District			# 5			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS <i>Description</i>	RECOVERY	BOX OR SAMPLE NO	REMARKS <i>Drilling time, water, depth, weathering, etc.</i>			
a	b	c	d	e	f	g			
			Sand, lt. Gray, fine to silty (SM), contains some clay laminae, slightly cemented		Core Box 14 & 15	P11-15 148.0-158.0 Pen 10.0 Roc 9.1 GR 0.7			
-78.3	155.0		Sandstone, argillaceous, micaceous, calcareous, cemented with zones of well cemented sandstone.						
-81.3	158.0		Bottom of Hole 158.0'						

105






DRILLING LOG	Atlantic	CHARLESTON DISTRICT	SHEET 1 OF 1 SHEETS
Supervisor: Redeverson	12, 5, 7, 750	MSL	
Contractor: [unclear]	11-27A	Welling 311	
Location: [unclear]		13 TOTAL NUMBER OF LOGS	TORRENT
		14 TOTAL NUMBER OF TESTS	
		15 ELEVATION OF BENCH MARK	68.4
		16 DATE BORED	18 Apr 1975
		17 ELEVATION OF BENCH MARK	78.9'
		18 TOTAL CORRECTION FOR BORING	
		19 DATE OF LOGGING	
		C. Davis	

QUANTITY OF MATERIALS USED	LOG BOX NO.	REMARKS
	RECORD SAMPLE NO.	Drilling time, water loss, depth of weathering, etc. if significant

Top of Hole		
11.5'	sh. heavy fine sand - tan	NOTE: No samples taken. This boring was augered to elevation 68.9 for visual inspection only. OWT at 11.5' 18 Apr 75
	sh. fine sand - tan	
	sh. fine sand - gray	
Bottom of Hole 20.0'		

126

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET OF 2 SHEETS
1. PROJECT Cooper River Rediversion		10. SIZE AND TYPE OF BIT 3/8" ϕ sss & 4x5 1/2 BBL		
2. LOCATION (Coordinates or Station) N572,370 E2,307,370		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) IT-28		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED 8 UNDISTURBED -		
5. NAME OF DRILLER Parden		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		
7. THICKNESS OF OVERBURDEN 36.0		16. DATE HOLE STARTED 3 Apr 75 COMPLETED 3 Apr 75		
8. DEPTH DRILLED INTO ROCK 0		17. ELEVATION TOP OF HOLE 76.8		
9. TOTAL DEPTH OF HOLE 36.0		18. TOTAL CORE RECOVERY FOR BORING		
		19. SIGNATURE OF INSPECTOR C. Davis		

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
76.8	0.0		Top of Hole			Blss ft
71.8	5.0		SC-Clayey Fine Sand w/Strong Binder-Gray, Tan & Red		1	1
		Gray			2	2
66.8	10.0		Soft Clayey Fine Sand	MC 31.1%	3	3
64.3	12.5					
61.8	15.0		MH-Soft Silty Clay - Gray	MC 48.8%	4	4
56.8	20.0		SM-Silty Fine Sand	MC 20.0%	5	5
		Yellow				
51.8	25.0		W/Traces of Gravel		6	6
46.8	30.0		No Gravel			7
			Continue on Sheet 2			107

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

76.8

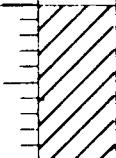

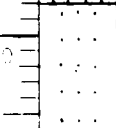
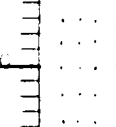

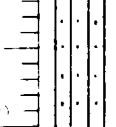
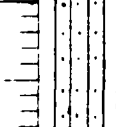
Hole No. IT-28

PROJECT: Cooper River Rediversion INSTALLATION: Charleston District 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	Blow/Ft g
						(Drilling time, water loss, depth of weathering, etc., if significant)	
			SM-Silty Fine and Med. Sand Yellow	MC 16.3%	7		16 9
41.8	35.0			MC			7
40.0	36.0		W/Clay Balls-Green & Brown Bottom of Hole 36.0'	16.7%	8		7

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DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET OF SHEETS
1. PROJECT Cooper River Rediversion		10. SIZE AND TYPE OF BIT 3/8" ID Splitspoon & 4x5" Core Bbl		
2. LOCATION (Coordinates of Station) N 983,000 E 2,328,200		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3. DRILLING AGENCY Mobil District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		
4. HOLE NO. (As shown on drawing title and file number) T-9		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED 6	UNDISTURBED -
5. NAME OF DRILLER F. J. J. W.		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 20.7		
7. THICKNESS OF OVERBURDEN 15.0'		16. DATE HOLE	STARTED 5 May '55	COMPLETED 5 May '55
8. DEPTH DRILLED INTO ROCK 0		17. ELEVATION TOP OF HOLE 25.2		
9. TOTAL DEPTH OF HOLE 45.0'		18. TOTAL CORE RECOVERY FOR BORING -		
		19. SIGNATURE OF INSPECTOR C. Davis		

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
25.2	0.0		Top of Hole			Blow ft
20.2	5.0		CL-Silty Clay Tan & Gray	MC 28	1	Water Table @ 4.5' 5 May '55
			SM-Silty Fine & Med Sand Gray & Tan		2	
15.2	10.0		SP-Fine & Med Sand Gray		3	
10.0	15.0		Gray & Tan		4	
5.2	20.0		SM-Silty Fine Sand Gray		5	
0.0	25.0				6	
-4.8	30.0					
			Continue on Sheet 2			

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

Hole No. 110

PROJECT Receiver Rediversion INSTALLATION Charleston District SHEET 2 OF 2 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECO- ERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc. if significant.)
a	b	c	d	e	f	g
						198
						196
						20
						78
						19
						77
						10
						67
						15
						60

110

Hole No. T-9A

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Charleston District		SHEET 1 OF 3 SHEETS	
1. PROJECT Cooper River Rediversion				10. SIZE AND TYPE OF BIT 1 3/8" ID Splitspoon & 4x3"			
2. LOCATION (Coordinates or Station) N 581,500 E2, 326,580				11. DATUM FOR ELEVATION SHOWN (TBM or MSL) Core BBI			
3. DRILLING AGENCY Mobile District				12. MANUFACTURER'S DESIGNATION OF DRILL MSI Failing 314			
4. HOLE NO. (As shown on drawing title and file number) T-9A				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 9	
5. NAME OF DRILLER Rountree P.				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		45.2'	
7. THICKNESS OF OVERBURDEN 78.1'				16. DATE HOLE STARTED		12 Jun 75	
8. DEPTH DRILLED INTO ROCK 0				17. ELEVATION TOP OF HOLE		55.7'	
9. TOTAL DEPTH OF HOLE 78.1'				18. TOTAL CORE RECOVERY FOR BORING 61.2 %			
				19. SIGNATURE OF INSPECTOR R. Lawson			
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	
55.7	0.0		Top of Hole				
			SM-Dark Brown		1		6
							12
50.7	5.0		SM-SC-More Coarse-Stiffer Brown		2		58
							61
			Red Brown				41
							42
45.7	10.0		SC-Clay Binded (Coarse) Red-Brown - Small Amounts of Organic Silts & Mica in Layers @ 1/8" Thick		3	Water Table @ 10.5' 12 Jun 75	24
							19
							5
40.7	15.0		SM-Contains a Shell Fragment Brown & Lt. Gray	MC 32	4		5
			Lt. Gray, w/Approt. 1/2" Thick Layers of Clay Throughout				16
							33
							43
35.7	20.0						42
			Gray Clay Lenses & Rock Fragment		5	0.2/50 Blows-Dense SM	53
							105
30.7	25.0						39
							69
			Shale and Clay Lenses Interbedded @ 1/2" Thick Gray		6		74
							70
25.7	30.0						
Continue on Sheet 2							

///

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE 55.7		Hole No. T-9A			
PROJECT Cooper River Rediversion			INSTALLATION Charleston District		SHEET 2 OF 3 SHEETS		
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVER ERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, et. of significant)	
a	b		d	e	f	g	
					6	0.4/100 Blows	153
			Gray Sand and Shale Layers				83
			Shale Layers @ 1/8" Thick -				68
20.7	35.0		Several Layers				157
					7		66
							77
15.7	40.0						45
			Gray			0.3/Blows-Dense SM	153
						Dk. Gray Clay Layers	
					8	(Approx. 1/2) + Shale	105
						& Clay Pockets.	90
10.7	45.0					Pull - 1	
			Shale, gray, alternating			44.6' - 49.6	
			layers of sandstone included.			Run 5.0	
			Sandstone of light color, soft			Rec 4.6	
			to moderately hard, with			C/L 0.4	
			depth becomes 1/8 inch lamina.				
5.7	50.0		Shale is black and fissile			Pull - 2	
						49.6 - 53.1	
						Run 3.5	
						Rec 3.2	C/L 0.3
0.7	55.0				Core Box 1	Pull - 3	
						53.1 - 58.1	
						Run 5.0	
						Rec 2.0	
						C/L 3.0	
4.3	60.0					Pull - 4	
						58.1 - 63.1	
						Run 5.0	
						Rec 0.0	
						C/L 5.0'	
-0.3	65.0		Gray to Dark, Gray SM, Colors			Pull - 5	
			Mixed Not Layered			63.1 - 68.1	
			SM-SF gray, poorly sorted			Run 5.0	
			with clay lamina			Rec 3.6	
						C/L 1.4	
14.3	70.0						

Continue on Sheet 3

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DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

55.7

Hole No. T-9A

PROJECT

Cooper River Rediversion

INSTALLATION

Charleston District

SHEET 3
OF 3 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, weathering, etc. if significant) g
-14.3	70.0					Pull #5 Con't
-19.3	75.0					Pull - 6 68.1 - 73.1 Run 5.0 Rec 3.6 C/L 1.4
-22.4	78.1					Pull - 7 73.1 - 78.1 Run 5.0 Rec 3.5 C/L 1.5'

Bottom of Hole
78.1'

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 1 SHEETS
PROJECT Copper River Rediversion		10 SIZE AND TYPE OF BIT 1 3/8" A SSS & 4x5 1/2 BBL		
LOCATION (City, State or Station) E2, 329, 890		11 DAYUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
DRILLING AGENCY Marble District		12 MANUFACTURER'S DESIGNATION OF DRILL Failing 714		
HOLE NO. (As shown on drawing title and site number) F-11		13 TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 3		
NAME OF OPERATOR Garden		14 TOTAL NUMBER CORE BOXES 3		
DATE OF LOG May 75		15 ELEVATION GROUND WATER 11.0'		
LEG FROM VERT		16 DATE HOLE STARTED May 75		
17 ELEVATION TOP OF HOLE 20.0		18 TOTAL CORE RECOVERY FOR BORING 98.4 %		
19 SIGNATURE OF INSPECTOR C. Davis				

ELEVATION (DEPTH) FEET	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
0.0	Top of Hole				
1.0	CL - Fine Sandy Clay Tan & Gray	MC 22.4%	1	Spl Class.	
15.0				2 CL	
16.0				1.0'-6.0' CL	
17.0		MC 16.4	2		
17.0			3		
17.0	SM-Silty Fine and Med. Sand Green & Tan Top of Rock			refusal at 10.5' 100.0.00	
18.0	Shale - Hard Gray	89	Core Box 1	Pull - 1 10.5' - 15.0' Run 4.5 Rec 3.7 C/L 0.8	
19.0				Core Box 2	Pull - 2 15.0 - 19.1 Run 4.1 Rec 4.1 C/L 0.0
20.0				Core Box 3	Pull - 3 19.1 - 23.2 Run 4.1 Rec 4.7 C/G 0.6
23.2	Bottom of Hole 23.2'				

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
DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET OF SHEETS
1. PROJECT Cooper River Refiner		10. SIZE AND TYPE OF BIT 3/8" 6 SSS 1 1/2"		
2. LOCATION (Coordinates or Station) N 851, 130 E 2,329,760		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Hallings 314		
4. HOLE NO. (As shown on drawing title and file number)		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED	UNDISTURBED
5. NAME OF DRILLER Parson		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	11.7	
7. THICKNESS OF OVERBURDEN		16. DATE HOLE	STARTED	COMPLETED
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE	25.1	
9. TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING	%	
		19. SIGNATURE OF INSPECTOR C. Davis		

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
25.1	0.0		Top of Hole			
20.1	5.0		S-Clayey Fine Sand gray & Tan			
15.1	10.0			MC 16.1		Water Table @ 7.5-6 May 75
11.6	13.5					
10.1	15.0		limestone, gray, calcareous, hard, massive.			Scale Change @ 100/0.1 15.0'
+7.0	17.0		sandstone, gray, hard, cal- careous		Core Box 1	Run 1-1 17.5-17.2' Run 2-1 18.0-18.4' Core 1-1
6.1	19.0		Limestone, gray hard, vugy			Run 1-2 18.2-18.4' Run 2-2 18.4-18.7' Core 2-1
4.1	21.0		sandstone, gray, soft, friable, calcareous contains lignite beams.			

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DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		Hole No.		
PROJECT		INSTALLATION		SHEET		
LOCATION		DISTRICT		OF 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	g
			Shale, black, soft w/lignite			
			Sandstone, light gray, fine grain, moderately hard, cal- careous.			
					Core Box 3	1-3 25.0-25.1 30-4.7 30-5.7 07-20
						Aquifer Flowing @ 15.0

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DRILLING LOG		DIVISION		INSTALLATION		SHEET	
		South Atlantic		Charleston District		OF SHEETS	
1. PROJECT Cooper River Water Line				10. SIZE AND TYPE OF BIT 3 1/2" A			
2. LOCATION (Coordinates or Station) N 580,960 E 2,330,500				11. DATUM FOR ELEVATION SHOWN (TBM or MSL) TBM			
3. DRILLING AGENCY Mobile District				12. MANUFACTURER'S DESIGNATION OF DRILL Fairfax 411			
4. HOLE NO. (As shown on drawing title and file number) 1-13				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: UNDISTURBED:			
5. NAME OF DRILLER Horton				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 9			
7. THICKNESS OF OVERBURDEN 36.0'				16. DATE HOLE STARTED: COMPLETED:			
8. DEPTH DRILLED INTO ROCK 0.0'				17. ELEVATION TOP OF HOLE 21.0			
9. TOTAL DEPTH OF HOLE 36.0'				18. TOTAL CORE RECOVERY FOR BORING -			
				19. SIGNATURE OF INSPECTOR Savin			
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	
21.0	0.0		Top of Hole				
			CL-Silty Clay - Tan & Gray				
11.4	9.5		CL-Fat Clay-Gray	MC 20.0	2		Water Table at 12.0' 23 Sept 57
9.4	12.5		SP-M - Fine & Med Sand with traces of Organic matter - Gray	MC 39.3	3		
6.9	14.0		Fine & Medium Sand		4		
2.4	18.5		SM - Silty Fine Sand	MC 23.4			
-9.1	30.0						

DRILLING LOG (Cont Sheet)

ELEVATION TO BOTTOM

21.0

Hole No.

Rediversion

SHEET

OF

SHEETS

REMARKS

Drill no more water into depth of
penetration of 100 feet.

R

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DRILLING LOG		DIVISION	INSTALLATION	SHEET		
1 PROJECT		South Atlantic	Charleston	OF	SHEETS	
2 LOCATION (Coordinates or Station)			10. SIZE AND TYPE OF BIT			
3 DRILLING AGENCY			11. DATUM FOR ELEVATION SHOWN (TBM or MSL)			
4 HOLE NO. (As shown on drawing title and file number)		T-14	12. MANUFACTURER'S DESIGNATION OF DRILL			
5 NAME OF DRILLER			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISBURBED	UNDISTURBED	
6 DIRECTION OF HOLE		<input type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.	14. TOTAL NUMBER CORE BOXES			
7 THICKNESS OF OVERBURDEN		16.4	15. ELEVATION GROUND WATER			
8 DEPTH DRILLED INTO ROCK		18.7	16. DATE HOLE	STARTED	COMPLETED	
9 TOTAL DEPTH OF HOLE		35.1	17. ELEVATION TOP OF HOLE			
			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)
			Top of Hole			
11.4	16.4		MC - Silty Clay - Tan to gray	MC	33.2	LAB CLASSIFICATION Spl. Class. 1.0'-6.0' CH
11.4	17.4		CH - Fat Clay - Tan to gray	MC	15.3	
11.4	18.4		F-SM - Fine and Med Sand			
11.4	18.4		Top of Rock 16.4			
0.9	20.0		Siltstone-gray, soft, with some fine sand seams, trap sandy and calcareous with depth			
0.9	21.0		Shale Interbedded with fine grain sand, gray, fine, soft.		Core Box 1	
0.9	22.0		Sandstone, gray, soft, with fine grain with occasional layers of shale.			
			Continued on sheet			

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

Hole No.

INSTALLATION

SHEET

DATE	DEPTH	CLASSIFICATION OF MATERIALS <i>Description</i>	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS <i>Drilling time, water, depth, weathering, etc.</i>
		sandstone with layers of shale			

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DRILLING LOG		DIVISION		INSTALLATION		SHEET 1	
1 PROJECT		South Atlantic		Charleston District		OF 2 SHEETS	
2 LOCATION (Coordinates or Station)		N 580,340 E 2,333,000		10. SIZE AND TYPE OF BIT 3/8" ϕ sss & 4x5 1/4 BBL		11 DATUM FOR ELEVATION SHOWN (TBM or MSL)	
3 DRILLING AGENCY		Mobile District		12 MANUFACTURER'S DESIGNATION OF DRILL		MSL	
4. HOLE NO. (As shown on drawing title and file number)		T-15		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 5 UNDISTURBED -	
5. NAME OF DRILLER		Parden		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		14.1	
7. THICKNESS OF OVERBURDEN		22.5		16 DATE HOLE		STARTED 18 Sept 75 COMPLETED 18 Sept 75	
8 DEPTH DRILLED INTO ROCK		12.5		17. ELEVATION TOP OF HOLE		22.7	
9. TOTAL DEPTH OF HOLE		35.0		18. TOTAL CORE RECOVERY FOR BORING		28.8	
				19. SIGNATURE OF INSPECTOR		C. Davis	
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 Ft
22.7	0.0		Top of Hole				
			SM - Silty Fine Sand Tan				11
							11
							13
							20
				MC 36	1		20
						Water Table 8.5	
13.1	9.5					18 Sept 75	28
			Gray				22
							42
10.1	12.5						
			SP - Medium to Coarse Sand W/Gravel Gray	MC 18.3	3		16
							15
7.1	15.5						14
							19
							27
2.6	20.0						
			SM - Silty Fine Sand W/Alternating Clay Layers Gray		5		31
.1	22.5		Top of Rock 22.5			Refusal	
			Shale-layered black and gray soft, horizontal layers of fissile, calcareous clay with friable fine grain sandstone			Pull - 1 Rec 0.8	
-2.1	24.8					22.5 - 24.8 C/I 1.5	
						Run 2.3	
						Pull - 2	
						24.8 - 29.8	
						Run 5.0	
					Core Box 1	Rec 1.8	
-7.3	30.0		Sandstone-dark gray, calcareous, soft, to moderately hard. Contains zones of limestone.			C/I 3.2	
			Continue on Sheet 2				

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

Hole No. T-15

PROJECT: Cooper River Rediversion INSTALLATION: Charleston District SHEET 2 OF 2 SHEETS

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS <i>Description</i>	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS <i>(Drilling time, water loss, depth of weathering, etc. if significant)</i>
22.3	35.0		Shale-dark gray, to black laminated with fine grain sands, soft.		Core Box 1	Pull - 3 29.8 - 35.0 Run 5.2 Rec 1.0 C/L 4.2

Bottom of Hole 35.0'

DRILLING LOG		DIVISION		INSTALLATION		SHEET 1	
1. PROJECT Cooper River Rediversion		South Atlantic		Charleston District		OF 2 SHEETS	
2. LOCATION (Coordinates or Station) N579,960 E2,332,690		3. DRILLING AGENCY Mobile District		10. SIZE AND TYPE OF BIT 1 3/8" ø sss & 4x5 1/2 BBL		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
4. HOLE NO. (As shown on drawing title and file number) T-16		5. NAME OF DRILLER Pardon		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: 4 UNDISTURBED: -	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		7. THICKNESS OF OVERBURDEN 11.8		14. TOTAL NUMBER CORE BOXES 2		15. ELEVATION GROUND WATER 15.2	
8. DEPTH DRILLED INTO ROCK 23.2		9. TOTAL DEPTH OF HOLE 35.0		16. DATE HOLE 15 Sept 75		17. ELEVATION TOP OF HOLE 21.2	
				18. TOTAL CORE RECOVERY FOR BORING 43.1		19. SIGNATURE OF INSPECTOR C. Davis	
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	
21.2	0.0		Top of Hole			Blows Ft	
16.2	5.0		C1 - Silty Clay - Tan		1	LAB CLASSIFICATION Spl. Class. 19 3 SC 25 24	
13.7	7.5		SC - Clayey Fine sand Tan	MC 19.7	2	Water Table @ 6.0' 10 15 Sept 75 11	
11.2	10.0		SP-SM-Fine and Med. Sand Gray		3	16 27	
9.4	11.8		Top of Rock 11.8'		4	Refusal @ 117	
6.2	15.0		Limestone, gray, hard, dense shell and sand matrix. Siltstone, light gray, with some calcareous clay zones			Pull - 1 11.8 - 15.3' Run 3.5' Rec 2.6' C/L 0.9'	
1.2	20.0		Shale-gray, banded with fine grain sand, fissile-soft.		Core Box	Pull - 2 15.3 - 20.3' Run 5.0' Rec 3.0' C/L 2.0'	
-3.8	25.0		25.3 to 26.0 Limestone, hard Shale, layered with sand		1	Pull - 3 20.3 - 25.3' Run 5.0' Rec 1.1' C/L 3.9'	
-8.8	30.0					Pull - 4 25.3 - 28.4 Rec 3.7 Run 3.1 CG 0.6	
			Continue on Sheet 2			Pull - 5 Run 1.4 28.4 - 29.8 Rec 0.8 C/L 0.6	

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE 21.2

Hole No. T - 16

PROJECT: Cooper River Rediversion INSTALLATION: Charleston District 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)
b	c	d	e	f	g	h
-15.8	35.0		Shale, Continued		Core Box 2	Pull - 6 29.8 - 35.0' Run 5.2' Rec 2.5' C/L 2.7'

Bottom of Hole 35.0'

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DRILLING LOG		DIVISION	INSTALLATION	SHEET 1 OF 2 SHEETS		
1 PROJECT		South Atlantic	Charleston Dist. t	10 SIZE AND TYPE OF BIT 3/8" Ø SSS & 4x5" BBL		
2 LOCATION (Coordinates or Station)		N578,740. E2,336,040	MSL	11 DATUM FOR ELEVATION SHOWN (TBM or MSL)		
3 DRILLING AGENCY		Mobile District	Failing 314	12 MANUFACTURER'S DESIGNATION OF DRILL		
4 HOLE NO. (As shown on drawing title and file number)		T-17		13 TOTAL NO OF OVER-BURDEN SAMPLES TAKEN		
5 NAME OF DRILLER		Parden		14 TOTAL NUMBER CORE BOXES 1		
6 DIRECTION OF HOLE		VERTICAL		15 ELEVATION GROUND WATER 8.4		
7 THICKNESS OF OVERBURDEN		31.5		16 DATE HOLE STARTED COMPLETED		
8 DEPTH DRILLED INTO ROCK		4.0		17 ELEVATION TOP OF HOLE 20.4		
9 TOTAL DEPTH OF HOLE		35.5		18 TOTAL CORE RECOVERY FOR BORING 12.5		
				19 SIGNATURE OF INSPECTOR		
				C. Davis		
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
20.4	0.0		Top of Hole			Blows Ft
			CL - Silty Clay Tan & Gray	MC 41.0%	1	LAB CLASSIFICATION Spl. Class. 0 2 CH 8 0.0'-5.0' CH 11
15.4	5.0		CH - Flat Clay Tan & Gray	MC 33.3	2	11
					3	11
10.4	10.0					15
						14
8.4	12.0					18
						Water Table @ 12.0 15 Aug 75
						16
5.4	15.0		SP-SM-Fine and Med. Sand Gray	MC 13.3	4	54
						42
						41
						39
0.4	20.0				5	40
-0.6	21.0		Top of Rock			81
			Sandstone-, gray, hard			Pull
			Sand-, gray, poorly sorted unconsolidated.		Core Box 1	21.0-25.0 Run 4.0 Rec 0.5 C/L 3.5
-4.6	25.0					
			SP-SM-Fine and Med. Sand Gray		6	120
						141
-9.6	30.0					147
			Continue on Sheet 2			125

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

20.4'


Hole No. T-17

INSTALLATION

SHEET 2
OF 2 SHEETS

Upper River Rediversion

Charleston District

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, et. if significant)
						
						153
						151
						167
						179

Bottom of Hole
35.5'

126

DRILLING LOG		DIVISION South Atlantic		INSTALLATION Charleston District		SHEET 1 OF 2 SHEETS		
1. PROJECT Cooper River Rediversion				10. SIZE AND TYPE OF BIT 1 3/8" Ø SSS 4x5" BBL.				
2. LOCATION (Coordinates of Station) N 578,460 E 2,335,780				11. DAYUM FOR ELEVATION SHOWN (TBM or MSL) MSL				
3. DRILLING AGENCY Mobile District				12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314				
4. HOLE NO. (As shown on drawing title and file number) T-18				13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: 6 UNDISTURBED: -				
5. NAME OF DRILLER Parden				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 9.7				
7. THICKNESS OF OVERBURDEN 36.0'				16. DATE HOLE STARTED / COMPLETED 14 Aug 75 / 14 Aug 75				
8. DEPTH DRILLED INTO ROCK 0				17. ELEVATION TOP OF HOLE 21.7				
9. TOTAL DEPTH OF HOLE 36.0'				18. TOTAL CORE RECOVERY FOR BORING -				
				19. SIGNATURE OF INSPECTOR C. Davis				
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		
21.7	0.0		Top of Hole				Blows Ft	
			CL-Fine Sany Clay Tan & Gray		1		-	
							10	
16.7	5.0						12	
							12	
			CH-Fat Clay w/Vegetable Matter Gray		2		15	
12.7	9.0						15	
11.7	10.0						9	
9.7	12.0				3	Water Table @ 12.0' 14 Aug 75	10	
			SP-SM-Fine and Med. Sand Gray				50	
6.7	15.0						4	50
								37
3.7	18.0						26	
1.7	20.0		SM-Calcareous Silty Fine Sand w/Shell Gray				16	
				MC 22.7%	5		27	
							55	
-3.3	25.0						56	
							65	
					6		102	
							131	
-8.3	30.0						138	
Continue on Sheet 2								

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE 21.7'

Hole No. T-18

SHEET 2
OF 2 SHEETS

Upper River Rediversion




INSTALLATION Charleston District

DEPTH	LEGEND	CLASSIFICATION OF MATERIALS <i>Description</i>	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS <i>(Drilling time, water loss, depth of weathering, etc., if significant)</i>
145					
163					
174					
188					

Bottom of Hole
36.0'

128

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 2 SHEETS
1 PROJECT Cooper River Rediversion	10 SIZE AND TYPE OF BIT 1 3/8" ϕ sss & 4x5" BBL		11 DAYUM FOR ELEVATION SHOWN (TBM or MSL) MSL
2 LOCATION (Coordinates or Station) N 578.130 E 335.540	12 MANUFACTURER'S DESIGNATION OF DRILL Failing 314		13 TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: 6
3 DRILLING AGENCY Mobile District	14 TOTAL NUMBER CORE BOXES 2		15 ELEVATION GROUND WATER 10.0
4 HOLE NO. (As shown on drawing title and file number) T-19	16 DATE HOLE STARTED 18 Aug 75 COMPLETED 18 Aug 75		17 ELEVATION TOP OF HOLE 20.5'
5 NAME OF DRILLER Parden	18 TOTAL CORE RECOVERY FOR BORING 74.7 %		19 SIGNATURE OF INSPECTOR Soils: C. Davis; Geology Hancock
6 DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG FROM VERT.	7 THICKNESS OF OVERBURDEN 27.6		
8 DEPTH DRILLED INTO ROCK 7.9			
9 TOTAL DEPTH OF HOLE 35.5'			

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
20.5	0.0		Top of Hole			
			CL - Silty Clay, Tan		1	
15.5	5.0			MC 26.2%	2	
			SC - Clayey Fine and Med. Sand, Tan	MC 19.3%	3	Water Table @ 10.5' 18 Aug 75
10.5	10.0		SP - Fine To Coarse Sand W/Gravel, Gray	MC 12.8%	4	
			ML - Clayey Silt, Gray	MC 29.1%	5	
	14.1		Top of Rock			
5.5	15.0		Sandstone - Gray, hard, massive, argillaceous, slightly glauconitic, streaks of lignite present		Core Box 1	Pull - 1 14.1 - 17.1 Run 3.0 Rec 2.6 C/L 0.4
0.5	20.0		Shale-Black to dark gray, soft with thin lamellae of sand		Core Box 2	Pull - 2 17.1 - 22.0 Run 4.9 Rec 3.3 C/L 1.6
-4.5	25.0		SM - Silty Fine Sand W/Clay Layers, Gray		6	
						158 162 177 185 190
-9.5	30.0					
			Continue on Sheet 2			

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE 20.5'

Hole No. 1-19

Casper River Rediversion

INSTALLATION Charleston District

SHEET 2 OF 2 SHEETS

ELEVATION DEPTH LEGEND

CLASSIFICATION OF MATERIALS Description

% CORE BOX OR RECOVERY SAMPLE NO

REMARKS Drilling time water level weathering et. of hole etc.

11.5 58.5
-15.0 33.5

15.0
15.2
19.0
19.5

Bottom of Hole
33.5'

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET OF 1 SHEETS
1 PROJECT Cooper River Rediversion		10 SIZE AND TYPE OF BIT 1 3/8" Ø SS & 4 5/8" BBL		
2 LOCATION (Coordinates or Station) N 127.250 12.337.180		11 DATUM FOR ELEVATION SHOWN (TBM, MSL) MSL		
3 DRILLING AGENCY Mobile District		12 MANUFACTURER'S DESIGNATION OF DRILL Filling 314		
4 HOLE NO. (As shown on drawing title and file number) T-20		13 TOTAL NO. OF OVERBURDEN UNDISTURBED BURDEN SAMPLES TAKEN 0 -		
5 NAME OF DRILLER Fadden		14 TOTAL NUMBER CORE BOXES 0		
6 DIRECTION OF HOLE VERTICAL		15 ELEVATION GROUND WATER 12.8		
7 THICKNESS OF OVERBURDEN 30.0'		16 DATE HOLE STARTED / COMPLETED 12 Aug 75 / 13 Aug 75		
8 DEPTH DRILLED INTO ROCK 0		17 ELEVATION TOP OF HOLE 20.8		
9 TOTAL DEPTH OF HOLE 30.0'		18 TOTAL CORE RECOVERY FOR BORING 100%		
		19 SIGNATURE OF INSPECTOR C. Davis		

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 Ft
20.8	0.0		Top of Hole				
			CL-Silty Clay Tan	MC 30.8%	1		6
16.8	3.2		CH-Flat Clay Tan & Gray		2		11
			SC-Clayey Fine Sand Gray			Water Table @ 8.0'	11
16.8	13.0		Gray & Tan	MC 22.3%	3		8
			SP-SM - Fine and Med. Sand Gray	MC 13.8%			12
5.8	15.0				4		40
							58
							17
							50
0.8	20.0						16
							18
							28
							79
-4.2	25.0				5		159
							172
							190
-9.2	30.0						184

(Continue on Sheet 2

DRILLING LOG (Cont Sheet)

ELEVATION TO TOP OF HOLE

20.8

Hole No. T-20

INSTALLATION

Charleston District

SHEET

1 OF 2 SHEETS

DEPTH (Feet)	CLASSIFICATION OF MATERIALS <i>(Description)</i>	% CORE BOX OR RECOVERY SAMPLE		REMARKS <i>(Drilling time, water level, depth of weathering, etc. if pertinent)</i>
		ERY	NO	
144			1	
159			5	
165			1	
154	Medium sand within Clay lenses - Gray		6	

Bottom of Hole
36.0'

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston District	SHEET OF 2 SHEETS
1. PROJECT Cooper River Sedimentation		10. SIZE AND TYPE OF BIT 1 3/4" x 6" S&W	
2. LOCATION (Coordinates or Station) NS 76, 846 22, 338, 470		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Drilling 311	
4. HOLE NO. (As shown on drawing title and file number)		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 3	
5. NAME OF DRILLER Parker		14. TOTAL NUMBER CORE BOXES 1	
6. DIRECTION OF HOLE VERTICAL		15. ELEVATION GROUND WATER 8.9	
7. THICKNESS OF OVERBURDEN 41.2		16. DATE HOLE STARTED 11 Sept. 53	
8. DEPTH OF HOLE IN FEET 30.0		17. ELEVATION TOP OF HOLE 21.0	
9. TOTAL DEPTH IN FEET 30.0		18. TOTAL CORE RECOVERY FOR BORING 100%	
19. SIGNATURE OF SUPERVISOR		19. SIGNATURE OF INSPECTOR	

ELEVATION (FEET) OF LOG	DESCRIPTION OF MATERIAL AND CHARACTERISTICS	DEPTH OF SAMPLE (FEET)	REMARKS (e.g., thin, sandy, water loss, depth of weathering, etc.)
21.0	SM-Silty Fine Sand with Clay lenses - Gray	0	
11.4	SM-Silty Fine Sand with Clay lenses - Gray	9	
8.4	SM-Silty Fine Sand with Clay lenses - Gray	12	
5.9	SM-Silty Fine Sand with Clay lenses - Gray	17	
5.1	SM-Silty Fine Sand with Clay lenses - Gray	20	
3.1	SM-Silty Fine Sand with Clay lenses - Gray	30	

Continue on Sheet 2

DRILLING LOG (Cont Sheet)

DATE OF LOG

20.94

Hole No.

1 - 22

NOTATION

SHEET

OF 2 SHEETS

Location and position

Charleston District

DESCRIPTION OF MATERIAL

% CORE BOX OR
RECOV SAMPLE
ERY NO

REMARKS

Grounding time water level
Weathering at 100 feet

100% Silt, Fine Sand w/Traces
of Mica

5

104

183

100

Bottom of Hole 54.5

134

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 2 SHEETS
1 PROJECT Cooper River Rediversion		10 SIZE AND TYPE OF BIT 3/8" 3 SSS 4 X51 BTL	
2 LOCATION (Coordinates or Station) N576 130 E2338 280		11 DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
3 DRILLING AGENCY Mobile District		12 MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4 HOLE NO. (As shown on drawing title and file number) 1-25		13 TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 4	
5 NAME OF DRILLER Parden		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 12.3	
7 THICKNESS OF OVERBURDEN 20.2		16 DATE HOLE STARTED COMPLETED 9 Sept. 75 9 Sept. 75	
8 DEPTH DRILLED INTO ROCK 14.8		17 ELEVATION TOP OF HOLE 21.3	
9 TOTAL DEPTH OF HOLE 35.0		18 TOTAL CORE RECOVERY FOR BORING 89.9	
		19 SIGNATURE OF INSPECTOR Davis	

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
21.3	0.0		Top of Hole			
			CL - Silty Clay Tan & Gray	MC 23.8%	1	LAB CLASSIFICATION Spl. Class. 10 4 SM 14 1.0'-5.0' CH 19
16.3	5.0		SC - Clayey Fine Sand Gray	MC 13.3%	2	Water Table = 9.0' 9 Sept. 75 17
11.8	9.5		SP-SM - Fine & Med. Sand Gray	MC 20.5%	3	20 15 32 30 26 32 43
1.1	20.2		Top of Rock			Refusal = 20.2 Pull - 1 20.2 - 25.0 Run 4.8 Rec 3.8 CL 1.0
-3.7	25.0		Shale, rhythmically layered with sandstone. Gray, moderately hard, calcareous, fissile; convex segmented layers of sand in shale		Core Box 1	DW1 - 2 25.0 - 30.0 Run 5.0 Rec 5.0 CL 1.0
-8.7	30.0					

Continue on Sheet 2

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DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE 21.34

Hole No. I-23

INSTALLATION Charleston District

SHEET 2
OF 2 SHEETS

DEPTH	DESCRIPTION	CLASSIFICATION OF MATERIAL <i>Description</i>	CORE RECOVERY	BOX OR SAMPLE NO	REMARKS <i>Drilling time, water loss, depth of weathering, etc. if significant</i>
		shale, layered with sand continued			Pull - 3 50.0 - 35.0
			Core		Run 5.0
			Box		Rec 4.5
			2		C/L 0.5
		Bottom of Hole 35.0			

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 2 SHEETS
1. PROJECT Cooper River Rediversion		10. SIZE AND TYPE OF BIT 1 3/8" ϕ SSS & 4x5 1/2 BBL.	
2. LOCATION (Coordinates or Station) N576,040 E2,338,090		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) T-24		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN 3	
5. NAME OF DRILLER Parden		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 14.8	
7. THICKNESS OF OVERBURDEN 8.3		16. DATE HOLE STARTED [COMPLETED] 10 Sept 75 10 Sept 75	
8. DEPTH DRILLED INTO ROCK 27.4		17. ELEVATION TOP OF HOLE 21.8	
9. TOTAL DEPTH OF HOLE 35.7		18. TOTAL CORE RECOVERY FOR BORING 63.5	
19. SIGNATURE OF INSPECTOR C. Davis			

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
21.8	0.0		Top of Hole			Blows Ft
			SM - Silty Fine Sand Gray	MC 13.9%	1	6 6 6
16.8	5.0		SC - Clayey Fine Sand Gray		2	8 Water Table @ 7.0' 10 Sept 75
14.2	7.6		ML-Clayey Silt Gray-Top of Rock	MC 23.2%	3	8 Refusal @ 8.3
13.5	8.3					
11.8	10.0		Siltstone, gray, hard, calcareous cemented		Core Box 2	Pull - 1 8.3 - 12.0 Run 3.7 Rec 2.4 C/L 1.3
6.8	15.0		Sandstone-gray, calcareous moderately hard, friable, 14.0-16.9 very hard and cemented			Pull - 2 12.0 - 16.7 Run 4.7 Rec 2.2 C/L 2.5
1.8	20.0		Sandstone interbedded with shale			Pull - 3 16.7 - 21.7 Run 5.0 Rec 2.3 C/L 2.7
-3.2	25.0		Sandstone, gray, fine to medium grain, soft. 28.7-29.8 Limestone seam		Core Box 1	Pull - 4 21.7 - 26.7 Run 5.0 Rec 5.0 C/L 0.0
-8.2	30.0					Pull - 5 26.7 - 31.7 Run 5.0 Rec 2.5 C/L 2.5
			Continue on Sheet 2			137

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE 21.8

Hole No. T-24

Copper River Rediversion





INSTALLATION Charleston District

SHEET 2 OF 2 SHEETS

DEPTH	LEGEND	CLASSIFICATION OF MATERIALS <i>Description</i>	CORE RECOVERY	BOX OR SAMPLE NO	REMARKS <i>Drilling time, water, amount of circulating fluid, etc.</i>
26.7					Pull - 5 26.7 - 31.7
		Shale, gray, soft to moderately hard, fissile, sandy.		Core Box	Pull - 6 31.7 - 35.7
				1	Run 4.0
					Rec 4.0
					C/L 0.0

Bottom of hole 35.7'

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 2 SHEETS
1. PROJECT Cooper River Rediversion			10. SIZE AND TYPE OF BIT 1 3/8" ϕ sss & 4x5 1/2 BBL.	
2. LOCATION (Coordinates or Station) N 575,790 E2, 339,500			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
3. DRILLING AGENCY Mobile District			12. MANUFACTURER'S DESIGNATION OF DRILL C.M.E.	
4. HOLE NO. (As shown on drawing title and file number) T - 25			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: 4 UNDISTURBED: -	
5. NAME OF DRILLER Parden			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 14.9	
7. THICKNESS OF OVERBURDEN 23.3			16. DATE HOLE STARTED 5 Sept 75	
8. DEPTH DRILLED INTO ROCK 11.7			17. ELEVATION TOP OF HOLE 23.9	
9. TOTAL DEPTH OF HOLE 35.0'			18. TOTAL CORE RECOVERY FOR BORING 57.3	
			19. SIGNATURE OF INSPECTOR C. Davis	

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
23.9	0.0		Top of Hole			Blows Ft
18.9	5.0		CL - Silty Clay - Tan	MC 36.6%	1	LAB CLASSIFICATION Spl. Class. CH 0.0'-9.0'
13.9	10.0		SM - Silty Fine Sand	MC 22.1%	2	Water Table @ 9.0' 5 Sept 75
8.9	15.0		SP/SM - Fine and Med. Sand		3	
3.9	20.0		Top of Rock 20.0'		4	
-1.1	25.0		Shale, layered with sandstone moderately hard grey, calcareously cemented, fissile, convex segmented layers of sand also mythmically layered 1 mm to 0.25 inch		Core Box 1	Pull - 1 Rec 3.3 20.0' - 23.3 C/L 0.0 Run 3.5
						Pull - 2 Rec 1.7 23.3 - 27.0 C/L 0.3 Run 3.7 Rec 1.5
-6.1	30.0					Pull - 3 Rec 1.7 27.0 - 28.0 C/L 0.3 Run - 2.0
Continue on Sheet 2						139

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE
23.9

Hole No. T - 25

SHEET
OF 2 SHEETS

Cooper River Rediversion

INSTALLATION
Charleston District

ELEVATION	DEPTH	LEND	CLASSIFICATION OF MATERIALS <i>Description</i>	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS <i>Drilling time, water loss, depth of weathering, etc. if significant</i>
			Shale w/Sand Layers - Gray		Core	Full - 4 29.0 - 32.0 Run 3.0 Rec 0.7 C/L 2.3
			Sandstone w/Lignite Dark Gray		Box 1	Full - 5 32.0 - 35.0 Run 3.0 Rec 1.4 C/L 1.6
			Bottom of Hole 35.0'			

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DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 2 SHEETS
1. PROJECT Cooper River Rediversion		10. SIZE AND TYPE OF BIT 1 3/8" ϕ sss & 4x5 1/2 BBL.	
2. LOCATION (Coordinates or Station) N575 360 E2 339 280		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL C.M.E.	
4. HOLE NO. (As shown on drawing title and file number) T-26		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED 3 UNDISTURBED -	
5. NAME OF DRILLER Parden		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 15.2	
7. THICKNESS OF OVERBURDEN 14.6		16. DATE HOLE STARTED 4 Sept 75 COMPLETED 4 Sept 75	
8. DEPTH DRILLED INTO ROCK 20.2		17. ELEVATION TOP OF HOLE 20.2	
9. TOTAL DEPTH OF HOLE 34.8		18. TOTAL CORE RECOVERY FOR BORING 84.2	
		19. SIGNATURE OF INSPECTOR C. Davis	

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	Blows Ft
20.2	0.0		Top of Hole				
			CL - Silty Clay - Tan		1		8 11 7
15.2	5.0		SP/SM - Fine and Med. Sand Gray	MC 21.8%	2	Water Table @ 5.0' 4 Sept 75	12 17 32
10.2	10.0				3		23 22 26
5.6	14.6		Top of Rock 14.6'				111
0.2	20.0		Shale- & sandstone- dark gray, soft, to moderately hard, calcareously cemented. Shale is fissile with convex segmented bands of sand up to 0.25 inch thick		Core Box 1	Pull - 1 14.6 - 19.8 Run - 5.2 Rec 3.5 C/L 1.7	
-4.8	25.0					Pull - 2 19.8 - 24.8 Run 5.0 Rec 4.8 C/L 0.2	
-9.8	30.0		shale, dark gray, rhythmically banded with sand		Core Box 2	Pull - 3 24.8 - 29.8 Run 5.0 Rec 4.5 C/L 0.5	
			Continue on Sheet 2				

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DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

20.2

Hole No.

T - 26

INSTALLATION

Cooper River Rediversion

Charleston District

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
			Shale, continued.		Core	Pull - 4
					Box	29.8 - 34.8
			Limestone, dark gray, hard. recrystallized carbonate sand with fragmental shell in mud matrix		2	Run 5.0 Rec 4.2 C/L 0.8 *L.S. displays
-14.6	34.8		Bottom of Hole 34.8			remnant cpmqiompod struc- ure.

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DRILLING LOG		DIVISION	INSTALLATION		SHEET	
1. PROJECT Cooper River Rediversion		South Atlantic	Charleston District		1 OF 2 SHEETS	
2. LOCATION (Coordinates or Station) N 574,900 E 2,341,150			10. SIZE AND TYPE OF BIT 1 3/8" ϕ SSS & 4x5 1/2 BBI			
3. DRILLING AGENCY Mobile District			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL			
4. HOLE NO. (As shown on drawing title and file number) T-27			12. MANUFACTURER'S DESIGNATION OF DRILL C.M.E.			
5. NAME OF DRILLER Parden			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: 5 UNDISTURBED: -			
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 25.5'			15. ELEVATION GROUND WATER 9.1			
8. DEPTH DRILLED INTO ROCK 9.5			16. DATE HOLE STARTED: 27 Aug 75 COMPLETED: 27 Aug 75			
9. TOTAL DEPTH OF HOLE 35.0'			17. ELEVATION TOP OF HOLE 18.1			
			18. TOTAL CORE RECOVERY FOR BORING 77.9 %			
			19. SIGNATURE OF INSPECTOR C. Davis			
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
18.1	0.0		Top of Hole			Blows Ft
13.1	5.0		SC-Clayey Fine Sand Tan	MC 13.7%	1	LAB CLASSIFICATION Spl. Class. 4 SP-SM 40 0.0'-9.0' SC-SM 40
8.1	10.0		SM - Silty Fine and Med. Sand Tan		2	Water Table @ 9.0' 27 Aug 75
3.1	15.0		Gray		3	
-1.9	20.0		Silty Fine W/Alternating Clay Layers - Dark Gray	MC 21.4%	4	
-6.9	25.0		Top of Rock 25.5'		5	Refusal @
-11.9	30.0		Shale, Claystone, black soft, fair % of sand included		Core Box 1	Pull - 1 25.5 - 30 Run 4 5 Rec 2.4 C/L 2.1
Continue on Sheet 2						143

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE	Hole No.			
PROJECT		INSTALLATION	SHEET 2 OF 2 SHEETS			
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY e	BOX OR SAMPLE NO f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			Shale, Claystone, cont.			Pull - 2
			30.0'-35.0' shale laminated with sandstone, hard & soft layers		Core	30.0 - 35.0
					Box 1	Run 5.0
						Rec 5.0
						C/L 0.0
-16.9	35.0		Bottom of Hole			
			35.0'			

144

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET OF 2 SHEETS
1 PROJECT Cooper River Reversion		10. SIZE AND TYPE OF BIT 1 3/8" ϕ SSS 4 4x5" H		
2 LOCATION (Coordinates or Station) N 574,530 E 2,340,960		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3 DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL C.M.E.		
4 HOLE NO. (As shown on drawing title and file number) T-28		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: 3 UNDISTURBED: -		
5 NAME OF DRILLER Parden		14. TOTAL NUMBER CORE BOXES 1		
6 DIRECTION OF HOLE X VERTICAL INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER 12.5		
7 THICKNESS OF OVERBURDEN 17.8		16. DATE HOLE STARTED 28 Aug 75 COMPLETED 29 Aug 75		
8 DEPTH DRILLED INTO ROCK 17.2		17. ELEVATION TOP OF HOLE 19.3		
9 TOTAL DEPTH OF HOLE 35.0'		18. TOTAL CORE RECOVERY FOR BORING 38.9		
		19. SIGNATURE OF INSPECTOR C. Davis Geol. W. Hancock		

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
19.3	0.0		Top of Hole			
			CL - Fine Sandy Clay - Tan		1	
14.3	5.0			MC 19.5%		
11.3	8.0				2	Water Table 7.0' 28 Aug 75
9.3	10.0		SP/SM - Fine and Med. Sand Gray & Tan	MC 13.7%		
4.3	15.0				3	
1.5	17.8		Top of Rock 17.8'			
-1.7	20.0		Shale, black, laminated with 1/16 inch sand layers, fissile, soft			Pull - 1 Rec 0.3 17.8 - 20.0 C/L 1.9 Run 2.2
-5.7	25.0		Limestone, gray, hard, re-crystallized, vuggy some alternating layers of clay within the L.S.			Pull - 2 20.0 - 25.0 Core Box 1 Run 5.0 Rec 0.4 C/L 1.6
-10.7	30.0		Shale, black to dark gray, laminated with 1/16 inch sand layers, fissile, soft.			Pull - 3 25.0 - 30.0 Run 5.0 Rec 1.9 C/L 3.1

Continue on Sheet 2

145

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

19.3

Hole No. T-28

INSTALLATION

Charleston District

SHEET 2

OF 2 SHEETS

WATER DIVISION

CLASSIFICATION OF MATERIALS
Description

% CORE BOX OR
RECOVERY SAMPLE
ERY NO

REMARKS

Drilling time, water loss, depth of
weathering, etc., if significant

Shallow cut time 1

Pull - 4
30.0 - 35.0
Run 5.0
Rec 4.1
C/L 0.9

Bottom of Hole

35.0'

176

DRILLING LOG		DIVISION	INSTALLATION	SHEET		
PROJECT Cooper River Rediversion		South Atlantic	Charleston District	1 OF 2 SHEETS		
LOCATION (Coordinates or Station) N574,490 E2,343,300		10 SIZE AND TYPE OF BIT 1 3/8" ϕ S&S 4 4x5 1/2 BBL				
DRILLING AGENCY Mobile District		11 DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL				
HOLE NO. (As shown on drawing title and file number) T-29		12 MANUFACTURER'S DESIGNATION OF DRILL C.M.L.				
NAME OF DRILLER Pardon		13 TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 3				
DIRECTION OF HOLE VERTICAL		14 TOTAL NUMBER CORE BOXES 1				
THICKNESS OF OVERBURDEN 25.0'		15 ELEVATION GROUND WATER 6.3				
DEPTH DRILLED INTO ROCK 10.0'		16 DATE HOLE STARTED 3 Sept 75				
TOTAL DEPTH OF HOLE 35.0'		17 ELEVATION TOP OF HOLE 18.3				
		18 TOTAL CORE RECOVERY FOR BORING 50.3				
		19 SIGNATURE OF INSPECTOR C. Davis				
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
18.3	0.0		Top of Hole			Blk FF
			CL - Silty Clay - Tan		1	LAB CLASSIFICATION Spl. 2 Class. CH
13.3	5.0		Tan & Gray	MC 32.3	2	
8.5	10.0				3	Water Table = 12.0' 3 Sept 75
5.8	12.5		SM-Silty Fine and Med. Sand Tan & Gray	MC 32.4	4	
-1.7	20.0		CL-Silty Clay w/Alternating Sand Layers - Gray	MC 61.5%	5	
-6.7	25.0		Shale - rhythmically layered w/sandstone, grey, moderately hard, calcareously cemented, 1mm sand lamina to 0.25 inch convex segments			Pull - 1 20.0 - 25.0 Run - 5.0 Rec - 3.6 C/L - 1.4
-11.7	30.0				Core Box 1	Pull - 2 25.0 - 30.0 Run - 5.0 Rec - 2.0 C/L - 1.0
			continue on Sheet 2			

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

18.3

Hole No.

INSTALLATION

Charleston District

Upper River Rediversion

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS <i>Description</i>	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS <i>Drilling time, water, weathering, etc.</i>
			Shale			Pull - 3 30.0 - 35.0
					Core Box 1	Run 5.0 Rec 4.8 C.M. 0.2

Bottom of Hole 35.0'

Note: Pull 3 Stored in Box with Hole T-31

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DRILLING LOG		DIVISION	INSTALLATION	SHEET		
PROJECT		South Atlantic	Charleston District	1 OF 2 SHEETS		
Cooper River Rediversion		10. SIZE AND TYPE OF BIT 1 3/8" S SSS & 4x5 1/2" RB				
LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL)				
N 574,450 12,316,680		MSL				
DRILLING AGENCY		12. MANUFACTURER'S DESIGNATION OF DRILL				
Mobile District		C.M.E.				
HOLE NO. (As shown on drawing title and file number)		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN				
T-30		5				
NAME OF DRILLER		14. TOTAL NUMBER CORE BOXES				
Parden		1				
DIRECTION OF HOLE		15. ELEVATION GROUND WATER				
VERTICAL		10.6				
THICKNESS OF OVERBURDEN		16. DATE HOLE				
29.8		STARTED 19 Aug 75 COMPLETED 19 Aug 75				
DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE				
5.0		21.1				
TOTAL DEPTH OF HOLE		18. TOTAL CORE RECOVERY FOR BORING				
34.8'		100				
		19. SIGNATURE OF INSPECTOR				
		C. Davis				
ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
21.1	0.0		Top of Hole			Blows BT
16.1	5.0		CL - Silty Clay Tan	MC 11.7%	1	LAB CLASSIFICATION Spl. Class. 0.0'-9.0' CL-ML
11.1	10.0		SC - Clayey Fine Sand Tan	MC 20.7%	3	Water Table @ 10.5' 19 Aug 75
9.1	15.0		SM - Silty Fine Sand Tan	MC 17.7%	4	
4.6	16.5		SPSM - Gray Fine and Med. Sand w/Cemented Layers	MC 18.1%	5	
1.1	20.0					
-3.9	25.0					
-8.7	29.8		Top of Rock 28.8			Refusal

Continue on Sheet 2

DRILLING LOG (Cont Sheet)

ELEVATION TOP OF HOLE

21.1

Hole No. 1 - 30

INSTALLATION

Charleston District

SHEET 2

of 2 sheets

Wyer River Reiverston

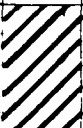
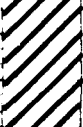



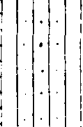





ELEVATION	DEPTH	REMARKS	CLASSIFICATION OF MATERIALS <i>Description</i>	% CORE RECOV ERY	BOX OR SAMPLE NO	REMARKS	
						<i>Drilling time water level depth</i>	<i>weathering etc. mud unit</i>
-15.7	31.8		Sandstone-black, calcareous, initially silty, shell bearing hard; becomes soft with depth; cherty fossils.		Core Box 1	Pull - 1 29.8 - 34.8 Run 5.0 Rec 5.0	C/L 0.0

Bottom of Hole
34.8'

150

Hole No. T - 31

DRILLING LOG	DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 2 SHEETS
1. PROJECT Cooper River Rediversion		10. SIZE AND TYPE OF BIT 1 3/8" ϕ SSS & 4x5" BBI	
2. LOCATION (Coordinates or Station) N 573,940 E 2,347,770		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL	
3. DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 314	
4. HOLE NO. (As shown on drawing title and file number) T-31		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN DISTURBED: 7 UNDISTURBED: -	
5. NAME OF DRILLER Parden		14. TOTAL NUMBER CORE EXCES 1	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.		15. ELEVATION GROUND WATER -	
7. THICKNESS OF OVERBURDEN 36.0		16. DATE HOLE STARTED: 26 Aug 75 COMPLETED: 26 Aug 75	
8. DEPTH DRILLED INTO ROCK 0.0		17. ELEVATION TOP OF HOLE 19.1	
9. TOTAL DEPTH OF HOLE 36.0		18. TOTAL CORE RECOVERY FOR BORING 75	
19. SIGNATURE OF INSPECTOR C. Davis			

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	Blows Ft
19.1	0.0		Top of Hole				
			CH-Tan & Gray	MC 11.5%			4
14.1	5.0		Gray		1		6
12.6	6.5		Gray				6
			CL-Gray				10
8.6	10.5		CL-Gray	MC 43.6%	2		10
5.1	14.0		SP-SM Gray	MC 18.4%	3		16
2.6	16.5		SM- Cemented Sand w/Clay and Rock Lenses	MC 60.7%			100
-0.9	20.0		SM- Cemented Sand w/Clay and Rock Lenses		4		70
			W/Clay Layers - 1/2" to 3/4"				85
-5.4	24.5		W/Clay Layers - 1/2" to 3/4"		5		100
-7.9	27.0		Very Fine Sand - No Rock or Clay Lenses				50
-10.9	30.0		Very Fine Sand - No Rock or Clay Lenses		6		120
			Continue on Sheet 2				120




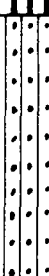
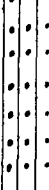

151

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		Hole No.	
		19.1		7-31	
Cooper River Redirection			INSTALLATION		SHEET
			Charleston District		OF 2 SHEETS
DEPTH	LEGEND	CLASSIFICATION OF MATERIALS	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS
		SM - Gray		6	180
33.0		Cement Sand W/ Heavy Shell Content		7	159
34.0					100+
End of Split Spoon Sampling			Due to Stiffness of Material		
Begin Core Sampling			Coring was started at 32.0		
Sandstone-Calcareous, Dark gray, abundant shell material			From 32.0 or 34.0 the soil was sampled twice.		
		SM-Gray		Pull - 1	
		Cement Sand W/Heavy Shell Content		Core Run 4.0	
				Box Rec 3.0	
				1 C/L 1.0	
Bottom of Hole 36.0'					

152

Hole No. T-32

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District	SHEET 1 OF 2 SHEETS
1 PROJECT Cooper River Rediversion		10. SIZE AND TYPE OF BIT 1 3/8" ϕ SSS & 4x5 1/2 BBL.		
2 LOCATION (Coordinates or Station) N 573,540 E 2,547,610		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3 DRILLING AGENCY Mobile District		12. MANUFACTURER'S DESIGNATION OF DRILL C.M.E.		
4 HOLE NO. (As shown on drawing title and file number) T-32		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 6	UNDISTURBED -
5 NAME OF DRILLER Pardon		14. TOTAL NUMBER CORE BOXES 0		
6 DIRECTION OF HOLE X VERTICAL INCLINED DEG. FROM VERT.		15. ELEVATION GROUND WATER 15.0'		
7 THICKNESS OF OVERBURDEN 36.0'		16. DATE HOLE 25 Aug 75		
8 DEPTH DRILLED INTO ROCK 0		17. ELEVATION TOP OF HOLE 20.3'		
9 TOTAL DEPTH OF HOLE 36.0'		18. TOTAL CORE RECOVERY FOR BORING -		
		19. SIGNATURE OF INSPECTOR C. Davis		

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 Ft
a	b	c	d	e	f	g	
20.5	0.0		Top of Hole				
15.3	5.0		CL - Silty Clay Tan	MC 31.5%	1		10 14 16
9.8	10.3				2	Water Table @ 5.3' 25 Aug 75	21 8
5.3	15.0		MH - Silty Micaceous Clay Tan	MC 52.2%	3 4		
0.3	20.0		SP-SM - Fine and Med. Sand w/Gravel Gray	MC 13.2%	5		39 44 46 46 46 46
-4.7	25.0				6		45 38 35
-9.7	30.0						36
			Continue on Sheet 2				

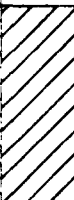




153

DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE		Hole No. T-32			
PROJECT		INSTALLATION		SHEET			
Copper River Rediversion		Charleston District		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	
						48	
							53
14.7	35.0					6	57
15.7	36.0						48
			Bottom of Hole 36.0'				

154

Hole No. T-33

DRILLING LOG		DIVISION South Atlantic	INSTALLATION Charleston District		SHEET 1 OF 2 SHEETS
1. PROJECT Cooper River Rediversion			10. SIZE AND TYPE OF BIT 3/8" ϕ sss & 4x5' BBL		
2. LOCATION (Coordinates or Station) N573,180 E.2,347,440			11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL		
3. DRILLING AGENCY Mobile District			12. MANUFACTURER'S DESIGNATION OF DRILL C.M.E.		
4. HOLE NO. (As shown on drawing title and file number) T-33			13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 4 UNDISTURBED -
5. NAME OF DRILLER Parden			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 11.2'		16. DATE HOLE STARTED COMPLETED 26 Aug 75 26 Aug 75
7. THICKNESS OF OVERBURDEN 19.8			17. ELEVATION TOP OF HOLE 17.2		
8. DEPTH DRILLED INTO ROCK 15.2			18. TOTAL CORE RECOVERY FOR BORING 57.2		
9. TOTAL DEPTH OF HOLE 35.0			19. SIGNATURE OF INSPECTOR C. Davis		

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
17.2	0.0		Top of Hole			
			C' - Fine Sandy Clay Tan	MC 31.9%	1	4 6 7
12.2	5.0		Tan & Gray			Water Table @ 6.0' 26 Aug 75 14
10.7	6.5		SP-SM - Fine and Medium Sand W/Gravel Gray	MC 18.6%	2	14 14
7.2	10.0				3	12 29
3.9	13.3		Top of Rock			+160
.2	15.0		Shale-black, soft to moderately hard, layered with convex segmented plumes of sand, fissile			Pull - 1 13.3 - 16.5 Run 3.2 Rec 1.3 C/L 1.9
			Clay - black, soft, with some sand layering		Core Box 1	Pull 2 16.5 - 21.2 Run 4.7 Rec 4.0 C/L 0.7
-4.8	20.0					
-3.6	21.2					
			CL-Silty Clay W/Alternating Sand layers Dark Gray	MC 66.5%	4	35 32 35 30
-9.8	25.0					
-7.1	27.7					Refusal @ 27.7
			Shale, black, soft to moderately hard, as 15.0'			Pull - 3 Rec 1.3 27.7 - 30.0 C/L 1.0 Run 2.3
-14.8	30.0					
			Continue on Sheet 2			

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DRILLING LOG (Cont Sheet)		ELEVATION TOP OF HOLE 17.2		Hole No. T-35	
INSTALLATION Copper River Rediversion			Charleston District		SHEET 2 OF 2 SHEETS
DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
35.0		Shale, black, soft to moderately hard, laminated with convex segmented plumes of sand.		Core Box 1	Pull - 4 30.0 - 35.0 Run 5.0 Rec 2.1 C/L 2.9
		Bottom of Hole	35.0'		

156

Hole No. T-34 A

DRILLING LOG		DIVISION		INSTALLATION		SHEET	
South Atlantic		Charleston District		OF 2 SHEETS		I	
1 PROJECT Cooper River Rediversion				10. SIZE AND TYPE OF BIT 1 3/8" ϕ SSS & 4X5" BBL			
2 LOCATION (Coordinates or Station) N572,280 E2,348,940				11 DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL			
3 DRILLING AGENCY Mobile District				12 MANUFACTURER'S DESIGNATION OF DRILL Failing 314			
4 HOLE NO. (As shown on drawing title and file number) T-34 A				13 TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN		DISTURBED 1	
5 NAME OF DRILLER Parden				14 TOTAL NUMBER CORE BOXES		5	
6 DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.				15 ELEVATION GROUND WATER		28.5	
7 THICKNESS OF OVERBURDEN 5.0				16 DATE HOLE		STARTED 3 Jun 75 COMPLETED 4 Jun 75	
8 DEPTH DRILLED INTO ROCK 41.0'				17 ELEVATION TOP OF HOLE		35.0'	
9 TOTAL DEPTH OF HOLE 46.0'				18 TOTAL CORE RECOVERY FOR BORING 64.9			
				19. SIGNATURE OF INSPECTOR C. Davis			
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	
35.0	0.0		Top of Hole				
			SC - Clayey Fine Sand Tan	MC 17.6%	1		13 24 38
30.0	5.0		Top of Rock				Refusal @ 5.0
			Limestone, gray, dense, hard				Pull - 1 C/L 1.9 5.0 - 8.4
			Siltstone, gray, soft, friable layered with sand				Run 3.4 Water Table Rec 1.5 @ 6.5 4 Jun 75
25.0	10.0				Core Box 1		Pull - 2 8.4 - 12.3 Run 3.9 Rec 1.2 C/L 1.7
			Shale, dark gray, soft, laminated with sands, fissile				Pull - 3 12.3 - 15.1 Rec 2.5 Run 2.8 C/L 0.5
20.0	15.0						Pull - 4 15.1 - 20.4 Run 5.3 Rec 0.0 C/L 5.3
15.0	20.0				Core Box 2		Pull - 5 20.4 - 25.4 Run 5.0 Rec 2.0 C/L 3.0
			Sandstone, gray, soft, friable contains tongues of shale				Pull - 6 25.4 - 29.9 Run 4.5 Rec 4.5 C/L 0.0
10.0	25.0				Core Box 3		
5.0	30.0						
Continue on Sheet 2				157			

DRILLING LOG (Cont Sheet)		DEPTH OF HOLE	Hole No.		
		55.0'	T-3-A		
INSTALLATION		CHARACTER OF MATERIALS		REMARKS	
Upper River Rediversion		Charleston District		1 SHEET OF 2 SHEETS	
ELEVATION	DEPTH	DESCRIPTION OF MATERIALS	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS
			ERY	I	(Drilling time with depth of weathering in feet/minutes)
		Sandstone interbedded with shale - soft	e	Core Pull - 7 BOX 29.9 - 35.8 3 & 4 Run 3.9 Rec 3.9	C/L 0.0
	35.0			Core Pull - 8 35.8 - 38.6 Run 4.8 Rec 4.8 C/L 0.0	
	1.0			Box 5 Pull - 9 38.6 - 43.5 Run 4.9 Rec 5.0 C/L 1.9	
		Shale black, soft with layers of sand.			
		Sandstone, gray, soft, loosely cemented very friable.			Pull - 10 Rec 5.2 43.5 - 46.0 C/L 0.7 Run 2.5

Area of Hole
46.0'

COOPER RIVER REDIVERSION PROJECT
INTAKE AND FAIRFACE CANALS

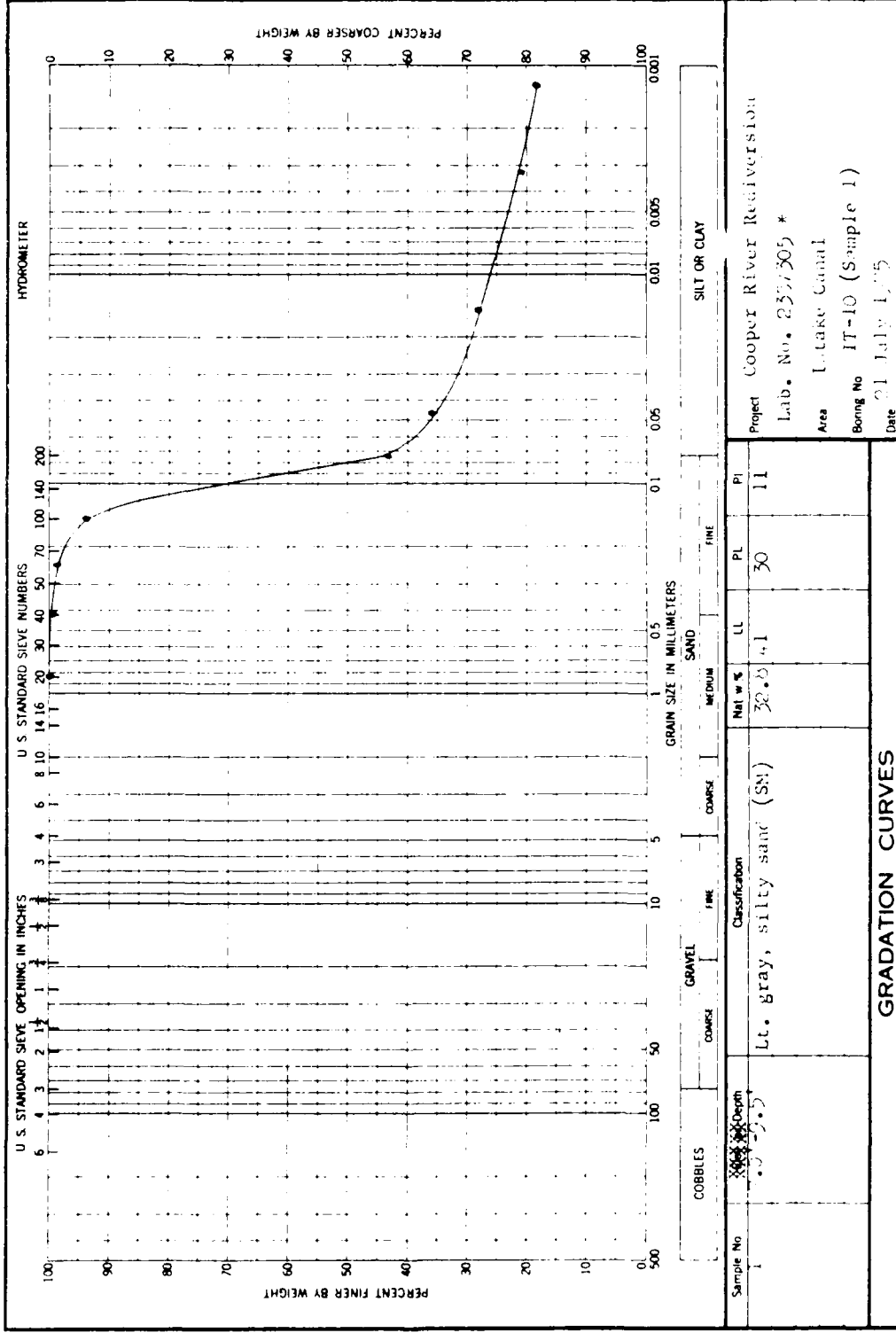
APPENDIX A
(PARTIAL)

LABORATORY TESTS

U. S. ARMY ENGINEER DISTRICT, CHARLESTON
CORPS OF ENGINEERS
CHARLESTON, SOUTH CAROLINA

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY
 CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARILITA, GA. 30061

WORK ORDER NO. 32
 Req. No. 3000000000



Sample No.	1	Classification	Lt. Gray, silty sand (SN)			Project			Cooper River Reversion			
Depth	3.0	Nat w %	32.0	LL	41	PL	30	PI	11	Lab. No.	2357305 *	
										Area	Lake Canal	
										Boring No.	IT-10 (Sample 1)	
										Date	21 July 1975	

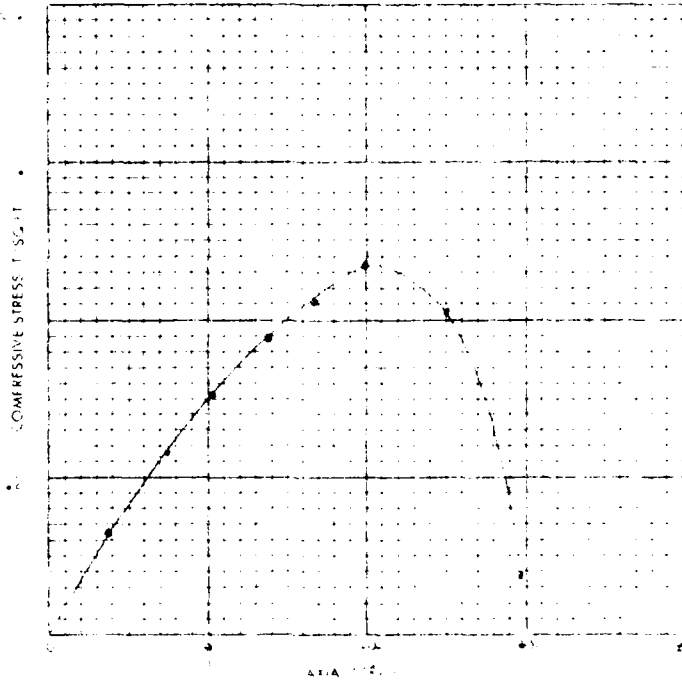
GRADATION CURVES

ENG 2087

* UC, Q, R, S, D, T, U, V, W, X, Y, Z

T-1

FAILURE SKETCHES



SAMPLE NO. _____
 DATE TESTED _____
 TESTER _____
 PROJECT _____
 LOCATION _____
 SPECIFICATION _____
 METHOD OF TEST _____
 TYPE OF SPECIMEN _____
 SIZE OF SPECIMEN _____
 CONDITION OF SPECIMEN _____
 COMMENTS _____

PROJECT	_____
DATE	_____
TESTER	_____
REMARKS	_____

UNCONFINED COMPRESSION TEST REPORT

ENCL. RM 3659
 1 JUN 53

T-3

FORM ORDER NO. 100-10
REQ. NO. 100-10

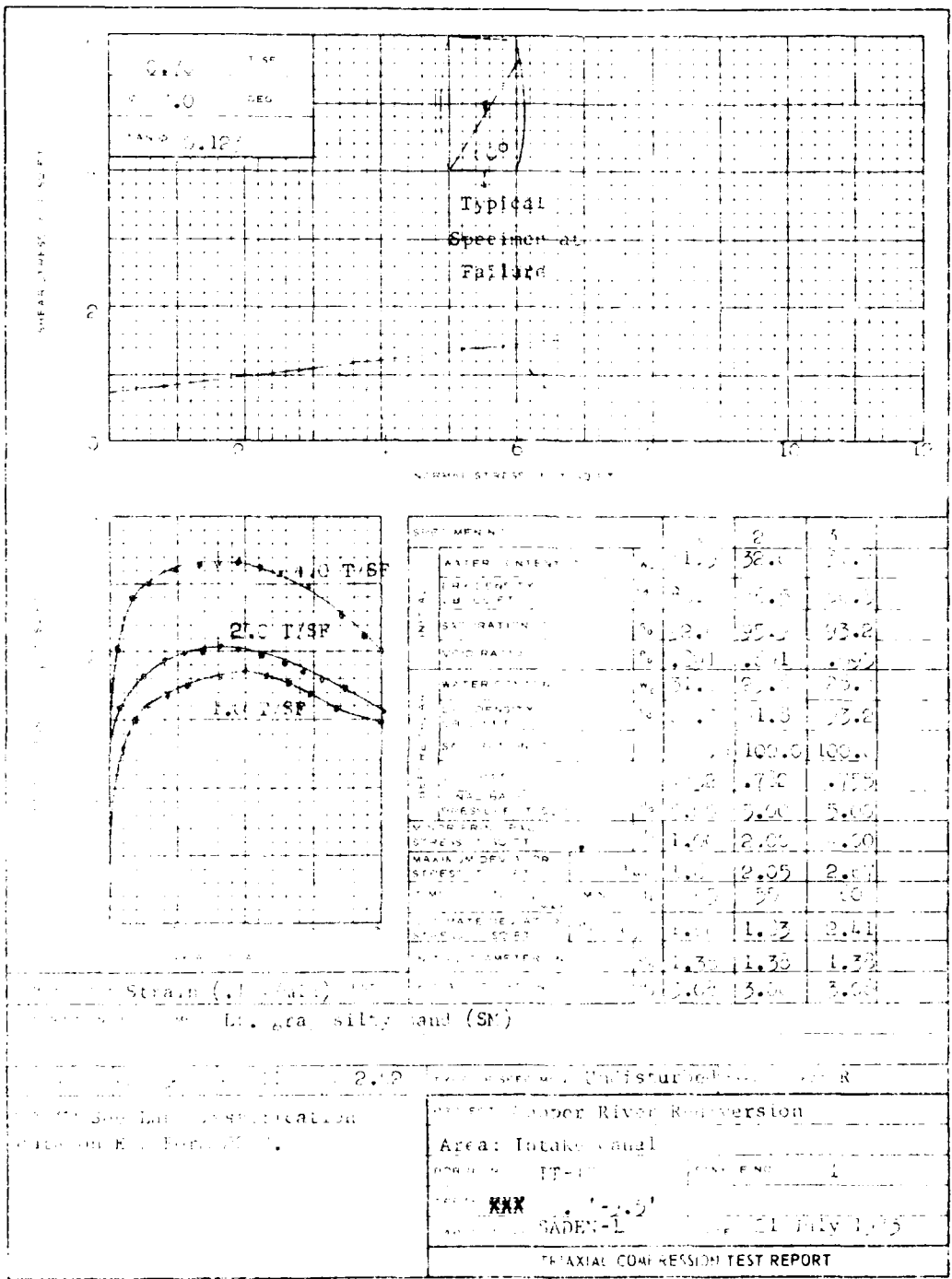
DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY,
CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30061

	<table border="1"> <thead> <tr> <th colspan="2">TEST SPECIMEN</th> <th>1</th> <th>2</th> <th>3</th> </tr> </thead> <tbody> <tr> <td>WATER CONTENT</td> <td>w</td> <td>30.0</td> <td>30.0</td> <td>30.0</td> </tr> <tr> <td>LIQUIDITY INDEX</td> <td>I_L</td> <td>1.0</td> <td>1.0</td> <td>1.0</td> </tr> <tr> <td>PLASTICITY INDEX</td> <td>I_p</td> <td>1.0</td> <td>1.0</td> <td>1.0</td> </tr> <tr> <td>UNSATURATED WATER</td> <td>U_w</td> <td>0.1</td> <td>0.1</td> <td>0.1</td> </tr> <tr> <td>WATER CONTENT</td> <td>w</td> <td>30.0</td> <td>30.0</td> <td>30.0</td> </tr> <tr> <td>LIQUIDITY INDEX</td> <td>I_L</td> <td>1.0</td> <td>1.0</td> <td>1.0</td> </tr> <tr> <td>PLASTICITY INDEX</td> <td>I_p</td> <td>1.0</td> <td>1.0</td> <td>1.0</td> </tr> <tr> <td>UNSATURATED WATER</td> <td>U_w</td> <td>0.1</td> <td>0.1</td> <td>0.1</td> </tr> <tr> <td>MAX. V. ELONGATION</td> <td>e_v</td> <td>1.00</td> <td>1.00</td> <td>1.00</td> </tr> <tr> <td>MIN. V. ELONGATION</td> <td>e_v</td> <td>1.30</td> <td>1.10</td> <td>1.10</td> </tr> <tr> <td>WATER CONTENT</td> <td>w</td> <td>11</td> <td>11</td> <td>11</td> </tr> <tr> <td>LIQUIDITY INDEX</td> <td>I_L</td> <td>1.20</td> <td>1.00</td> <td>1.00</td> </tr> <tr> <td>PLASTICITY INDEX</td> <td>I_p</td> <td>1.30</td> <td>1.30</td> <td>1.30</td> </tr> <tr> <td>UNSATURATED WATER</td> <td>U_w</td> <td>3.00</td> <td>3.00</td> <td>3.00</td> </tr> </tbody> </table>	TEST SPECIMEN		1	2	3	WATER CONTENT	w	30.0	30.0	30.0	LIQUIDITY INDEX	I _L	1.0	1.0	1.0	PLASTICITY INDEX	I _p	1.0	1.0	1.0	UNSATURATED WATER	U _w	0.1	0.1	0.1	WATER CONTENT	w	30.0	30.0	30.0	LIQUIDITY INDEX	I _L	1.0	1.0	1.0	PLASTICITY INDEX	I _p	1.0	1.0	1.0	UNSATURATED WATER	U _w	0.1	0.1	0.1	MAX. V. ELONGATION	e _v	1.00	1.00	1.00	MIN. V. ELONGATION	e _v	1.30	1.10	1.10	WATER CONTENT	w	11	11	11	LIQUIDITY INDEX	I _L	1.20	1.00	1.00	PLASTICITY INDEX	I _p	1.30	1.30	1.30	UNSATURATED WATER	U _w	3.00	3.00	3.00
TEST SPECIMEN		1	2	3																																																																								
WATER CONTENT	w	30.0	30.0	30.0																																																																								
LIQUIDITY INDEX	I _L	1.0	1.0	1.0																																																																								
PLASTICITY INDEX	I _p	1.0	1.0	1.0																																																																								
UNSATURATED WATER	U _w	0.1	0.1	0.1																																																																								
WATER CONTENT	w	30.0	30.0	30.0																																																																								
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PLASTICITY INDEX	I _p	1.0	1.0	1.0																																																																								
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MAX. V. ELONGATION	e _v	1.00	1.00	1.00																																																																								
MIN. V. ELONGATION	e _v	1.30	1.10	1.10																																																																								
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LIQUIDITY INDEX	I _L	1.20	1.00	1.00																																																																								
PLASTICITY INDEX	I _p	1.30	1.30	1.30																																																																								
UNSATURATED WATER	U _w	3.00	3.00	3.00																																																																								
INSTRUMENTED Strain (.05/min) TEST REPORT ON TEST SPECIMENS: Lt. Gray silty sand (SM)																																																																												
11 30 11 2.42 THE SPECIMEN WAS Undisturbed																																																																												
REMARKS: See Lab Classification Data on Eng Form 20-17	PROJECT: Cooper River Rediversion AREA: Intake Canal DRAWING: IT-10 TEST NO.: 100-10 ANALYST: SADDEN-L TRIAXIAL COMPRESSION TEST REPORT																																																																											

TEST ROOM NO. 100-10 TRANSLUCENT TEMPERATURE 70°F
 DATE TESTED 10/10/53 Lab. No. 100-10

T-3

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY,
 CORPS OF ENGINEERS, 611 SOUTH GOBB DRIVE, WASHINGTON, GA. 30761
 WORK ORDER NO. 2500-3
 REQ. NO. 2500-3-5



WORK ORDER NO. 1000
REQ. NO. SAN 47-10-4

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY,
CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30061

SHEAR STRENGTH PARAMETERS
maximum ultimate
c = 27.0' 22.5'
tan φ = 1.35 1.14
c' = 0.0 0.0 T/SQ FT

CONTROLLED STRESS
 CONTROLLED STRAIN

TEST NO	1	2			
INITIAL	WATER CONTENT	w = 33.5 %	33.5 %	%	%
	VOID RATIO	e = 1.09	1.01		
	SATURATION	S = 85.7 %	88.1 %	%	%
	DRY DENSITY, LB/ CU FT	γ _s = 122.2	122.0		
VOID RATIO AFTER CONSOLIDATION		e = 0.771	0.701		
TIME FOR 50 PERCENT CONSOLIDATION, MIN		t ₅₀ = 3	1		
FINAL	WATER CONTENT	w = 25.1 %	28.2 %	%	%
	VOID RATIO	e = 0.57	0.60		
	SATURATION	S = 100.0 %	100.0 %	%	%
	NORMAL STRESS, T/SQ FT	σ = 4.0	4.0		
MAXIMUM SHEAR STRESS, T/SQ FT		τ _{max} = 1.71	2.10		
ACTUAL TIME TO FAILURE, MIN		t _f = 210	210		
RATE OF STRAIN, IN / MIN		0.000	0.001		
ULTIMATE SHEAR STRESS, T/SQ FT		τ _{ult} = 1.1	1.1		

TYPE OF SPECIMEN Undisturbed 3.00 IN SQUARE 0.50 IN THICK

CLASSIFICATION Lt. Gray silty sand (SM)

LL 41 PL 30 PI 11 D₁₅ < .001 mm G. 100

SEE LAB CLASSIFICATION DATA ON ENG FORM 2081

REMARKS

PROJECT Cooper River Rediversion

Lab. No. 277/30

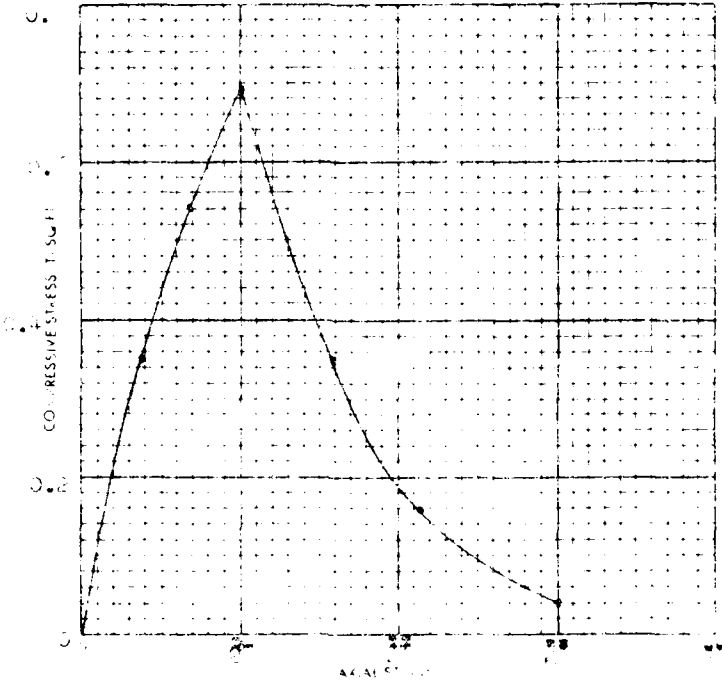
AREA Intake Canal

BORING NO. IT-10 SAMPLE NO. 1

DEPTH 1.0' - 1.5' DATE 21 July 1950

DIRECT SHEAR TEST REPORT

FAILURE SKETCHES



TEST NO. _____
 DATE OF TEST _____
 NAME OF OPERATOR _____
 NAME OF LABORATORY _____
 NAME OF PROJECT _____
 NAME OF COMMAND _____
 NAME OF DIVISION _____
 NAME OF STATION _____
 NAME OF BRANCH _____
 NAME OF OFFICE _____
 NAME OF PERSONNEL _____
 NAME OF SUPERVISOR _____
 NAME OF TESTER _____
 NAME OF WITNESS _____
 NAME OF APPROVER _____
 NAME OF REVIEWER _____
 NAME OF DISTRIBUTOR _____
 NAME OF USER _____
 NAME OF ARCHIVER _____
 NAME OF DESTROYER _____
 NAME OF RECALLER _____
 NAME OF RECALL DATE _____
 NAME OF RECALL TIME _____
 NAME OF RECALL LOCATION _____
 NAME OF RECALL METHOD _____
 NAME OF RECALL STATUS _____
 NAME OF RECALL COMMENTS _____
 NAME OF RECALL SIGNATURE _____
 NAME OF RECALL DATE _____
 NAME OF RECALL TIME _____
 NAME OF RECALL LOCATION _____
 NAME OF RECALL METHOD _____
 NAME OF RECALL STATUS _____
 NAME OF RECALL COMMENTS _____

PROJECT NO. _____
 AREA _____
 DATE OF TEST _____
 NAME OF OPERATOR _____
 NAME OF LABORATORY _____
 NAME OF PROJECT _____
 NAME OF COMMAND _____
 NAME OF DIVISION _____
 NAME OF STATION _____
 NAME OF BRANCH _____
 NAME OF OFFICE _____
 NAME OF PERSONNEL _____
 NAME OF SUPERVISOR _____
 NAME OF TESTER _____
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 NAME OF DISTRIBUTOR _____
 NAME OF USER _____
 NAME OF ARCHIVER _____
 NAME OF DESTROYER _____
 NAME OF RECALLER _____
 NAME OF RECALL DATE _____
 NAME OF RECALL TIME _____
 NAME OF RECALL LOCATION _____
 NAME OF RECALL METHOD _____
 NAME OF RECALL STATUS _____
 NAME OF RECALL COMMENTS _____

SOIL TYPE: clay
 MOISTURE: 20

PROJECT NO. 3659

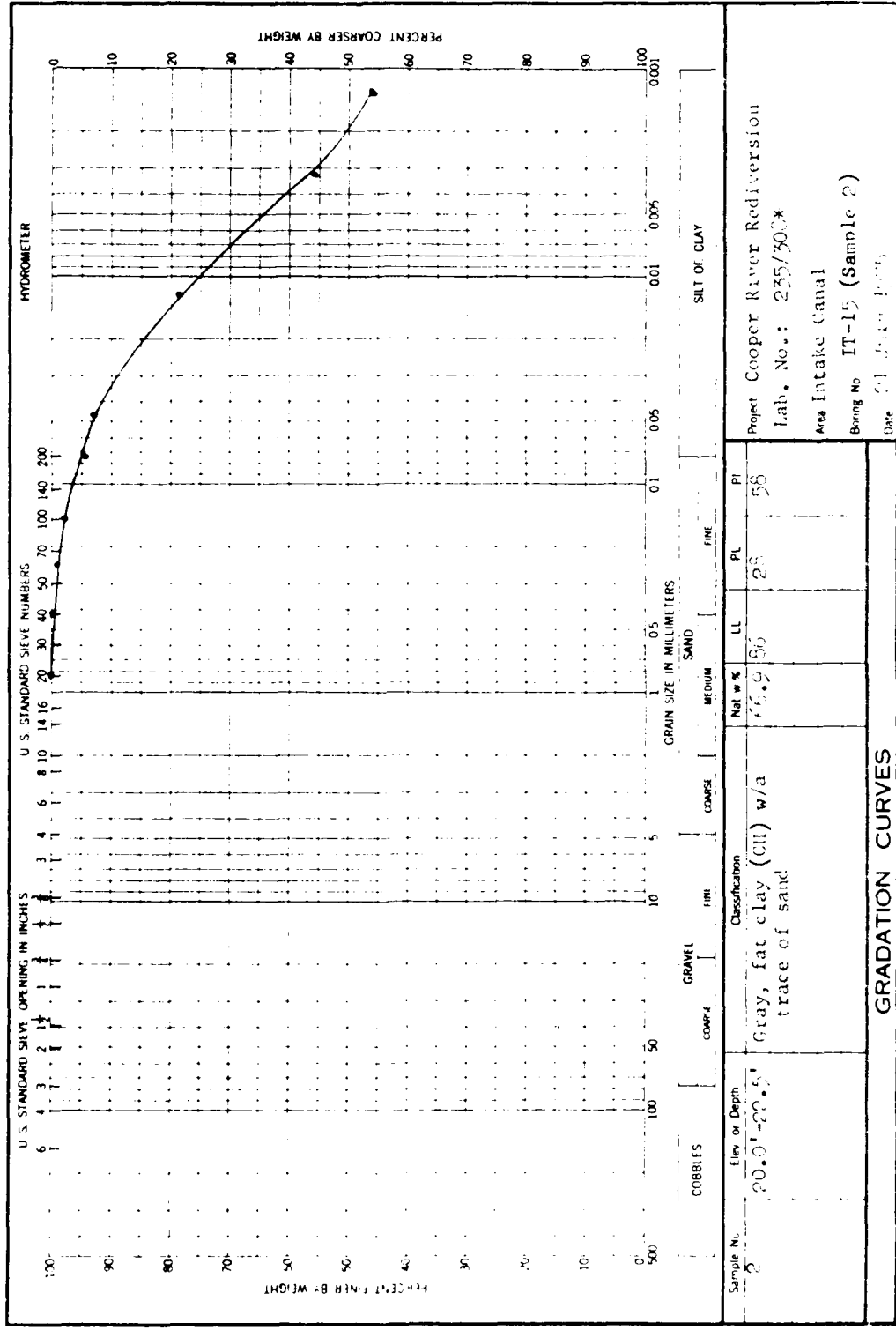
PROJECT	UNCONF. COMP. TEST REPORT	
AREA	3659	
DATE	10-1	21 July 1970
UNCONFINED COMPRESSION TEST REPORT		

3659

T-6

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY
 CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, Marietta, GA. 30061

WORK ORDER NO. 1003
 Req. No. SAND-10-20



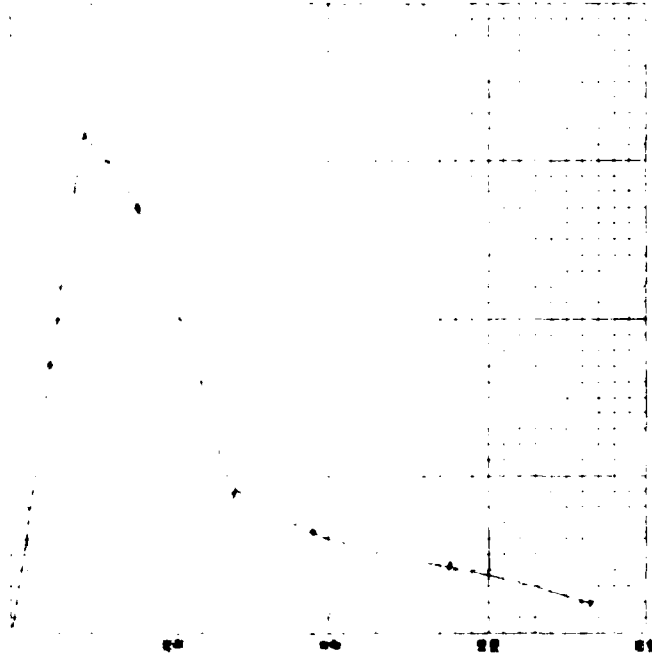
GRADATION CURVES

ENG. NO. 2087

XUG, Q, R, S, & GPD Tests

1-7

FAILURE MODE



TEST NO. _____
 DATE TESTED _____
 PROJECT _____
 LOCATION _____
 DEPTH _____
 SOIL TYPE _____
 MOISTURE _____
 SPECIFIC GRAVITY _____
 UNIT WEIGHT _____
 TEST METHOD _____
 TESTER _____
 CHECKED _____
 APPROVED _____

PROJECT _____
 LOCATION _____
 DATE _____
 TESTER _____
 CHECKED _____
 APPROVED _____

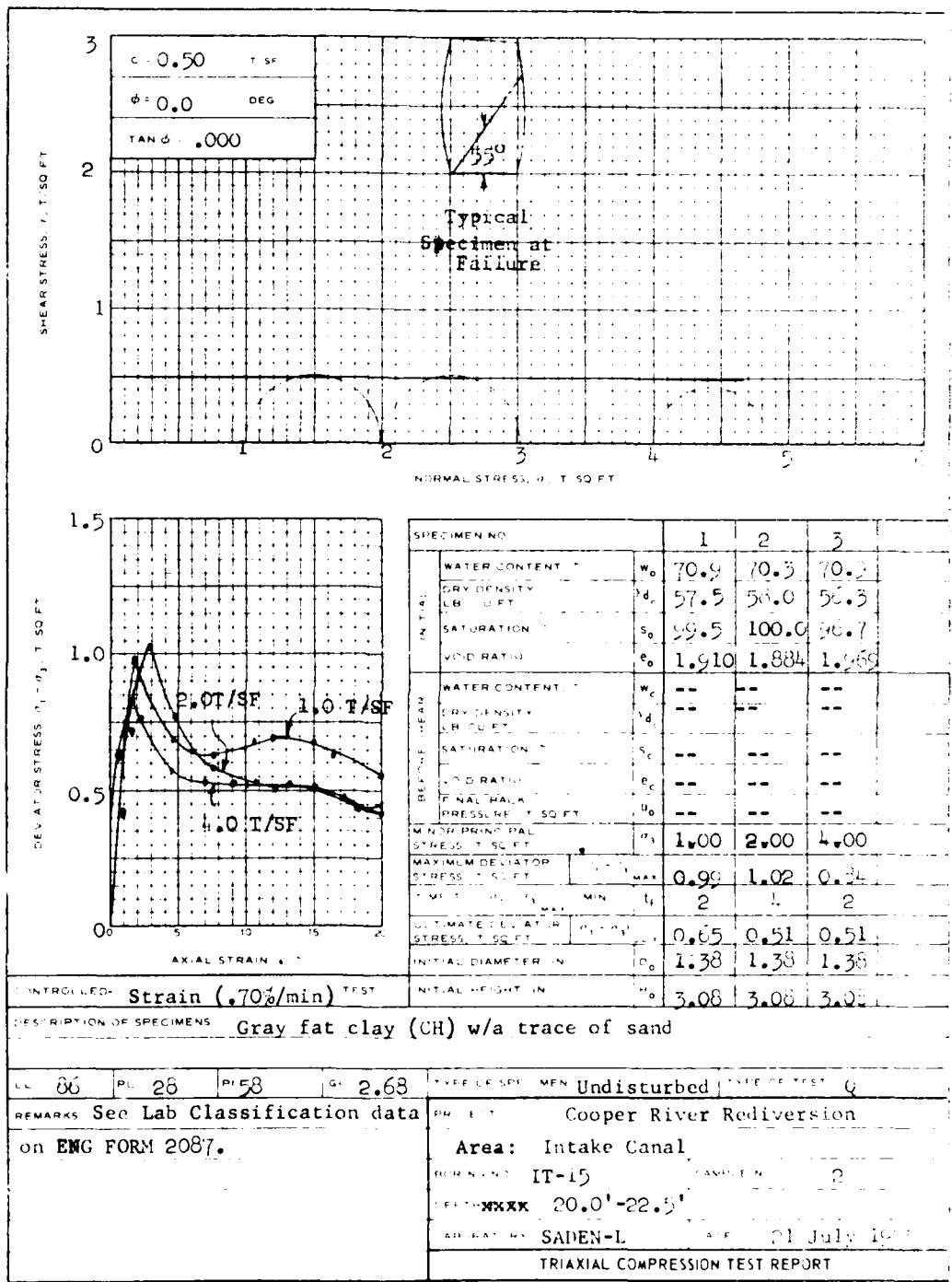
UNCONFINED COMPRESSION TEST REPORT

3659

78

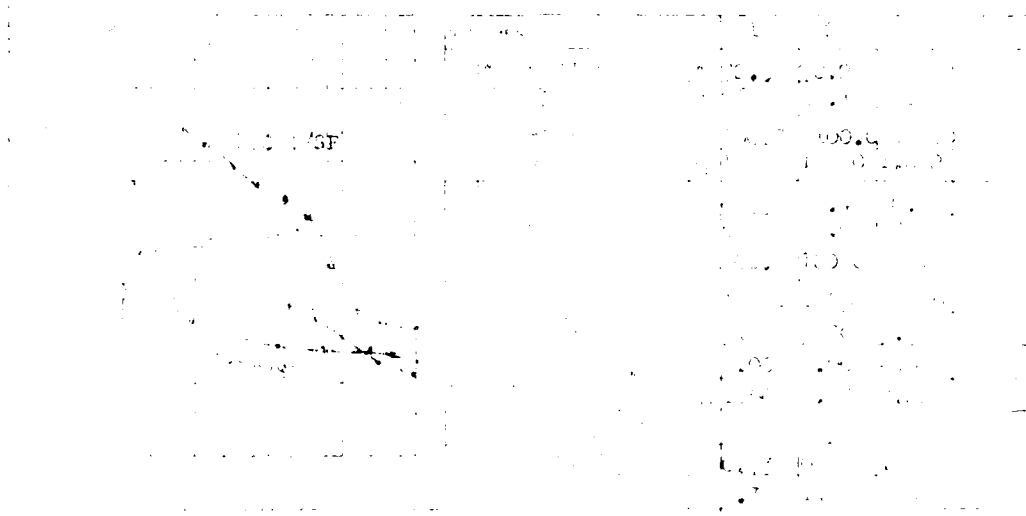
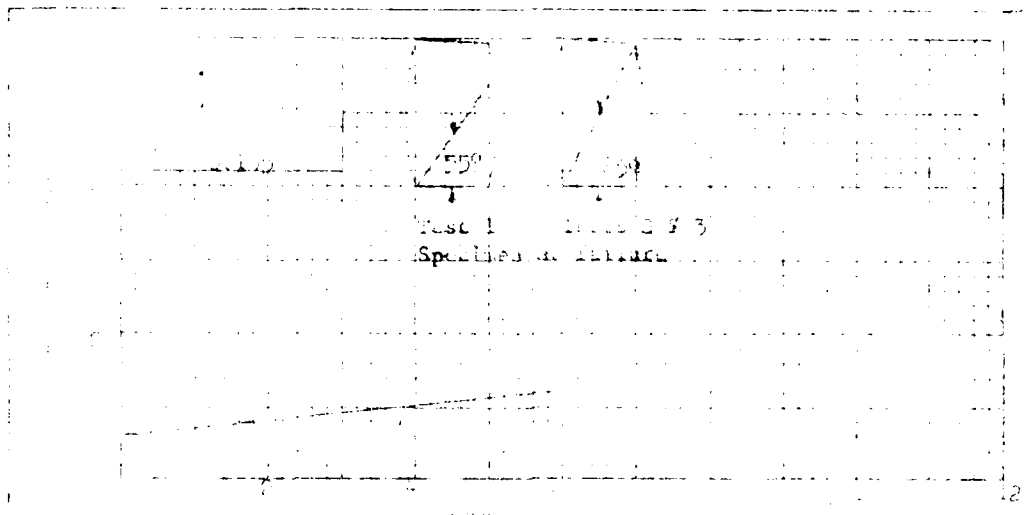
WOMEN ORIGIN INVENTION
 REG. NO. 2,811,172

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY,
 CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30061



FORM NO. 2089 PREVIOUS EDITION OBSOLETE TRANSLUCENT TM 1110-1-1966
 Lab. No.: 235/308

T-9



The following table shows the data points for the graphs above. The x-axis represents Time (0 to 10) and the y-axis represents Temperature (0.5 to 1.0).

Time	Temperature (Series 1)	Temperature (Series 2)	Temperature (Series 3)
0	1.0	1.0	0.8
2	0.95	0.95	0.75
4	0.9	0.9	0.7
6	0.85	0.85	0.65
8	0.8	0.8	0.6
10	0.75	0.75	0.55

Page 2 of 2

T-10

WORK ORDER NO. 1002
REQ. NO. S-100-15-30

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY,
CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30061

SHEAR STRENGTH PARAMETERS		1	2
maximum	ultimate		
σ		20.5	16.5
$\tan \phi$.374	.291
c		0.0	0.0
		T/SQ FT	

CONTROLLED STRESS
 CONTROLLED STRAIN

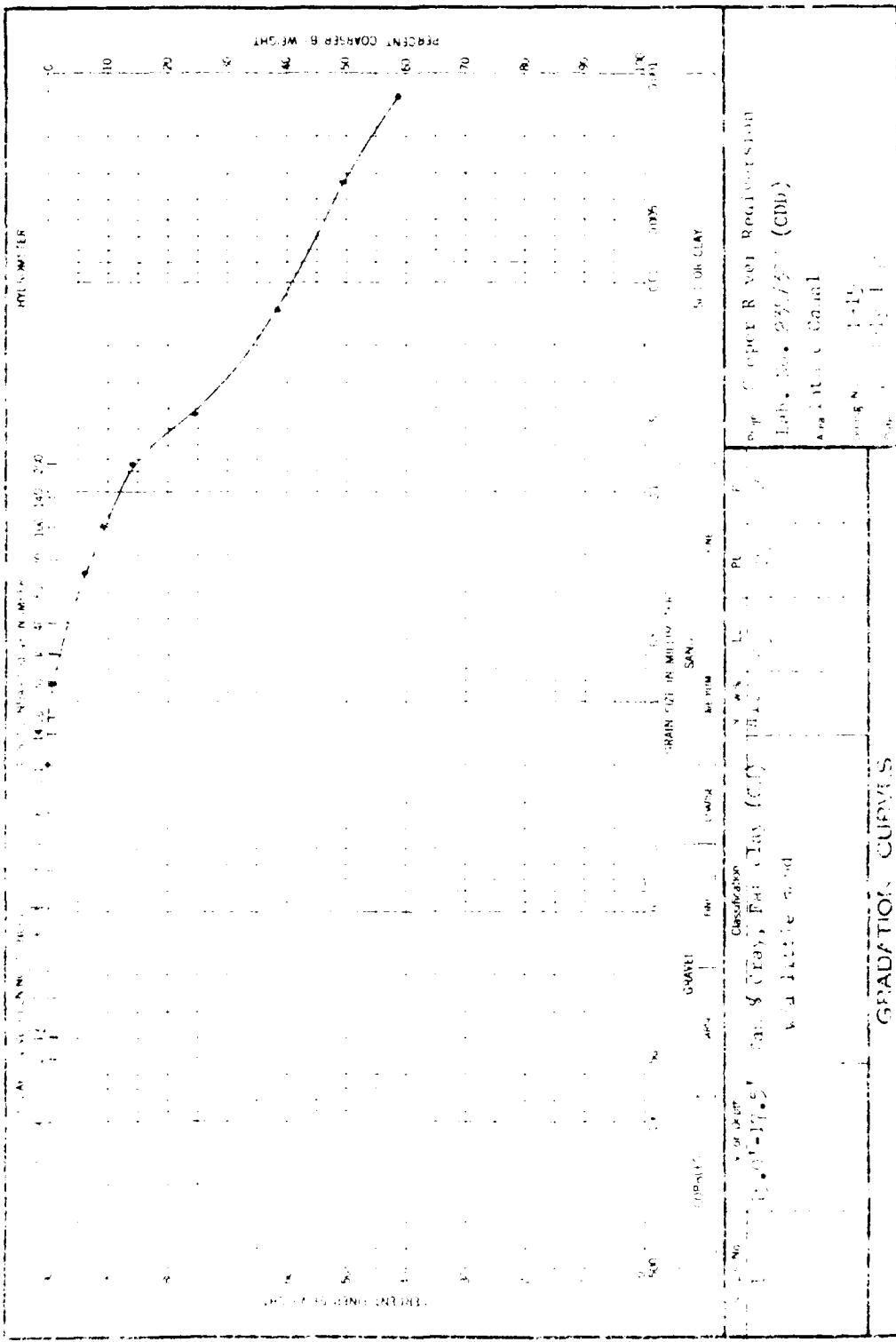
TEST NO		1	2
INITIAL	WATER CONTENT	68.5%	68.5%
	VOID RATIO	1.091	1.904
	SATURATION	97.2%	97.5%
	DRY DENSITY, LB/ CU FT	57.9	57.6
VOID RATIO AFTER CONSOLIDATION		1.094	0.930
TIME FOR 50 PERCENT CONSOLIDATION, MIN		12	16
FINAL	WATER CONTENT	38.0%	33.1%
	VOID RATIO	1.018	.867
	SATURATION	100.0%	100.0%
	NORMAL STRESS T/SQ FT	1.0	1.0
MAXIMUM SHEAR STRESS, T/SQ FT		1.52	1.44
ACTUAL TIME TO FAILURE, MIN		240	150
RATE OF STRAIN, IN/ MIN		.0004	.0007
ULTIMATE SHEAR STRESS, T/SQ FT		1.27	1.10

TYPE OF SPECIMEN Undisturbed 3.00 IN SQUARE 0.125 IN THICK
 CLASSIFICATION Gray fat clay (CH) w/a trace of sand
 LL 36 PL 28 PI 58 D₁₀ <.001 mm G. 2.0

SEE LAB CLASSIFICATION DATA ON REMARKS ENG FORM 2087

PROJECT Cooper River Rediversion
 Lab. No. 235/308
 AREA Intake Canal
 BORING NO IT-15 SAMPLE NO 2
 DEPTH 20.0'-22.5' DATE 21 July 1965

DIRECT SHEAR TEST REPORT



Project: Project R vel. Reclamation
 Lab. No. 231/23 (CDD)
 Area: State Canal
 Date: 1-15
 By: 1011

Classification: Clay with little sand
 Description: Clay
 No. of Tests: 1
 Name: San. & Cray, Fat Clay (Clay)
 Location: State Canal

No. of Sieves: 13
 No. of Weighings: 13
 Name: San. & Cray, Fat Clay (Clay)
 Location: State Canal

Classification: Clay with little sand
 Description: Clay
 No. of Tests: 1
 Name: San. & Cray, Fat Clay (Clay)
 Location: State Canal

Classification: Clay with little sand
 Description: Clay
 No. of Tests: 1
 Name: San. & Cray, Fat Clay (Clay)
 Location: State Canal

Classification: Clay with little sand
 Description: Clay
 No. of Tests: 1
 Name: San. & Cray, Fat Clay (Clay)
 Location: State Canal

Classification: Clay with little sand
 Description: Clay
 No. of Tests: 1
 Name: San. & Cray, Fat Clay (Clay)
 Location: State Canal

Classification: Clay with little sand
 Description: Clay
 No. of Tests: 1
 Name: San. & Cray, Fat Clay (Clay)
 Location: State Canal

Classification: Clay with little sand
 Description: Clay
 No. of Tests: 1
 Name: San. & Cray, Fat Clay (Clay)
 Location: State Canal

Classification: Clay with little sand
 Description: Clay
 No. of Tests: 1
 Name: San. & Cray, Fat Clay (Clay)
 Location: State Canal

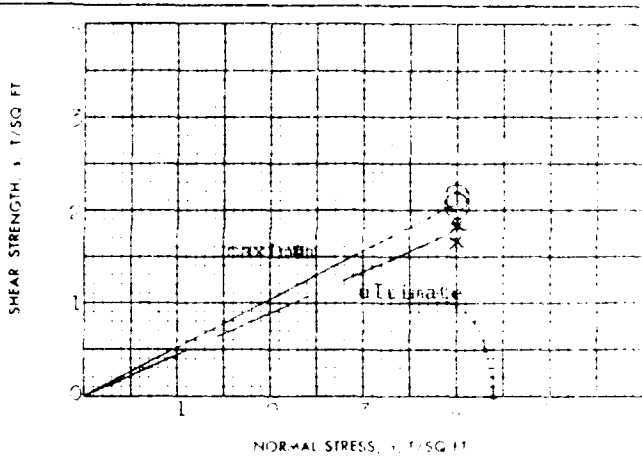
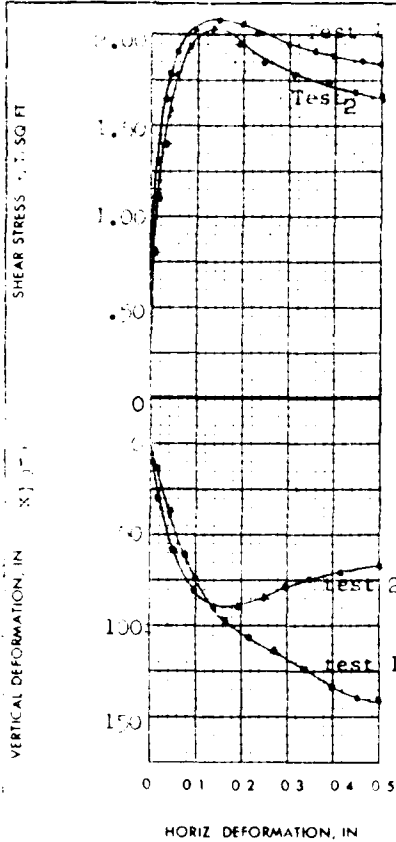
Classification: Clay with little sand
 Description: Clay
 No. of Tests: 1
 Name: San. & Cray, Fat Clay (Clay)
 Location: State Canal

ENG 2087

T-12

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY,
CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARINE, GA. 30061

FORM ORDER NO. 310
MAY 65



SHEAR STRENGTH PARAMETERS	
max. mu	ultimate
27.5	24.0
TAN	.521
	.445
	0.0
	0.0
	T/SQ FT

- CONTROLLED STRESS
 CONTROLLED STRAIN

TEST NO.	
WATER CONTENT	W 37.0
VOID RATIO	e 1.11
SATURATION	S 100.0%
DRY DENSITY	1.20
VOID RATIO AFTER CONSOLIDATION	e 1.13
TIME FOR 50 PERCENT CONSOLIDATION MIN	t 1
WATER CONTENT	W 31.0
VOID RATIO	e 1.13
SATURATION	S 100.0%
NORMAL STRESS T/SQ FT	0.0
MAXIMUM SHEAR STRESS T/SQ FT	1.8
ACTUAL TIME TO FAILURE MIN	13
RATE OF STRAIN IN MIN	.001
ULTIMATE SHEAR STRESS T/SQ FT	1.8

TYPE OF SPECIMEN Undisturbed

CLASSIFICATION Tan & Gray fat clay (cl) w/a little sand

PL 2092

REMARKS See Lab Classification data on Form 2092

PROJECT Cooper River Pedersen

Lab. No. 234/507

AREA Intake Canal

INSTALLATION IT-15

DEPT 11.1-11.9

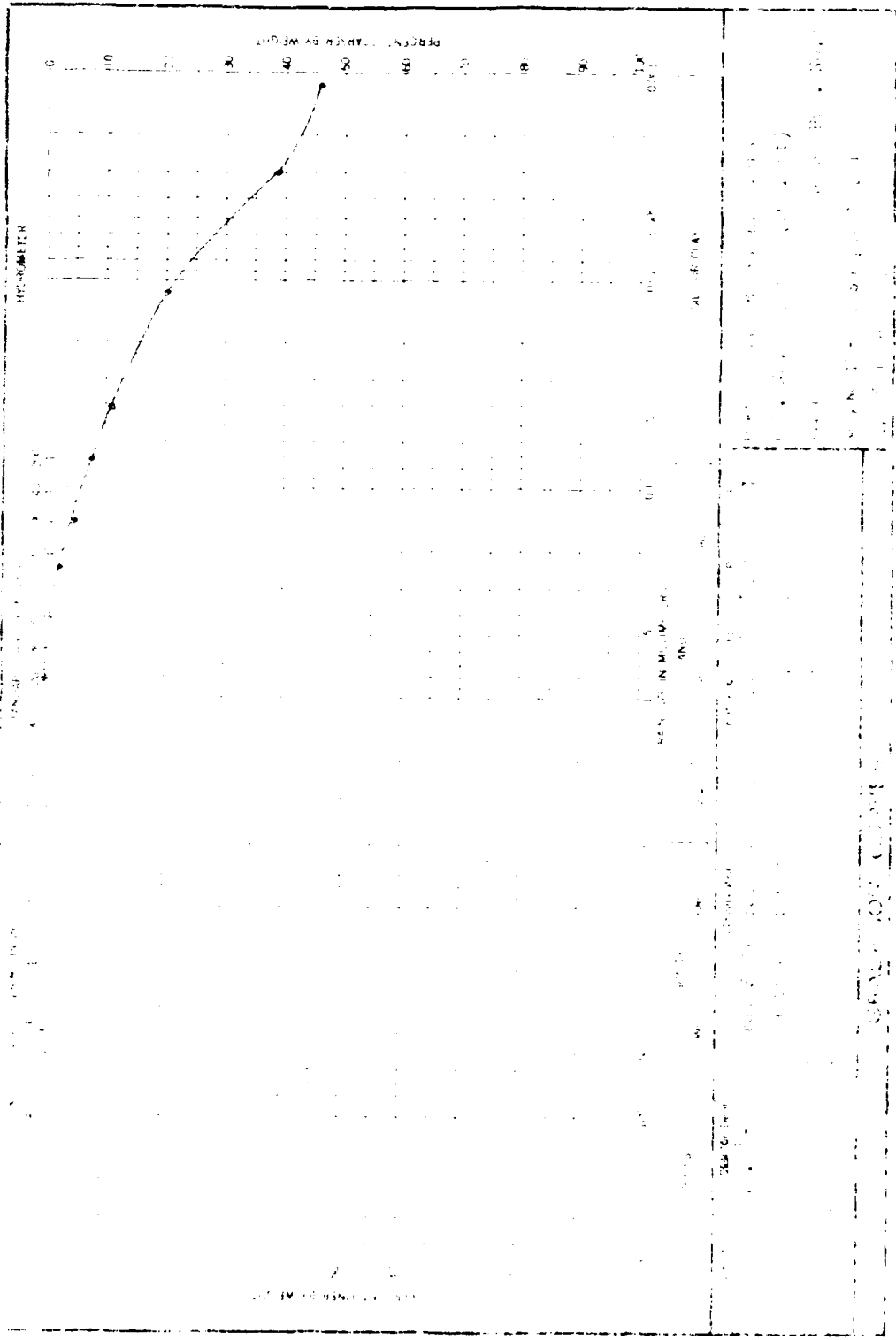
DIRECT SHEAR TEST REPORT

REPORT No. 1000

DATE: 10/10/50

BY: J. H. ...

FOR: ...



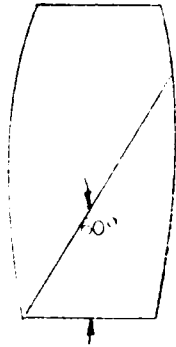
1-17

EN 127

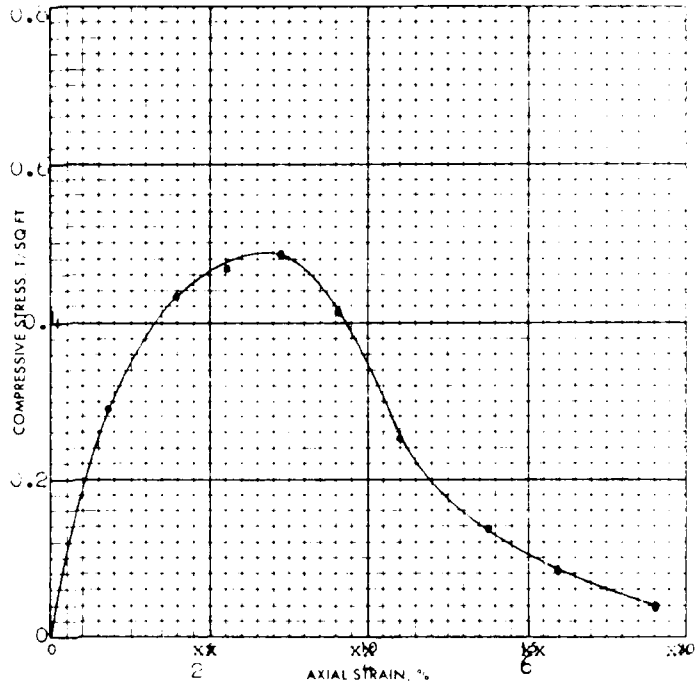
WORK ORDER NO. SA50A-7-56
 REQ. NO. 2007

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY,
 CORPS OF ENGINEERS, 11 SOUTH COBB DRIVE, MARIETTA, GA 30057

FAILURE SKETCHES



- CONTROLLED STRESS
- CONTROLLED STRAIN



TEST NO	1
TYPE OF SPECIMEN	Undisturbed
WATER CONTENT	64.3
VOID RATIO	1.705
SATURATION	90.9
DRY DENSITY, LB CU FT	0.16
TIME TO FAILURE, MIN	4
UNCONFINED COMPRESSIVE STRENGTH, T/SQ FT	0.50
UNDRAINED SHEAR STRENGTH, T/SQ FT	0.25
SENSITIVITY RATIO	
INITIAL SPECIMEN DIAMETER, IN	1.50
INITIAL SPECIMEN HEIGHT, IN	3.05

CLASSIFICATION Gray & Tan fat clay (OH) w/a trace of sand
 LL 75 PI 27

REMARKS See Lab Classification data on ENG Form 2057

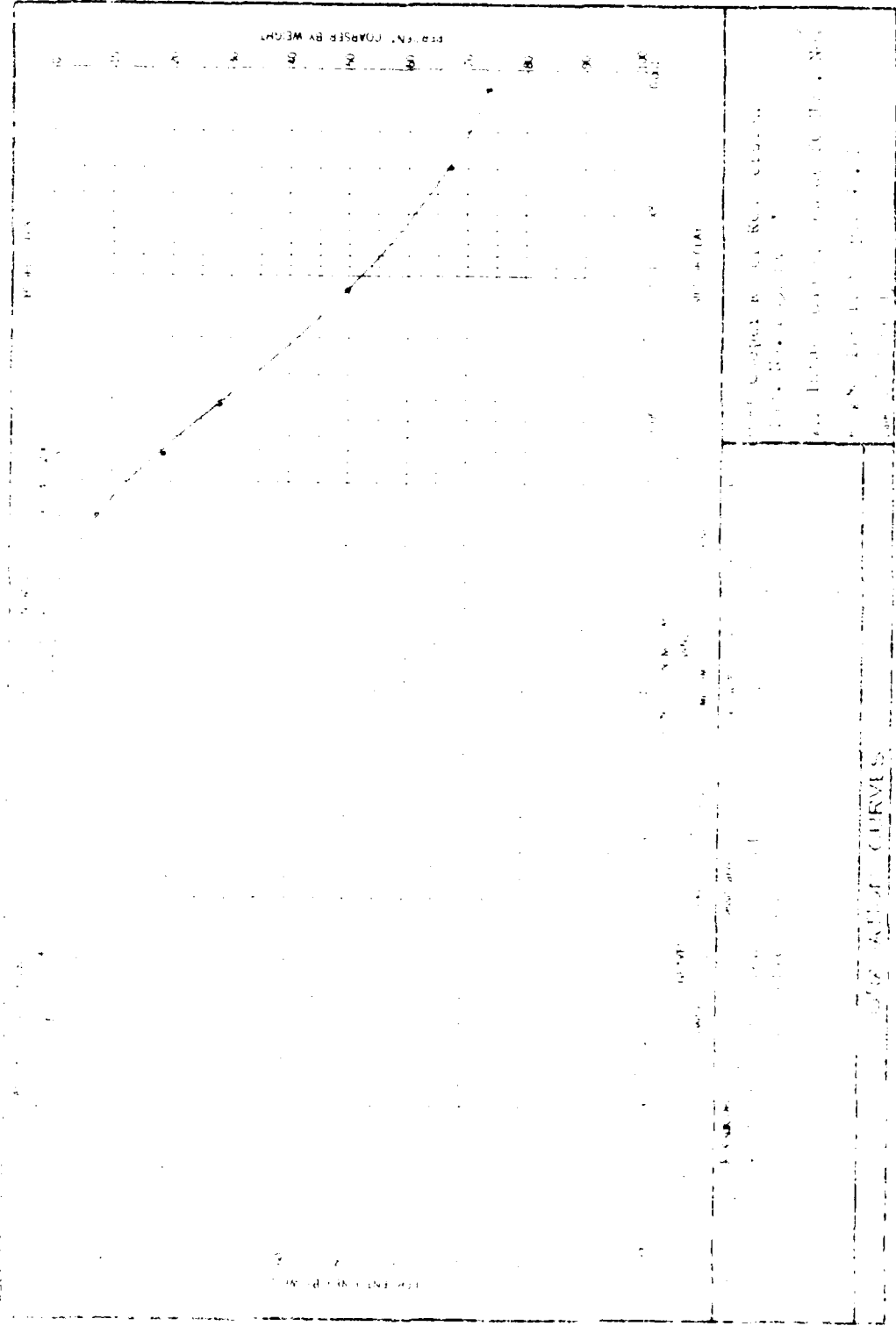
PROJECT	Cooper River Rediversion
Lab. No.	2357301
AREA	Intake Canal, beside SC Hwy. No. 30
BORING NO	IT-21
DEPTH	1.0' - 1.1'
DATE	22 Jun 65
SAMPLE NO	1

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 3659
 1 JUN 65

T-15

TEST REPORT



7-16

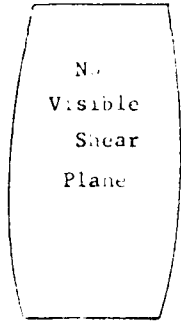
TEST REPORT



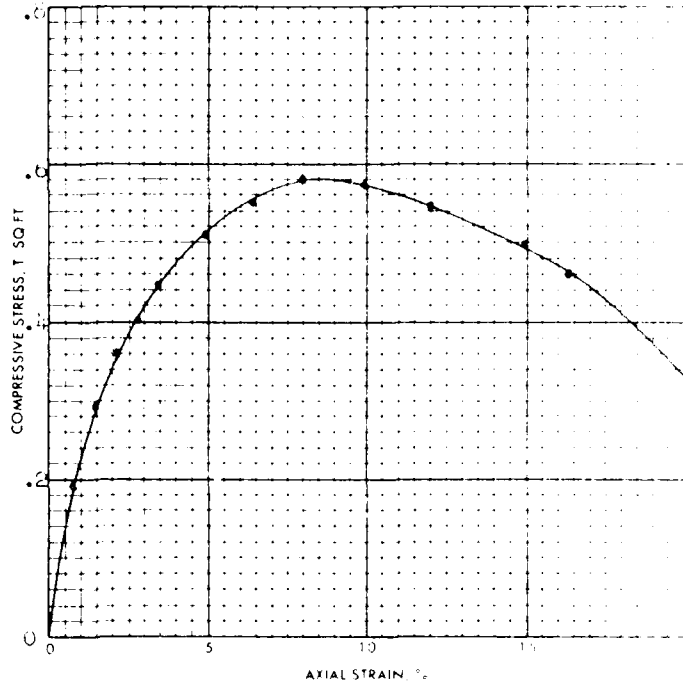
WORK ORDER NO. 200-2
 REQ. NO. SARCA-100-10

ENGINEERS OF THE ARMY, SOUTH FLORIDA DIVISION OF LABORATORY,
 COURTS OF ENGINEERS, 700 SOUTH COLE DRIVE, MARLETTA, GA 30054

FAILURE SKETCHES



CONTROLLED STRESS
 CONTROLLED STRAIN



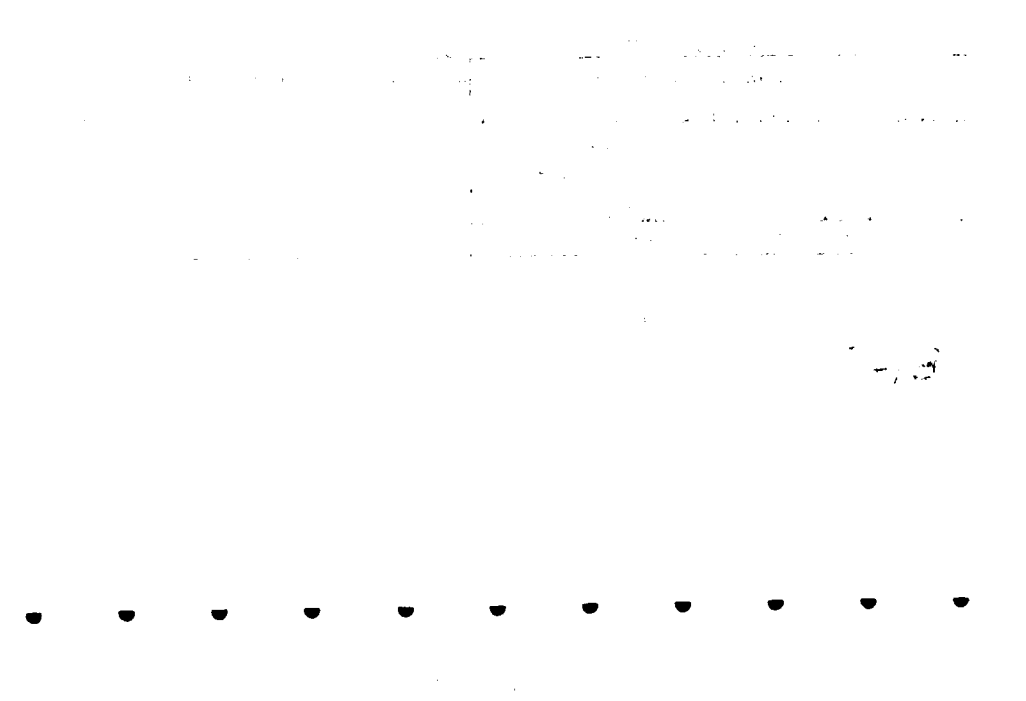
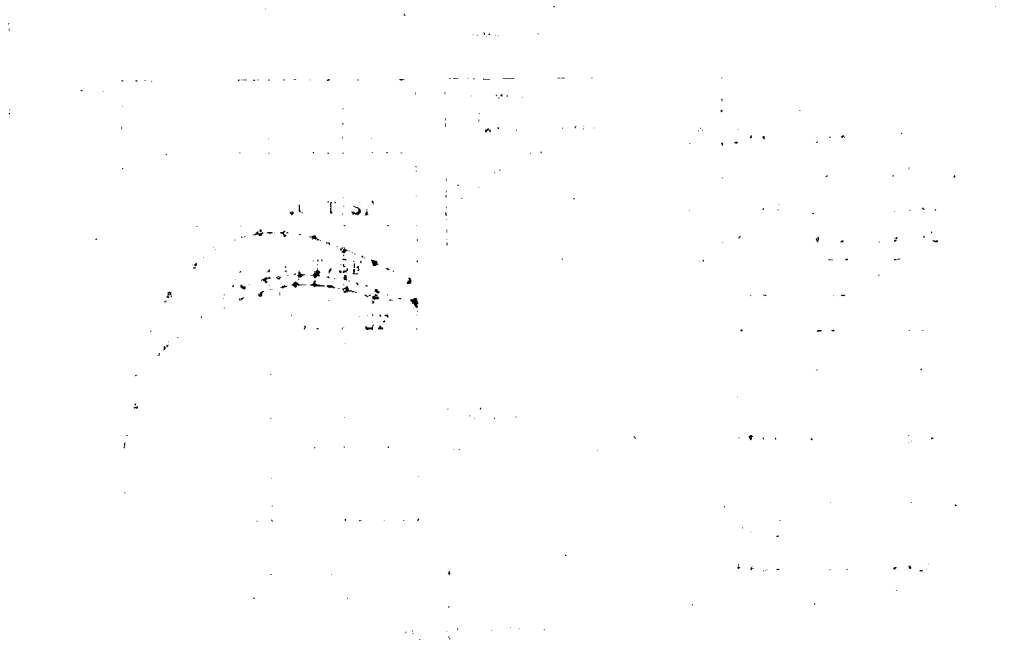
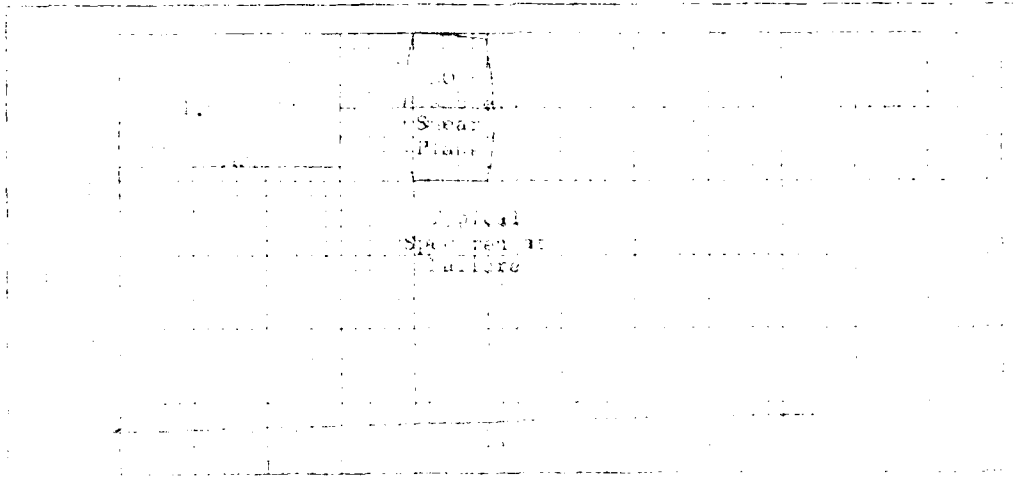
TEST NO.	1
TYPE OF SPECIMEN	Undisturbed
WATER CONTENT	w 31.1
VOID RATIO	e 0.870
SATURATION	S 96.5
DRY DENSITY, LB. CU. FT.	γ _d 90.1
TIME TO FAILURE, MIN.	t 11
UNCONFINED COMPRESSIVE STRENGTH, T. SQ. FT.	q _u 58.8
UNDRAINED SHEAR STRENGTH, T. SQ. FT.	s _u 30.0
SENSITIVITY RATIO	S _r -
INITIAL SPECIMEN DIAMETER, IN.	D 1.50
INITIAL SPECIMEN HEIGHT, IN.	H 3.00

CLASSIFICATION: Gray lean clay (CL) w/little sand
 Pl 20

REMARKS: See Lab Classification data on ENG Form 2007

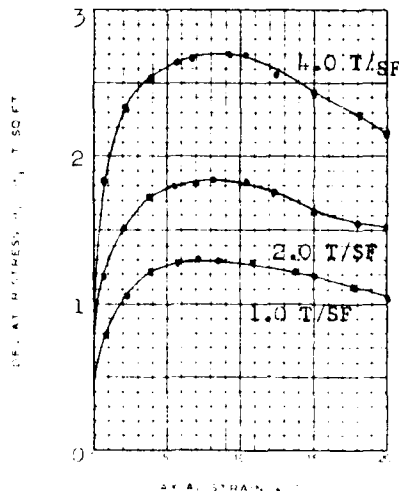
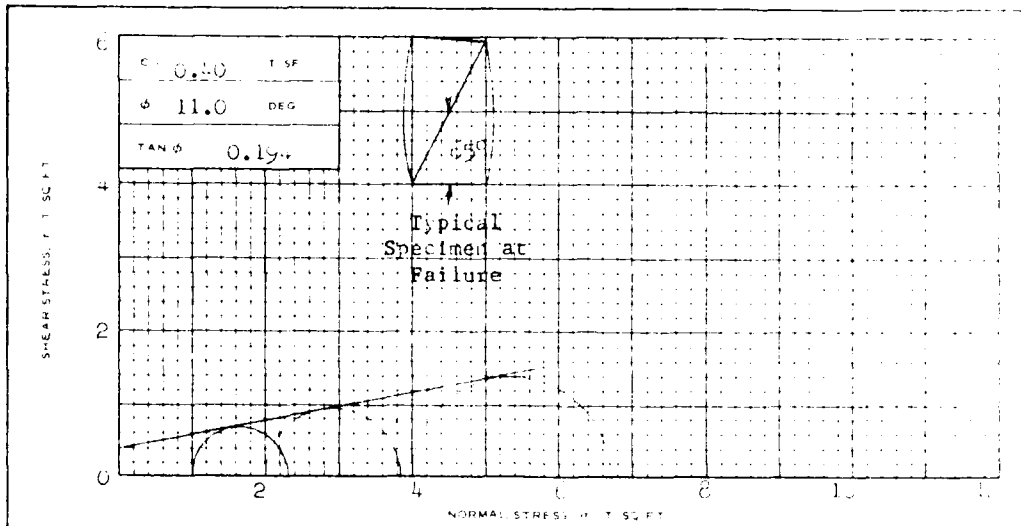
PROJECT: Cooper River Rediversion
 Lab. NO. 2357302
 AREA: Intake Canal, beside SC Hwy. No. 1
 REPORT NO.: IT-21
 DATE: 1-20-65

UNCONFINED COMPRESSION TEST REPORT



WORK ORDER NO. 100000
 REQ. NO. SANCA-10-50

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY,
 CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30061



SPECIMEN NO.		1	2	3
WATER CONTENT %	w_p	29.0	28.2	32.1
DRY DENSITY LB./CU. FT.	ρ_d	93.3	93.7	92.3
SATURATION %	s_p	99.2	98.8	98.5
VOID RATIO	e_p	.007	.799	.027
WATER CONTENT %	w_c	27.0	26.2	24.8
DRY DENSITY LB./CU. FT.	ρ_d	90.0	90.2	100.7
SATURATION %	s_c	99.2	98.8	99.1
VOID RATIO	e_c	.750	.717	.713
FINAL BACK PRESSURE T/SQ. FT.	u_0	---	---	---
MIN. PRINCIPAL STRESS T/SQ. FT.	σ_3	1.00	2.00	3.00
MAX. PRINCIPAL STRESS T/SQ. FT.	σ_1	1.31	1.30	2.70
CONFINING PRESSURE T/SQ. FT.	σ_3	.45	.55	1.0
WATER CONTENT %	w	1.17	1.01	2.00
DRY DENSITY LB./CU. FT.	ρ_d	1.30	1.30	1.30
DIAMETER IN.	ϕ	3.00	3.00	3.00
HEIGHT IN.	h	3.00	3.00	3.00

CONTROLLED Strain (.15%/min) TEST

TEST REPORT COMMENTS Gray lean clay (CL) w/a little sand

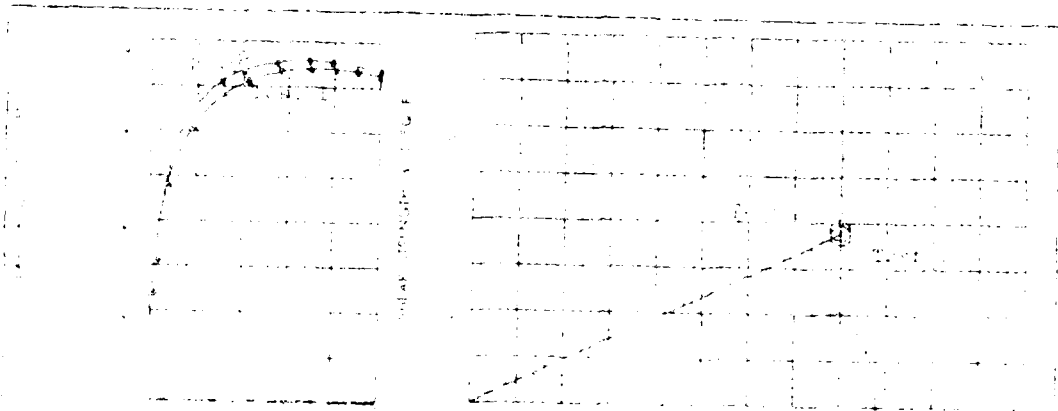
4.0 2.0 1.0 2.70 2.70 Undisturbed TEST METHOD R

REMARKS See Lab Classification data on ENG Form 2087

Cooper River Rediversion
 Area: Intake Canal, beside SC Hwy. No. 21
 BORING NO. IT-21
 DEPTH RANGE 21.0' - 21.5'
 AGENT: SADEN-L DATE: 23 June 1970

TRIAxIAL COMPRESSION TEST REPORT

T-19



The following data was obtained from the test of the above described specimen:

Time (min)	Temperature (°F)	Strain (%)	Stress (psi)
0	70	0	0
10	70	10	1000
20	70	20	2000
30	70	30	3000
40	70	40	4000
50	70	50	5000
60	70	60	6000
70	70	70	7000
80	70	80	8000
90	70	90	9000
100	70	100	10000

The test was conducted in accordance with the following procedure:

The specimen was prepared in accordance with the following procedure:

The specimen was tested in accordance with the following procedure:

TEST REPORT

SPECIMEN NO. _____

DATE _____

TESTER _____

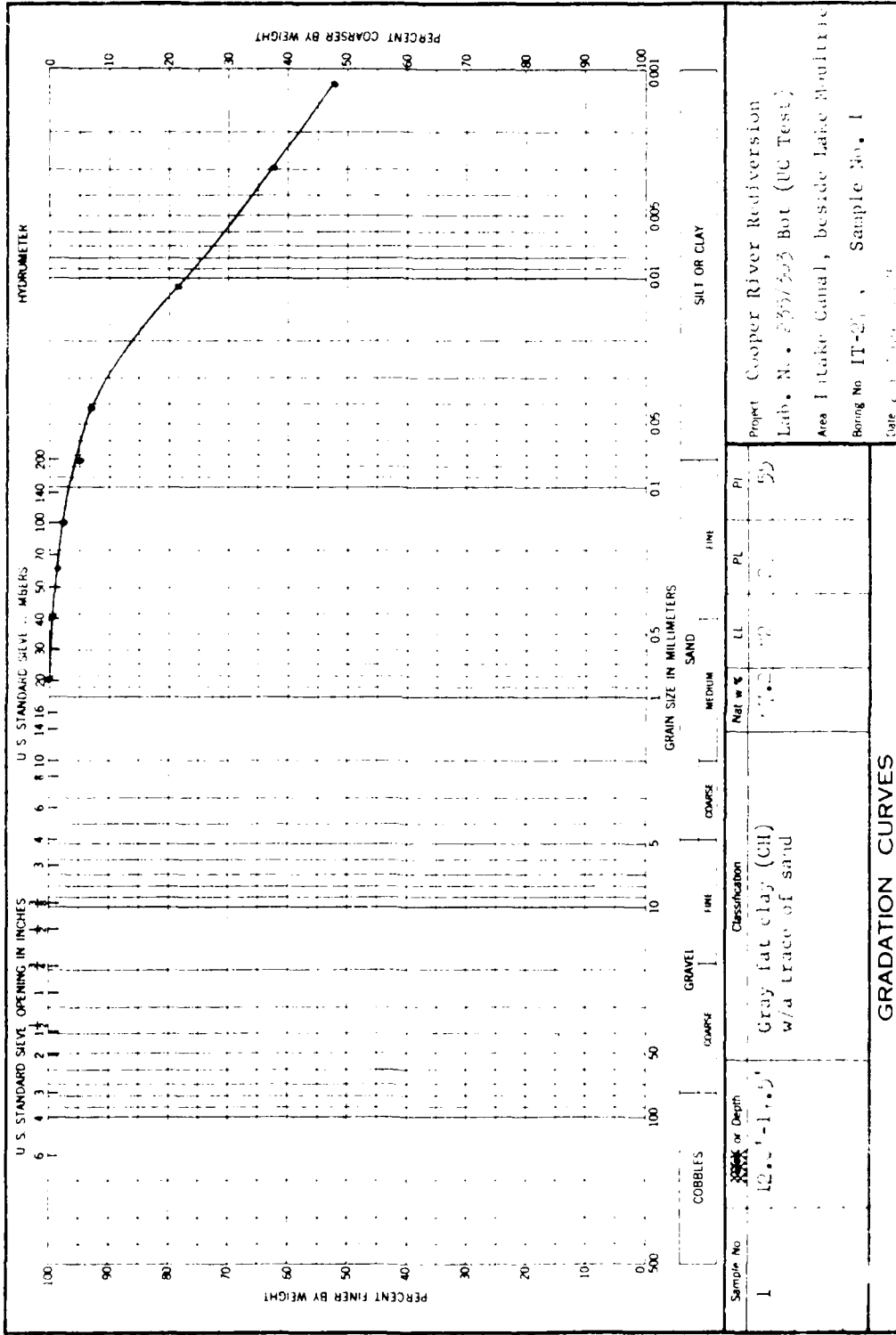
APPROVED _____

DEFECT NEAR TEST REPORT

1-60

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY
 CORPS OF ENGINEERS, 611 SOUTH CURB DRIVE, MARLETTA, GA. 30061

WORK ORDER NO. 10061
 REP. NO. SA-10061-1



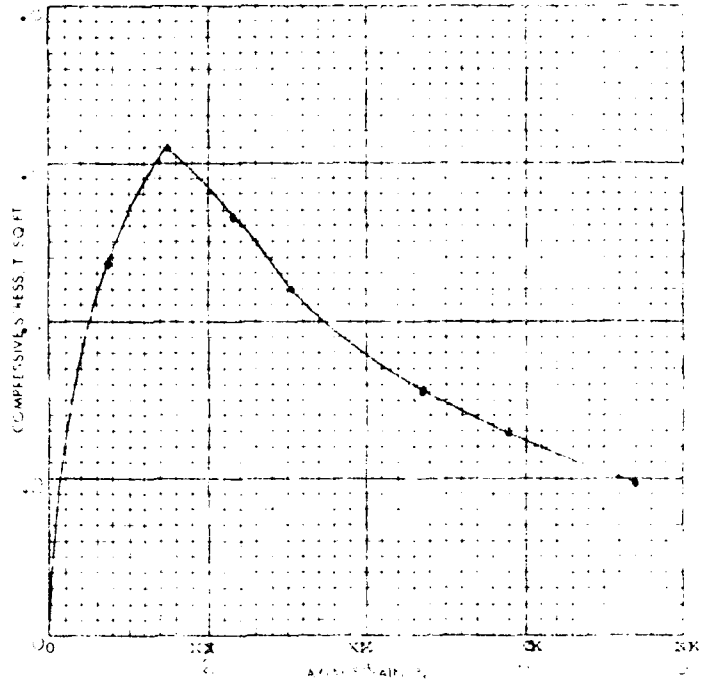
Sample No. 1	12.5'-1.5'	Classification Gray fat clay (CH) w/a trace of sand	Net wt. 50g	LL 20	PL 5	PI 50
Project Cooper River Rediversion						
Lab. N. 235/55 Bot (UC Test)						
Area Intake Canal, beside Lake Moultrie						
Boring No. IT-21, Sample No. 1						
Date						

GRADATION CURVES

ENG. DRAWING 2087

T-21

FAILURE SKETCHES



TEST NO. _____
 DATE TESTED _____
 TESTER'S NAME _____
 TESTER'S TITLE _____
 TESTER'S ORGANIZATION _____
 TESTER'S ADDRESS _____
 TESTER'S CITY _____
 TESTER'S STATE _____
 TESTER'S ZIP _____
 TESTER'S PHONE _____
 TESTER'S FAX _____
 TESTER'S E-MAIL _____
 TESTER'S WEBSITE _____
 TESTER'S OTHER CONTACT INFO _____
 TESTER'S SIGNATURE _____
 TESTER'S PRINTED NAME _____
 TESTER'S TITLE _____
 TESTER'S ORGANIZATION _____
 TESTER'S ADDRESS _____
 TESTER'S CITY _____
 TESTER'S STATE _____
 TESTER'S ZIP _____
 TESTER'S PHONE _____
 TESTER'S FAX _____
 TESTER'S E-MAIL _____
 TESTER'S WEBSITE _____
 TESTER'S OTHER CONTACT INFO _____

ENCLOSURES

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 97. _____
 98. _____
 99. _____
 100. _____

Soil Name: Grey silty clay (GCI) w/a trace of sand
 Soil Classification: _____
 Test Method: _____
 Test Results: _____
 Test Date: _____
 Test Location: _____
 Test Operator: _____
 Test Supervisor: _____
 Test Engineer: _____
 Test Technician: _____
 Test Assistant: _____
 Test Observer: _____
 Test Recorder: _____
 Test Scribe: _____
 Test Photographer: _____
 Test Videographer: _____
 Test Audio Recorder: _____
 Test Data Collector: _____
 Test Data Processor: _____
 Test Data Analyst: _____
 Test Data Reviewer: _____
 Test Data Approver: _____
 Test Data Signer: _____
 Test Data Seal: _____
 Test Data Stamp: _____
 Test Data Mark: _____
 Test Data Initials: _____
 Test Data Signature: _____
 Test Data Print Name: _____
 Test Data Title: _____
 Test Data Organization: _____
 Test Data Address: _____
 Test Data City: _____
 Test Data State: _____
 Test Data Zip: _____
 Test Data Phone: _____
 Test Data Fax: _____
 Test Data E-Mail: _____
 Test Data Website: _____
 Test Data Other Contact Info: _____

PROJECT: _____
 LAB. NO.: _____
 TESTER: _____
 DATE: _____
 TIME: _____
 LOCATION: _____
 UNCONFINED COMPRESSION TEST REPORT

E. M. P. M. 3659
 JUN 65

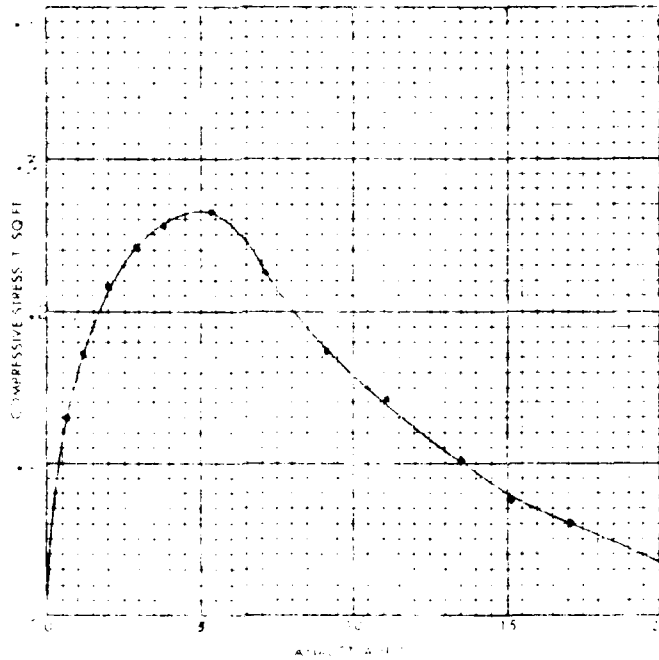
T-22 7-21

FAILURE SKETCHES



VERTICAL STRAIN

HORIZONTAL STRAIN



1. TEST NUMBER _____
 2. DATE TESTED _____
 3. TESTER _____
 4. PROJECT _____
 5. LOCATION _____
 6. DEPTH _____
 7. SOIL TYPE _____
 8. MOISTURE CONTENT _____
 9. SPECIMEN DIAMETER (IN) _____
 10. SPECIMEN HEIGHT (IN) _____
 11. SOIL CLASSIFICATION _____
 12. TEST RESULTS _____
 13. COMMENTS _____
 14. SCALE _____
 15. DATE _____

PROJECT	Super River Rehabilitation
NO. OF TESTS	1
AREA	St. Louis, Missouri
DEPTH	2
DATE	June 1

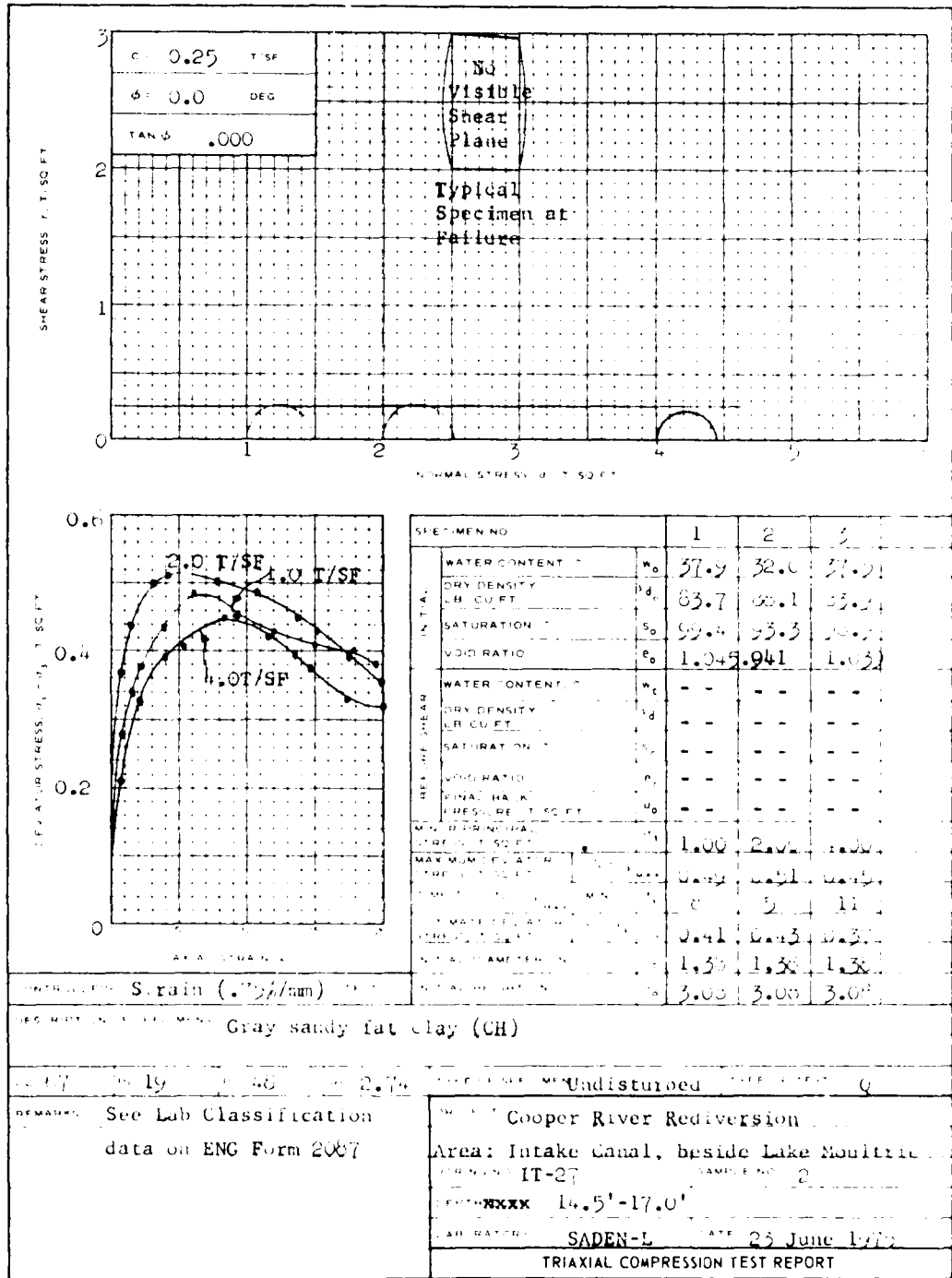
UNCONFINED COMPRESSION TEST REPORT

ENG FORM 3659
1 JUN 65

T-24 T-23

WORK ORDER NO. 30061
 REQ. NO. SANCA-75-32

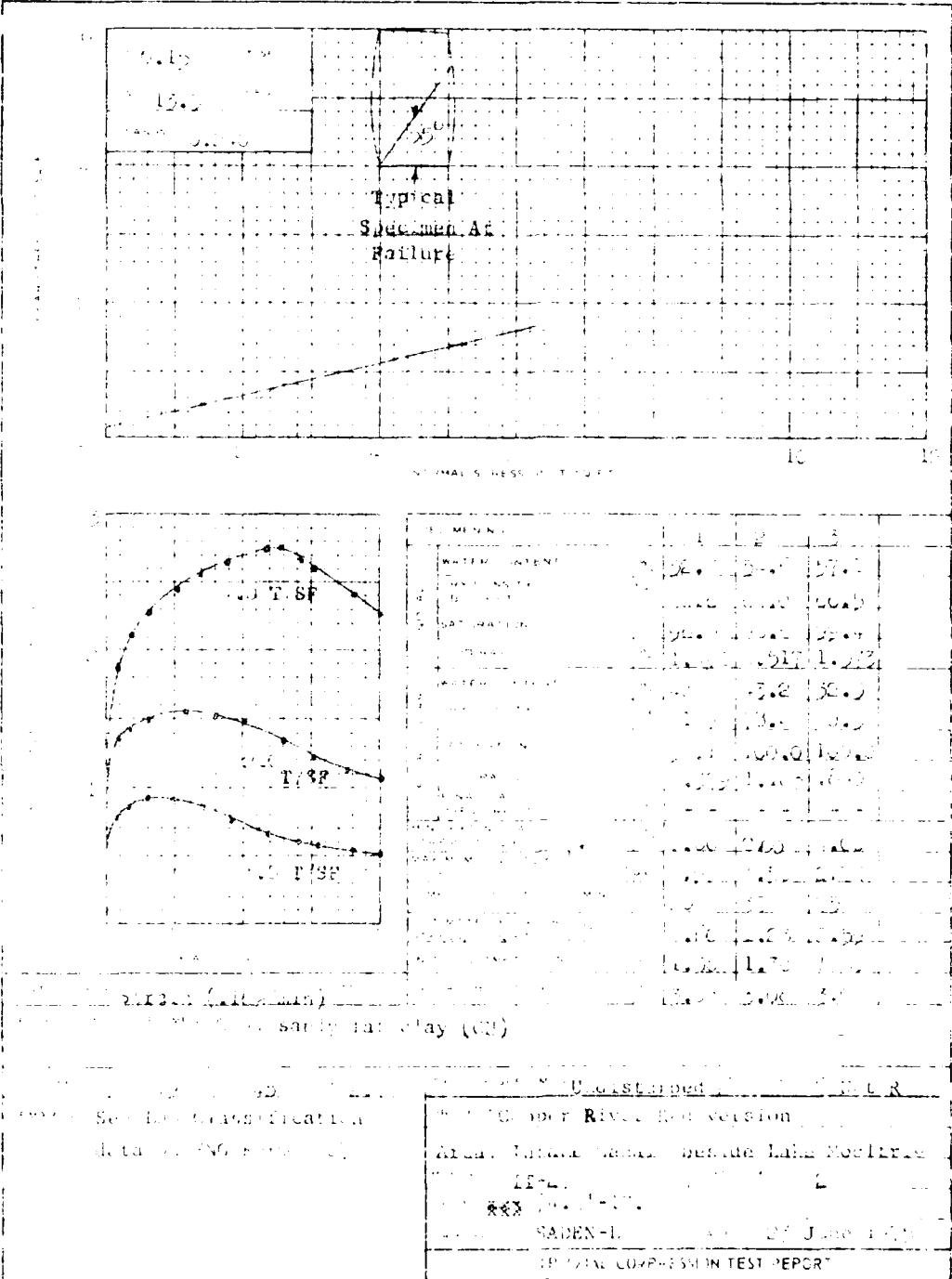
DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY,
 CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30061



ENG FORM NO. 2089 (REV. JUNE 1975) PREPARED BY THE SOILS CENTER, TRANSLUCENT (EM 1110-2-1906)

Lab. No. 235/304

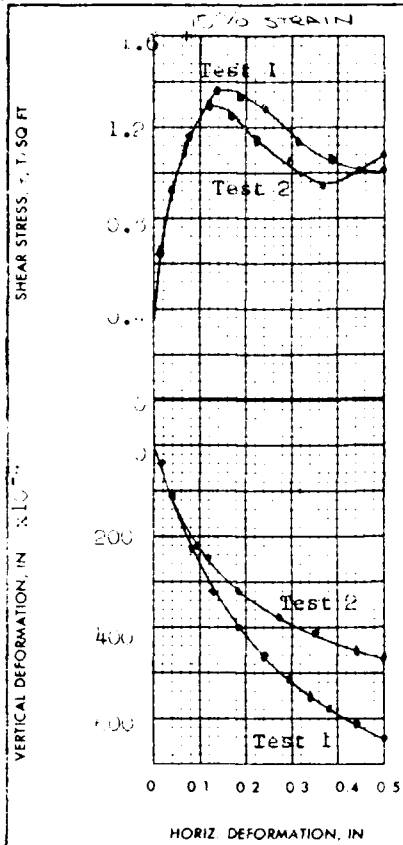
T-25



T-26

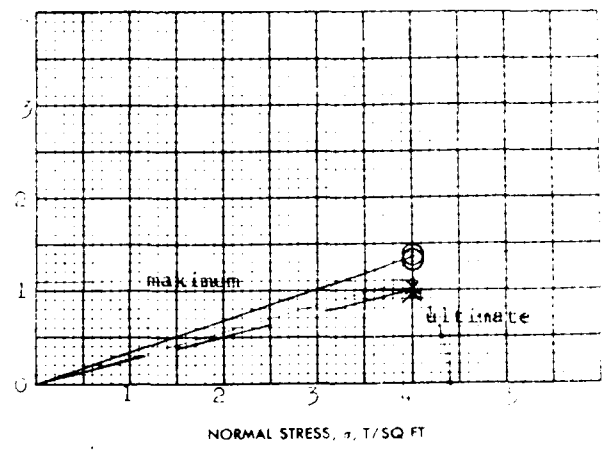
WORK ORDER NO. 1000
REQ. NO. 1000

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY,
CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30061



SHEAR STRENGTH PARAMETERS	
maximum	ultimate
$\sigma = 18.5^{\circ}$	14.3°
$\tan \phi = 0.335$	0.255
$c = 0.6$	0.0 T/SQ FT

- CONTROLLED STRESS
- CONTROLLED STRAIN



TEST NO	1	2
INITIAL WATER CONTENT	$w = 50.7\%$	43.7%
INITIAL VOID RATIO	$e_0 = 1.722$	1.505
INITIAL SATURATION	$S_0 = 90.3\%$	76.5%
INITIAL DRY DENSITY, LB./CU FT	$\gamma_d = 12.0$	11.7
VOID RATIO AFTER CONSOLIDATION	$e_c = 1.020$	1.021
TIME FOR 50 PERCENT CONSOLIDATION, MIN	$t_{50} = 0$	0
FINAL WATER CONTENT	$w_f = 24.3\%$	17.4%
FINAL VOID RATIO	$e_f = 0.65$	0.47
FINAL SATURATION	$S_f = 100.0\%$	100.0%
NORMAL STRESS, T/SQ FT	$\sigma = 4.00$	4.00
MAXIMUM SHEAR STRESS, T/SQ FT	$\tau_{max} = 1.35$	1.31
ACTUAL TIME TO FAILURE, MIN	$t_f = 180$	160
RATE OF STRAIN, IN / MIN	0.0008	0.0008
ULTIMATE SHEAR STRESS, T/SQ FT	$\tau_{ult} = 1.02$	0.94

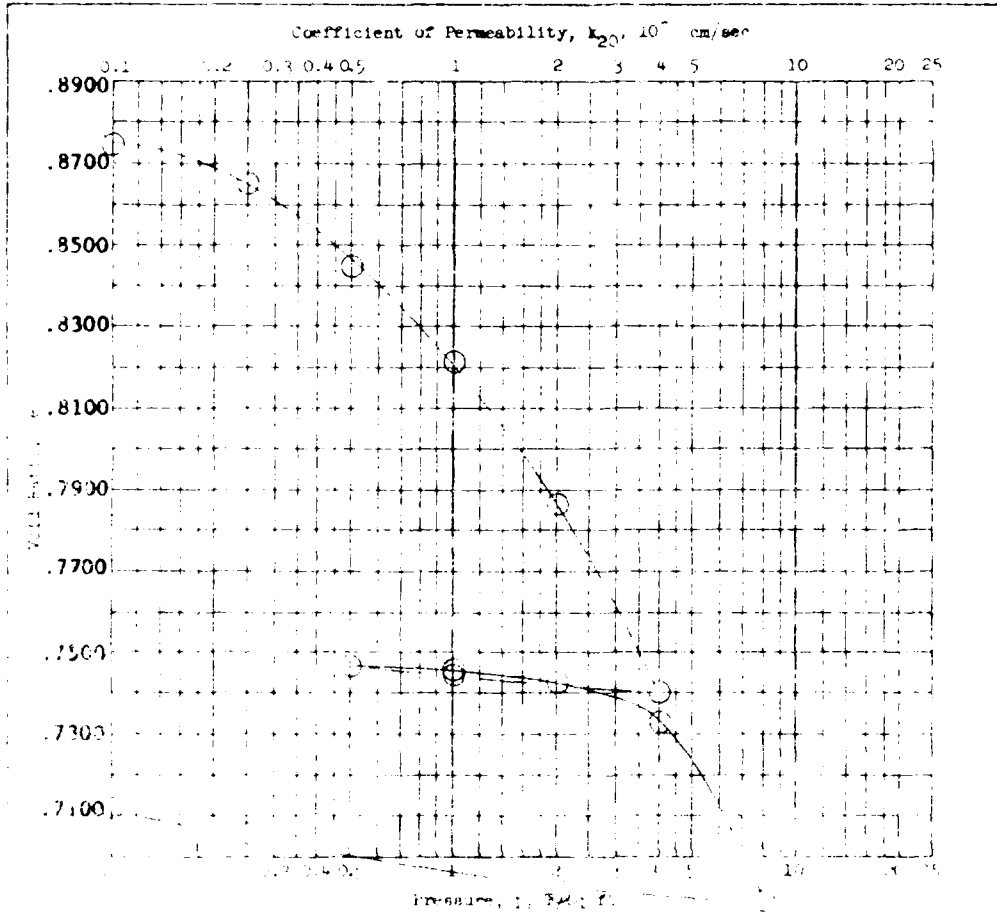
TYPE OF SPECIMEN Undisturbed
CLASSIFICATION Gray sandy fat clay (CH)
LL 67 PL 19 PI 8 Dia < .001 mm G. 2.75
3.00 IN SQUARE 0.25 IN THICK

REMARKS See Lab Classification data on ENG Form 20.7

PROJECT Cooper River Rediversion
Lab. No. 235/504
AREA Intake Canal, beside Lake Meultric
BORING NO IT-21 SAMPLE NO 2
DEPTH 1.5'-17.0 DATE 23 June 1975
DIRECT SHEAR TEST REPORT

WORK ORDER NO. SANCA-75-32
 REQ. NO. 9283

DEPARTMENT OF THE ARMY, CORPUS OF ENGINEERS, 615 SOF OF COOPER RIVER DIVISION, SANTA FE, 30061



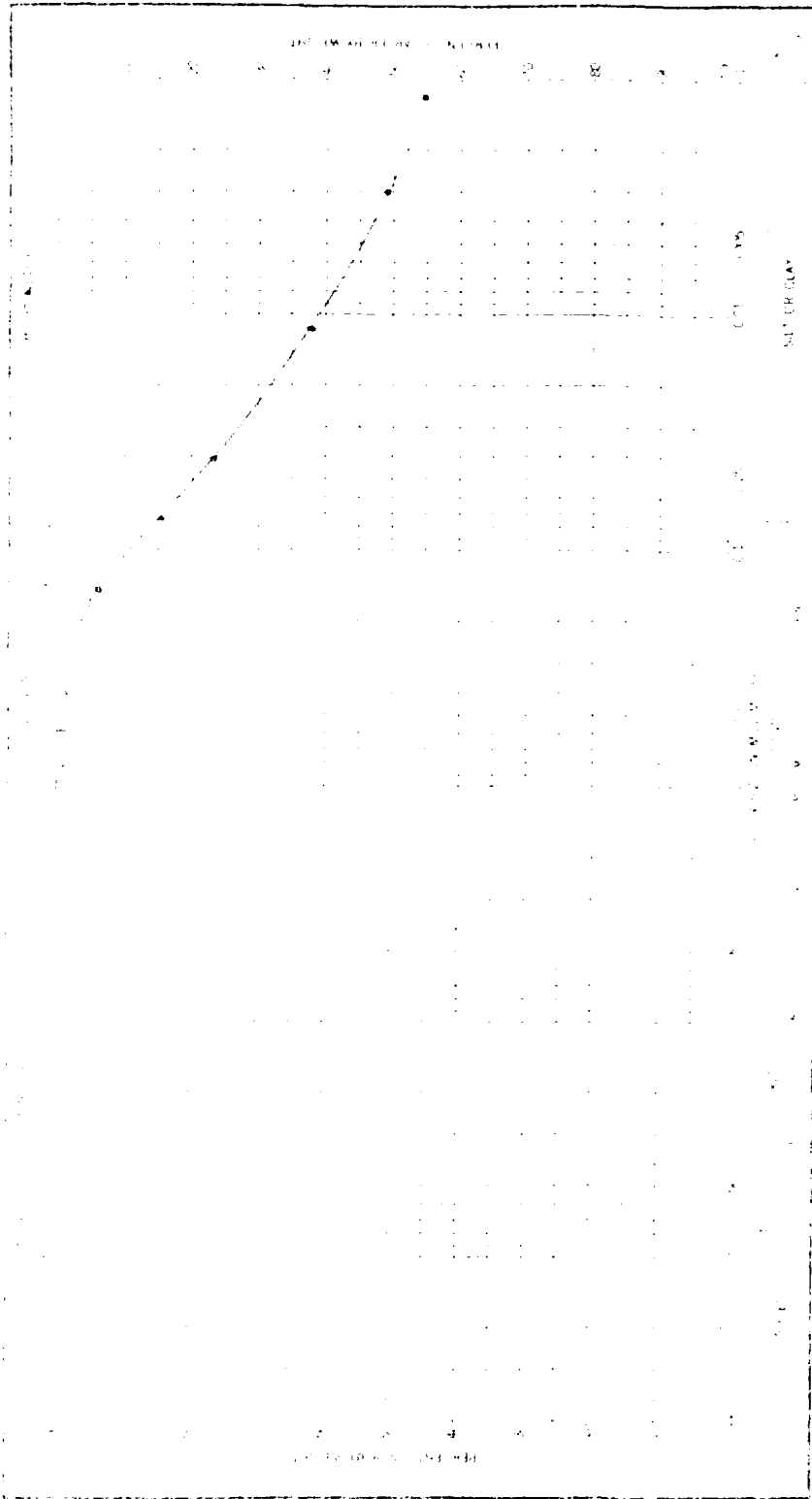
Undisturbed		Before Test		After Test	
3.76	1.26	Water Content, %	31.9	26.0	
		Vols. Ratio, e _v	0.899	0.712	
		Saturation, %	97.3	100.0	
		Dry Density, γ _d	96.0		
Gray sandy fat clay (CI)		k ₂₀ at e _v > 10 ⁻⁷ cm/sec			
67	2.74	Charleston District COOPER RIVER REDIVERSION			
19	001 mm	Lab. No. 235/304			
See lab classification data on ZMG Form 2087 reported previously.		Area Intake Canal			
Specimen flooded throughout test.		Soring No. IT-27		Sample No. 2	
		Depth 14.5' - 17.0'		Date 11 Nov 1975	

CONSOLIDATION TEST REPORT

T-29

boring	Elevation sample	Type test	C (tsf)	ϕ	Classification
14	60.5-62.5	DS	0	38°	AC
15	70.4-72.9	Q	.4	12°	AC
	70.4-72.9	R	.4	22.5° (Total) 36° (Effective)	AC
	64.9-67.4	Q	.25	0°	AC
	64.9-67.4	R	.27	14.5° (Total) 34.5° (Effective)	AC
16	67.8-70.3	Q	.34	0°	CI
	67.8-70.3	R	.3	11.5° (Total) 25.5° (Effective)	CI
	65.8-65.8	Q	.35	9°	CI
	65.8-65.8	R	.25	11° (Total) 25.5° (Effective)	CI
17	62.0-64.5	Q	.65	0°	CI
	62.0-64.5	R	.25	14.5° (Total) 32.0° (Effective)	CI
	56.5-57.5	Q	.41	1.0°	CI
	56.6-57.5	R	.16	19° (Total) 20.5° (Effective)	CI
	55.0-56.5	DS	0	39°	SM-SC

COPPER RIVER
Lab. No. 235/789



COOPER RIVER
Lab. No. 235/789*
Powerhouse
IT-2B-1
27 January 1976

2.0% - 6.0% Grey and tan fine sand (CH) 27.5 34 71 33
1/2 Middle sand

GRAVIMETRIC CURVES

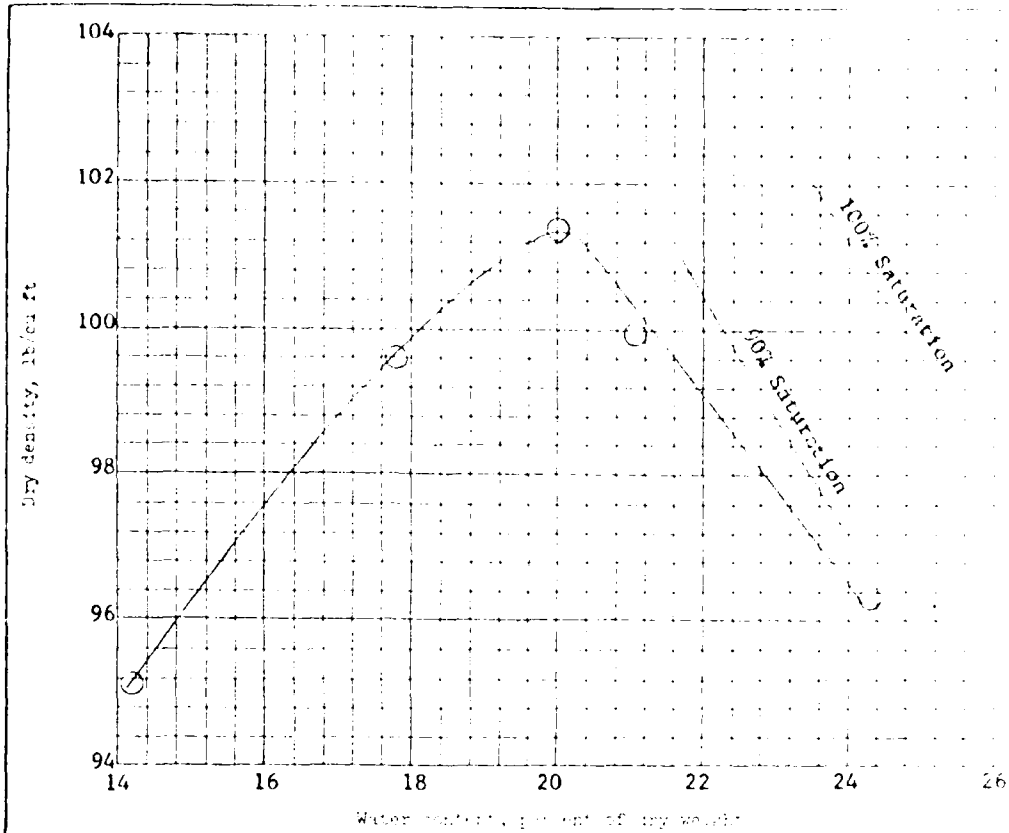
Stand. Comp., Remolded C, R, & GFF

ENCLOSURE 1976

7-30

WORK ORDER NO. 9410
 Req. No. NAPEN-76-2

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY
 CORPS OF ENGINEERS, 611 SOUTH COSS DRIVE, MARIETTA, GA. 30061



Standard _____ compaction test (EM-1110-2-1906)

25 blows per each of 3 layers, with 5.5 inch diameter
 12.0 inch drop. 4.0 inch diameter roll

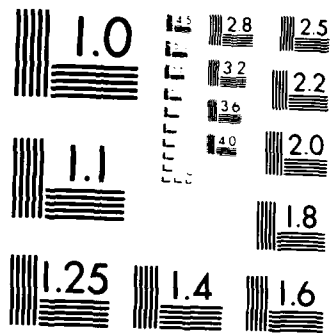
Sample No.	Depth	Classification	G	LL	PL	U _c	I _c
--	2.0' - 6.0'	Gray and tan fat clay (CH) w/a little sand	2.66	54	21	0	0

Sample No.	Bags	Plastic Bag
Natural water content, percent	---	27.2
Optimum water content, percent	20.0	---
Max dry density, lb/cu ft	101.3	---

Remarks: See lab classification data on ENG Form 2087.

Project: COOPER RIVER
 Lab. No. 235/769
 Area: Powerhouse
 Boring No. IT-2E-1 | Date: 27 Jan 1976

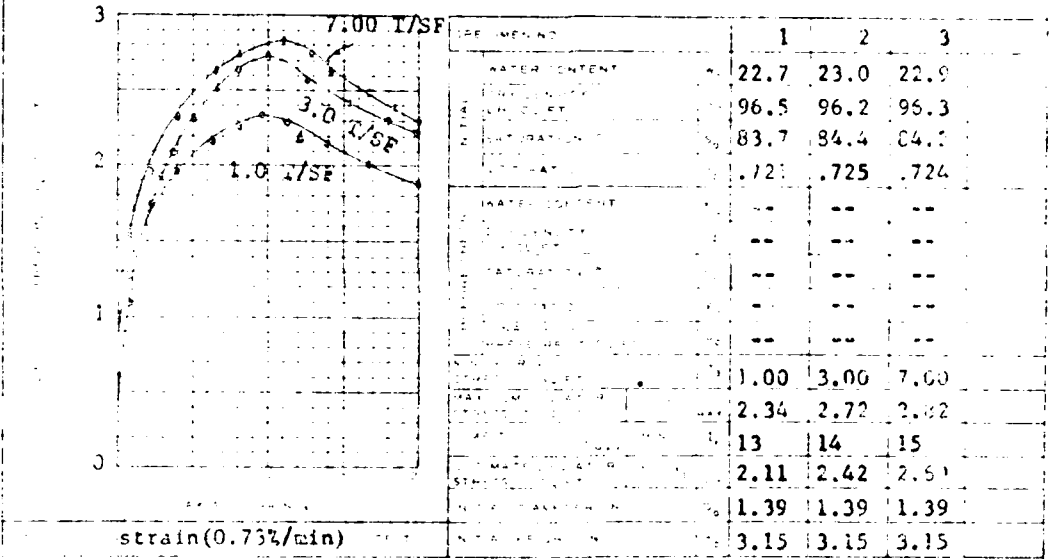
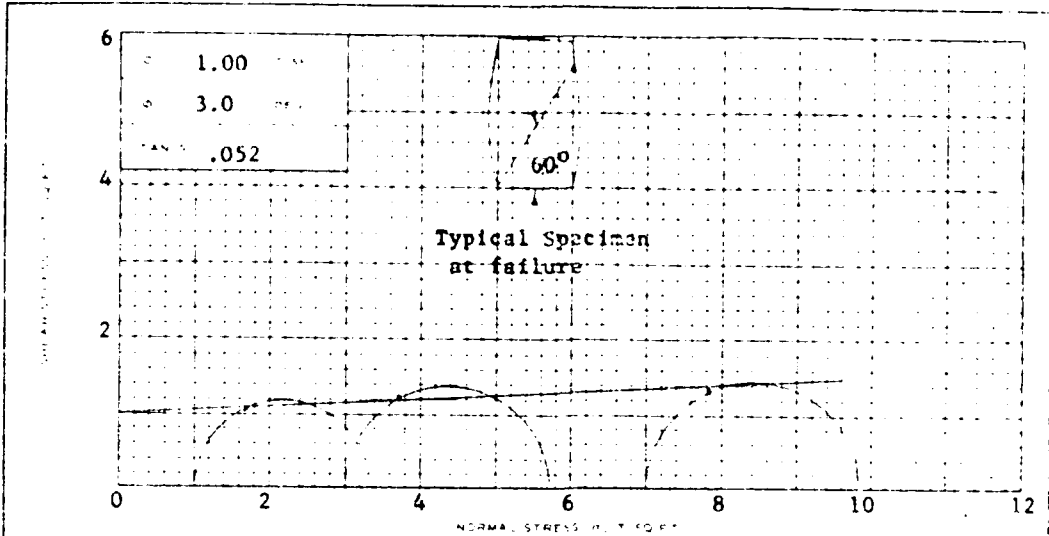
COMPACTION TEST REPORT



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

COOPER RIVER NO. 9419
 RIQ. NO. MAPEN-76-2

DEPARTMENT OF THE ARMY, SOIL MECHANICS DIVISION, WASHINGTON, D.C. 20315
 CORPS OF ENGINEERS, 611 SOUTH COHEN DRIVE, FORT BELLEVILLE, ILL. 62206



Gray and ten fat clay (CH) w/a little sand

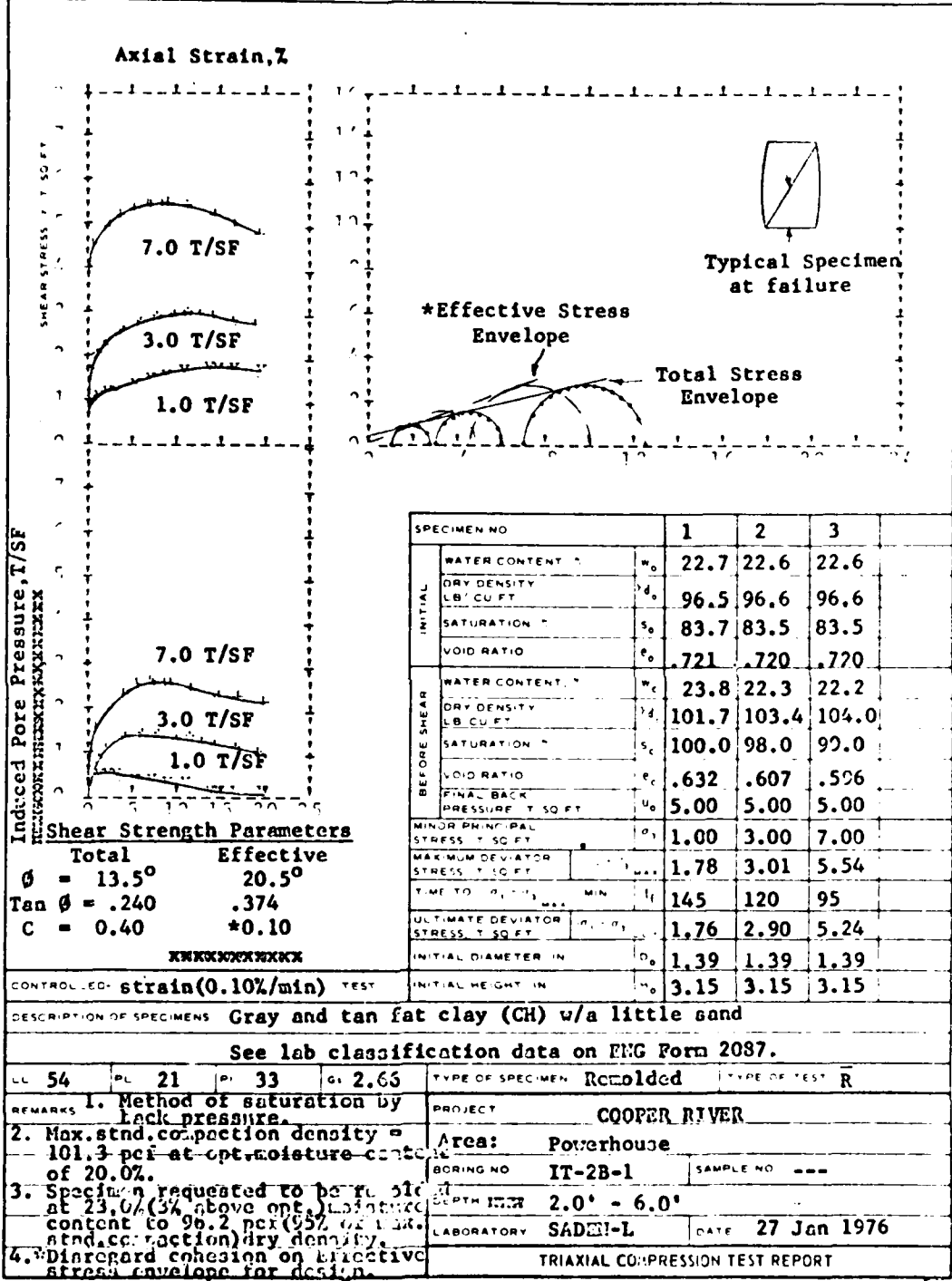
54	21	33	61	2.66	TYPE OF SOIL	Remolded	TYPE OF TEST	Q
1. See lab classification data on RIQ Form 7-7. 2. Max. stud. compaction density = 101.3 pcf at opt. moist. content of 20.0%. 3. Specimen requested to be re-oided at 23.01 (3% above opt.) moist. content to 96.2 pcf (95% of max. stud. compaction) dry density.					COOPER RIVER Area: Powerhouse LOCATION: IT-2B-1 DEPTH: 2.0' - 6.0' LABORATORY: SADDL-L DATE: 27 Jan 1976			
TRIAXIAL COMPRESSION TEST REPORT								

EM 1110-2-1906 (EM 1110-2-1906) TRANSLUCENT

95
 +3
T-32
 Lab. No. 235/789

REQN. NO. NAPEN-76-2
W. O. NO. 9410

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY,
CORPS OF ENGINEERS, 611 SOUTH COBB DR., MARIETTA, GA. 30061



SPECIMEN NO		1	2	3
INITIAL	WATER CONTENT %	w _o 22.7	22.6	22.6
	DRY DENSITY LB/ CU FT	w _d 96.5	96.6	96.6
	SATURATION %	s _o 83.7	83.5	83.5
	VOID RATIO	e _o .721	.720	.720
BEFORE SHEAR	WATER CONTENT %	w _c 23.8	22.3	22.2
	DRY DENSITY LB/ CU FT	w _d 101.7	103.4	104.0
	SATURATION %	s _c 100.0	98.0	99.0
	VOID RATIO	e _c .632	.607	.596
	FINAL BACK PRESSURE T/ SQ FT	U _o 5.00	5.00	5.00
	MINOR PRINCIPAL STRESS T/ SQ FT	σ ₁ 1.00	3.00	7.00
	MAXIMUM DEVIATOR STRESS T/ SQ FT	σ ₁ - σ ₃ 1.78	3.01	5.54
	TIME TO FAILURE MIN	t _f 145	120	95
	ULTIMATE DEVIATOR STRESS T/ SQ FT	σ ₁ - σ ₃ 1.76	2.90	5.24
	INITIAL DIAMETER IN	φ _o 1.39	1.39	1.39
	INITIAL HEIGHT IN	h _o 3.15	3.15	3.15

ENG FORM NO 2089 REV JUNE 1970 PREVIOUS EDITIONS OBSOLETE TRANSLUCENT (EM 1110-2-1906)

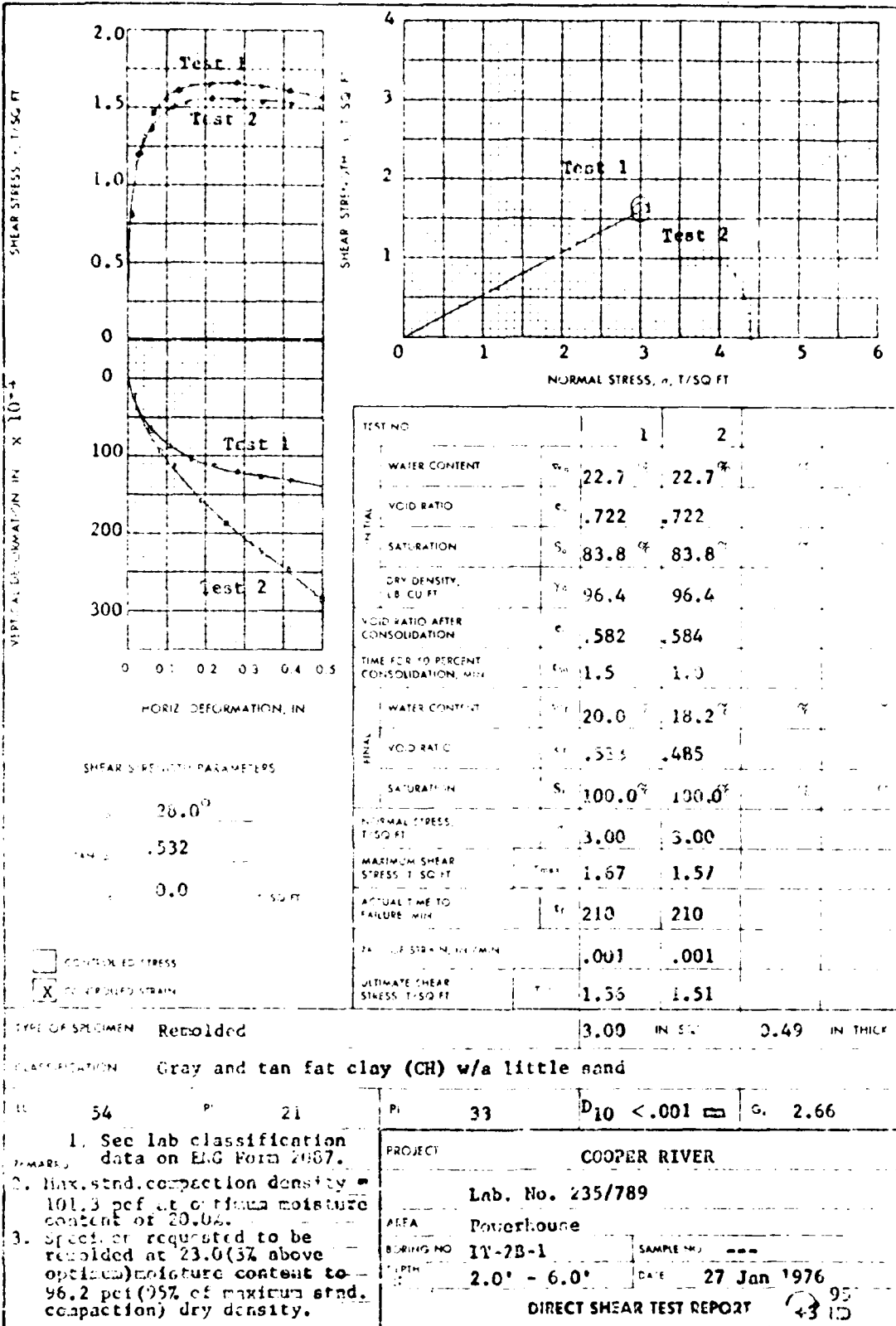
Local reproduction auth by DAEN-ASP-P, 26 Aug 1975.

Lab.No. 235/789

95
MD
+3
T-33

WORK ORDER NO. 9410
 HQ. W. W. W. 76-2

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION, LABORATORY,
 CORPS OF ENGINEERS, 511 SOUTH CAROLINA DRIVE, FORT LEE, S.C. 29501



VISUAL CLASSIFICATIONS

INTAKE CHANNEL
COOPER RIVER REDIVERSION
ST. STEPHEN, S. CAROLINA
(CHARLESTON DISTRICT)

BORING IT-3A SAMPLE NO. 1 0.0'-5.0'

Gray wet silty fine SAND (SM)

BORING IT-13 SAMPLE NO. 1 0.0'-5.0'

Gray and light brown dry silty fine SAND (SM)

BORING IT-7 SAMPLE NO. 2 5.0'-9.0'

Brown dry clayey fine SAND (SC)

BORING IT-13 SAMPLE NO. 2 5.0'-9.0'

Light brown dry clayey fine SAND (SC)

BORING IT-21 SAMPLE NO. 3 10.0'-15.0'

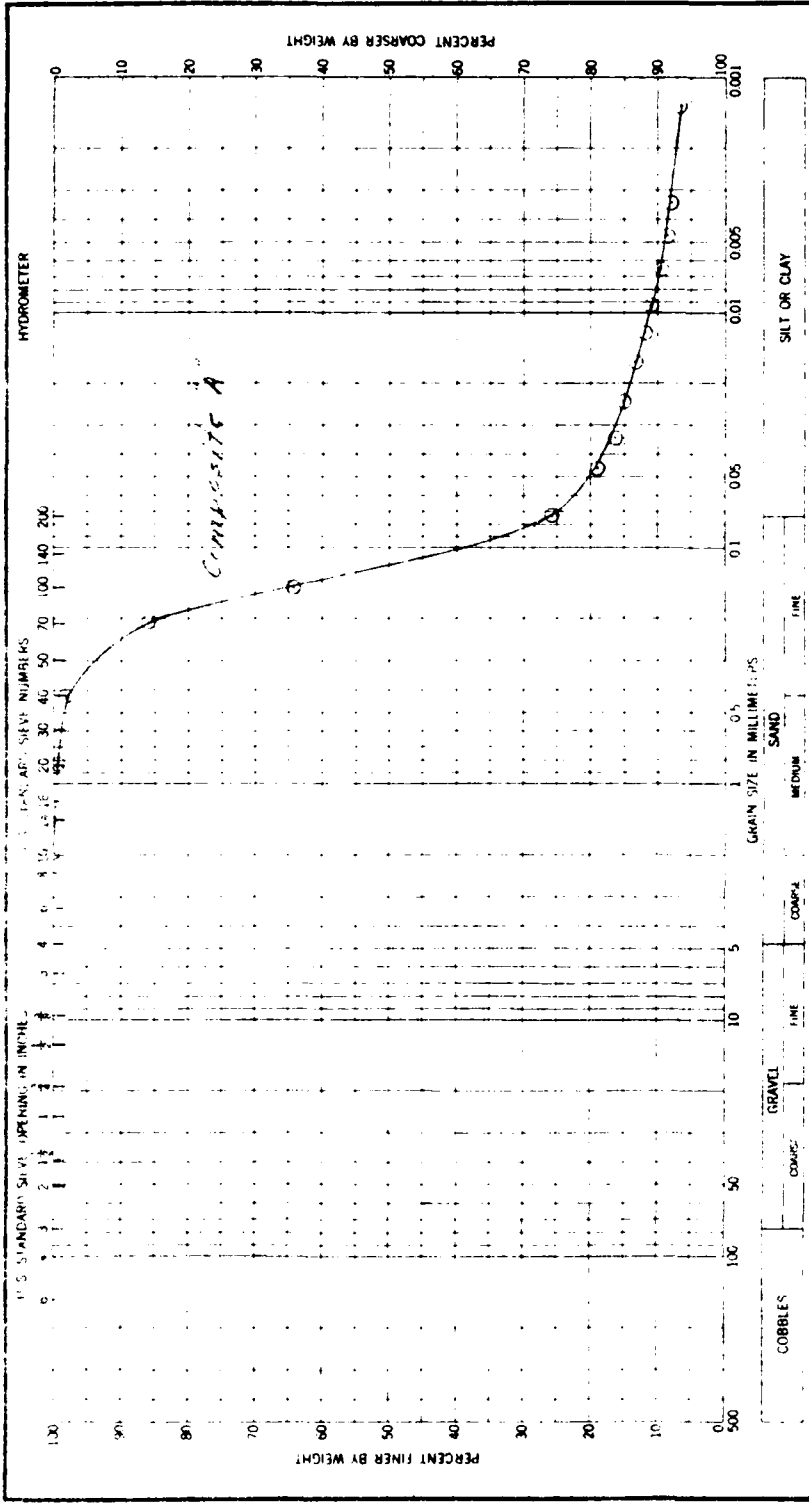
Light brown dry clayey fine SAND (SC)

BORING IT-27 SAMPLE NO. 2 3.0'-6.0'

Tan dry clayey fine SAND (SC)

Incl. 11

T-35



Sample No. *A*
 Elem. or Depth. *0.65-5.0'*
 Classification *silty fine sand (SM)*
 * *Composite of following 5 samples*
IT-3A
IT-13
sample No. 1
sample No. 1

No. % LL *NC*
 No. % PL *NC*
 No. % PI *NC*

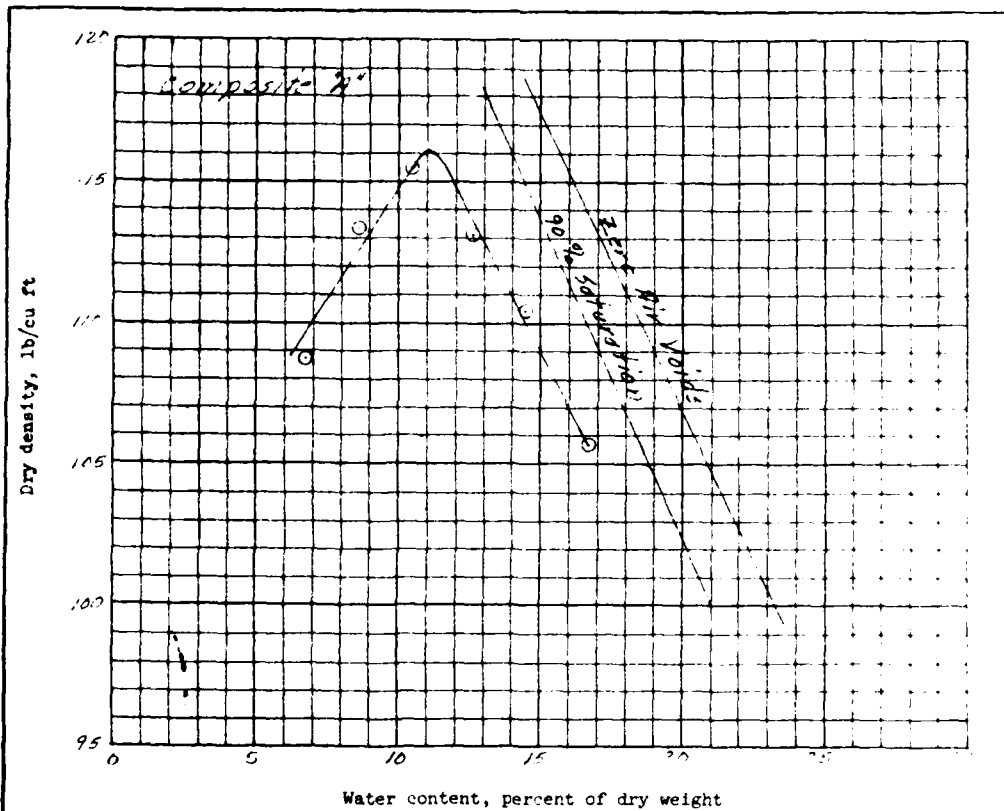
Project *Coop. River Pedimental*
 Area *SA. Station, S. Carolina*
 Boring No. *IT-3A and IT-13*
 Date *Nov. 20, 1950*

GRADATION CURVES

ENG. MAY 1, 1951 2087

Incl. 12

T-36



Standard compaction test
 25 blows per each of 3 layers, with 5.5 lb rammer and
 12 inch drop. 4 inch diameter mold

Sample No.	Elev or Depth	Classification	G	LL	PL	% > No. 4	% 3/4 in.
Composite A*	0.0'-5.0'	silty fine SAND (SM)	62	NE	NP	0	0

Sample No.	Composite A*
Natural water content, percent	
Optimum water content, percent	11.0
Max dry density, lb/cu ft	116.1

Remarks * Combined following samples:	Project Cooper River Rediversion
IT-3A; Sample No. 1	St. Stephen, S. Carolina
IT-13; Sample No. 1	Area INTAKE CHANNEL
	Boring No. IT-3A
	IT-13
	Date November 1975

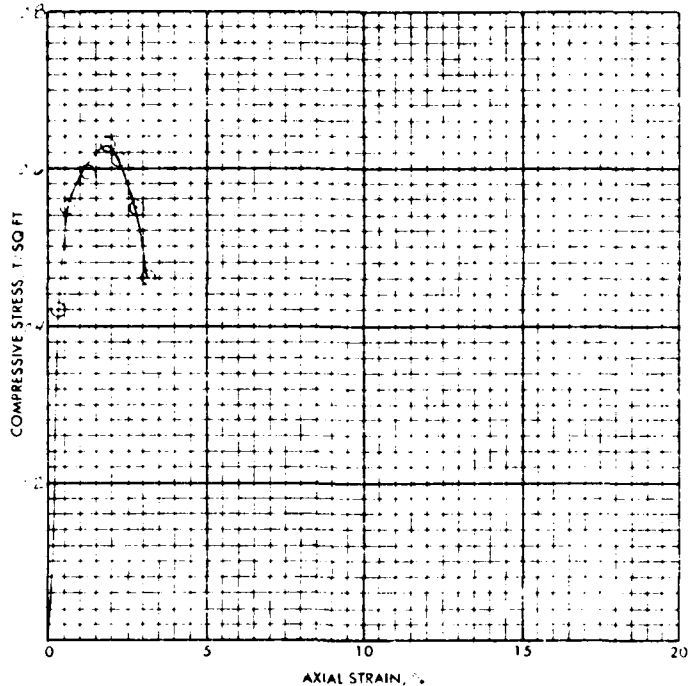
COMPACTION TEST REPORT

FAILURE SKETCHES



CONTROLLED STRESS

CONTROLLED STRAIN



TEST NO.	
TYPE OF SPECIMEN	Unconfined
WATER CONTENT	W. 21.0
GRAVITY	G. 2.62
SATURATION	S. 56.8
DRY DENSITY LB. CU. FT.	γ_d 110.4
UNIT WEIGHT	γ 2
UNCONFINED COMPRESSIVE STRENGTH T. SQ. FT.	q_u 2.25
UNDRAINED SHEAR STRENGTH T. SQ. FT.	s_u —
SENSITIVITY RATIO	S. —
INITIAL SPECIMEN DIAMETER IN.	D. 1.42
INITIAL SPECIMEN HEIGHT IN.	H. 3.15

CLASSIFICATION	Very Fine SAND (SM)
LI	NP
PL	NP
PI	NP
LI	NP
PL	NP
PI	NP

REMARKS: *Sample taken at approx 5' depth, content of the 90% finer, max. dry density of 110.4 pcf. 195% max. density*

PROJECT	Cooper River Reversion
AREA	St Stephen, S. Carolina
AREA	INTAKE CHANNEL
BORING NO.	IT-3A; IT-13
DEPTH	0.0' - 5.0'
SAMPLE NO.	Composite "A"
DATE	December 1975

UNCONFINED COMPRESSION TEST REPORT

ENG. FORM 3659 1 JUN 65

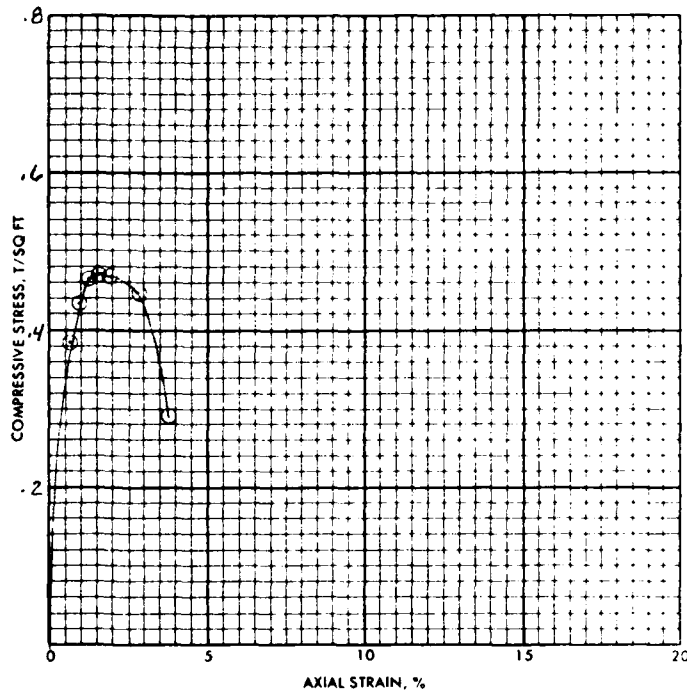
TRANSLUCENT

1975 1488 1 254 000

PLATE XI-2

T-38

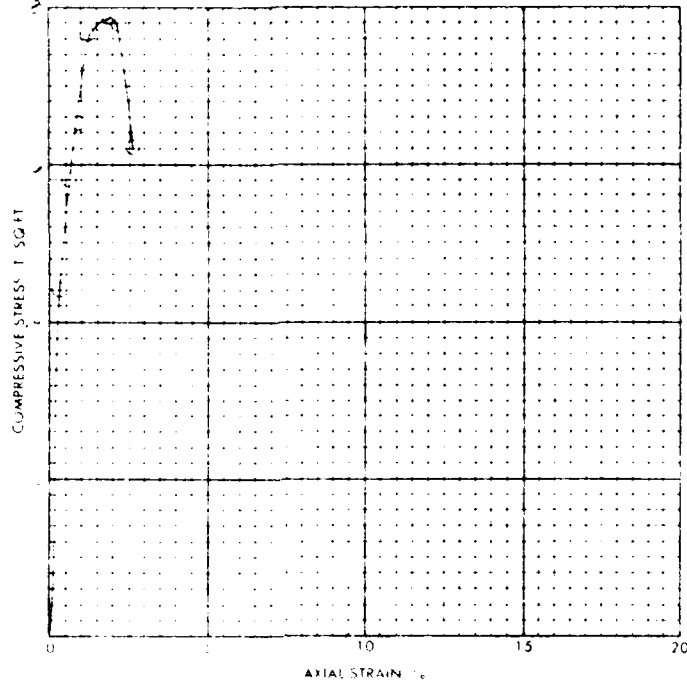
FAILURE SKETCHES



- CONTROLLED STRESS
- CONTROLLED STRAIN

TEST NO.		1	
TYPE OF SPECIMEN		Remolded	
INITIAL	WATER CONTENT	w ₁	12.5 %
	VOID RATIO	e ₁	0.488
	SATURATION	S ₁	67.2 %
	DRY DENSITY, LB/CU FT	γ _d	109.9
TIME TO FAILURE, MIN		t _r	2
UNCONFINED COMPRESSIVE STRENGTH, T/SQ FT		q _u	0.47
UNDRAINED SHEAR STRENGTH, T/SQ FT		s _u	—
SENSITIVITY RATIO		S _r	—
INITIAL SPECIMEN DIAMETER, IN		D ₁	1.42
INITIAL SPECIMEN HEIGHT, IN.		H ₁	3.17
CLASSIFICATION <i>silty fine SAND (SM)</i>			
LL	NP	PL	NP
		PI	NP
			IG. 2.62
REMARKS <i>Samples molded @ approx. moisture content of 13.0% (O.M.C. + 2%) and dry density of 110.3 Pcf. (95% max. density)</i>		PROJECT	<i>Cooper River Rediversion St. Stephen, S. Carolina</i>
		AREA	<i>INTAKE CHANNEL</i>
		BORING NO.	<i>IT-3A, IT-13</i>
		DEPTH	<i>0.0' - 5.0'</i>
		SAMPLE NO.	<i>Composite A</i>
		DATE	<i>December, 1975</i>
UNCONFINED COMPRESSION TEST REPORT			

FAILURE SKETCHES



CONTROLLED STRESS

CONTROLLED STRAIN

TEST NO	1
TYPE OF SPECIMEN	Pen 1121
WATER CONTENT	W 29
VOID RATIO	V 0.71
SATURATION	S 0.00
DRI DENSITY LB CU FT	1.8
TIME TO FAILURE MIN	10
UNCONFINED COMPRESSIVE STRENGTH T SQ FT	18.5
UNDRAINED SHEAR STRENGTH T SQ FT	-
SENSITIVITY RATIO	-
INITIAL SPECIMEN DIAMETER IN	D 1.42
INITIAL SPECIMEN HEIGHT IN	H 3.15

CLASSIFICATION	silty fine SAND (SM)		
LI	NP	PL	NP
		PI	11
		G	2.62

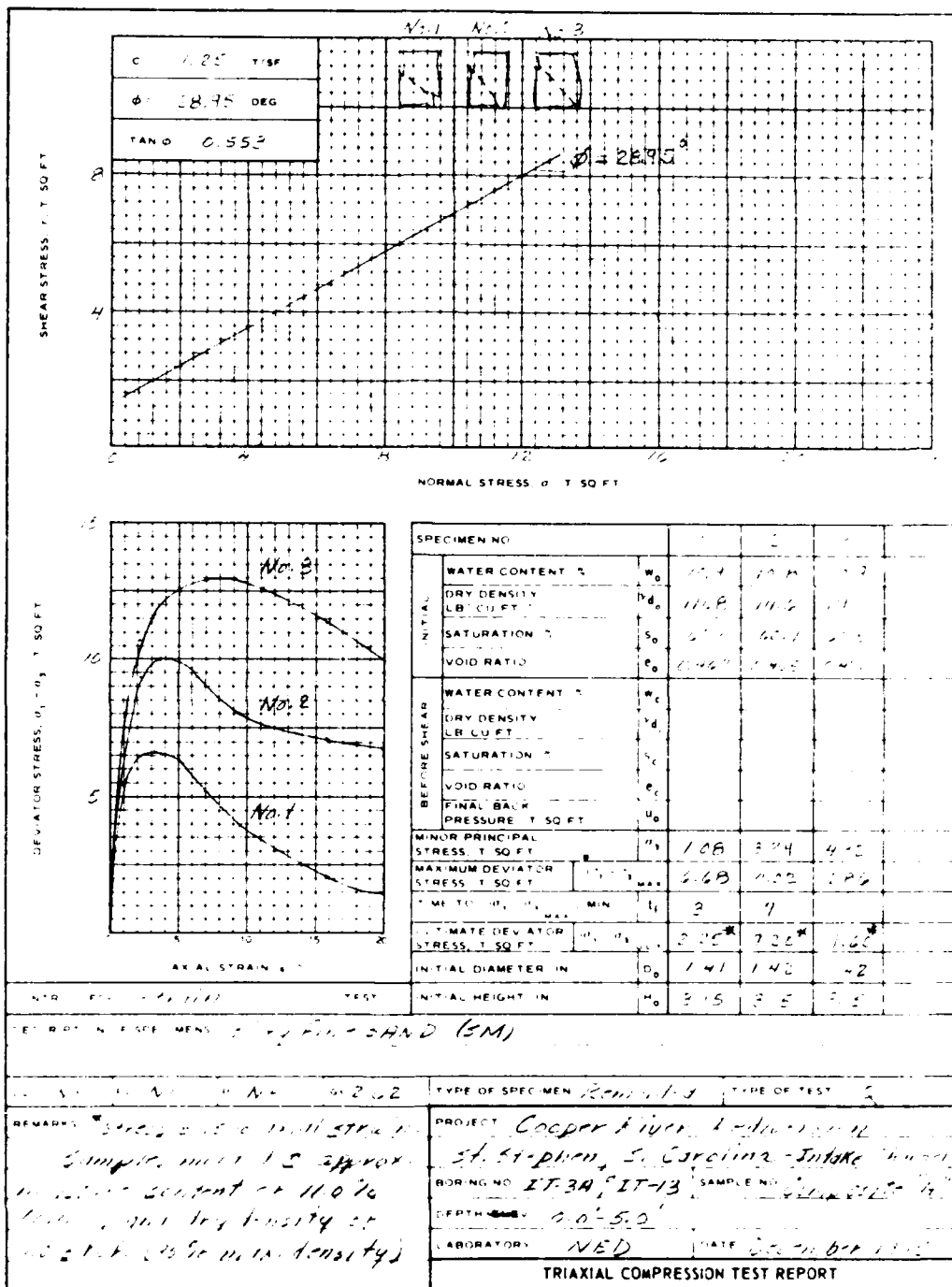
REMARKS: Sample No. 1121
 Initial moisture content
 of 29% (MC = 2%) 11.1
 for density of 11.3 pcf
 (1.87 g/cm³ density)

PROJECT	Cooper River Rediversion	
AREA	St. Stephens, S. Carolina	
BORING NO	IT-3A; IT-13	SAMPLE NO Composite "A"
DEPTH	2.50'	DATE December 1975

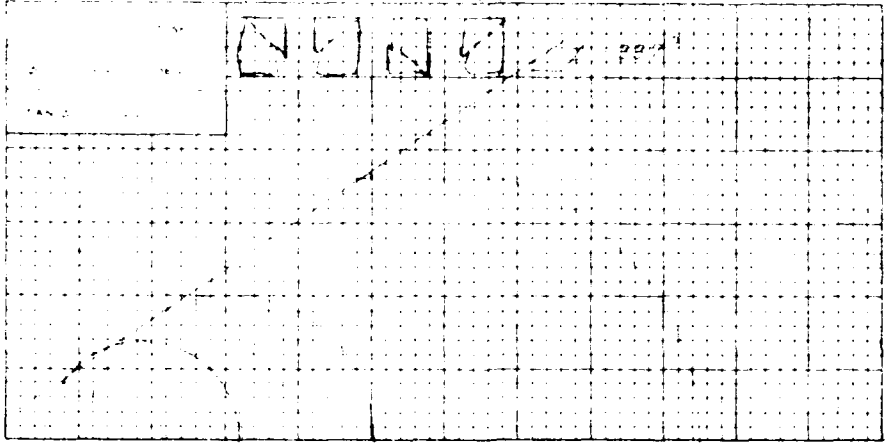
UNCONFINED COMPRESSION TEST REPORT

ENG FORM 3659
 1 JUN 65

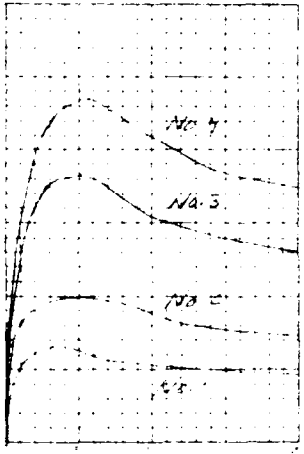
PLATE XI 2
 T-40 - 39



T-41



NORMAL STRESS (PSI) VS. STRAIN



SAMPLER		NO.			
WATER CONTENT (%)	W _c	20	18	15	13
LIQUID LIMIT (%)	LL	70	65	60	55
SATURATION (%)	S _c	70	65	60	55
PLASTICITY (%)	P _c	1480	1420	1480	1480
WATER CONTENT (%)	W _c				
LIQUID LIMIT (%)	LL				
SATURATION (%)	S _c				
PLASTICITY (%)	P _c				
NORMAL STRESS (PSI)	σ				
STRAIN	ε	0.0013	0.0012	0.0013	0.0013
WATER CONTENT (%)	W _c	20	18	15	13
LIQUID LIMIT (%)	LL	70	65	60	55
SATURATION (%)	S _c	70	65	60	55
PLASTICITY (%)	P _c	1480	1420	1480	1480
NORMAL STRESS (PSI)	σ	1480	1420	1480	1480
STRAIN	ε	0.0013	0.0012	0.0013	0.0013

REMARKS: * SPREADSHEET ANALYSIS
 SAMPLE NO. 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

TESTER: J. L. S. C.
 APPROVED: NED
 DATE: 11/15/75

TRIAxIAL COMPRESSION TEST REPORT

T-42

No. 1 No. 2 No. 3

C	9/20	T SP			
D	9/20	DEG			
TAN ϕ	0.17				

SPECIMEN NO.		1	2	3
BEFORE TEST	WATER CONTENT %	w_b	27	27
	DRY DENSITY LB CU FT	ρ_d	100	109
	SATURATION %	s_o	48	47
	VOID RATIO	e_o	1.48	1.40
AFTER TEST	WATER CONTENT %	w_c		
	DRY DENSITY LB CU FT	ρ_d		
	SATURATION %	s_c		
	VOID RATIO	e_c		
MINOR PRINCIPAL STRESS T SQ FT	σ_3	100	100	100
MAXIMUM DEVIATOR STRESS T SQ FT	$\sigma_1 - \sigma_3$	74	74	74
YIELD DEVIATOR STRESS T SQ FT	$\sigma_1 - \sigma_3$	20	24	20
INITIAL DIAMETER IN	d_o	1.40	1.40	1.40
INITIAL HEIGHT IN	h_o	2.75	2.75	2.75

TEST TYPE: *strain*

TEST MATERIAL: *fine sand (EM)*

TEST NO.: *41, 42, 43*

REMARKS: <i>*Spec. 3 is limit strain. Samples used to approx moisture content of 26% to 28% and dry density of 100 lb/cu ft.</i>	TYPE OF SPECIMEN: <i>normal</i> PROJECT: <i>Intake Channel, Redwood City, California</i> BORING NO.: <i>IT-3A, IT-3</i> DEPTH: <i>5.0 ft</i> LABORATORY: <i>NEO</i> DATE: <i>December 1950</i>
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TRIAXIAL COMPRESSION TEST REPORT

<p>$c = 0.0$ T/SF</p> <p>$\phi = 4.52$ DEG</p> <p>TAN $\phi = 0.68$</p>																																																																																									
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DESCRIPTION OF SPECIMENS: <u>Silty fine sand (SM)</u>																																																																																									
LL <u>NP</u>	PL <u>NP</u>	PI <u>NP</u>	G _s <u>2.62</u>	TYPE OF SPECIMEN <u>Remolded</u>	TYPE OF TEST <u>R</u>																																																																																				
REMARKS: <u>* Pore Pressure & same % strain. Major and Minor Principal stresses.</u>				PROJECT <u>Intake Channel, Cooper Lake Re diversion, St. Stephen, S. Carolina</u>																																																																																					
				BORING NO <u>IT-3A & IT-13</u>	SAMPLE NO <u>Composite #1</u>																																																																																				
				DEPTH <u>0.0 - 5.6'</u>																																																																																					
See sheet 1 of 2 for additional information				LABORATORY <u>NED</u>	DATE <u>December 1975</u>																																																																																				
TRIAxIAL COMPRESSION TEST REPORT																																																																																									

ENG FORM NO. 2089
RE JUNE 1970

PREVIOUS EDITION IS OBSOLETE

TRANSLUCENT

(EM 1110-2-1906)

T-45 T 44

No. 1, 2, 3

C

ϕ SHEAR DEG

TAN ϕ

SPECIMEN NO.		1	2	3
INITIAL	WATER CONTENT %	12.9	13.1	13.2
	DRY DENSITY LB/ CU FT	97.8	101	109.6
	SATURATION %	67.0	72.7	70.2
	VOID RATIO	0.469	0.471	0.492
BEFORE SHEAR	WATER CONTENT %	20.0	19.2	20.8
	DRY DENSITY LB/ CU FT	91.3	106.8	105.7
	SATURATION %	100	100	100
	VOID RATIO	0.524	0.503	0.546
FINAL BACK PRESSURE T/ SQ FT		0.20	0.20	0.20
MINOR PRINCIPAL STRESS T/ SQ FT		1.08	2.16	4.32
MAXIMUM DEVIATOR STRESS T/ SQ FT		2.4*	12.19	12.77
TIME TO $\sigma_1 - \sigma_3$ MAX MIN		90	23	44
ULTIMATE DEVIATOR STRESS T/ SQ FT		-	2.46*	10.11*
INITIAL DIAMETER IN		1.42	1.40	1.40
INITIAL HEIGHT IN		3.18	3.15	3.19

CONTROLLED: *strain* TEST

DESCRIPTION OF SPECIMENS: *silty fine SAND (SM)*

LL 5.4	PL 4.1	P ₁ 2.2	U ₁ 2.2	TYPE OF SPECIMEN	<i>Remolded</i>	TYPE OF TEST	<i>R</i>
REMARKS: <i>Spec. 2 is leak in strain. Sample No. 1 & 3 approx. moisture content of 13% (6 H.C. + 2 H.C. in dry weight) or 11.2 for 25% moisture content. See Sheet 2 of 2</i>				PROJECT		<i>Intake channel, Cooper River</i>	
				LOCATION		<i>Redirection, St. Stephen, S. Carolina</i>	
				BORING NO.	<i>IT-3A, IT-13</i>	SAMPLE NO.	<i>Composite "A"</i>
				DEPTH	<i>0.0 - 5.5'</i>		
				AP. DAY BY	<i>NEL</i>	DATE	<i>December 1975</i>

TRIAxIAL COMPRESSION TEST REPORT

ENG. FORM NO. 2089
REV. JUNE 1970

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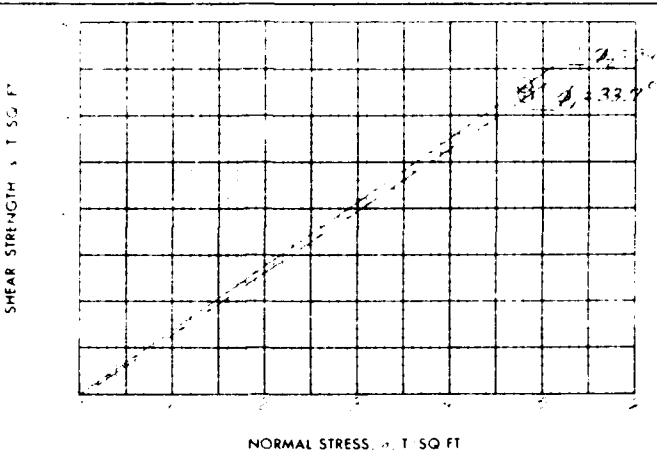
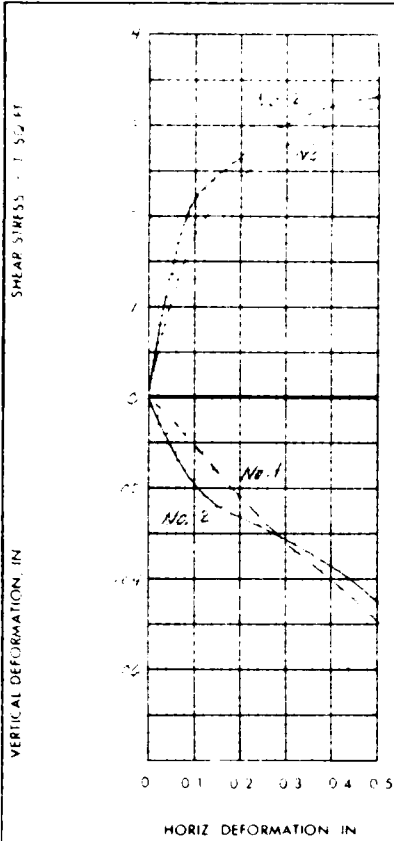
(EM 1110-2-1906)

T-46

T-45

<p>C = 2 T SF</p> <p>$\phi = 30.45^\circ$ DEG</p> <p>TAN $\phi = 0.596$</p>																																																																																	
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Deviator Stress, $\sigma_1 - \sigma_3$, T SOFT</p> <p style="text-align: center;">AXIAL STRAIN, %</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">SPECIMEN NO.</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>WATER CONTENT, %</td> <td>w_0</td> <td>12.7</td> <td>13.1</td> <td>13.1</td> </tr> <tr> <td>DRY DENSITY, LB/CF</td> <td>ρ_s</td> <td>109.8</td> <td>110.0</td> <td>109.5</td> </tr> <tr> <td>SATURATION, %</td> <td>S_0</td> <td></td> <td></td> <td></td> </tr> <tr> <td>VOID RATIO</td> <td>e_0</td> <td></td> <td></td> <td></td> </tr> <tr> <td>WATER CONTENT, %</td> <td>w_c</td> <td></td> <td></td> <td></td> </tr> <tr> <td>DRY DENSITY, LB/CF</td> <td>ρ_c</td> <td></td> <td></td> <td></td> </tr> <tr> <td>VOID RATIO</td> <td>e_c</td> <td></td> <td></td> <td></td> </tr> <tr> <td>CONFINING PRESSURE, T SOFT</td> <td>p_0</td> <td></td> <td></td> <td></td> </tr> <tr> <td>MIN. DRIP. PRES. PRESS. T SOFT</td> <td>p_1</td> <td>5.72</td> <td>5.47</td> <td>5.51</td> </tr> <tr> <td>MAX. MIN. DEVIATOR. STRESS T SOFT</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>TIME TO FAILURE, MIN</td> <td>t_f</td> <td></td> <td></td> <td></td> </tr> <tr> <td>WATER CONTENT, %</td> <td>w_f</td> <td></td> <td></td> <td></td> </tr> <tr> <td>DRY DENSITY, LB/CF</td> <td>ρ_f</td> <td></td> <td></td> <td></td> </tr> <tr> <td>VOID RATIO</td> <td>e_f</td> <td></td> <td></td> <td></td> </tr> <tr> <td>LABORATORY</td> <td></td> <td>NEO</td> <td>NEO</td> <td>NEO</td> </tr> </table>	SPECIMEN NO.		1	2	3	WATER CONTENT, %	w_0	12.7	13.1	13.1	DRY DENSITY, LB/CF	ρ_s	109.8	110.0	109.5	SATURATION, %	S_0				VOID RATIO	e_0				WATER CONTENT, %	w_c				DRY DENSITY, LB/CF	ρ_c				VOID RATIO	e_c				CONFINING PRESSURE, T SOFT	p_0				MIN. DRIP. PRES. PRESS. T SOFT	p_1	5.72	5.47	5.51	MAX. MIN. DEVIATOR. STRESS T SOFT					TIME TO FAILURE, MIN	t_f				WATER CONTENT, %	w_f				DRY DENSITY, LB/CF	ρ_f				VOID RATIO	e_f				LABORATORY		NEO	NEO	NEO
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DESCRIPTION OF SPECIMENS - 3/4" DIA. SAND (SN)																																																																																	
CC: 14% PL: 11% LI: 10% LL: 20% PI: 22% CL: 22% TYPE OF SPECIMEN: Low Stress, Type of Test: C																																																																																	
REMARKS: * Low Pressure & sample No. 1 strain to Max and Minor Principal stress See next 1002 for additional information	PROJECT: Int. to Highway, Super Elevation R-1000 (Highway) - 4.0000 BORING NO. ST 3A & ST 13 SAMPLE NO. SC-100-10-1 DEPTH: 6.0' - 5.5' LABORATORY: NEO DATE: Dec. 11, 1953																																																																																

T-47 -40



SHEAR STRENGTH PARAMETERS

33.7°

$C = 0.01$

$\sigma = 0.0$ T SQ FT

CONTROLLED STRESS

CONTROLLED STRAIN

TEST NO		1	2
INITIAL	WATER CONTENT	11.8%	11.8%
	VOID RATIO	0.48	0.48
	SATURATION	55.4%	55.4%
	DRY DENSITY	1.04	1.04
	VOID RATIO AFTER CONSOLIDATION	0.376	0.376
	TIME FOR 50 PERCENT CONSOLIDATION MIN	2.5	2.4
FINAL	WATER CONTENT	12.0%	12.4%
	VOID RATIO	0.287	0.314
	SATURATION	100%	100%
	NORMAL STRESS T SQ FT	4.80	4.80
	MAXIMUM SHEAR STRESS T SQ FT	3.01*	3.3*
	ACTUAL TIME TO FAILURE MIN	60	60
	RATE OF STRAIN IN MIN	0.0083	0.0083
	ULTIMATE SHEAR STRESS T SQ FT	-	-

TYPE OF SPECIMEN: *1.5 x 1.5 x 1.5* IN SQUARE IN THICK

CLASSIFICATION: *3.04 FINE SAND (S.M.)*

LL: *1.7* PL: *1.4* PI: *0.3* G: *2.67*

REMARKS: *See test log for details.*

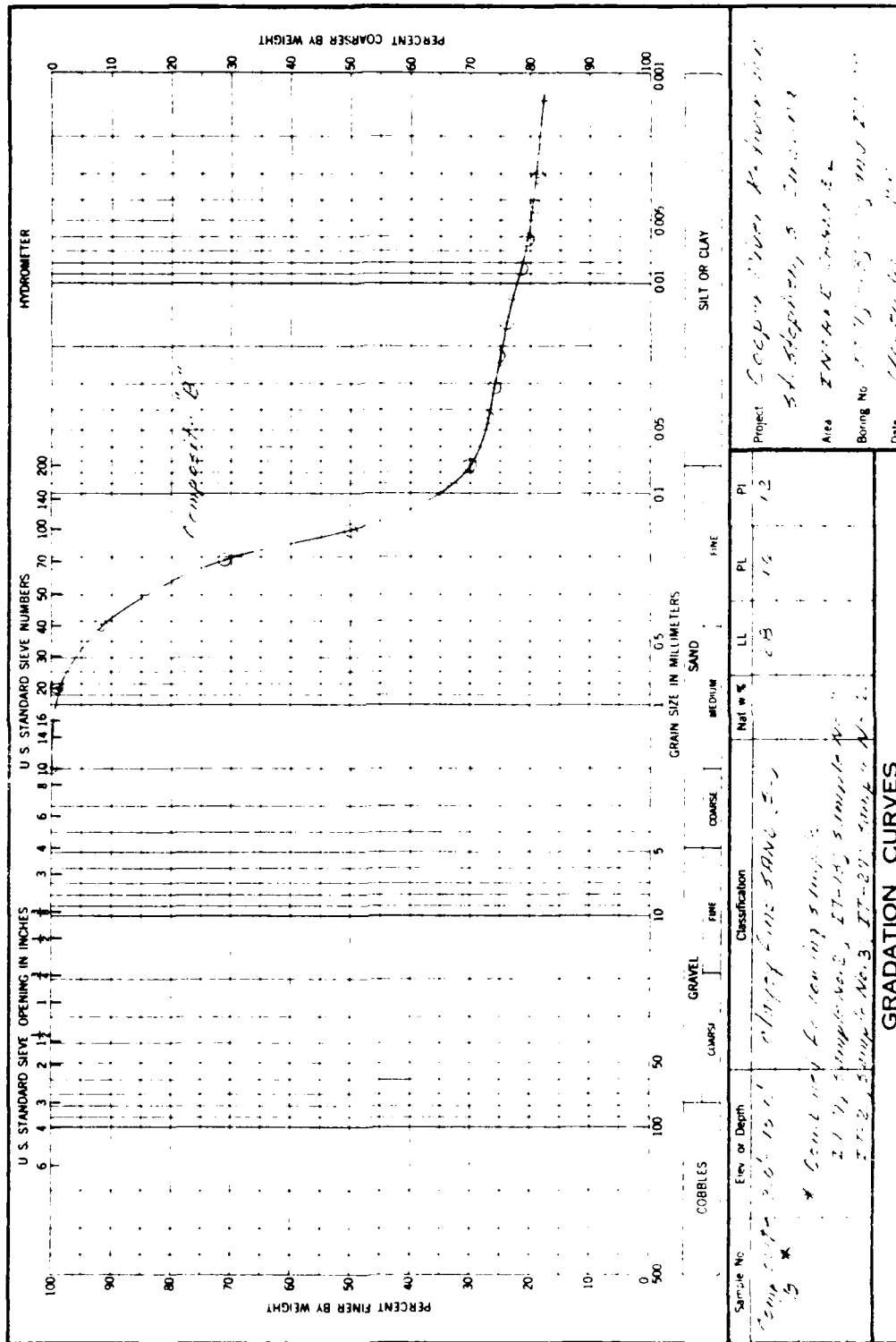
Samples marked 1 & 2 are moisture content of 11.8% to 12.4% and dry density of 1.04 to 1.04 g/cm³.

PROJECT: *Soil Properties Investigation*

AREA: *1.5 x 1.5 x 1.5 CHANNEL*

DEPTH: *1.5 FT* DATE: *November 1955*

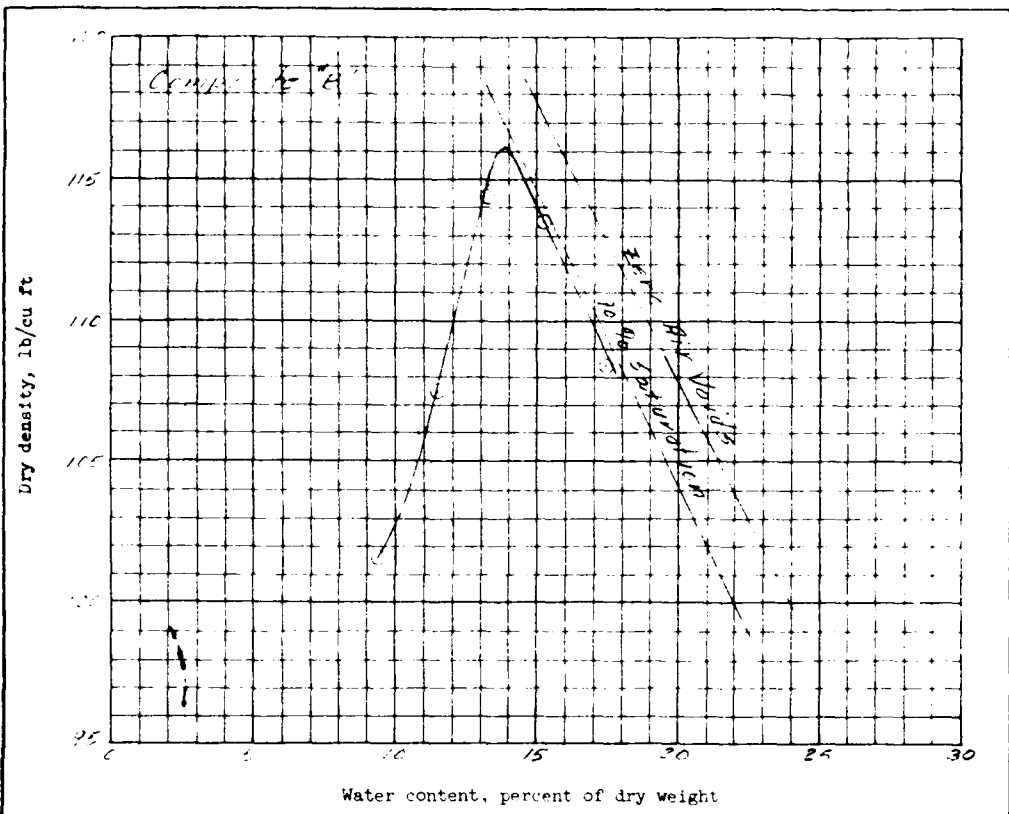
DIRECT SHEAR TEST REPORT



Incl. 2

T-49

ENG 2007



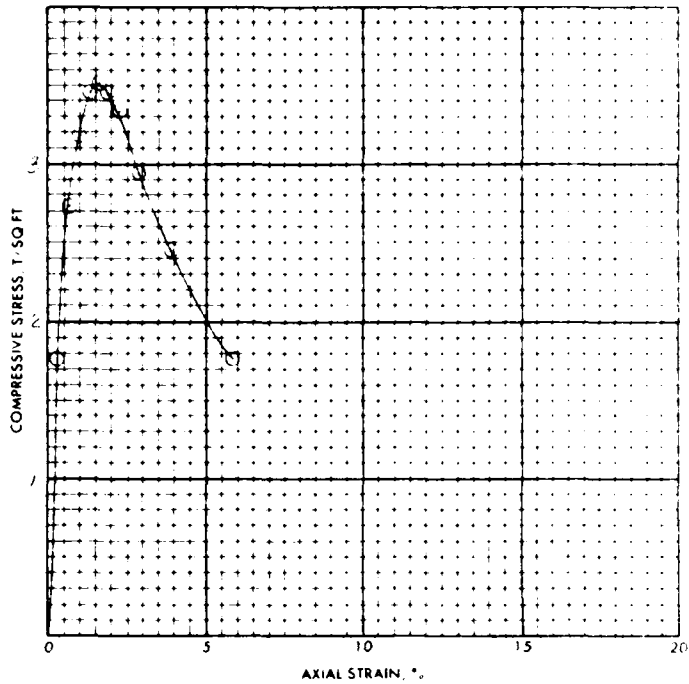
57012112 compaction test
 25 blows per each of 3 layers, with 5.5 lb rammer and
 12 inch drop. 4 inch diameter mold

Sample No.	Elev or Depth	Classification	G	LL	PL	% > No. 4	% > 3/4 in.
Composite B*	2.0-15.0	clayey fine sand (SC)	263	28	16	0	0

Sample No.	Composite B*
Natural water content, percent	
Optimum water content, percent	13.9
Max dry density, lb/cu ft	116.1

Remarks * Composite following samples:	Project	Copper River Rediversion
IT-7, Sample No. 1	Area	St. Stephen, S. Diversion
IT-13, Sample No. 2	Boring No.	IT-7, IT-13, IT-21, IT-27
IT-21, Sample No. 3	Date	November, 1955
IT-27, Sample No. 4	COMPACTION TEST REPORT	

FAILURE SKETCHES



- CONTROLLED STRESS
- CONTROLLED STRAIN

TEST NO	
TYPE OF SPECIMEN	<i>Remolded</i>
WATER CONTENT	<i>w 12.7%</i>
VOID RATIO	<i>e 0.482</i>
SATURATION	<i>S 74.7%</i>
DRY DENSITY, LB/CU FT	<i>γ_d 110.7</i>
TIME TO FAILURE, MIN	<i>t_f 1.5</i>
UNCONFINED COMPRESSIVE STRENGTH, T/SQ FT	<i>q_u 3.51</i>
UNDRAINED SHEAR STRENGTH, T/SQ FT	<i>s -</i>
SENSITIVITY RATIO	<i>S -</i>
INITIAL SPECIMEN DIAMETER, IN	<i>D 3.60</i>
INITIAL SPECIMEN HEIGHT, IN	<i>H 3.15</i>

CLASSIFICATION *Clayey Fine SAND (SC)*
 LL *28* PL *16* PI *12*

REMARKS *2 samples remolded
 @ approx moisture content
 of 12.7% (e, 0.482) and dry
 density of 110.2 Pcf (95%
 max density)*

PROJECT *Cooper River Rehabilitation*
 AREA *St. 54-pylon, S. CIV 1102*
 BORING NO *IT-2, 3, 4, 5* SAMPLE NO *Composite E*
 DEPTH *3-15.5'* DATE *Nov 10, 1964*

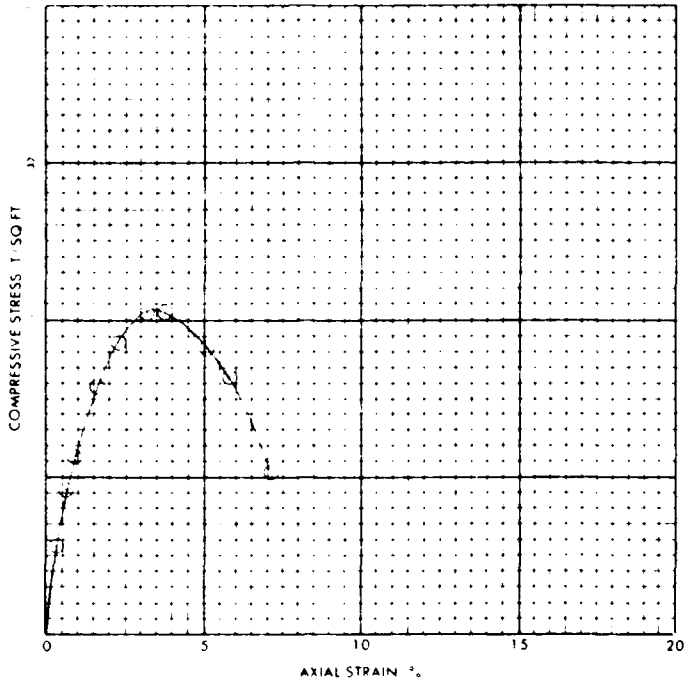
UNCONFINED COMPRESSION TEST REPORT

FAILURE SKETCHES



CONTROLLED STRESS

CONTROLLED STRAIN



TEST NO

TYPE OF SPECIMEN

WATER CONTENT

VOID RATIO

SATURATION

DRY DENSITY LB CU FT

TIME TO FAILURE MIN

UNCONFINED COMPRESSIVE STRENGTH T/SQ FT

UNDRAINED SHEAR STRENGTH, T/SQ FT

SENSITIVITY RATIO

INITIAL SPECIMEN DIAMETER, IN

INITIAL SPECIMEN HEIGHT, IN

Remolded

15.8

0.492

84.2

11.9

3

2.05

-

-

1.0

3.11

CLASSIFICATION

Clayey Fine Sand (SC)

LL

28

PL

16

PI

12

G

2.63

REMARKS

*Sample remolded
3 approx. moisture content
of 15% (11.0, 12.0, 14.0)
dry density of 11.9 p.c.f.
(95% max. density)*

PROJECT

Cooper River Re diversion

AREA

*St. Stephen, S. Carolina
INTAKE TUNNEL*

BORING NO

17, 18, 19

SAMPLE NO

specimens "B"

DEPTH

1.0 - 1.5'

DATE

November 1975

UNCONFINED COMPRESSION TEST REPORT

ENG FORM
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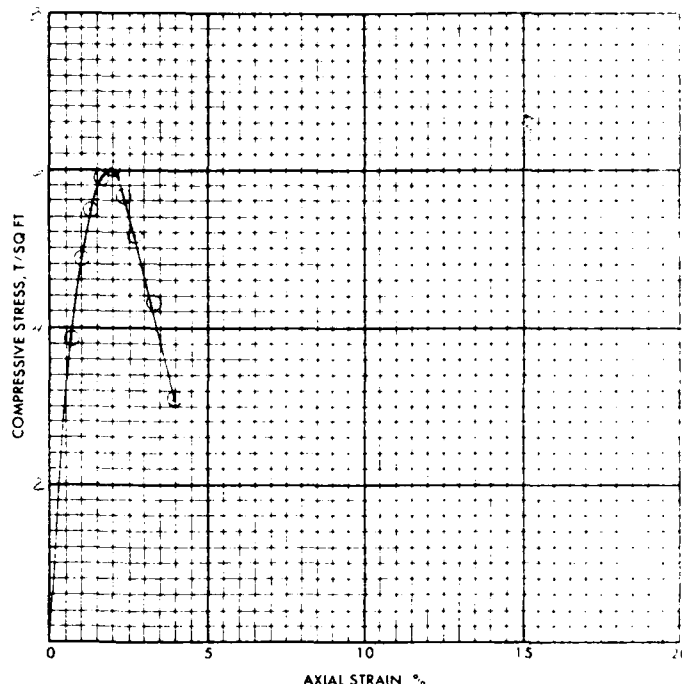
TRANSMITT

1 10 1966

PLATE XI 2

T52 T-51

FAILURE SKETCHES



CONTROLLED STRESS
 CONTROLLED STRAIN

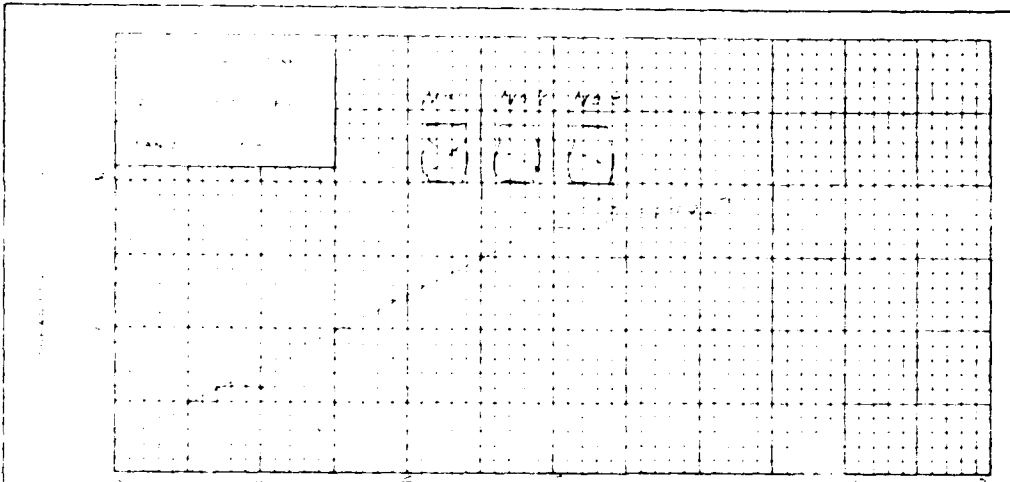
TEST NO	1
TYPE OF SPECIMEN	Remolded
WATER CONTENT	w _p 11.8 %
VOID RATIO	e 0.505
SATURATION	S 51.3 %
DRY DENSITY, LB/CU FT	γ _d 110.2
TIME TO FAILURE, MIN	t _f 2
UNCONFINED COMPRESSIVE STRENGTH, T/SQ FT	q _u 6.02
UNDRAINED SHEAR STRENGTH, T/SQ FT	s _u -
SENSITIVITY RATIO	S _v -
INITIAL SPECIMEN DIAMETER, IN	D 1.42
INITIAL SPECIMEN HEIGHT, IN	H 3.57

CLASSIFICATION *clayey fine sand (SC)*
 LL *25* PI *10*

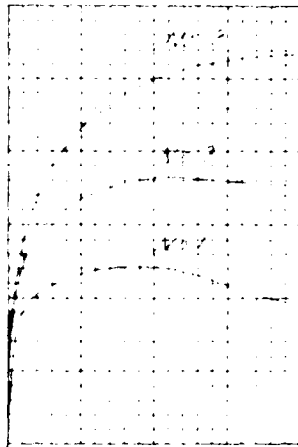
REMARKS *Sample remolded & used for moisture content of 11.8% (comp. - 2%) and dry density of 110.2 Pcf. Initial max. density*

PROJECT *Cooper River Water Treatment Plant, Charleston, S.C.*
 AREA *INTAKE CHANNEL*
 BORING NO. *IT 7, 21, 27* SAMPLE NO. *1*
 DEPTH *3.0-15'* DATE *6/15/65*

UNCONFINED COMPRESSION TEST REPORT



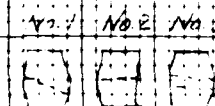
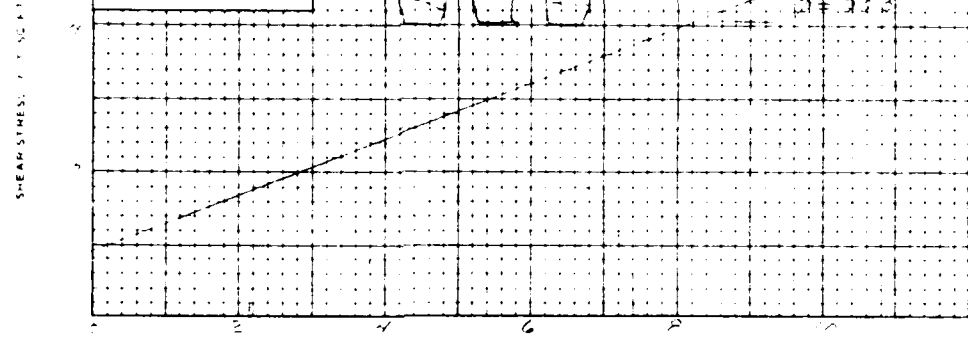
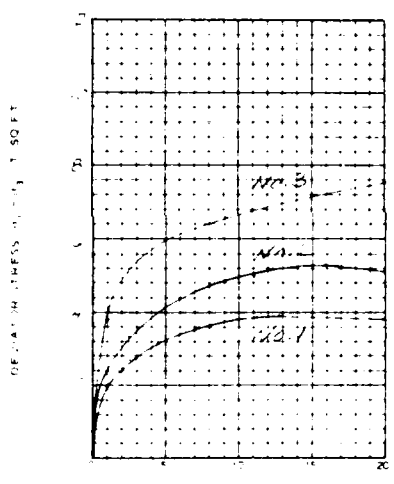
NUMERICAL STRESS TEST



TEST	WATER CONTENT	WATER CONTENT	WATER CONTENT	WATER CONTENT
1	11.2	11.2	11.2	11.2
2	11.2	11.2	11.2	11.2
3	11.2	11.2	11.2	11.2
4	11.2	11.2	11.2	11.2
5	11.2	11.2	11.2	11.2
6	11.2	11.2	11.2	11.2
7	11.2	11.2	11.2	11.2
8	11.2	11.2	11.2	11.2
9	11.2	11.2	11.2	11.2
10	11.2	11.2	11.2	11.2
11	11.2	11.2	11.2	11.2
12	11.2	11.2	11.2	11.2
13	11.2	11.2	11.2	11.2
14	11.2	11.2	11.2	11.2
15	11.2	11.2	11.2	11.2
16	11.2	11.2	11.2	11.2
17	11.2	11.2	11.2	11.2
18	11.2	11.2	11.2	11.2
19	11.2	11.2	11.2	11.2
20	11.2	11.2	11.2	11.2

1. *Handwritten notes and calculations.*
 2. *Handwritten notes and calculations.*
 3. *Handwritten notes and calculations.*
 4. *Handwritten notes and calculations.*
 5. *Handwritten notes and calculations.*
 6. *Handwritten notes and calculations.*
 7. *Handwritten notes and calculations.*
 8. *Handwritten notes and calculations.*
 9. *Handwritten notes and calculations.*
 10. *Handwritten notes and calculations.*
 11. *Handwritten notes and calculations.*
 12. *Handwritten notes and calculations.*
 13. *Handwritten notes and calculations.*
 14. *Handwritten notes and calculations.*
 15. *Handwritten notes and calculations.*
 16. *Handwritten notes and calculations.*
 17. *Handwritten notes and calculations.*
 18. *Handwritten notes and calculations.*
 19. *Handwritten notes and calculations.*
 20. *Handwritten notes and calculations.*

TYPE OF TEST: *2*
 TESTER: *James J. ...*
 INSTRUMENT: *574 ...*
 SAMPLE NO.: *3*
 DATE: *November 1965*
 TRIAXIAL COMPRESSION TEST REPORT

TYPICAL TEST 20 - DEG TANGENT		4.7 No 2 No 3 			1 + 323				
		NORMAL STRESS σ T SQ FT							
		AXIAL STRAIN %							
SPECIMEN NO.		WATER CONTENT % w_0		DRY DENSITY ρ_d LB CU FT		SATURATION % S_0		VOID RATIO e_0	
INITIAL		57 59		10.3 11.0		24 25 24		1.468 1.402 1.421	
BEFORE SHEAR		WATER CONTENT % w_c		DRY DENSITY ρ_d LB CU FT		SATURATION % S_c		VOID RATIO e_c	
MINOR PRINCIPAL STRESS σ_3 T SQ FT		2.5 2.5 4.2		MAXIMUM DEVIATOR STRESS $\sigma_1 - \sigma_3$ T SQ FT		4.2 7.8		TIME TO FAILURE MIN 15 15 15	
FINAL RAISED PRESSURE T SQ FT σ_0		2.4		ULTIMATE DEVIATOR STRESS $\sigma_1 - \sigma_3$ T SQ FT		2.4		INITIAL DIAMETER IN D_0 1.42 1.42 1.42	
INITIAL HEIGHT IN H_0		3.0 3.0 3.0		TYPE OF SPECIMEN		2000		TYPE OF TEST G	
LL 58 P ₁₀ 16 P ₂₀ 12 W _L 63		PROJECT		Ind the 24th 1951, Camp 1, 1951					
REMARKS *		BORING NO.		27-9, 13, 21, 27					
3 samples removed for approx. moisture content of 15.9 to 18.0% + 2% max. density of 10.3 per (15.9% max. density)		DEPTH FEET		3.0 15.0					
LABORATORY		NEL		DATE 10/10/51					

ENG FORM NO. 2089 PREVIOUS EDITIONS OBSOLETE TRANSLUCENT (EM 1110-2-1906)

T-55

NORMAL STRESS (lb/sq ft)

AXIAL STRAIN (%)

EQUIPMENT		1	2	3
WATER CONTENT (%)	w_0	8	11.3	12
DRY DENSITY (lb/cu ft)	ρ_d	1.17	1.17	1.17
SATURATION (%)	s_0	64.1	67.0	68.8
VOID RATIO	e_0	1.42	1.42	1.42
WATER CONTENT (%)	w_c			
DRY DENSITY (lb/cu ft)	ρ_{dc}			
SATURATION (%)	s_c			
VOID RATIO	e_c			
FINAL WALK PRESSURE (lb/sq ft)	u_0			
MINOR PRINCIPAL STRESS (lb/sq ft)	σ_3	1.08	2.16	4.32
MAXIMUM DEVIATOR STRESS (lb/sq ft)	$\sigma_1 - \sigma_3$	4.74	7.72	11.50*
MEAN STRESS (lb/sq ft)	$\sigma_1 + \sigma_3$	1.4	2	15
ULTIMATE DEVIATOR STRESS (lb/sq ft)	$\sigma_1 - \sigma_3$	4.74*	6.90*	-
INITIAL DIAMETER (in)	D_0	1.42	1.42	1.42
INITIAL HEIGHT (in)	H_0	3.15	3.15	3.15

CONTROLLED: *ATL 11* TEST

DESCRIPTION OF SPECIMEN: *Composite Sand (B)*

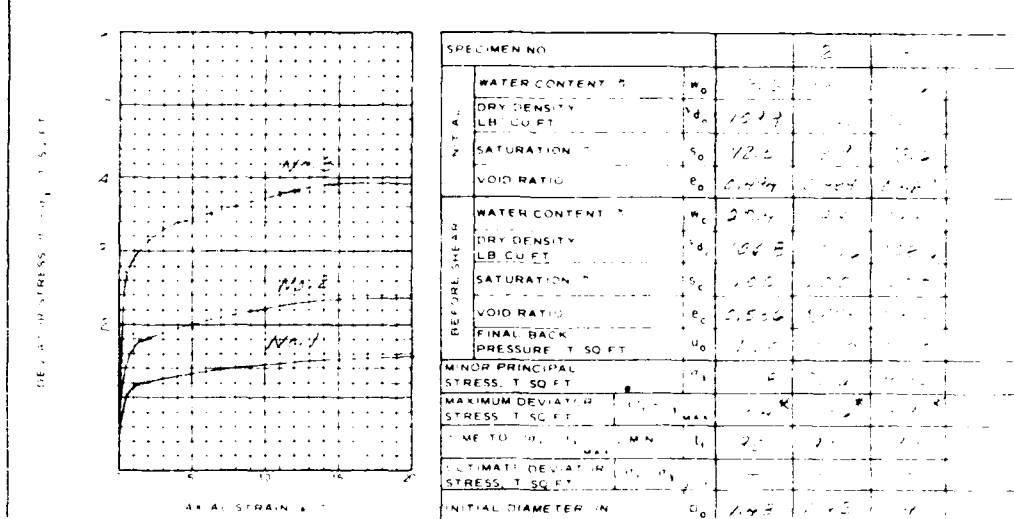
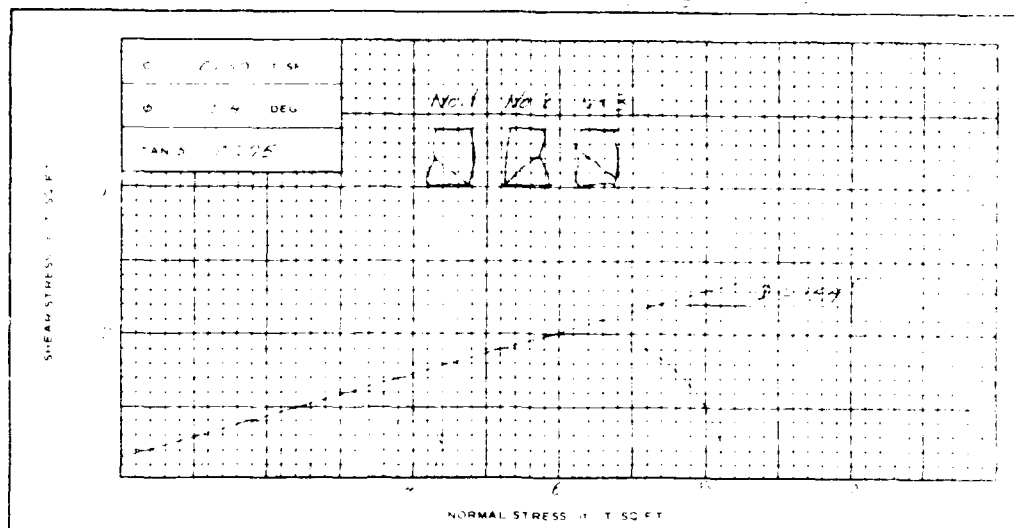
TYPE OF SPECIMEN: *Composite* TYPE OF TEST: *Q*

REMARKS: *Composite of sand and silt. Sample composed of upper portion content of 11.3% water - 2.17 dry density of 11.3 pcf. 98% moisture ratio.*

PROJECT: *Inter-University Cooper. Proj.*
 LOCATION: *at Raleigh, S. Carolina*
 BORING NO: *IT 7, 10, 21, 27* SAMPLE NO: *Composite "B"*
 ESTIMATED: *3-2-50*
 AIR DATE: *N/D* DATE: *December 1975*

TRIAXIAL COMPRESSION TEST REPORT

T-56-55



SPECIMEN NO.		1	2	3
WATER CONTENT %	w _c	20.5	20.5	20.5
DRY DENSITY LB. CU. FT.	ρ _d	1513	1513	1513
SATURATION %	s _c	12.5	12.5	12.5
VOID RATIO	e _c	0.479	0.479	0.479
WATER CONTENT %	w _c	20.5	20.5	20.5
DRY DENSITY LB. CU. FT.	ρ _d	1513	1513	1513
SATURATION %	s _c	12.5	12.5	12.5
VOID RATIO	e _c	0.479	0.479	0.479
FINAL BACK PRESSURE T. SO. FT.	u ₀	0	0	0
MINOR PRINCIPAL STRESS T. SO. FT.	σ ₃	0	0	0
MAXIMUM DEVIATOR STRESS T. SO. FT.	σ ₁ - σ ₃	1.5	1.5	1.5
TIME TO FAILURE MIN.	t _f	20	20	20
ESTIMATE DEVIATOR STRESS T. SO. FT.	σ ₁ - σ ₃	1.5	1.5	1.5
INITIAL DIAMETER IN.	d ₀	1.43	1.43	1.43
INITIAL HEIGHT IN.	h ₀	2.5	2.5	2.5

NO. 1 - 20.5% WATER, 1513 LB. CU. FT. DRY DENSITY, 12.5% SATURATION, 0.479 VOID RATIO. TEST TYPE: TRIAXIAL COMPRESSION.

REMARKS: *Sample 20.5% water, 1513 lb/cu ft dry density, 12.5% saturation, 0.479 void ratio. Initial diameter 1.43 in, height 2.5 in.*

PROJECT: *Inter. Soil. Comp. Lab.*

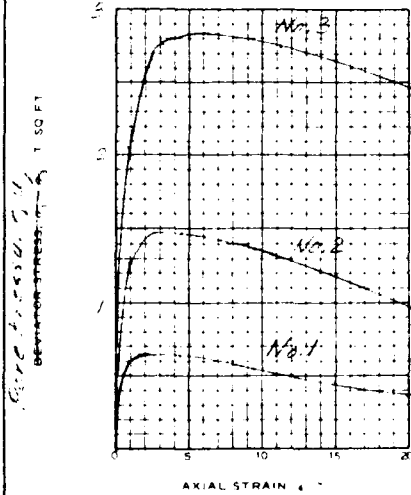
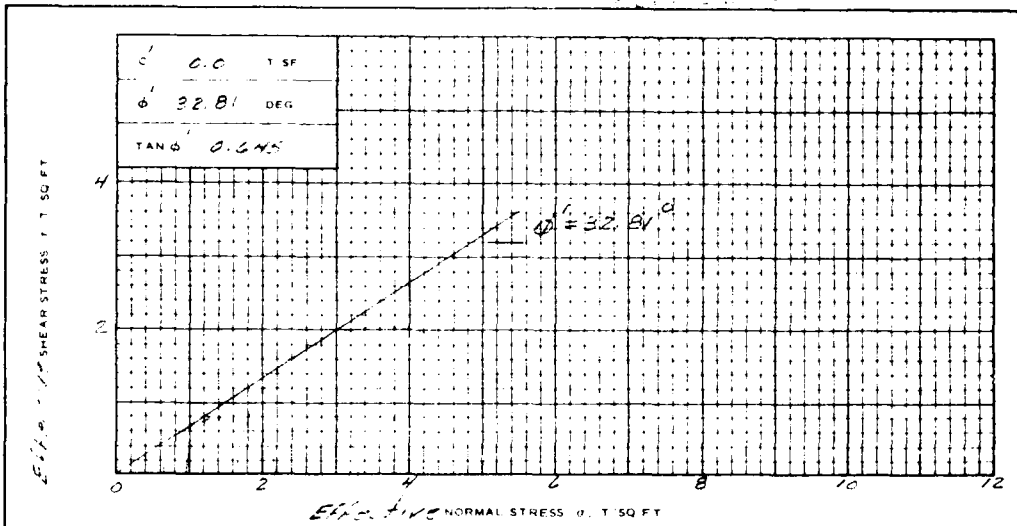
RESEARCH NO.: *IT 4130427* SAMPLE NO.: *10-2-53*

DEPTH: *2.5 ft*

LABORATORY: *USC* DATE: *10-2-53*

TRIAxIAL COMPRESSION TEST REPORT

T-57



		1	2	3
INITIAL	WATER CONTENT, %			
	DRY DENSITY LB. CU FT			
	SATURATION, %			
	VOID RATIO			
BEFORE SHEAR	WATER CONTENT, %			
	DRY DENSITY LB. CU FT			
	SATURATION, %			
	VOID RATIO			
FINAL BACK PRESSURE T SQ FT				
MINOR PRINCIPAL STRESS T SQ FT		0.64	0.97	1.61
MAXIMUM DEVIATOR STRESS T SQ FT				
TIME TO $\sigma_1 = \sigma_3$ MAX. MIN				
ULTIMATE DEVIATOR STRESS T SQ FT				
MO. PRIN. STRESS				
MINOR DIAMETER IN		2.18	3.33	5.61
PORE PRESSURE T SF		+0.44*	+1.19*	+2.65*

CONTROLLED- *strain* TEST

DESCRIPTION OF SPECIMENS *clayey fine SAND (SC)*

PL 28	PL 16	PL 12	PL 03	TYPE OF SPECIMEN <i>Remolded</i>	TYPE OF TEST <i>K</i>
REMARKS <i>*Pore Pressure 2.5 times \sigma_3</i>				PROJECT <i>Intake Channel, Cooper River</i>	
<i>strain 4, No. 1 & Minor Prin. Stresses</i>				<i>Rediversion, St. Stephen, S. Carolina</i>	
<i>Samples removed & checked</i>				BOHRING NO. <i>IT-7, 13, 21, 27</i>	SAMPLE NO. <i>Composite "B"</i>
<i>moisture content of 12.5% to 16.5%</i>				DEPTH <i>3.0' - 15.0'</i>	
<i>dry density of 110.3 pcf, 95% max density</i>				ABBREVIATION <i>NED</i>	DATE <i>November 1975</i>
TRIAXIAL COMPRESSION TEST REPORT					

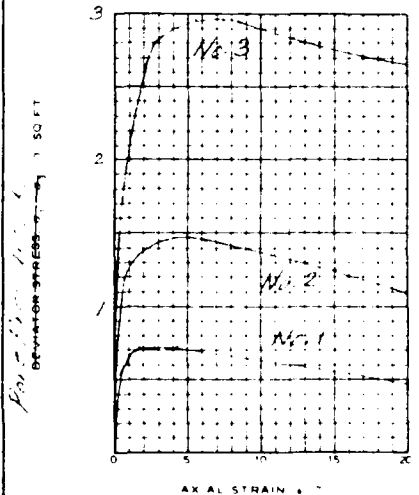
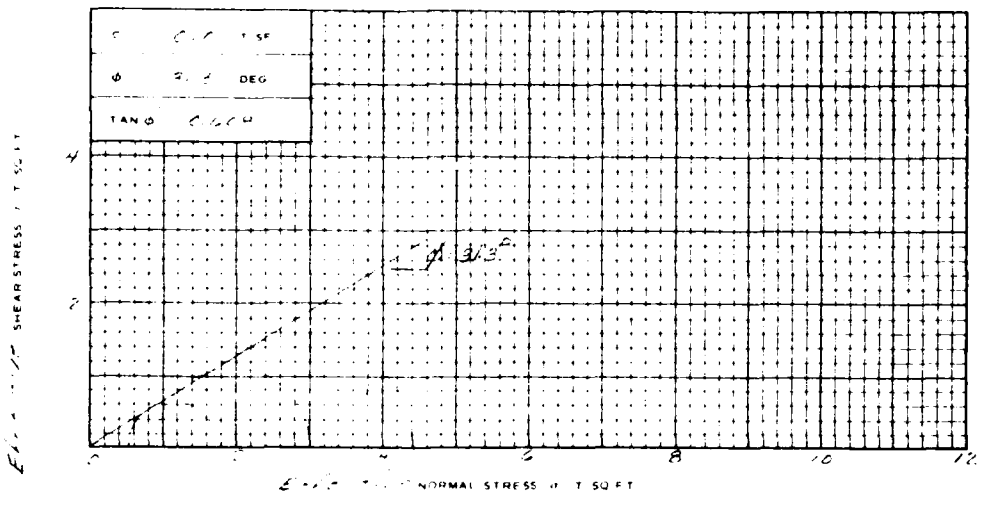
7-58, 57

C = 2.5 T/SF ϕ = 15 DEG TAN ϕ = 0.267	
SHEAR STRESS, τ , T/SQ FT	NORMAL STRESS, σ , T/SQ FT
DEVIATOR STRESS, $(\sigma_1 - \sigma_3)$, T/SQ FT	AXIAL STRAIN, %
CONTROLLED - <i>3-2-1-1</i> TEST	DESCRIPTION OF SPECIMENS <i>clayey fine sand (SC)</i>

SPECIMEN NO		1	2	3
INITIAL	WATER CONTENT, %	w_o 15.3	15.1	14.5
	DRY DENSITY, LB/ CU FT	γ_d 110.1	110.0	109.0
	SATURATION, %	s_o 85.0	85.0	84.6
	VOID RATIO	e_o 1.472	1.476	1.477
BEFORE SHEAR	WATER CONTENT, %	w_c 21.5	21.7	21.2
	DRY DENSITY, LB/ CU FT	γ_d 104.6	105.3	107.6
	SATURATION, %	s_c 100	100	100
	VOID RATIO	e_c 1.521	1.529	1.521
FINAL BACK PRESSURE, T/SQ FT		u_o 500	500	500
MINOR PRINCIPAL STRESS, T/SQ FT		σ_3 1.22	2.16	4.33
MAXIMUM DEVIATOR STRESS, T/SQ FT		$(\sigma_1 - \sigma_3)_{MAX}$ 1.52*	2.11*	3.52
TIME TO $(\sigma_1 - \sigma_3)_{MAX}$, MIN		t_f 70	15	60
ULTIMATE DEVIATOR STRESS, T/SQ FT		$(\sigma_1 - \sigma_3)_{ULT}$ -	-	3.52*
INITIAL DIAMETER, IN		D_o 1.42	1.47	1.41
INITIAL HEIGHT, IN		H_o 3.16	3.15	3.2

LL 22	PL 16	PI 17	GI 20.2	TYPE OF SPECIMEN <i>1.5 in. dia</i>	TYPE OF TEST <i>AC</i>
REMARKS <i>*Specimens consolidated 2 in. dia, 1 in. high & 100% moisture content at 15.3% (100% + 2%) dry density at 100% relative humidity</i>				PROJECT <i>ET-13, 21, 27</i>	SAMPLE NO. <i>SC-101, 102, 103</i>
				BORING NO. <i>ET-7, 13, 21, 27</i>	DEPTH ELEV. <i>2.0, 15.0</i>
				LABORATORY <i>NLC</i>	DATE <i>August 14, 1968</i>

T-59



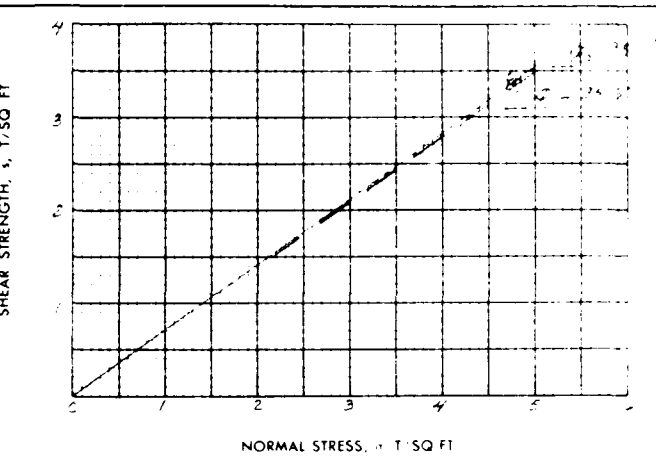
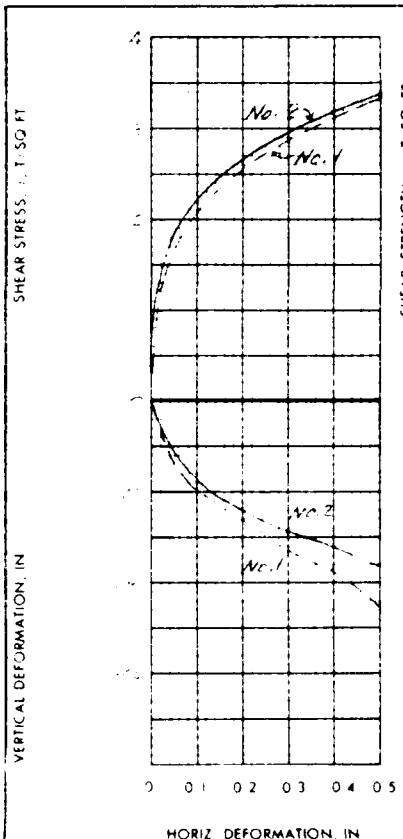
SPECIMEN NO.		1	2	3
WATER CONTENT %	w_0			
DRY DENSITY LB CU FT	γ_d			
SATURATION %	s_0			
VOID RATIO	e_0			
WATER CONTENT %	w_c			
DRY DENSITY LB CU FT	γ_{dc}			
SATURATION %	s_c			
VOID RATIO	e_c			
FINAL BULK PRESSURE (T SF)	U_0			
MINOR PRINCIPAL STRESS (T SF)	σ_3	0.53	0.72	1.37
MAXIMUM DEVIATOR STRESS (T SF)	$\sigma_1 - \sigma_3$ MAX			
TIME TO FAILURE MIN	t_f			
ULTIMATE DEVIATOR STRESS (T SF)	$\sigma_1 - \sigma_3$ ULT			
ADJ. PRIN. STRESS, EQUAL DIAMETER IN TSL		1.81	3.03	4.34
HYDRAULIC HEAD IN PORE PRESSURE T SF		+0.00*	+1.24*	+2.95*

CONTROLLED: *strain* TEST
 DESCRIPTION OF SPECIMENS: *clayey fine SAND (SC)*

LL %	PL %	LI %	PI %	TYPE OF SPECIMEN	TYPE OF TEST
	16		2.63	<i>Remolded</i>	<i>R</i>
REMARKS: <i>Positive at 2000 lb load, strain at this time for stress. Samples remolded & used for determination of w_p for w_L and density.</i>				PROJECT <i>Inlet Channel, Cooper River</i>	
				LOCATION <i>Redivision, East-pier, S. Carolina</i>	
BORING NO.		DEPTH BELOW		SAMPLE NO.	
<i>ET 7, 13, 21, 27</i>		<i>3.0' - 15.0'</i>		<i>Composite "B"</i>	
LABORATORY			DATE		
<i>NEC</i>			<i>November 1975</i>		

TRIAXIAL COMPRESSION TEST REPORT

T-60 -59



HORIZ DEFORMATION, IN

SHEAR STRENGTH PARAMETERS

$\phi = 34.8^\circ$
 $c = 0.694$
 $c = 0.9$ T/SQ FT

- CONTROLLED STRESS
- CONTROLLED STRAIN

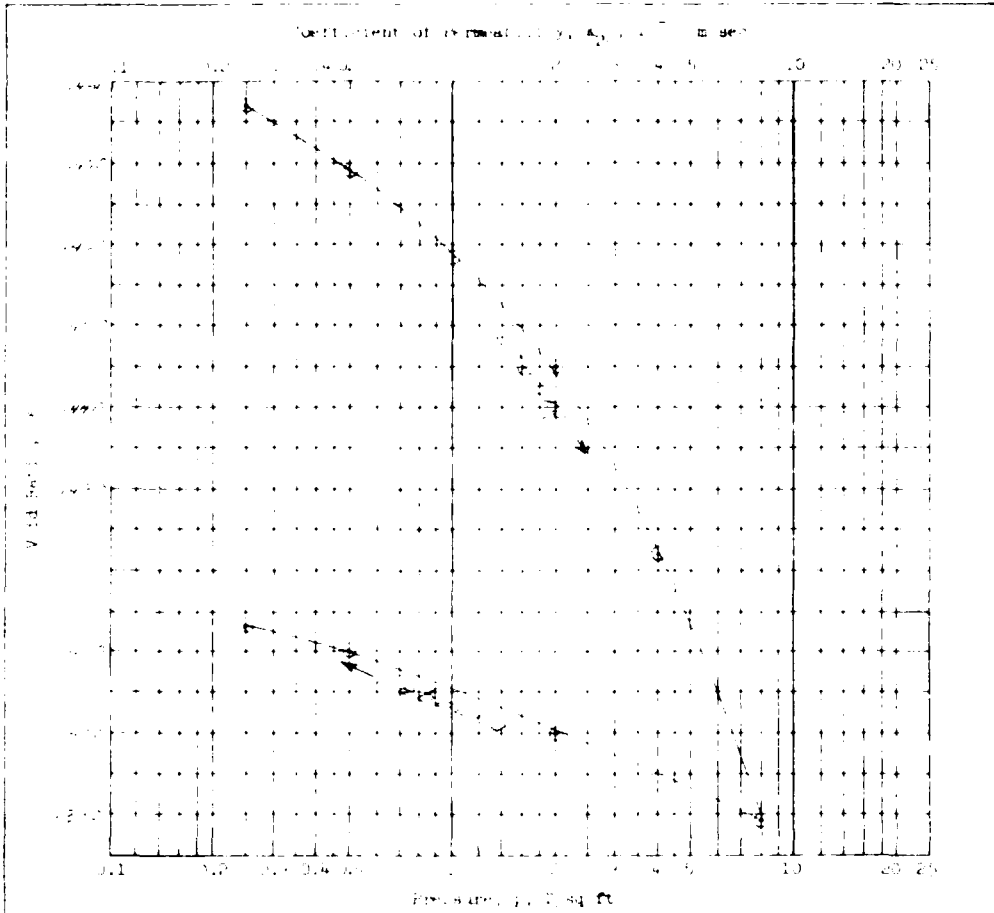
TEST NO		1	2
INITIAL	WATER CONTENT	W 31.7	32.1
	VOID RATIO	e 0.48	0.48
	SATURATION	S 73.7	73.7
	DRY DENSITY LB CU FT	110.3	110.3
FINAL	VOID RATIO AFTER CONSOLIDATION	e 0.470	0.470
	TIME FOR 50 PERCENT CONSOLIDATION, MIN	0.8	0
	WATER CONTENT	W 32.1	32.1
	VOID RATIO	e 0.468	0.468
NORMAL STRESS, T/SQ FT		4.80	4.80
	MAXIMUM SHEAR STRESS T/SQ FT	3.32	3.30
ACTUAL TIME TO FAILURE, MIN		20	20
RATE OF STRAIN IN MIN		0.0001	0.0001
ULTIMATE SHEAR STRESS T/SQ FT			

TYPE OF SPECIMEN *Handmade* 3.0 IN SQUARE 0.5 IN THICK
 CLASSIFICATION *very fine sand (S)*
 LL 28 PL 10 PI 12 G 24.2

REMARKS *... ..*
... ..
... ..

PROJECT *Cooper River Extension*
H. Stephens, S. Carolina
 AREA *INTAKE CHANNEL*
 BORING NO *IT-2A* SAMPLE NO *Composite 2*
IT-13
 DEPTH *6.0-7.0'* DATE *November 1956*

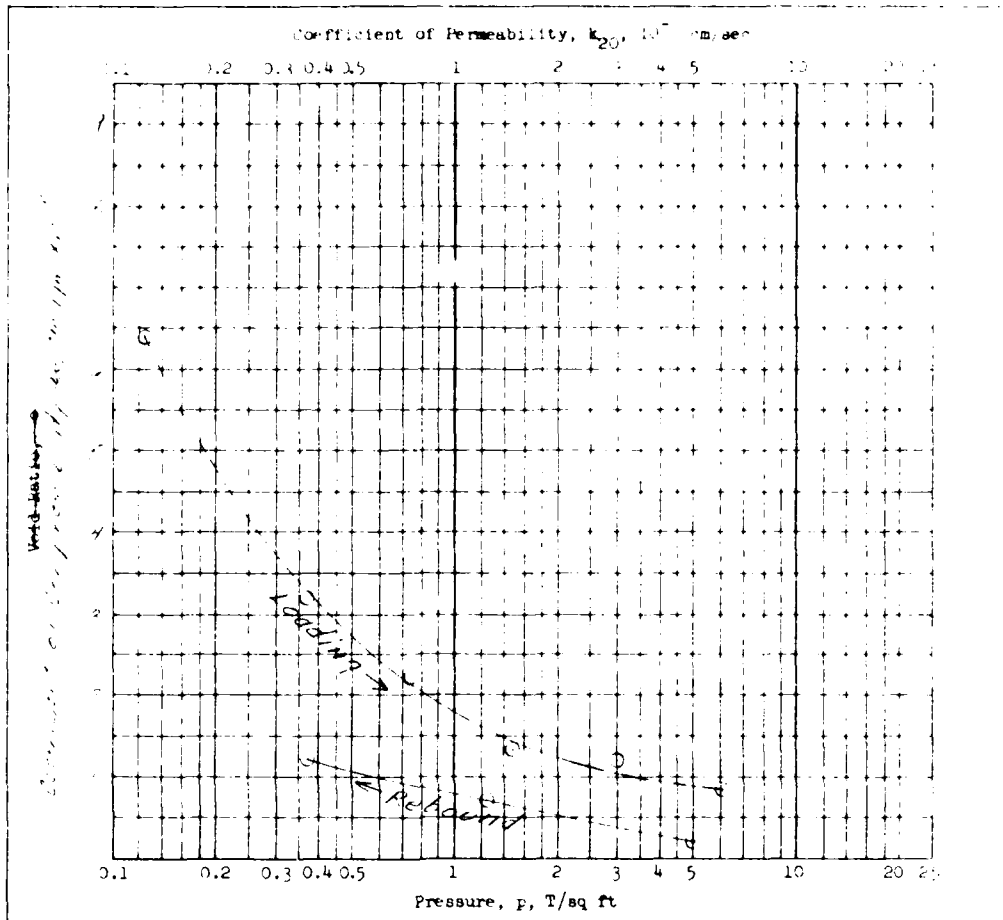
DIRECT SHEAR TEST REPORT



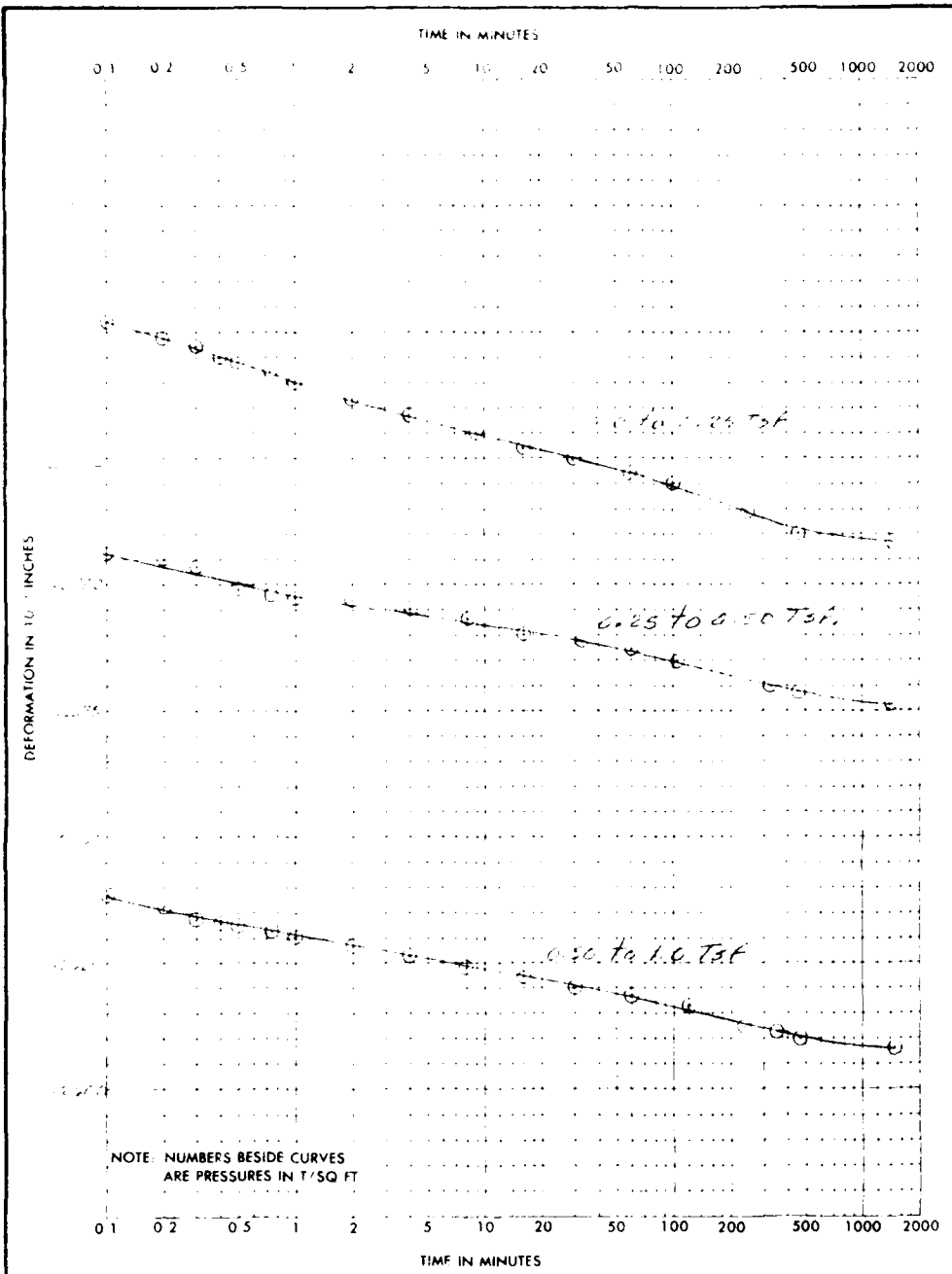
Type of Specimen: <i>1.5 in. dia, 1.0 in. ht</i>		before Test		After Test	
Diam <i>1.5 in.</i>	Ht <i>1.0 in.</i>	Water Content, w_o	<i>15.7 %</i>	w_f	<i>15.1 %</i>
Overburden Pressure, P_o	T/ft	Void Ratio, e_o	<i>0.493</i>	e_f	<i>0.413</i>
Preconsol. Pressure, p_c	T/sq ft	Saturation, S_o	<i>83.7 %</i>	S_f	<i>100 %</i>
Compression Index, C_c	<i>0.1</i>	Dry Density, γ_d	<i>107.9 lb/ft³</i>		
Classification <i>SM (15-20) (LL 20, PL 1)</i>		k_{20} at e_o	$\times 10^{-7}$ cm/sec		
LL <i>20</i>	G_s <i>2.63</i>	Project <i>St. Stephen S. Culvert</i>			
PL <i>1</i>		Area <i>INTAKE CHANNEL</i>			
Remarks <i>(1) Sample removed from 15.1% moisture content at 15.1% (0.15 x 100) and dry density of 107.9 lb/ft³ (1.5 in. dia, 1.0 in. ht)</i>		Boring No. <i>IT-2, 17, 21, 27</i>			
<i>(2) Consolidation following sample</i>		Depth <i>21.0, 15.0</i>		Sample No. <i>Composite B</i>	
<i>IT-2, S-2 IT-13, S-2</i>		Date <i>Dec 11, 1973</i>			
<i>IT-21, S-3 IT-27, S-2</i>					
CONSOLIDATION TEST REPORT					

SI-11-1015

*T-62*_{T-61}



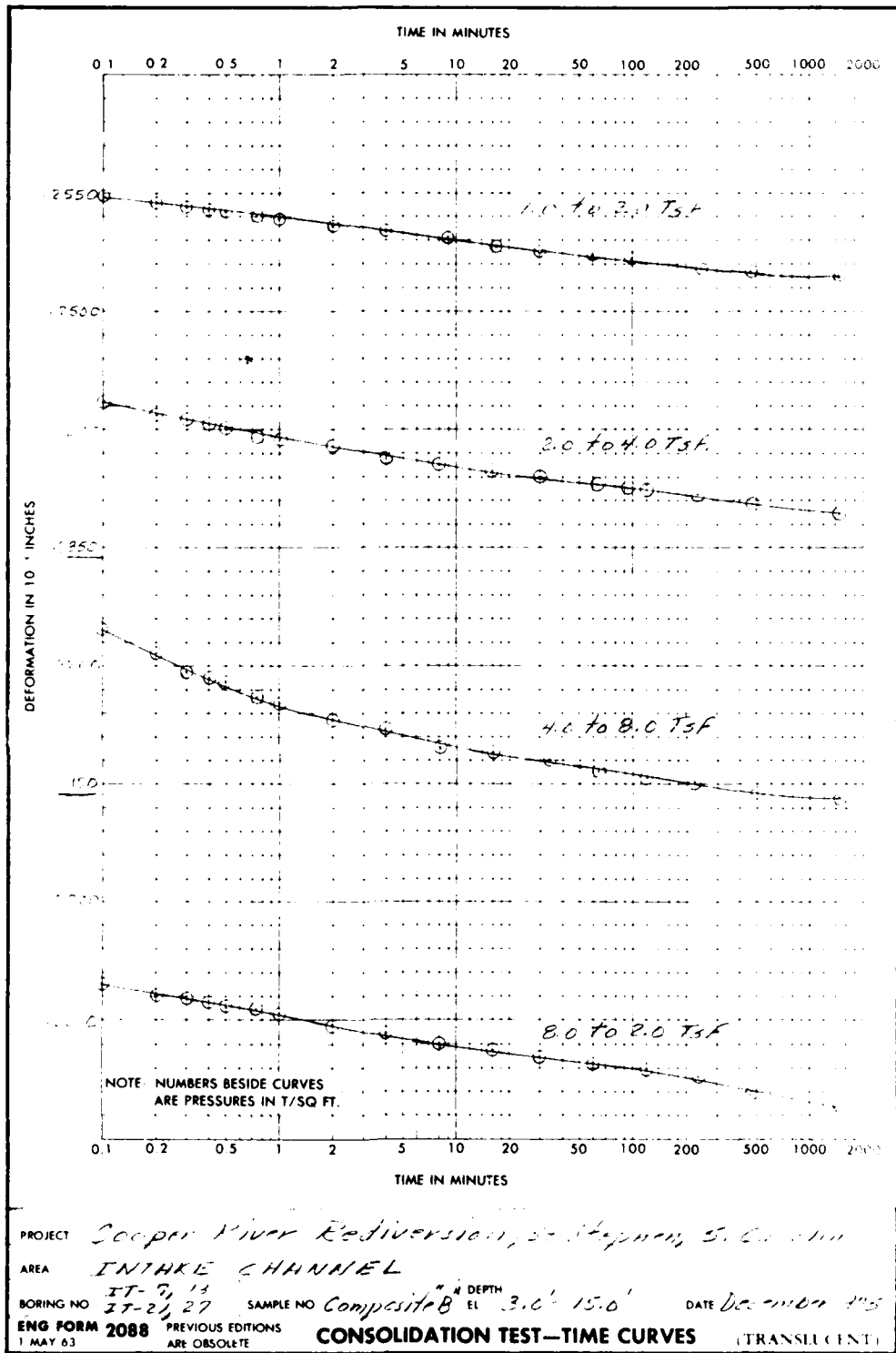
Type of Specimen		Before Test		After Test			
Diam	4.44 in.	Ht	1.0 in.	Water Content, w_o	15.7 %	w_f	12.1 %
Overburden Pressure, P_o	T/sq ft			Void Ratio, e_o	0.472	e_f	0.412
Preconsol. Pressure, P_c	T/sq ft			Saturation, S_o	82 %	S_f	100 %
Compression Index, C_c	0.11			Dry Density, γ_d	10.77 lb/ft ³		
Classification	CL-15 (fine sand)			k_{20} at e_o	$\times 10^{-7}$ cm/sec		
LL	28	G_s	2.65	Project			Cooper 1100 2-10-1950
PL	16	d_{10}					St. Stephens, S. Carolina
Remarks				Area			
(1) samples remolded & approx. moisture content of 15.7% (compacted) and dry density of 10.77 lb/ft ³ (95% max. density).				Boring No. ST-13, 4/27			
(2) samples following samples:				Depth		Sample No. Comp. T-P	
				3'-5"		Date Dec 1950	
				CONSOLIDATION TEST REPORT			



PROJECT *Cooper River Navigation, St. Stephen, S. Carolina*
 AREA *1477AE - ASH*
 BORING NO. *17 11, 20* SAMPLE NO. *Comp 17B* DEPTH *4.0 - 5.0'* DATE *December 1975*
 ENG FORM 2088 PREVIOUS EDITIONS ARE OBSOLETE. **CONSOLIDATION TEST—TIME CURVES** (TRANSLUCENT)
 1 MAY 63

Sheet 2 of 5

T-64 T-63



PROJECT *Cooper River Rediversion, St. Stephen, S.C. Canal*

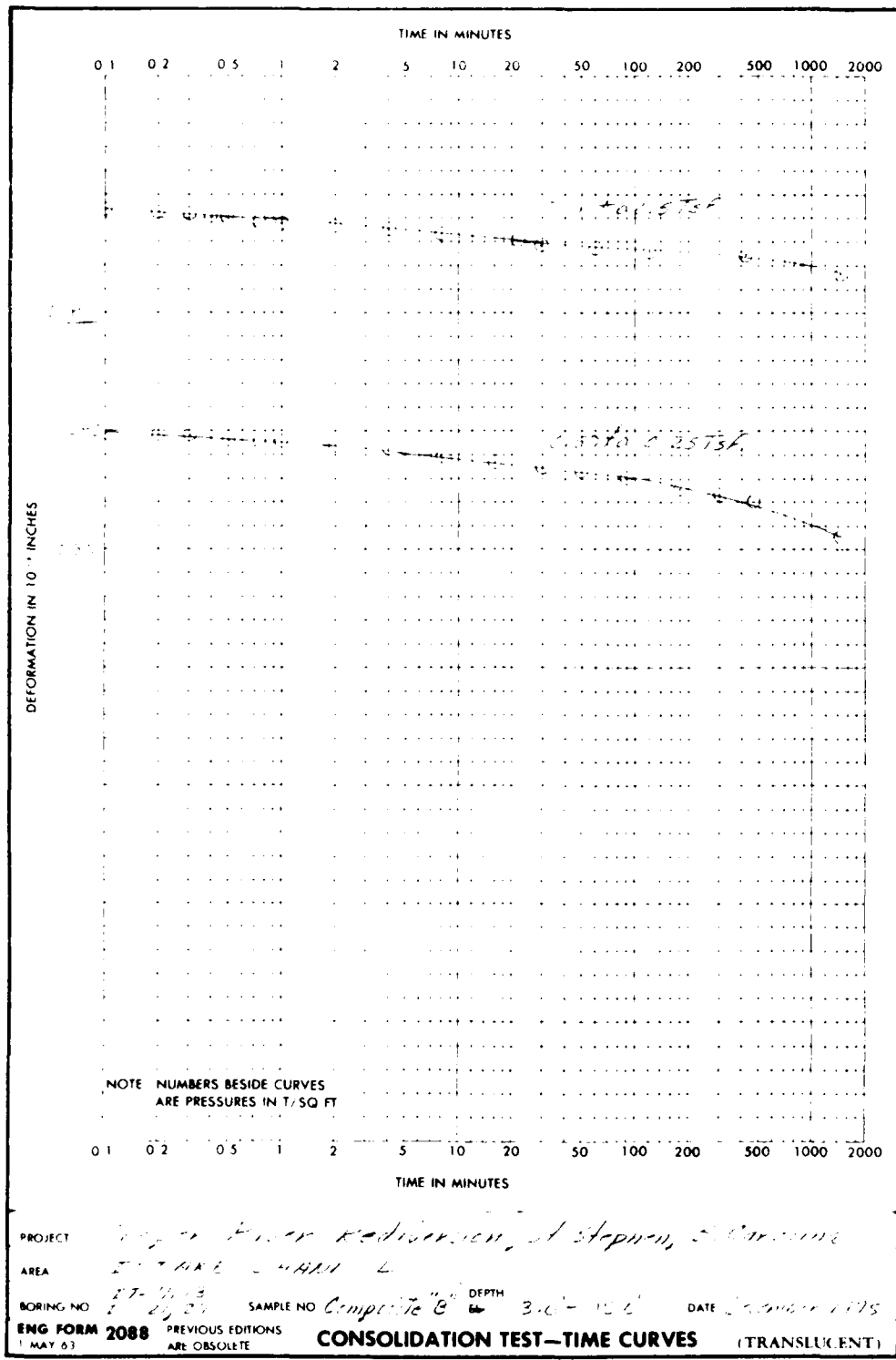
AREA *INTAKE CHANNEL*

BORING NO *IT-2, 13* SAMPLE NO *Composite B* EL *3.0' - 15.0'* DATE *December 1955*

ENG FORM **2088** PREVIOUS EDITIONS ARE OBSOLETE **CONSOLIDATION TEST—TIME CURVES** (TRANSLUCENT)

3.0 to 4.0 Tsf

T-65 + 64



PROJECT *Upper River Redirection, 1st Step, 2nd Curvature*

AREA *ESTRIKE - HALL L*

BORING NO. *BT-103* SAMPLE NO. *Composite B* DEPTH *3.0' - 10.0'* DATE *January 1975*

ENG FORM 2088 PREVIOUS EDITIONS ARE OBSOLETE

CONSOLIDATION TEST—TIME CURVES (TRANSLUCENT)

© GPO: 1964 O-715-945

2088-10-1-75

T-66 T-65

VISUAL CLASSIFICATION AND FIELD MOISTURE CONTENT OF SOIL SAMPLES

District Charleston		Project COOPER RIVER REDIVERSION		Requisition No. SANGA 75-32, Change 1	
Date Received 14 August 1975		St. Stephen, S. C.		Work Order No. 9283	
Location Intake Canal				Date Reported 11 November 1975	
Description Jar Samples of Disturbed Soils				Bottle No. IT-1	
Lab No.	Sample No.	Depth (ft)	% Moisture	Visual Classification and or Remarks	
455	1	1.0	21.1	Tan clayey sand (SC)	
456	2	5.0	22.7	Gray & tan clayey sand (SC)	
457	3	10.0	29.8	Light gray sandy inorganic silt, low LL (ML)	
458	4	15.0	30.0	Red & light gray mottled silty fat clay (CH)	
459	5	20.0	21.1	Gray & red clayey sand (SC)	

SAD Form 2017
10 Mar 71
Replaces edition of 16 Jun 66 which may be used until exhausted.

Tested by JF Checked by J.B.

Sheet 1 of 1

T-67

VISUAL CLASSIFICATION AND FIELD MOISTURE CONTENT OF SOIL SAMPLES

District: Charleston
 Date Received: 14 August 1975
 Location: Intake Canal
 Project: COOPER RIVER REDIVERSION
 St. Stephen, S. C.
 Request No. 1106, H.E. SANDER 75-32, Change 1
 Work Order No. 9283
 Date Reported: 25 October 1975

Hole No. IT-1A

Lab No.	Sample No.	Depth (ft)	% Moisture	Visual Classification and Remarks
2357	1	1.5-10.5	11.8	Gray & tan clayey sand (SC)
460	2	10.5-13.5	15.5	Tan silty sand (SM)
461	3	13.5-16.5	--	No test
462	4	16.5	--	No test
463	5	24.0-25.5	16.4	Gray silty sand (SM)
464				

T-68

VISUAL CLASSIFICATION AND FIELD MOISTURE CONTENT OF SOIL SAMPLES

District Charleston	Project COOPER RIVER REDIVERSION	Requisition No. SANCA 75-32, Change 1
Date Received 14 August 1975	St. Stephen, S. C.	Work Order No. 9283
Location Intake Canal		Date Reported 25 October 1975
Description Jar Samples of Disturbed Soils	Hole No. IT-1B	

Lab No.	Sample No.	Depth (ft)	% Moisture	Visual Classification and or Remarks
235/ 465	1	0.0-1.5	--	No test
466	2	1.5-4.5	--	No test
467	3	4.5-9.0	--	No test
468	4	9.0-20.5	19.0	Tan and brown clayey sand (SC)
469	5	20.5-22.5	--	No test
470	6	22.5-31.5	--	No test
471	7	31.5-32.5	19.2	Tan poorly graded sand (SP)
472	8	37.5-40.5	22.1	Gray silty sand (SM) slightly plastic

T-69

VISUAL CLASSIFICATION AND FIELD MOISTURE CONTENT OF SOIL SAMPLES

District Charleston Date Received 14 August 1975 Location Intake Canal	Project CANAL P.V.F. REVISION St. Stephen, S. C. Revision No. 75-32, Change 1 Work Order No. 9283 Date Reported 11 November 1975
---	--

Description		Hole No.		
Near Samples of Disturbed Soils		IF-2		
Lab No.	Sample No.	Depth (ft)	% Moisture	Visual Classification and or Remarks
235	1	1.0	-	No test
474	2	5.0	-	No test
475	3	10.0	-	No test
476	4	15.0	-	No test
477	5	20.0	-	No test

T-70

Tested by IF Checked by Sheet of
 SAD Form 2012
 10 Mar 71
 Replaces edition of 16 Jun 66 which may be used until exhausted.

VISUAL CLASSIFICATION AND FIELD MOISTURE CONTENT OF SOIL SAMPLES

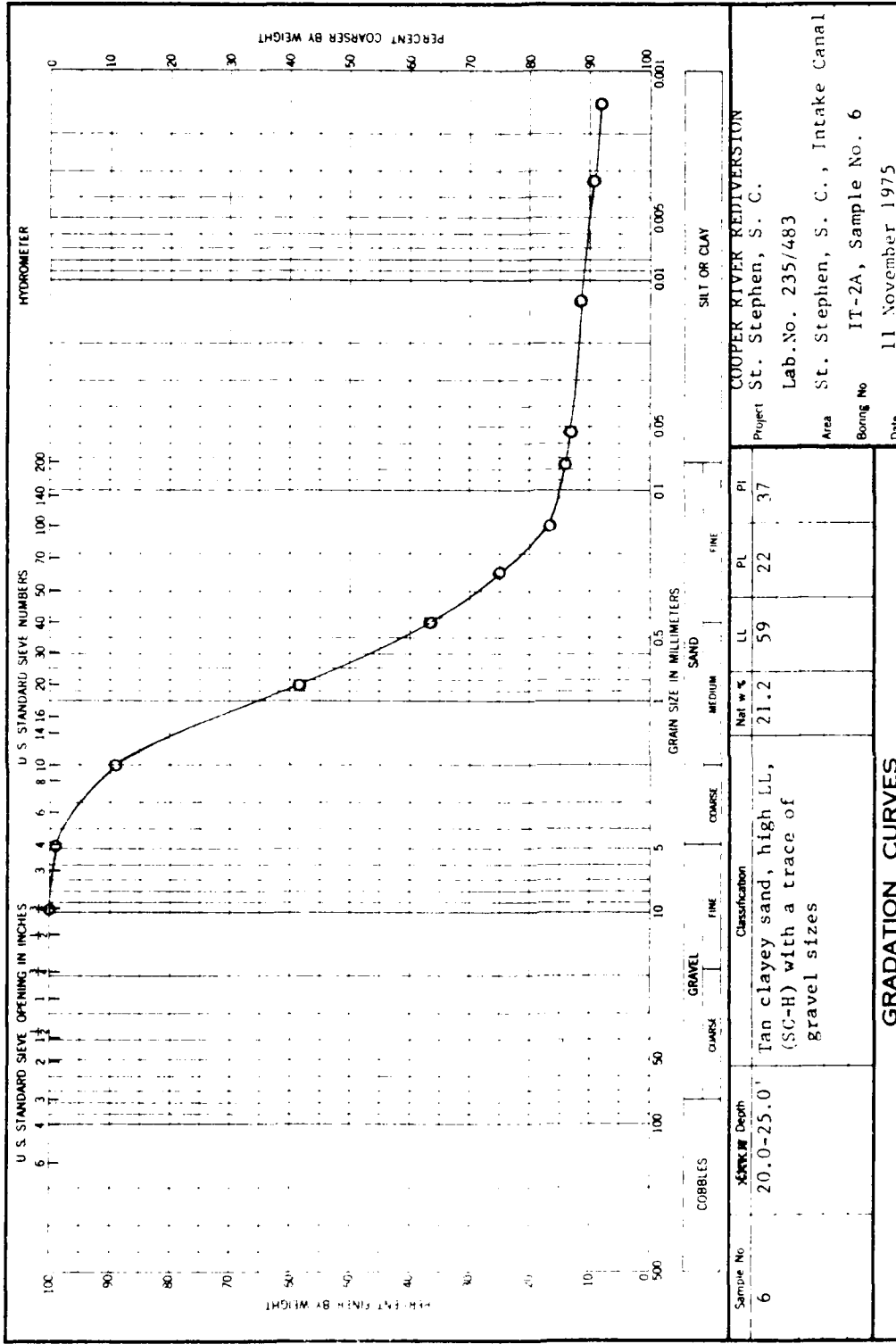
District		Project		Requisition No.	
Charleston		COOPER RIVER REDIVERSION		SANCA 75-32, Change 1	
Date Received		St. Stephen, S. C.		Work Order No.	
14 August 1975				9283	
Location		Intake Canal		Date Reported	
				25 October 1975	
Description		Hole No. IT-2A			
Jar Samples of Disturbed Soils					
Lab No.	Sample No.	Depth (ft)	% Moisture	Visual Classification and/or Remarks	
478	1	0.0-3.0	9.3	Gray silty sand (SM)	
479	2	3.0-10.0	24.9	Tan & brown lean clay (CL) with some sand	
480	3	10.0-15.0	30.4	Reddish brown & light gray clayey inorganic silt, high LL (MH)	
481	4	15.0-16.0	--	No test	
482	5	20.0	--	No test	
483	6	20.0-25.0	21.2	*Tan clayey sand, high LL (SC-H) with a trace of gravel sizes	
484	7	25.0-35.0	28.0	Tan silty sand (SM)	
485	8	35.0-37.5	--	No test	
486	9	37.5-39.5	--	No test	
487	10	39.5-	--	No test	
See lab classification data on ENR Form 2087.					

7-71

Prepared by _____ Date _____

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY
 CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30061

WORK ORDER NO. 9263
 Req. No. 52515A 75-32



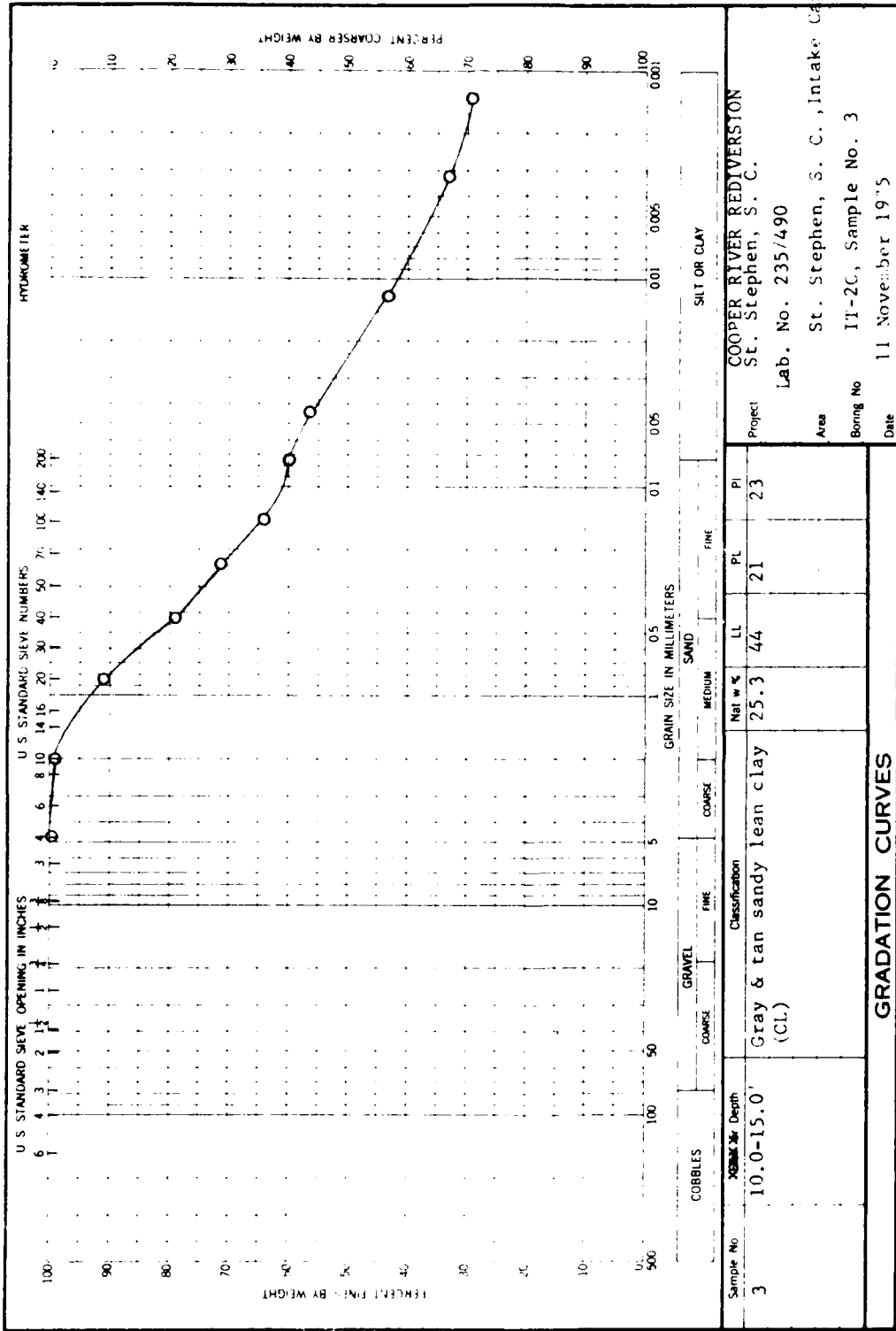
GRADATION CURVES

ENG 2087

T-72

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY
 CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30061

WORK ORDER NO. 9283
 Req. No. 333-5-72



Project: COOPER RIVER REDIVERSION
 St. Stephen, S. C.
 Lab. No. 235/490
 Area: St. Stephen, S. C., Intake Canal
 Boring No: 11-2C, Sample No. 3
 Date: 11 November 1975

GRADATION CURVES

ENG FORM 2087

T-74 T-73

VISUAL CLASSIFICATION AND FIELD MOISTURE CONTENT OF SOIL SAMPLES

Date Received 14 August 1975	Project COOPER RIVER REDIVERSION St. Stephen, S. C.	Requisition No. SANCA 75-32, Change 1 Work Order No. 9283	Date Reported 25 October 1975
Location Intake Canal		Hole No. IT-2D	
Description Jar Samples of Disturbed Soils			

Lab No.	Sample No.	Depth (ft)	% Moisture	Visual Classification and/or Remarks
235/494	1	1.0-5.0	16.5	Light gray clayey sand (SC)
495	2	5.0-10.0	--	No test
496	3	10.0-15.0	21.2	Tan clayey sand (SC)
497	4	15.0-20.0	30.5	Tan clayey sand (SC)
498	5	20.0-22.5	--	No test
499	6	22.5-24.0	20.1	Gray silty sand (SM) slightly plastic

SMO Form 2012
 19 Mar 71
 Tested by JF Checked by WLB Sheet 1 of 1
 Replaces edition of 16 Jun 66 which may be used until exhausted.

T-75 T-74

VISUAL CLASSIFICATION AND FIELD MOISTURE CONTENT OF SOIL SAMPLES

District: Charleston
 Date Received: 14 August 1975
 Location: Intake Canal
 Description: Intake Canal
 Project: W. F. and K. B. Johnson
 at: Stephen, S. C.
 Requestion No.: S. NCA 75-32, Change 1
 Work Order No.: 9283
 Date Reported: 11 November 1975

Lab No.	Sample No.	Depth (ft)	% Moisture	Visual Classification and Remarks
235	1	0.0-1.5	26.1	Brown lean clay (CL) with a little sand
501	2	4.5-6.0	25.0	Brown sandy lean clay (CL)
502	3	6.0-7.5	30.9	Reddish brown & light gray sandy lean clay (CL)
503	4	9.0-10.5	32.0	Tan & light gray silty lean clay (CL) with some sand
504	5	15.0-16.5	18.0	Gray & tan clayey sand (SC)
505	6	19.5-21.0	24.6	Tan poorly graded sand (SP)
506	7	24.0	32.4	Tan clayey sand (SC)
506A	8	40.5-42.0	22.7	Gray clayey sand (SC)

SAD Form 2012
 10 Mar 71
 Tested by JF
 Checked by WLB
 Sheet 1 of 1
 Replaces edition of 16 Jun 66 which may be used until exhausted.

T-76 T-75

VISUAL CLASSIFICATION AND FIELD MOISTURE CONTENT OF SOIL SAMPLES

District Charleston		Project COOPER RIVER REDIVERSION		Requisition No. SANCA 75-32, Change 1	
Date Received 14 August 1975		St. Stephen, S. C.		Work Order No. 9283	
Location Intake Canal				Date Reported 11 November 1975	
Description Jar Samples of Disturbed Soils		IT-3A			

Lab No.	Sample No.	Depth (ft)	% Moisture	Visual Classification and/or Remarks
235/507	1	0.0-1.5	20.1	Gray clayey inorganic silt, low LL (ML) with some sand
508	2	1.5-4.5	14.9	Light gray silty sand (SM) slightly plastic
509	3	4.5-6.0	-	No test
510	4	6.0-7.5	18.9	Light gray clayey inorganic silt, high LL (MH)
511	5	7.5-9.0	-	No test
512	6	9.0-13.0	16.1	Gray & tan clayey sand (SC)
513	7	13.0-18.0	-	No test
514	8	18.0-21.5	-	No test
515	9	21.5-24.0	-	No test
516	10	24.0-26.0	25.4	Gray silty sand (SM) with occasional lenses of clay
517	11	26.0-28.0	-	No test
518	12	28.0-32.5	-	No test
519	13	32.5-36.0	-	No test
520	14	36.0-37.5	55.2	Dark gray clayey inorganic silt, high LL (MH) with some sand

SAD Form 2017
10 Mar 71
Replaces edition of 16 Jun 66 which may be used until exhausted.

Tested by JF Checked by WLB

Sheet 1 of 2

T-77 T-76

VISUAL CLASSIFICATION AND FIELD MOISTURE CONTENT OF SOIL SAMPLES

District Charleston
 Date Received 14 August 1975
 Location Intake Canal
 Description Jar Samples of Disturbed Soils

Project GOOPER RIVER REDIVERSION
 St. Stephen, S.C.

Requisition No. SANGA 75-32, Change 1
 Work Order No. 9283
 Date Reported 11 November 1975

Hole No. IT-3A

Lab No.	Sample No.	Depth (ft)	% Moisture	Visual Classification and or Remarks
235/521	15	37.5-39.0	-	No test
522	16	39.0-40.5	21.5	Gray silty sand (SM)
523	17	40.5-42.0	-	No test
524	18	42.0-43.5	-	No test
525	19	43.5-45.0	-	No test

T-78

VISUAL CLASSIFICATION AND FIELD MOISTURE CONTENT OF SOIL SAMPLES

District Charleston		Project COOPER RIVER REDIVERSION		Requisition No. SANCA 75-32, Change 1	
Date Received 14 August 1975		St. Stephen, S.C.		Work Order No. 9283	
Location Intake Canal		Date Reported 11 November 1975			
Description Jar Samples of Disturbed Soils		Hole No. IT-3B			
Lad No.	Sample No.	Depth (ft)	% Moisture	Visual Classification and/or Remarks	
2357	1	0.0-4.0	-	No test	
526	2	4.0-5.5	19.2	Gray & tan sandy silty lean clay (Cl.)	
527	3	5.5-10.0	29.3	Light gray & tan clayey inorganic silt, high LL (MH)	
528	4	10.0-13.5	19.9	Tan clayey sand (SC)	
529	5	13.5-20.0	18.9	Tan clayey sand (SC)	
530	6	20.0-24.0	24.8	Tan clayey sand (SC)	
531	7	24.5-29.0	-	No test	
532	8	29.0-39.5	-	No test	
533	9	39.5-40.5	-	No test	
534	10	40.5-44.0	-	No test	
535	11	44.0-45.0	23.1	Gray poorly graded silty sand (SP-SM)	
536					

S40 Form 2012
19 Mar 71
Replaces edition of 6 Jun 68
Tested by Checked by WLB Sheet 1 of 1

T-19

VISUAL CLASSIFICATION AND FIELD MOISTURE CONTENT OF SOIL SAMPLES

Project		Requisition No.	
COOPER RIVER REDIVERSION		SAND 25-32, Change 1	
St. Stephen, S. C.		Work Order No.	
14 August 1975		9283	
Local on		Date Reported	
Intake Canal		11 November 1975	
Description		Hole No. IT-3C	

Lap No.	Sample No.	Depth (ft)	% Moisture	Visual Classification and/or Remarks
2357	1	1.5-4.5	3.8	Tan silty sand (SM) with a trace of gravel
538	2	4.5-8.0	25.6	Reddish brown, Gray, & tan mottled clayey inorganic silt, high LL (MH)
539	3	8.0-14.5	28.5	Gray & tan sandy inorganic silt, low LL (ML)
540	4	14.5-16.5	32.8	Reddish brown, tan & light gray mottled clayey inorganic silt, high LL (MH)
541	5	16.5-18.0	-	No test
542	6	18.0-22.0	35.4	Reddish brown, tan, & light gray mottled clayey inorganic silt, high LL (MH)
543	7	22.0-28.0	15.8	Tan clayey sand (SC)
544	8	28.0-30.0	17.7	Tan clayey sand (SC)
545	9	30.0-37.0	-	No test
546	10	37.0-45.0	34.6	Tan clayey sand (SC)

SAD Form 7012
 10 Mar 71
 Tested by JF Checked by MLB Sheet 1 of 1
 Replaces edition of 16 Jun 66 which may be used until exhausted.

7-80 T-19

VISUAL CLASSIFICATION AND FIELD MOISTURE CONTENT OF SOIL SAMPLES

District Charleston			Project COOPER RIVER RE-DEVELOPMENT St. Stephen, S.C.			Registration No. SARCA 75-32, Change 1 Work Order No. 9283		
Date Received 14 August 1975			Date Reported 11 November 1975					
Location Intake Canal			Hole No. IT-3D					
Description Jar Samples of Disturbed Soils								
Lab No.	Sample No.	Depth (ft)	% Moisture	Visual Classification and or Remarks				
235/ 547	1	1.0-6.0	-	No test				
548	2	6.0-18.0	34.7	Brown & light gray clayey inorganic silt, high LL (MH)				
549	3	18.0-30.5	19.1	Brown clayey sand (SC)				
550	4	30.5-36.5	33.1	Gray & tan clayey sand (SC)				
551	5	36.5-41.5	-	No test				
552	6	41.5-45.0	18.7	Dark gray silty sand (SM)				

T-81

VISUAL CLASSIFICATION AND FIELD MOISTURE CONTENT OF SOIL SAMPLES

District: Charleston
 Date Reported: 14 August 1975
 Location: Intake Canal
 Description:

Project: CUMBER RIVER REPLENISHMENT
 St. Stephen, S.C.

Reservoir No.: BANGS 5-24, Change 1
 Work Order No.: 9283
 Date Reported: 11 November 1975

Hole No. 11-5

Soil Samples of Disturbed Soils

Sample No.	Depth (ft)	% Moisture	Atterberg Limits LL, PL, PT	Visual Description and/or Remarks
566	1.0	17.5	49 21 28	Gray & brown lean clay (CL) with a little sand
567	5.0	-	---	No test
568	10.0	-	- - -	No test
569	15.0	-	- - -	No test
570	20.0	21.0	- - -	Tan clayey sand (SC)
571	25.5	20.8	- - -	Tan silty sand (SM) slightly plastic

SAO Form 2012
 10 Mar 71

Tested by: J.F. _____
 Checked by: A.L.B. _____

Sheet 1 of 1

Replaces edition of 16 Jun 66 which may be used until exhausted.

T-84

VISUAL CLASSIFICATION AND FIELD MOISTURE CONTENT OF SOIL SAMPLES

Charleston Date Received 14 August 1975 Loc. No.		Project CASPER RIVER REDIVERSION St. Stephen, S. C.		Requisition No. SANCA 15-32, Change 1 Work Order No. 9283 Date Reported 11 November 1975	
Intake Canal DESCRIPTION		Hole No. IT-5A			
Jar Samples of Disturbed Soils					
Jar No.	Sample No.	Depth (ft)	% Moisture	Visual Classification and/or Remarks	
2357	1	1.0	-	No test	
572	2	5.0	-	No test	
573	3	10.0	-	No test	
574	4	15.0	-	No test	
575	5	20.0	-	No test	
576	6	25.4	-	No test	

T-85

VISUAL CLASSIFICATION AND FIELD MOISTURE CONTENT OF SOIL SAMPLES

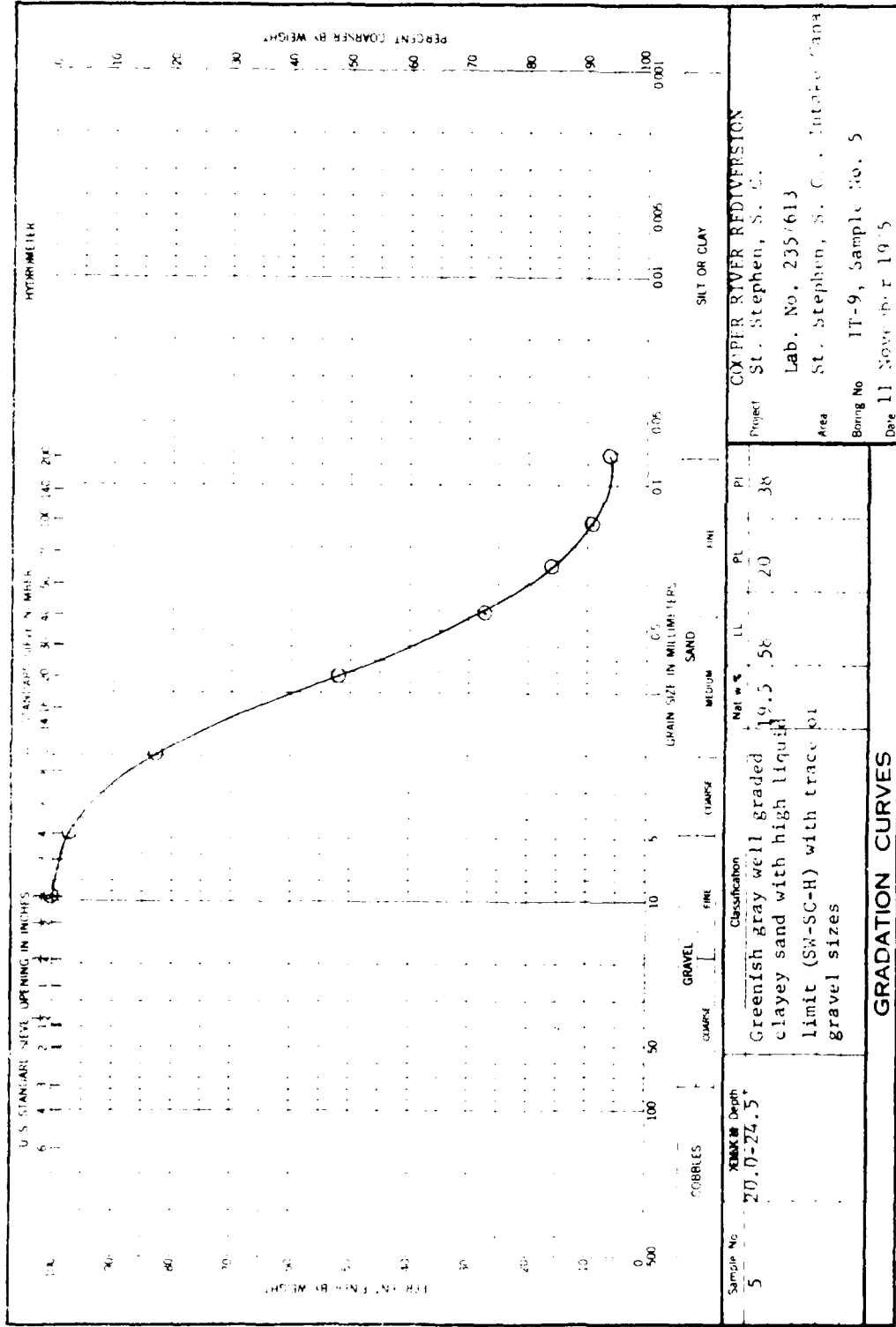
System Charleston Date Received 14 August 1975 Location Intake Canal		Project COOPER RIVER REVEGETATION St. Stephen, S. C.		Registration No. SANCA 75-32, Change 1 Work Order No. 9283 Date Reported 11 November 1975	
Description 1a: Samples of Disturbed Soils				Hole No. 11-6	
Lab No.	Sample No.	Depth (ft)	% Moisture	Visual Classification and/or Remarks	
576	1	1.0	5.2	Tan silty sand (SM)	
579	2	5.0	-	No test	
580	3	10.0	31.1	Gray & tan clayey inorganic silt, high (MH) with some sand	
581	4	15.0	-	No test	
582	5	20.0	21.8	Gray silty sand (SH) slightly plastic	
583	6	25.0	-	No test	
584	7	30.0	27.5	Gray silty sand (SM) slightly plastic	

540 Form 2012
 10 Mar 71
 Tested by JE Checked by NJB Sheet 1 of 1
 Replaces edition of 16 Jun 66 which may be used until exhausted.

T-86

DEPARTMENT OF THE ARMY, SOUTH ATLANTIC DIVISION LABORATORY
 CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30061

WORK ORDER NO. 9283
 Req. No. 11-5-53



GRADATION CURVES

ENG 2087

T-92 T-91

COOPER RIVER REDIVERSION
 Project St. Stephen, S. C.
 Lab. No. 235/613
 Area St. Stephen, S. C., Intake Channel
 Boring No IT-9, Sample No. 5
 Date 11 November 1955

Sample No. 5
 XENON Depth 20.0-24.5'
 Classification Greenish gray well graded clayey sand with high liquid limit (SW-SC-H) with trace of gravel sizes
 Nat. W. % 19.5
 LL 58
 PL 20
 PI 38

SOIL SAMPLING AND FUEL MOISTURE CONTENT OF SOIL SAMPLES

PROJECT: COOPER RIVER DIVERSION
 DATE: August 1975
 LOCATION: St. Stephens, S.C.
 REPORT NO.: SANGA 75-30 (Change 1)
 WORK ORDER NO.: 9273
 DATE RECEIVED: 11 November 1975

Hole No. 10-11

Lab. No.	Sample No.	Depth (ft)	Weight (g)	Moisture (%)	Visual Description and Remarks
637	1	1.0	-	-	No test
638	2	5.0	19.1	-	Tan & gray clayey sand (SC) fine sand sizes
639	3	10.0	-	-	No test
640	4	15.0	61.1	-	Gray silty fat clay (CH)
641	5	20.0	26.6	-	Gray clayey medium to coarse sand (SC)
642	6	25.5-30.0	22.9	-	Light gray calcareous clayey sand (SC) with limestone

T-97

SOILS OF THE SOUTHWESTERN STATES

CHARLES W. BRIDGES
 SOILS OF THE SOUTHWESTERN STATES
 ST. LOUIS, MISSOURI

REGISTRATION NO. 9283
 DATE REGISTERED
 11 NOVEMBER 1975

SOIL NO. 16-118

For Samples of Disturbed Soils

Sample No.	Depth (ft)	Moisture %	Remarks
650	1.0-5.0	7.6	Fan silty sand (SM) fine sand sizes
651	5.0-10.0	-	No test
652	10.0-15.0	18.1	Fan and light gray clayey sand (SC) fine sand sizes
653	15.0-20.0	-	No test
654	20.0-24.0	58.4	Gray silty fat clay (OH)
655	24.0-30.0	36.9	Gray clayey sand (SC)
656	30.0-40.5	-	No test
657	40.5-45.0	37.2	Dark gray silty lean clay (CL) with light tan sand layers

Soil Form 10-7
 10 May 75
 Tested by HBS Checked by JLM
 Replaces edition of 16 Jan 66 which may be used until otherwise noted.
 Sheet 1 of 1

7-98 97

REPORT ON SOILS AND FILL SAMPLES TAKEN AT THE SITE

at 483 KVA and 110V Transformer
 at Stephentown, N.Y.
 9203
 Site Report
 11 November 1975

Scale No. 17-11

41 Samples of disturbed soils

Sample No.	Depth (ft)	% Moisture	Visual Classification or Kind of Remarks
235	stated	13.2	Light brown silty sand (SP) slightly plastic
645	6.0-14.5	29.1	Tan sandy inorganic silt, low LL (30)
646	14.5-18.0	32.9	Light brown silty sand (SM) with a trace of silt
647	18.0-25.5	-	No test
648	25.5-36.5	24.5	Green silty sand (SM) with some shell fragments
649	36.5-39.0	-	No test
650	39.0-46.5	-	No test

7-99

SOIL CLASSIFICATION AND FIELD MOISTURE AVERAGE OF DISTURBED SOILS

Date Reported: 11 November 1975
 Date Reported: 11 November 1975
 Date Reported: 11 November 1975

Name of Site: ...
 Name of Site: ...
 Name of Site: ...

Role No. H-12

Soil Samples of Disturbed Soils

Lab No.	Sample No.	Depth (ft)	% Moisture	Atterberg Limits	Remarks
658	1	1.0	-	- - -	No test
659	2	5.0	20.2	- - -	Tan & gray clayey sand (40) fine sand sizes
660	3	10.0	-	- - -	No test
661	4	15.0	40.2	- - -	Tan fat clay (CH)
662	5	20.0	65.7	90 22 68	Dark gray fat clay (CH)
663	6	25.5	-	- - -	No test
664	7	26.5	-	- - -	No test

Tested by: HUS
 Checked by: NLR
 Date: 10 Mar 77

Replaces edition of 16 Jun 66 which may be used until exhausted.

T-100 T-77

VISUAL CLASSIFICATION AND FIELD MOISTURE CONTENT OF SOIL SAMPLES

Charleston
 Date Received
 14 August 1975
 Total of
 Intake Canal
 Description
 Hole No. 11-14A

Project
 CHARLES RIVER REDUPLICATION
 St. Stephen, S.C.

Requester No.
SANCOS 75-32, Change 1
Work Order No.
9283
Date Reported
11 November 1975

Visual Classification Remarks

Lab. No.	Sample No.	Depth (ft.)	% Moisture	Visual Classification	Remarks
235	1	0.0-6.0	14.5	Tan & gray silty sand (SM)	
686	2	6.0-12.0	-	No test	
687	3	12.0-18.0	44.6	Light gray silty fat clay (CH)	
688	4	18.0-26.0	74.7	Gray fat clay (CH)	
689	5	26.0-28.0	-	No test	
690	6	28.0-29.5	22.7	Grayish brown silty medium to coarse sand (SM)	
691	7	29.5-31.0	-	No test	
692	8	31.0-39.5	-	No test	
693	9	39.5-44.5	-	No test	

T-104

VISUAL CLASSIFICATION AND FIELD MOISTURE CONTENT OF SOIL SAMPLES

Location: Charleston
 Date Received: 14 August 1975
 1974 19
 Intake Canal
 Project: COOPER RIVER SUBDIVISION
 St. Stephen, S.C.
 Requisition No.: SANGA 75-32, Change 1
 Work Order No.: 9283
 Date Reported: 11 November 1975

Hole No. IT-17

Soil Samples of Disturbed Soils

Lab No.	Sample No.	Depth (ft)	Moisture %	Visual Classification and/or Remarks
257	1	1.0	18.4	Tan clayey sand (SC) fine sand sizes
716	2	5.0	-	No test
717	3	10.0	22.3	Red, gray & tan silty sand (SM) fine sand sizes
718	4	15.0	18.8	Tan poorly graded silty sand (SP-SM)
719	5	20.0	18.2	Tan & gray poorly graded silty sand (SP-SM) fine sand sizes
720	6	42.0-43.5	-	No test

*See lab classification data on EMC Form 2087.

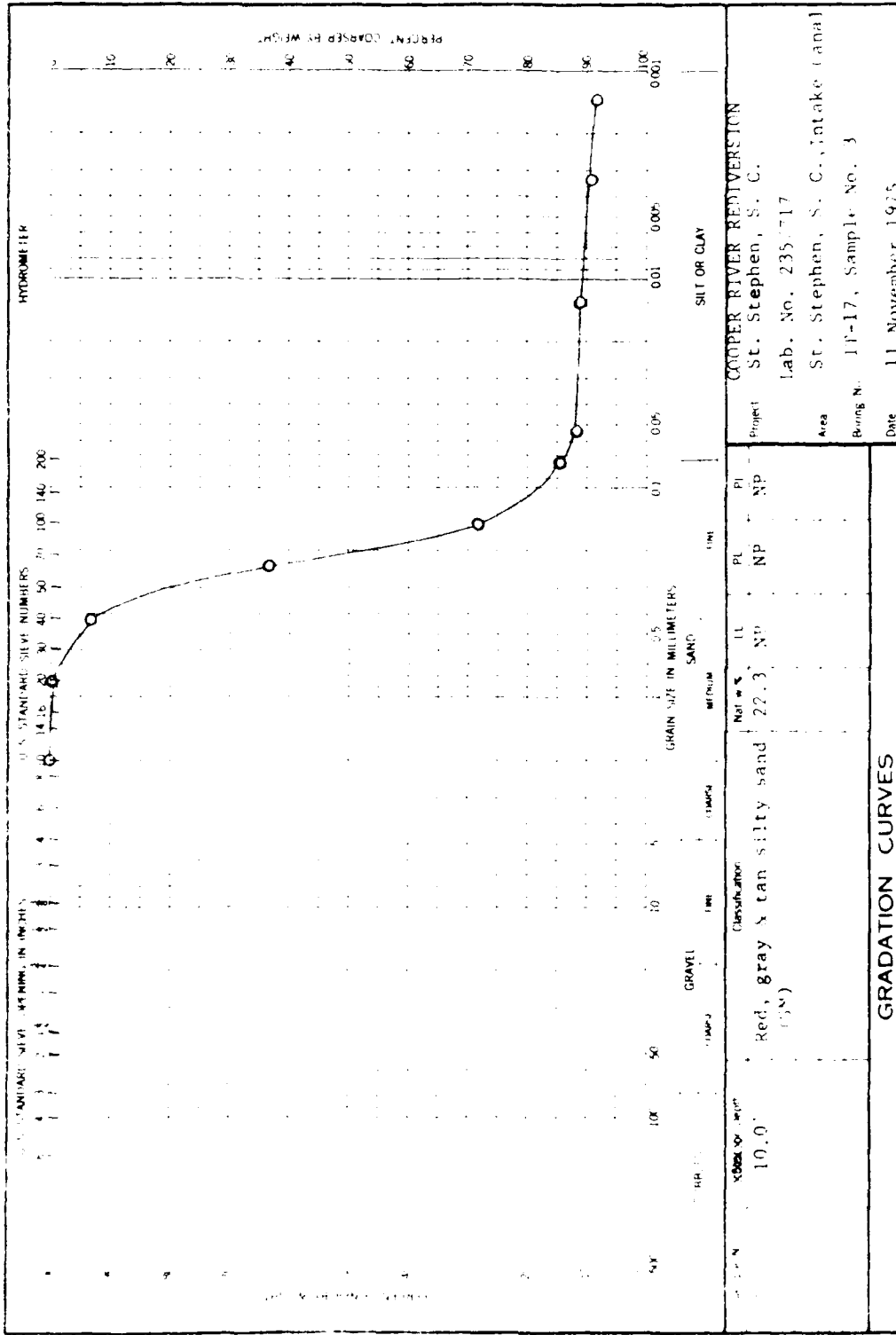
Tested by: HDS
 Checked by:

Remarks: none of 10 jars which may be used after rechecked.

T-109

DEPARTMENT OF THE ARMY SOUTH ATLANTIC DIVISION LABORATORY
 CORPS OF ENGINEERS, 611 SOUTH COBB DRIVE, MARIETTA, GA. 30061

WORK ORDER NO. 4773
 Req. No. SANGA-75-32



ENG 2087

T-110

REGISTRATION NO. 75-32, CHANGE 1
 WORK ORDER NO. 9283
 DATE REPORTED 11 NOVEMBER 1975

REGISTRATION NO.
 SANCA 75-32, Change 1
 WORK ORDER NO.
 9283
 DATE REPORTED
 11 NOVEMBER 1975

PROJECT TITLE
 REDUCING
 OPERATIONS

LOCATION
 INTAKE CANAL

HOLE NO. 1-1-1

DATE SAMPLES OBTAINED

LOG NO.	SAMPLE NO.	DEPTH (FT)	WATER	VEGETATION, SAND OR REMARKS
721	1	1.0	18.6	Dark gray & tan fat clay (CH) with a trace of sand
722	2	5.0	-	No test
723	3	10.0	-	No test
724	4	15.0	21.3	Gray silty sand (SM)
725	5	20.0	-	No test
726	6	40.5	29.4	Dark gray silty sand (SM) with seams of gray clay and fine sand sizes

Run	Time	Temp	Pressure	Flow	Notes
1	10:00	100	100	100	Start of run
2	10:05	100	100	100	
3	10:10	100	100	100	
4	10:15	100	100	100	
5	10:20	100	100	100	
6	10:25	100	100	100	
7	10:30	100	100	100	
8	10:35	100	100	100	
9	10:40	100	100	100	
10	10:45	100	100	100	
11	10:50	100	100	100	
12	10:55	100	100	100	
13	11:00	100	100	100	
14	11:05	100	100	100	
15	11:10	100	100	100	
16	11:15	100	100	100	
17	11:20	100	100	100	
18	11:25	100	100	100	
19	11:30	100	100	100	
20	11:35	100	100	100	
21	11:40	100	100	100	
22	11:45	100	100	100	
23	11:50	100	100	100	
24	11:55	100	100	100	
25	12:00	100	100	100	
26	12:05	100	100	100	
27	12:10	100	100	100	
28	12:15	100	100	100	
29	12:20	100	100	100	
30	12:25	100	100	100	
31	12:30	100	100	100	
32	12:35	100	100	100	
33	12:40	100	100	100	
34	12:45	100	100	100	
35	12:50	100	100	100	
36	12:55	100	100	100	
37	13:00	100	100	100	
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74	16:05	100	100	100	
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81	16:40	100	100	100	
82	16:45	100	100	100	
83	16:50	100	100	100	
84	16:55	100	100	100	
85	17:00	100	100	100	
86	17:05	100	100	100	
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92	17:35	100	100	100	
93	17:40	100	100	100	
94	17:45	100	100	100	
95	17:50	100	100	100	
96	17:55	100	100	100	
97	18:00	100	100	100	
98	18:05	100	100	100	
99	18:10	100	100	100	
100	18:15	100	100	100	

T-112

Department of the Army, Corps of Engineers, C11 So Cobb Dr., Marietta, Ga. 30060

COOPER RIVER REDEVELOPMENT AND FLOOD CONTROL CONTENT OF SOIL SAMPLES

Project No. SANCA 75-32, Change 1
 Well, Ditch No. 9283
 Date Registered 11 November 1975

COOPER RIVER REDEVELOPMENT
 St. Stephen, S. C.

Well No.
 II-20

Visual Description and/or Remarks

No Test

Light gray & tan clayey sand (SC) fine sand sizes

Gray & tan silty sand (SM) with a pocket of light gray clay

Light gray silty fat clay (CH)

Tan silty sand (SM) with a pocket of light gray clay

Light gray silty fat clay (CH) with some fine sand

Light gray silty sand (SM) with a trace of clay

No Test

Sample No. 1

Depth (ft)

1.0

2.0

3.0

4.0

5.0

6.0

7.0

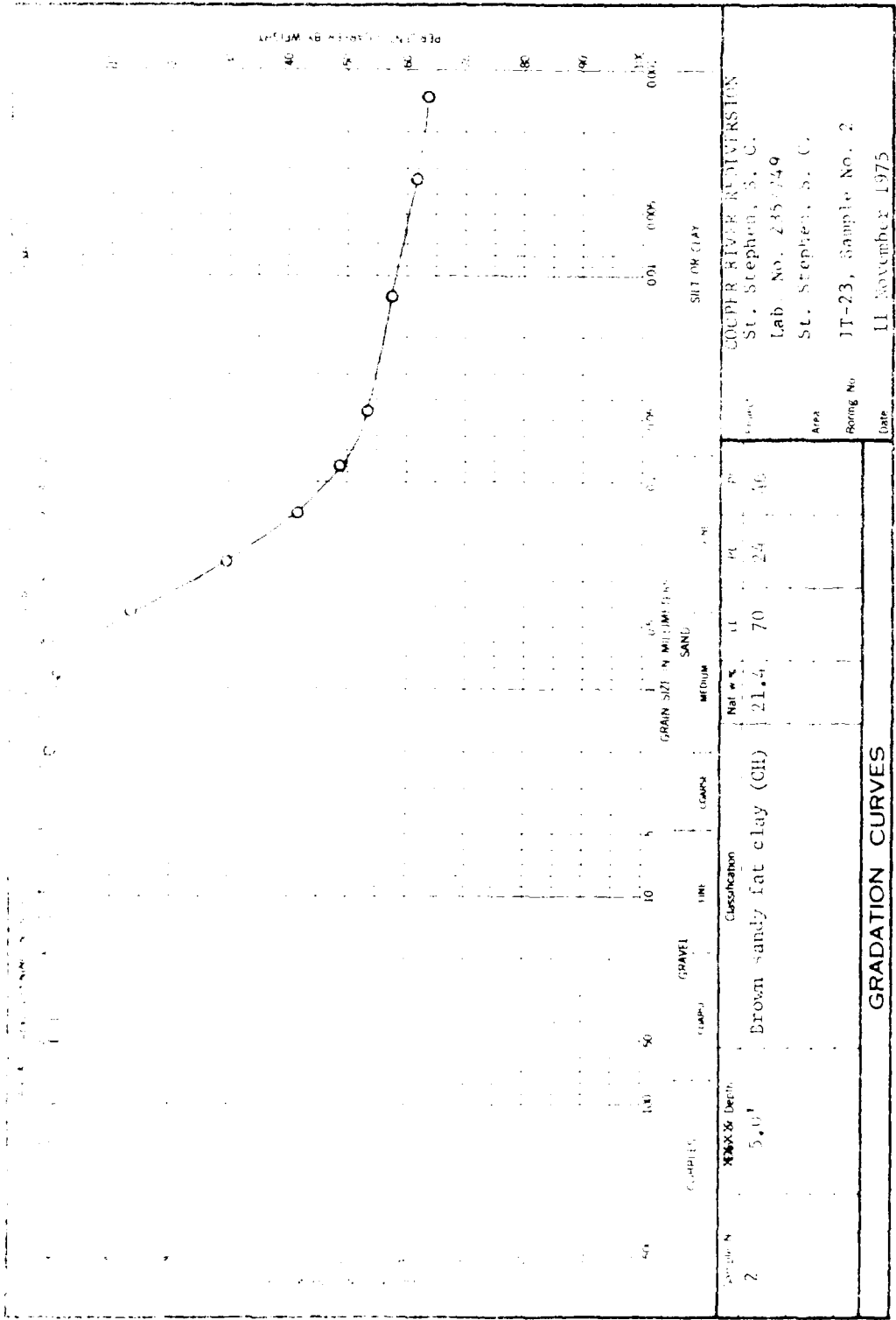
8.0

T-113

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T-114

DEPARTMENT OF TRANSPORTATION
 FEDERAL BUREAU OF SURVEYING



GRADATION CURVES

ENG. NO. 2087

T-116 215

14-00000

1. Location:
 2. Date:
 3. Name:
 4. Title:
 5. Station:
 6. Project:
 7. Drawn by:
 8. Checked by:
 9. Date:
 10. Scale:
 11. Notes:
 12. Remarks:
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Department of the Army, So. Atlantic Division Laboratory, Corps of Engineers, 611 So. Cobb Dr., Marietta, Ga. 30060

VISUAL CLASSIFICATION AND FIELD MOISTURE CONTENT OF SOIL SAMPLES

District		Requestion No.		
Charleston		SAXGA 75-32, Change 1		
Type Received		Work Order No.		
Lt. August 1475		9283		
Intake Canal		Date Received		
Section		11 November 1975		
For Samples of Disturbed Soils		Hole No. II-26		
Lab. No.	Sample No.	Depth (ft.)	Moisture	Visual Classification and Remarks
766	1	1.0-5.0	-	No Test
767	2	5.0-10.0	19.5	Tan & gray clayey sand (SC) fine sand sizes
768	3	10.0-12.0	-	No Test
769	4	12.0-13.5	28.0	Pink & gray silty sand (SM) fine sand sizes
770	5	15.0-16.5	-	No Test
771	6	20.0-30.0	15.6	Pink, gray & tan silty, fine to medium sand (SM)
772	7	30.0-31.5	-	No Test
773	8	33.0-34.5	40.0	Tan clayey inorganic silt, low LL (ML)
774	9	34.5-36.0	22.3	Tan silty fine to medium sand (SM) with a clay pocket
775	10	37.5-39.0	-	No Test
776	11	45.0-45.2	-	No Test

SAO Form 2011
10 Mar 71
Tested by HDS Checked by WTB Sheet 1 of 1

Replaces number of 16 Jun 66 which may be used until exhausted.

7-119

Soils	Depth	Moisture	Color	Texture	Notes
729	0	10.0	31.1		Light gray clayey sand (50) fine sand size
730	1	15.0	48.8		Gray silty fat clay (65)
740	5	18.0-19.5	20.0		Gray & tan silty fine to medium sand (50)
750	6	21.0-22.5	-		No test
753		27.0	16.3		Tan poorly graded silty, fine to medium sand (SP-SM)
754	6	34.5-46.0	16.7		Green & brown clayey sand (SC) fine sand size

SAD Form 2012
16 Mar 71
Tested by IDS Checked by 412 Sheet 1 of 1

Replaces edition of 16 Jun 66 which may be used until exhausted.

T-120 7118

VISUAL CLASSIFICATIONS AND SOIL TEST RESULTS
TAILRACE CANAL
COOPER RIVER REDIVERSION
ST. STEPHEN, S. CAROLINA
(CHARLESTON DISTRICT)

BORING T-9
(Jar Samples)

- J-1 depth: 1.0'
Brown fine sandy CLAY (CL)
W_n= 28.0%
- J-2 depth: 5.0'
Gray-brown silty fine SAND (SM)
- J-3 depth: 10.0'
Gray-brown silty medium to fine SAND (SP-SM)
- J-4 depth: 15.0'
Gray-brown silty medium to fine SAND (SP-SM)
- J-5 depth: 20.0'
Gray silty fine SAND (SM)
- J-6 depth: 33.0'
Gray silty fine SAND (SM) stratified with layers of dark gray CLAY (CH)

BORING T-9A
(Jar Samples)

- J-1 depth: 0.0'-3.0'
Brown silty fine SAND (SM)
- J-2 depth: 3.0'-9.0'
Red-brown clayey medium to fine SAND (SC)
- J-3 depth: 9.0'-12.0'
Brown clayey medium to fine SAND (SC)
- J-4 depth: 12.0'-16.0'
Golden brown clayey fine SAND (SC)
W_n= 32.0%
- J-5 depth: 16.0'-18.0'
Gray silty fine SAND (SM) and CLAY (CL) - stratified
- J-6 depth: 26.7'-28.2'
Gray silty fine SAND (SM) and CLAY (CL) - stratified
- J-7 depth: 30.7'-31.1'
Gray silty fine SAND (SM) and CLAY (CL) - stratified

Insert

T-121 - 2

Section 12-11 (cont.)

... fine SAND (SM) and CLAY (CL) - stratified

... fine SAND (SM) and CLAY (CL) - stratified

SECTION 12-11
(See Samples)

... fine sandy CLAY (CT)

... fine sandy CLAY (CT)

... fine SAND (SM)

SECTION 12-12
(See Samples)

... fine SAND (SM)

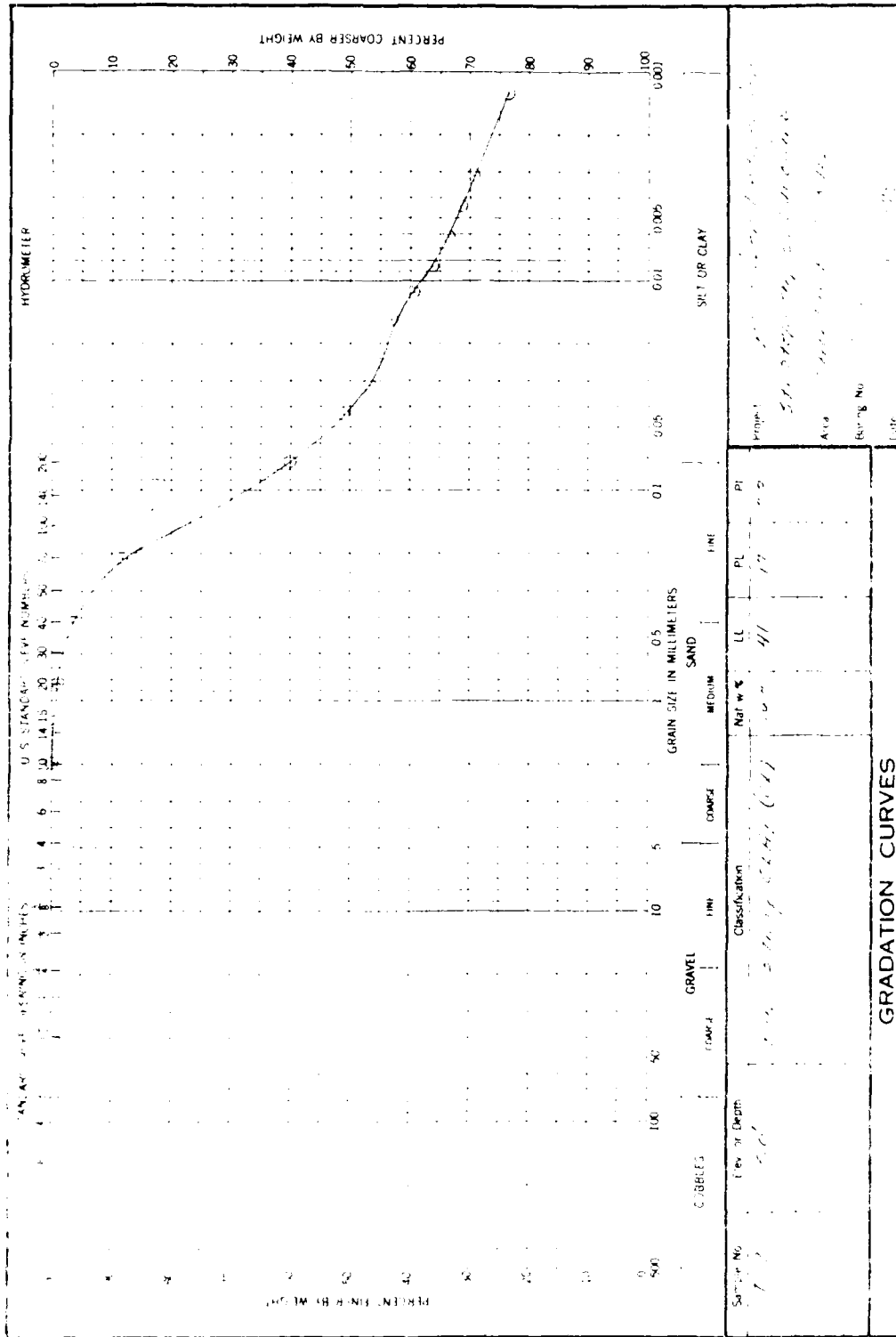
... fine SAND (SM)

... fine SAND (SM)

SECTION 12-13
(See Samples)

... and organic stains

... organic stains



Insp. 2 T-123

ENG 2087

LOG NO. T-14

- 1. Depth: 1.00'
Type: CLAY (CY)
Remarks: 1.00'
- 2. Depth: 2.00'
Type: CLAY (CY) w/ fine SAND (SP-10)
- 3. Depth: 3.00'
Type: CLAY (CY) w/ fine SAND (SP)
- 4. Depth: 4.00'
Type: CLAY (CY) w/ fine SAND (SP) - stratified

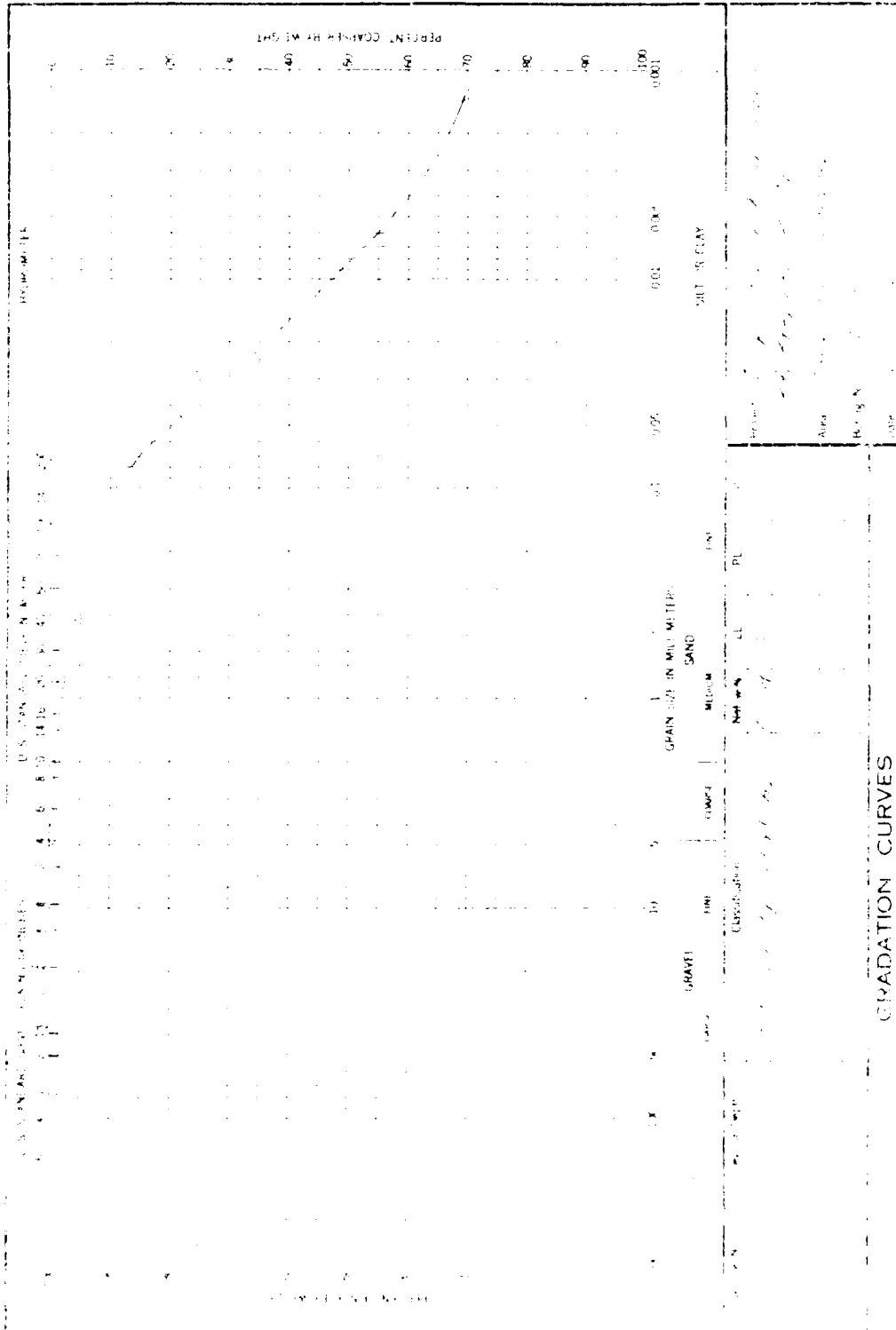
LOG NO. T-14
(For Samples)

- 1. Depth: 1.00'
Type: CLAY (CY) w/ fine SAND (SP-10)
- 2. Depth: 2.00'
Type: CLAY (CY) w/ organic remains
- 3. Depth: 3.00'
Type: CLAY (CY) w/ fine SAND (SP)
- 4. Depth: 4.00'
Type: CLAY (CY) w/ fine SAND (SP)

LOG NO. T-15
(For Samples)

- 1. Depth: 1.00'
Type: CLAY (CY) w/ fine SAND (SP-10) w/silt lumps
- 2. Depth: 2.00'
Type: CLAY (CY) w/ fine SAND (SP)
- 3. Depth: 3.00'
Type: CLAY (CY) w/ fine SAND (SP-10)

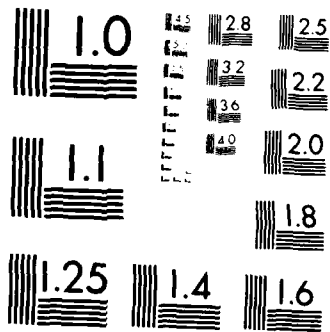
T-124 - 2



GRADATION CURVES

7-125

END



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

BORING T-17 (cont.)

J-5 depth: 20.0'
Gray silty fine SAND (SM)

J-6 depth: 20.0'
Gray silty fine SAND (SP-SM)

BORING T-18
(Jar Samples)

J-1 depth: 1.0'
Brown-gray sandy CLAY (CL) w/hair roots

J-2 depth: 5.0'
Gray-Brown CLAY (CH)

J-3 depth: 10.0'
Gray CLAY (CH)

J-4 depth: 15.0'
Gray silty fine SAND (SP-SM) w/slight marine odor

J-5 depth: 20.0'
Gray silty fine SAND (SM) w/decomposed shells
 $W_n = 22.7\%$

J-6 depth: 25.5 to 27.0'
Gray silty fine SAND (SM) w/Dark Gray fine Sandy SILT Layer (ML)
approx. 1/2" thick

BORING T-19
(Jar Samples)

J-1 depth: 1.0'
Brown fine sandy CLAY (CL)
w/organic stains

J-2 depth: 5.0'
Brown fine Sandy CLAY (CL)
 $W_n = 26.2\%$

J-3 depth: 10.0'
Brown Clayey fine SAND (SC)
 $W_n = 19.3\%$

J-4 depth: 10.5' to 12.0'
Grey Clayey Med. to fine SAND (SC)
 $W_n = 12.8\%$

BORING T-19 (cont.)

J-5 depth: 12.0 to 13.5'
Gray fine Sandy SILT (ML)
 $W_n = 29.1\%$

J-6 depth: 22.0 to 23.5'
Gray Silty fine SAND (SM) w/Silt Lumps

BORING T-20
(Jar Samples)

J-1 depth: 1.0'
Brown fine Sandy CLAY (CL) w/hair roots
 $W_n = 30.8\%$

J-2 depth: 5.0'
Gray CLAY (CH)

J-3 depth: 10.0'
Gray fine Sandy CLAY (CH) w/hair roots
 $W_n = 22.3\%$

J-4 depth: 15.0'
Gray silty medium to fine SAND (SM)
 $W_n = 13.8\%$

J-5 depth: 20.0'
Gray Silty SAND (SP-SM)

J-6 depth: 34.5' to 36.0'
Gray Silty fine SAND (SM) w/thin Silt LENSES (ML)

BORING T-22
(Jar Samples)

J-1 depth: 1.0'
Brown CLAY (CL) w/hair roots
 $W_n = 26.7\%$

J-2 depth: 5.0'
Brown CLAY (CL) w/hair roots and organic stains
 $W_n = 25.4\%$

J-3 depth: 10.0'
Gray CLAY (CH)
 $W_n = 37.4\%$

BORING T-22 (cont.)

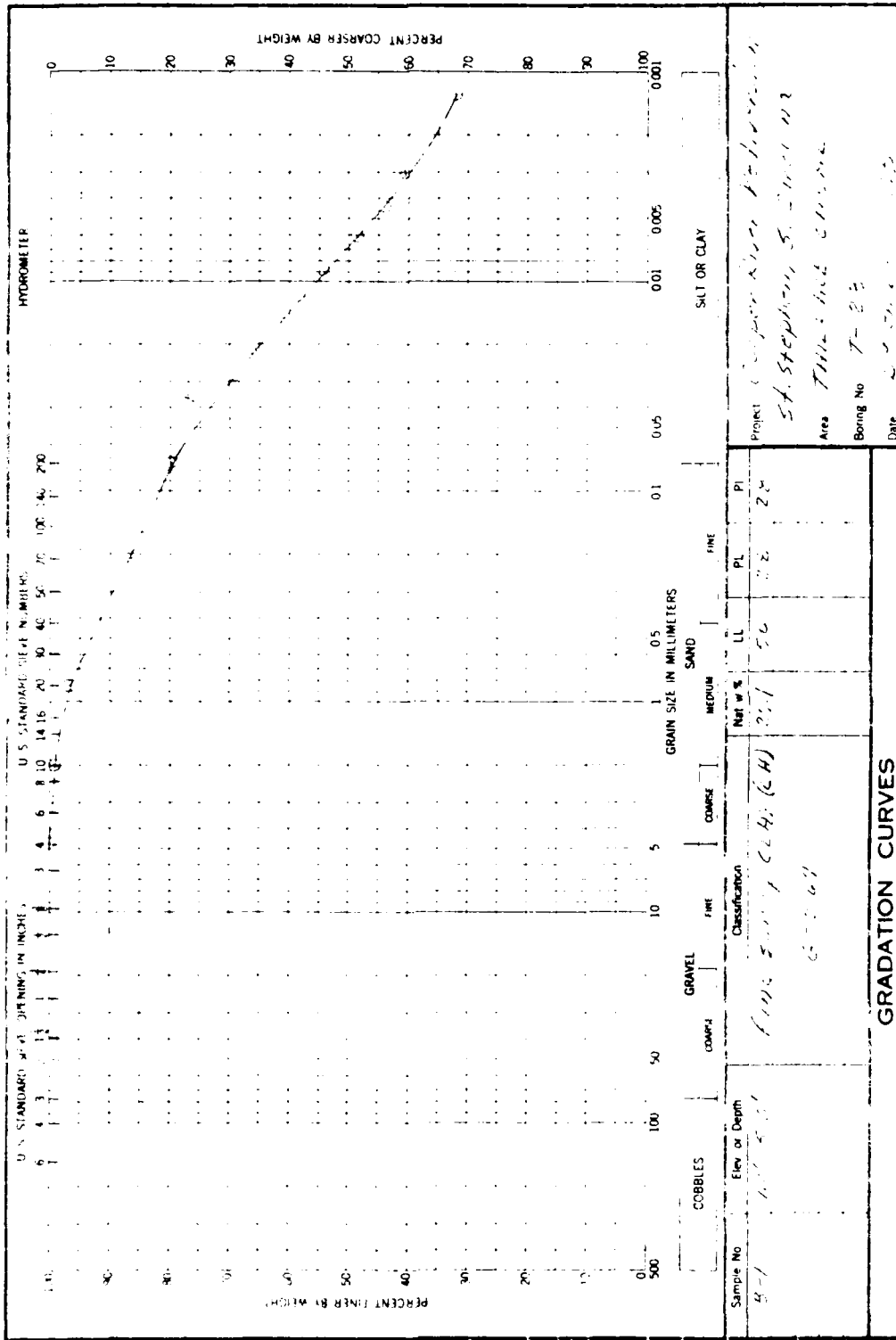
- 2-4 depth: 15.0'
Gray med to fine SAND (SP-SM)
 $W_n = 20.4\%$
- 2-5 depth: 20.0'
Gray Silty fine SAND (SM) w/thin SILT (ML) LENSES

BORING T-23
(Jar Samples)

- 1-1 depth: 1.0'
Gray CLAY (CL) w/organic stains
 $W_n = 23.8\%$
- 1-2 depth: 5.0'
Gray and Brown fine Sandy CLAY (CL)
 $W_n = 13.3\%$
- 1-3 depth: 10.0'
Gray Silty SAND (SM)
 $W_n = 20.5\%$
Non-plastic
- 1-4 depth: 15.0'
Gray Silty Medium to fine SAND (SP-SM)

BORING T-24
(Jar Samples)

- 1-1 depth: 1.0'
Gray Silty fine SAND (SM)
 $W_n = 13.3\%$
- 1-2 depth: 5.0'
Gray Gravelly fine Sandy CLAY (CL)
- 1-3 depth: 7.5 to 8.3'
Gray fine Sandy Silt (ML)
 $W_n = 23.2\%$



ENG FORM 2087
MAY 1967

T-131 27

BORING T-25
(Jar Samples)

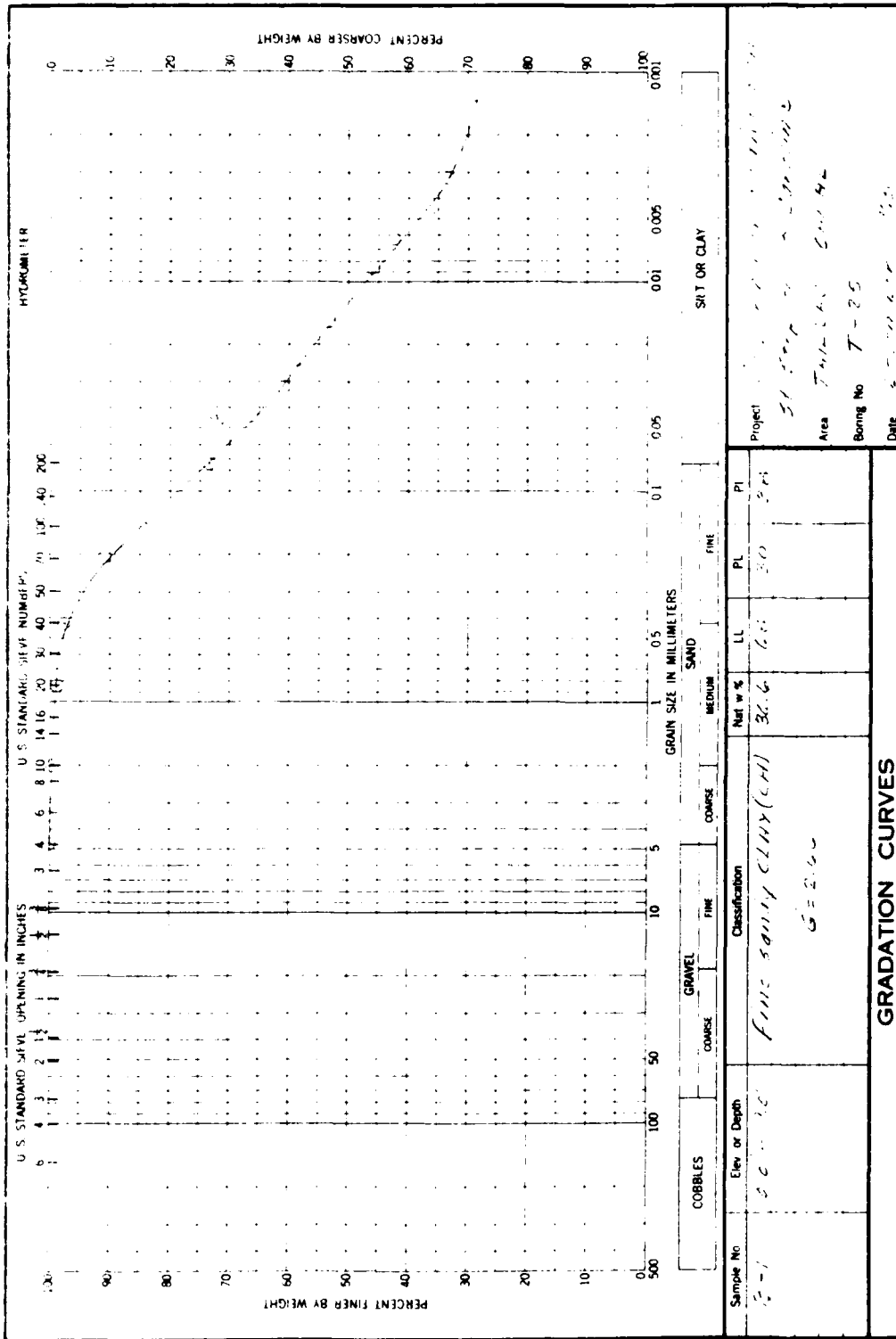
- J-1 depth: 1.0'
Brown fine Sandy CLAY (CL) w/hair roots and organic stains
- J-2 depth: 5.0'
Brown fine Sandy CLAY (CL) w/pieces of roots and organic odor
- J-3 depth: 10.0'
Light Brown Silty fine SAND (SM)
 $W_n = 22.1\%$
- J-4 depth: 15.0'
Light Brown Silty Medium to fine SAND (SP-SM) w/oil ODOR

BORING T-26
(Jar Samples)

- J-1 depth: 1.0'
Brown fine Sandy CLAY (CL) w/hair roots
 $W_n = 30.4\%$
- J-2 depth: 5.0'
Light Brown Silty med to fine SAND (SP-SM)
 $W_n = 21.8\%$
- J-3 depth: 10.0'
Light Brown Silty med to fine SAND (SP-SM)

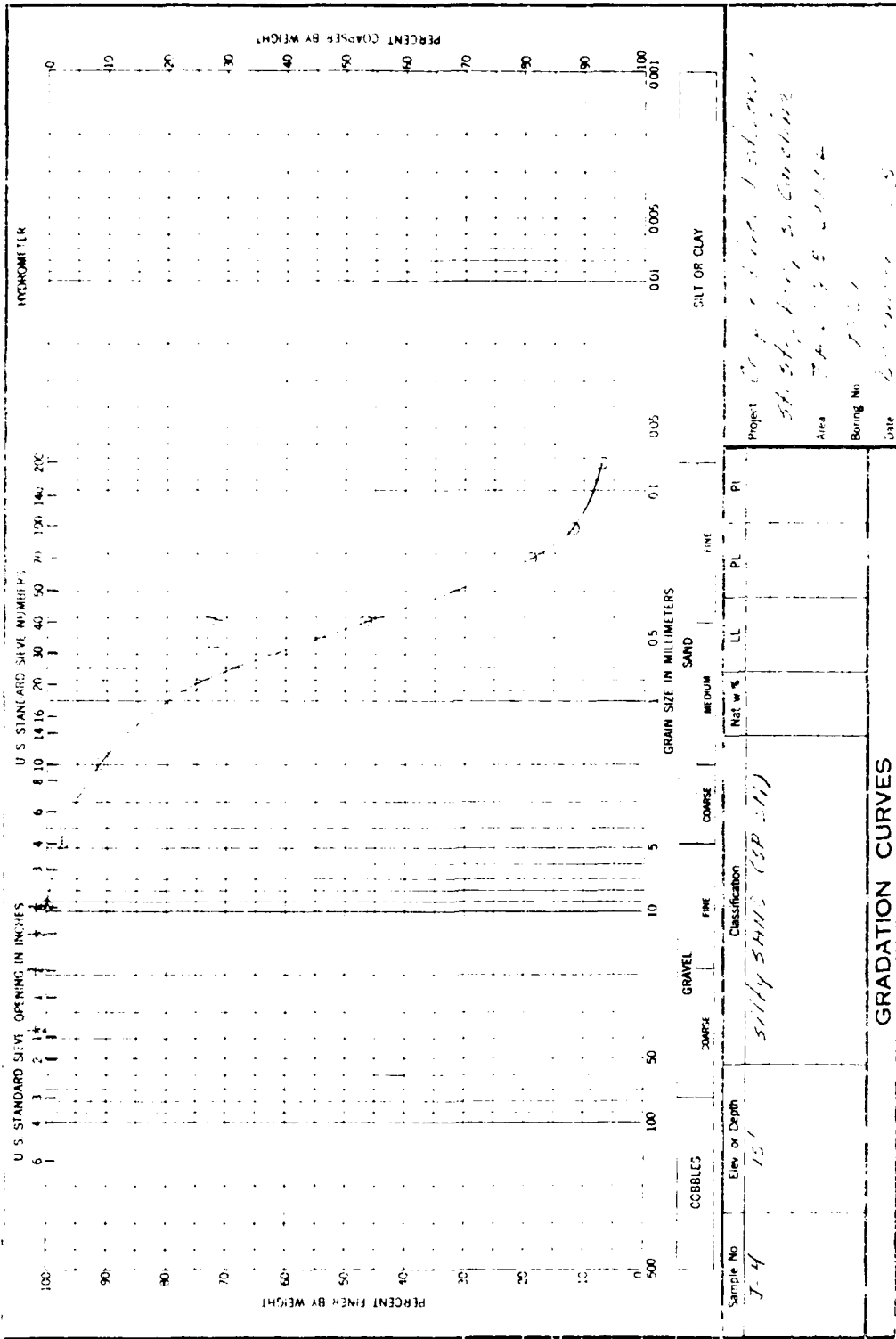
BORING T-27
(Jar Samples)

- J-1 depth: 1.0'
Reddish Brown Clayey fine SAND (SC) w/hair roots
 $W_n = 13.7\%$
- J-2 depth: 5.0'
Brown Clayey fine SAND (SC)
- J-3 depth: 10.0'
Brown Silty fine SAND (SM)
- J-4 depth: 15.0'
Light Brown Silty SAND (SP-SM)
 $W_n = 21.4\%$
Non-plastic



ENG FORM 2087
 1 MAY 63

T-134-132



Project: *State of Ohio, Columbus*
 Area: *74.3 E 1114*
 Boring No: *1114*
 Date: *11/11/14*

Sample No: *J-4*
 Elevation or Depth: *15'*
 Classification: *Silly Shale (SP SH)*

Nat. w. %
 LL
 PL
 PI

GRADATION CURVES

ENG FORM
 MAY 2007

T-135 T-13

BORING T-28
(Jar Samples)

- J-1 depth: 1.0'
Light Brown CLAY (CH)
- J-2 depth: 5.0'
Brown-Grey fine Sandy CLAY (CL)
 $W_n = 19.5\%$
- J-3 depth: 10.0'
Grey Silty medium to fine SAND (SP-SM)
 $W_n = 13.7\%$
- J-4 depth: 15.0'
Grey Silty fine SAND (SM)

BORING T-29
(Jar Samples)

- J-1 depth: 1.0'
Brown fine Sandy CLAY (CH) w/hair roots
- J-2 depth: 5.0'
Brown CLAY (CH)
 $W_n = 32.3\%$
LL = 53
PL = 27
PI = 26
- J-3 depth: 10.0'
Grey CLAY (CH) w/organic stains
- J-4 depth: 15.0'
Dark Grey Clayey fine SAND (SC)
 $W_n = 32.4\%$
- J-5 depth: 20.0'
Dark Grey CLAY (CL) & Silty fine SAND (SM) stratified
 $W_n = 61.5\%$

BORING T-30
(Jar Samples)

- J-1 depth: 1.0'
Brown fine Sandy Clay (CL) w/hair roots
 $W_n = 40.1\%$
- J-2 depth: 5.0'
Brown fine Sandy CLAY (CL) w/hair roots

BORING T-30 (cont.)
(Jar Samples)

- 1-2 depth: 10.0'
Brown Clayey fine SAND (SC)
W_n = 20.7%
- 1-3 depth: 15.0'
Golden brown Silty fine SAND (SM)
W_n = 17.7%
- 1-4 depth: 20.0'
Gray Gravelly Silty fine SAND (SM)
W_n = 16.1%

BORING T-31
(Jar Samples)

- 1-1 depth: 0.0 to 5.0'
Brown CLAY (CH) w/organic stains
W_n = 11.5%
- 1-2 depth: 10.0'
Gray CLAY (CH)
W_n = 43.6%
- 1-3 depth: 15.0'
Gray Silty fine SAND (SP-SM)
W_n = 18.4%
- 1-4 depth: 16.0'
Dark Gray CLAY (CH) and Gray Silty fine SAND (SM) stratified
W_n = 40.7%
- 1-5 depth: 27.0'
Gray Silty fine SAND (SP-SM)
- 1-6 depth: 30.0'
Gray fine Sandy SILT (ML) w/decomposed shell fragments
- 1-7 depth: 36.0'
Gray fine Sandy SILT (ML) w/decomposed shell fragments

BORING T-32
(Jar Samples)

- J-1 depth: 1.0'
Light Brown fine sandy CLAY (CL) w/hair roots
- J-2 depth: 5.0'
Brown-Gray CLAY (CH) w/hair roots
 $W_p = 31.5\%$
- J-3 depth: 10.0'
Brown-Gray CLAY (CH)
- J-4 depth: 12.0'
Gray fine Sandy SILT (MH) w/small roots
 $W_p = 50.2\%$
- J-5 depth: 15.0'
Light Brown Silty medium to fine SAND (SM)
 $W_p = 13.2\%$
- J-6 depth: 20.0'
Gray Silty fine SAND (SM) & Dark Gray CLAY (CL) stratified

BORING T-33
(Jar Samples)

- J-1 depth: 1.0'
Gray CLAY (CH) w/organic Stains
 $W_p = 31.9\%$
- J-2 depth: 5.0'
Gray fine Sandy CLAY (CH) w/small roots and organic stains
 $W_p = 18.6\%$
- J-3 depth: 10.0'
Gray Silty Med to fine SAND (SM)
- J-4 depth: 21.2' to 23.7'
Dark Gray CLAY (CL) & Silty fine Sand (SM) stratified
 $W_p = 60.5\%$

BORING T-34A
(Jar Samples)

- J-1 depth: 1.0'
Brown-Gray fine Sandy CLAY (CL)
 $W_p = 17.6\%$

BORING R-6
(Bag Samples)

B-1 depth 1.5' to 6.0'
Brown Clayey fine SAND (SC) w/hair roots
W_n = 13.0%
LL = 43
PL = 17
PI = 26
O.M.C. = 18.0%
Max. dry Density = 105.4 pcf.

BORING T-11
(Bag Sample)

B-1 depth: 1.0 to 6.0'
Brown fine Sandy CLAY (CL) w/roots
W_n = 22.4%
LL = 49
PL = 25
PI = 24
O.M.C. = 24.3%
Max. dry density = 95.7 pcf.

BORING T-14
(Bag Sample)

B-1 depth: 1.0 to 6.0'
Dark Brown fine Sandy CLAY (CH) w/roots
LL = 64
PL = 30
PI = 34

BORING T-17
(Bag Sample)

B-1 depth: 0.0 to 5.0'
Brown fine Sandy CLAY (CH) w/roots
W_n = 41.0%
LL = 90
PL = 37
PI = 53
O.M.C. = 34.6%
Max. dry density = 81.0 pcf

BORING T-23
(Bag Sample)

B-1 depth: 1.0 to 5.0
Dark Brown fine Sandy CLAY (CH) w/roots
W_n = 27.1%
LL = 56
PL = 28
PI = 28

BORING T-25
(Bag Sample)

B-1 depth: 0.0 to 9.0
Dark Brown fine Sandy CLAY (CH) w/roots
W_n = 36.6%
LL = 68
PL = 30
PI = 32

BORING T-27
(Bag Sample)

B-1 depth: 0.0 to 9.0'
Golden Brown Clayey Silty fine SAND (SC-SM) w/roots

BORING T-30
(Bag Sample)

B-1 depth: 0.0 to 9.0'
Brown fine Sandy CLAY (CH) w/roots
W_n = 11.1%
LL = 23
PL = 17
PI = 6
O.M.C. = 12.2%
max. dry density = 117.0 pcf

BORINGS T-14, 23, 25, 30
(Bag Samples)

CS #1 (Bags of each boring combined) depth: 0.0'-9.0'
Brown fine Sandy CLAY (CH) w/hair roots
LL = 50
PL = 28
PI = 31
O.M.C. = 27.1%
Max. dry density = 91.5pcf

BORINGS T-11 and T-17
(Bag Samples)

11-17 (Bags of each boring combined) depth: 0.0'-6.0'
Brown fine sandy CLAY (CH) w/hair roots
LL = 57
PL = 27
PI = 30
O.M.C. = 27.8%
Max. dry density = 88.4 pcf

VISUAL CLASSIFICATIONS AND SOIL TEST RESULTS

RAILROAD RELOCATION
COOPER RIVER REDIVERSION
ST. STEPHENS, S. CAROLINA
(CHARLESTON DISTRICT)

BORING R-1
(Jar Samples)

J-1 depth: 1.0'
Brown & Grey medium to fine Sandy CLAY (CL)
Wn = 17.0%
LI = 46
PL = 29
PI = 24

J-2 depth: 5.0'
Grey CLAY (CH) w/organic Stains

J-3 depth: 10.0'
Grey Silty medium to fine SAND (SP-SM)

J-4 depth: 15.0'
Grey Gravelly fine Sandy SILT (MH)
Wn = 33.0%

BORING R-2
(Jar Samples)

J-1 depth: 1.0'
Brown CLAY (CH) w/hair roots & Organic Stains

J-2 depth: 5.0'
Brown Clayey fine SAND (SC)
Wn = 16.3%

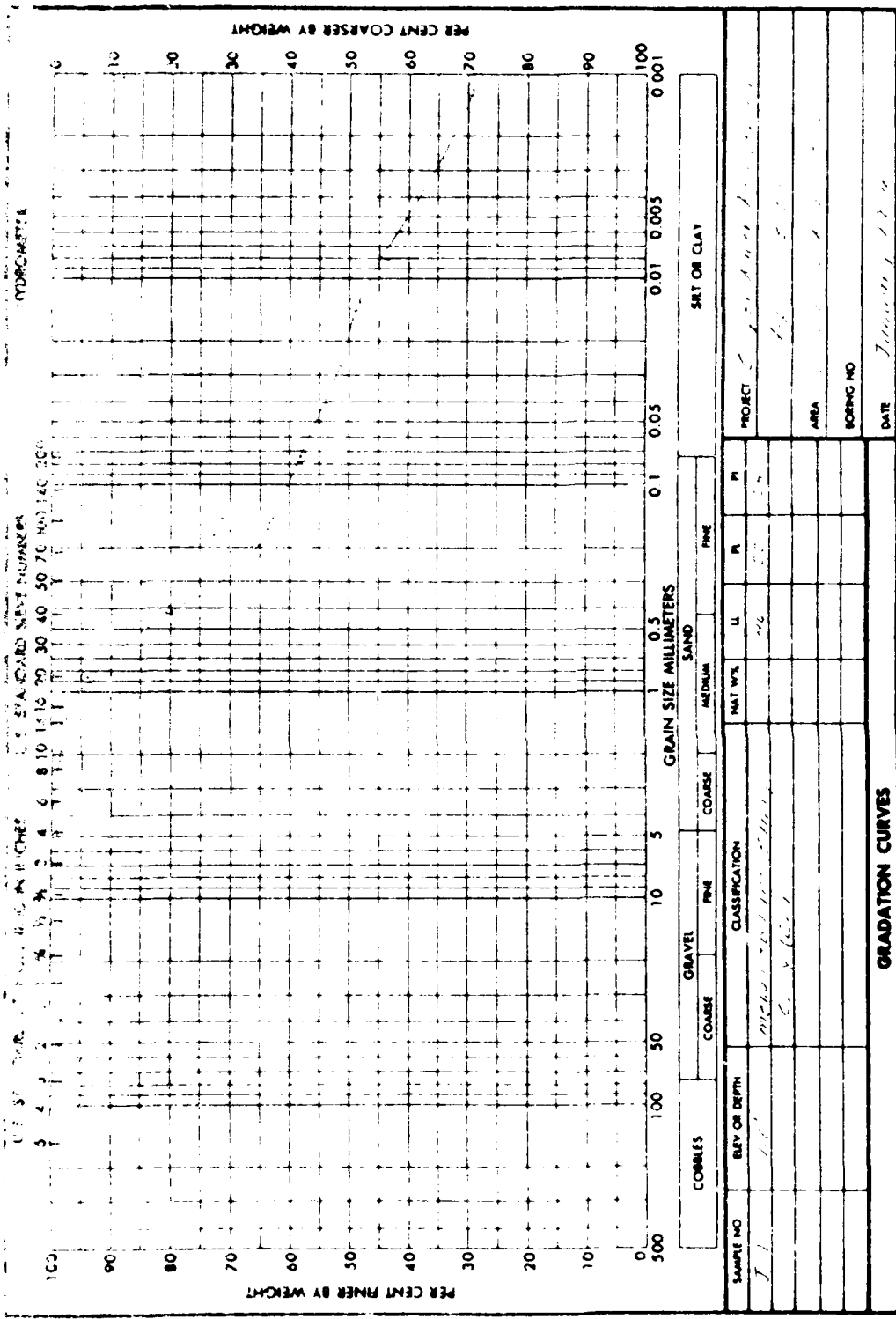
J-3 depth: 10.0'
Grey Silty medium to fine SAND (SP-SM)

BORING R-3
(Jar Samples)

J-1 depth: 0.3'
Brown-Grey fine Sandy CLAY (CH) w/hair roots

J-2 depth: 8.0' - 9.0'
Grey Silty medium to fine SAND (SM)
Wn = 22.2%

J-3 depth: 12.0'
Grey fine Sandy SILT (ML)



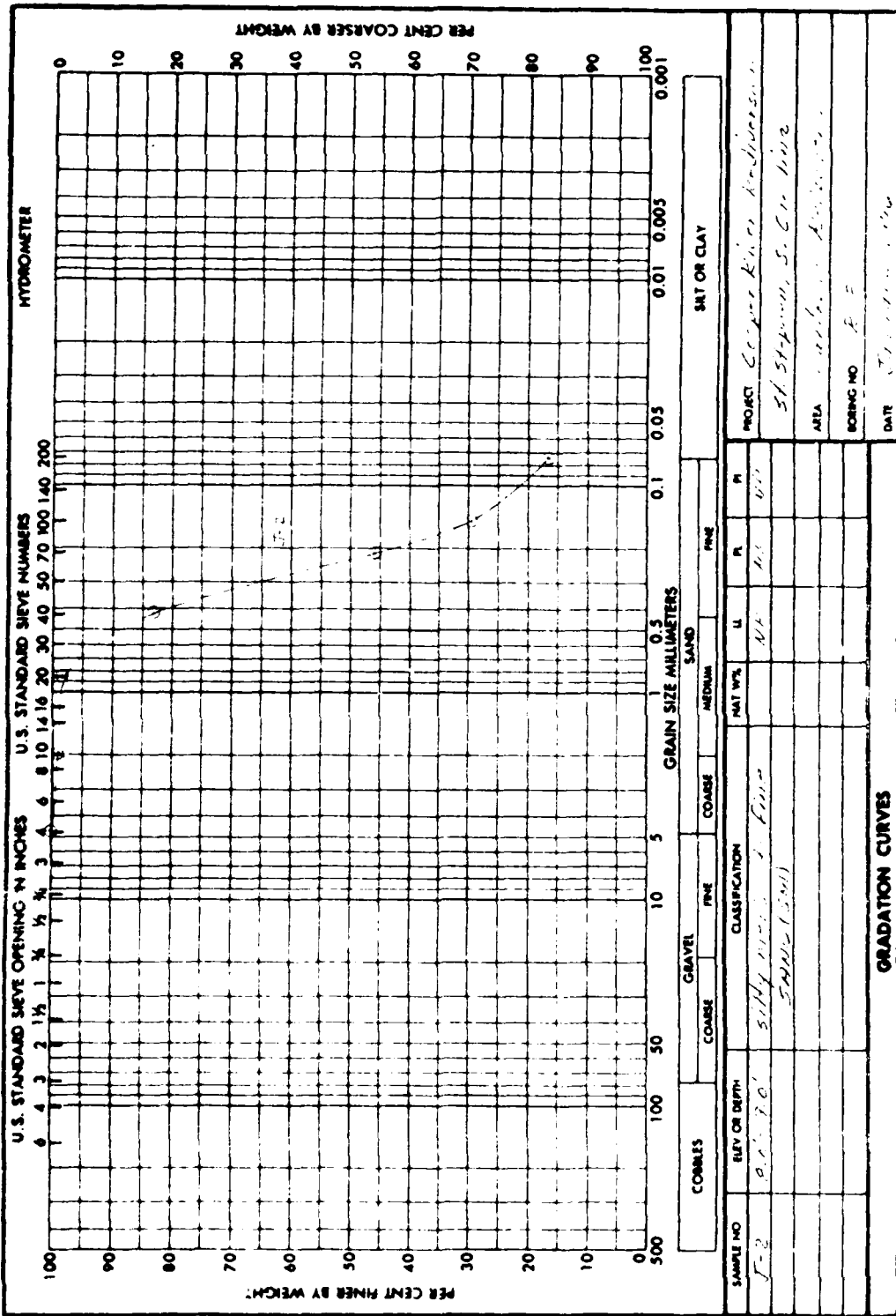
U.S. STANDARD SIEVE NUMBERS
 10 20 30 40 50 70 100 140 200
 2 4 6 8 10 12 16 20 30 40 50 70 100 140 200
 10 20 30 40 50 70 100 140 200
 10 20 30 40 50 70 100 140 200

ENGINE FORM 2087
 1 MAY 63

REPLACES WES FORM NO 1241, SEP 1962, WHICH IS OBSOLETE

U.S. DEPARTMENT OF TRANSPORTATION OFFICE 1963 OF - 100-188

T-149 T-141



ENG FORM 2087
 1 MAY 51
 REPLACES WES FORM NO 1241, SEP 1942, WHICH IS OBSOLETE
 U.S. GOVERNMENT PRINTING OFFICE: 1943 O7-709-118

T-145 7-42

BORING R-4
(Jar Samples)

- J-1 depth: 5.0'
Grey CLAY (CH) w/Streaks of Organic Stains
- J-2 depth: 9.0' to 10.0'
Grey CLAY (CH)
Wn = 53.1%
LL = 66
PL = 26
PI = 40
- J-3 depth: 10.5' to 12.0'
Grey Silty fine SAND (SP-SM)
- J-4 depth: 15.0'
Grey Silty fine SAND (SM) & Dark Grey CLAY (CH) (stratified)

BORING R-5
(Jar Samples)

- J-1 depth: 1.0'
Brown CLAY (CH) w/hair roots
- J-2 depth: 5.0'
Grey Clayey fine SAND (SC)
Wn = 18.7%
LL = 46
PL = 16
PI = 30
- J-3 depth: 10.0'
Grey Silty fine SAND (SM)
Wn = 20.0%

BORING R-6
(Jar Samples)

- J-1 depth: 1.0'
Brown Silty fine SAND (SM) w/small roots
Wn = 5.8%
- J-2 depth: 5.0'
Golden Brown Clayey fine SAND (SC)
Wn = 14.3%
- J-3 depth: 10.0'
Golden Brown Clayey fine SAND (SP-SC)
- J-4 depth: 15.0'
Golden Brown Clayey fine SAND (SC)
Wn = 19.0%

T-146 = 143

BORING R-6 (cont.)
(Jar Samples)

J-5 depth: 18.0' to 19.5'
Light Brown Silty fine SAND (SM)

BORING BA-1
(Jar Samples)

J-1 depth: 0.0 to 1.5'
Light Brown Silty fine SAND (SM) w/hair roots
Wn = 3.2%

J-2 depth: 1.5' to 3.0'
Light Brown fine Sandy CLAY (CH)
Wn = 22.0%
LL = 50
PL = 20
PI = 30

J-3 depth: 7.5' to 9.0'
Light Brown Silty fine SAND (SM)
Wn = 8.3%

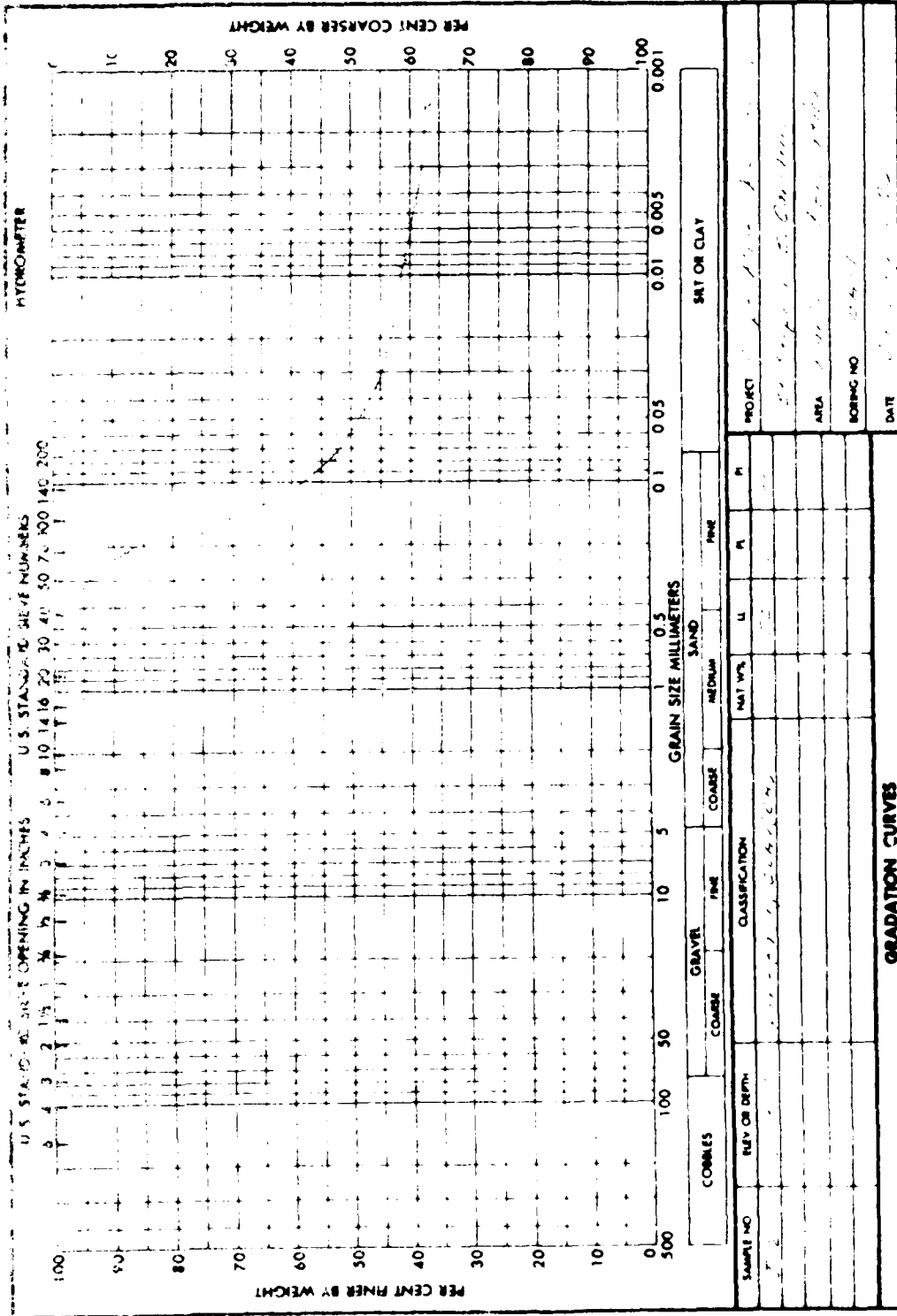
J-4 depth: 15.0' to 16.5'
Light Brown Silty fine SAND (SP-SM)

J-5 depth: 19.5' to 21.0'
Light Brown Silty medium to fine SAND (SP-SM)

J-6 depth: 24.0' to 25.5'
Light Brown Silty Med. to fine SAND (SP-SM)
Wn = 15.6%

J-7 depth: 29.5' to 30.0'
Black CLAY (CH)
Wn = 57.3%

J-8 depth:
Black CLAY (CH)
Wn = 54.0%



U.S. STANDARD SIEVE OPENING IN INCHES: 1/2, 3/4, 1, 1 1/4, 1 1/2, 2, 2 1/2, 3, 3 1/2, 4, 5, 6, 8, 10, 12, 15, 20, 30, 40, 50, 75, 100, 140, 200

U.S. STANDARD SIEVE NUMBERS: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100

HYDROMETER

ENGINEERING FORM 2087 (MAY 61) REPLACES WES FORM NO. 1241, SEP. 1962, WHICH IS OBSOLETE

PROJECT: *San Diego - San Diego*

AREA: *San Diego*

BOREHOLE NO.: *100*

DATE: *10/1/61*

CLASSIFICATION: *CLAY*

GRADATION CURVES

T-148 T-145

BORING BA-1
(Bag Samples)

C-1 depth: 1.5' - 13.0'
Golden Brown Clayey SAND (SC)
LL = 31
PL = 14
PI = 17
G = 2.66

BORING BA-3
(Bag Samples)

C-2 depth: 3.0' to 15.0'
Golden Brown Clayey SAND (SC-SM)
LL = 23
PL = 17
PI = 6
G = 2.68

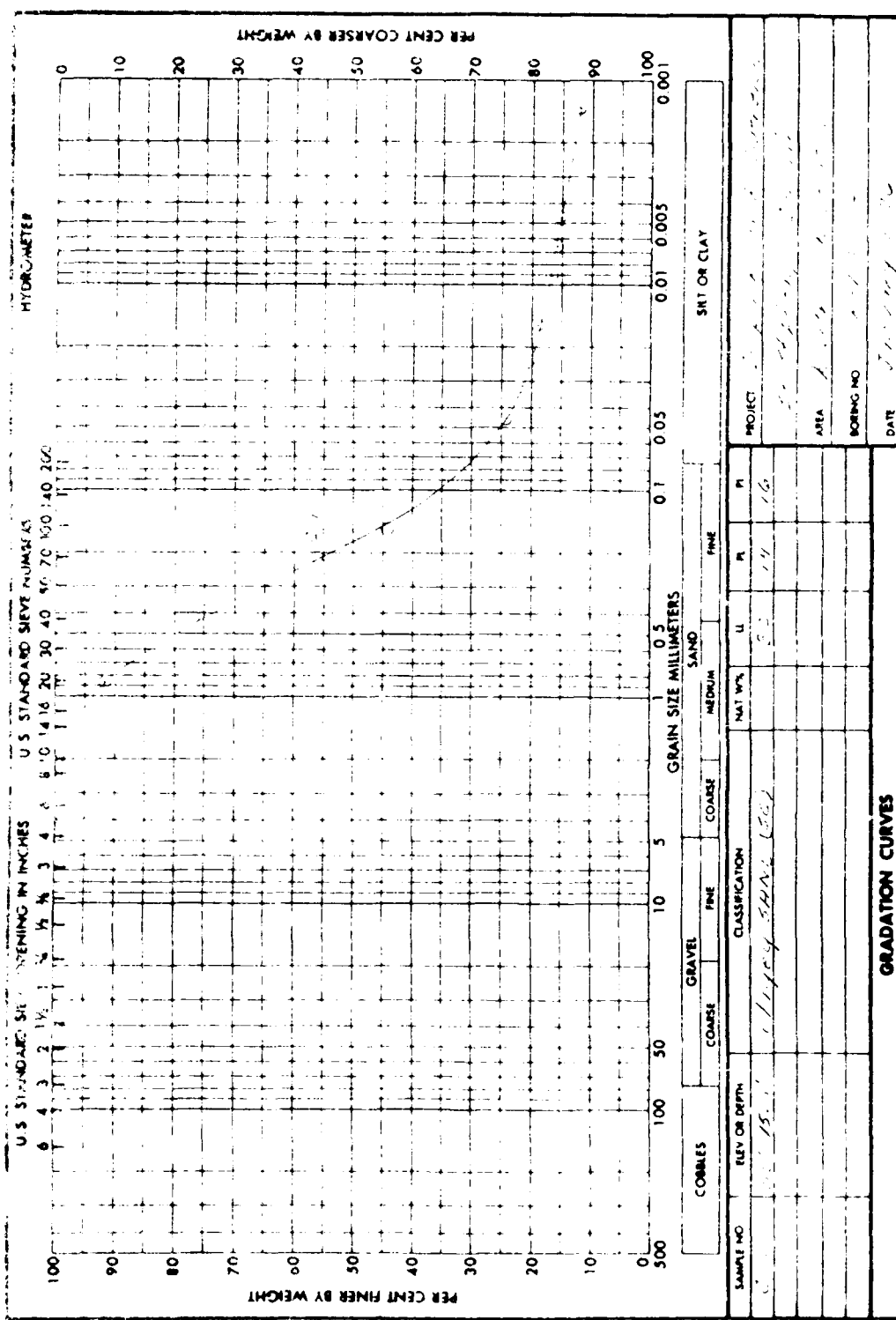
BORING RR-1
(Bag Samples)

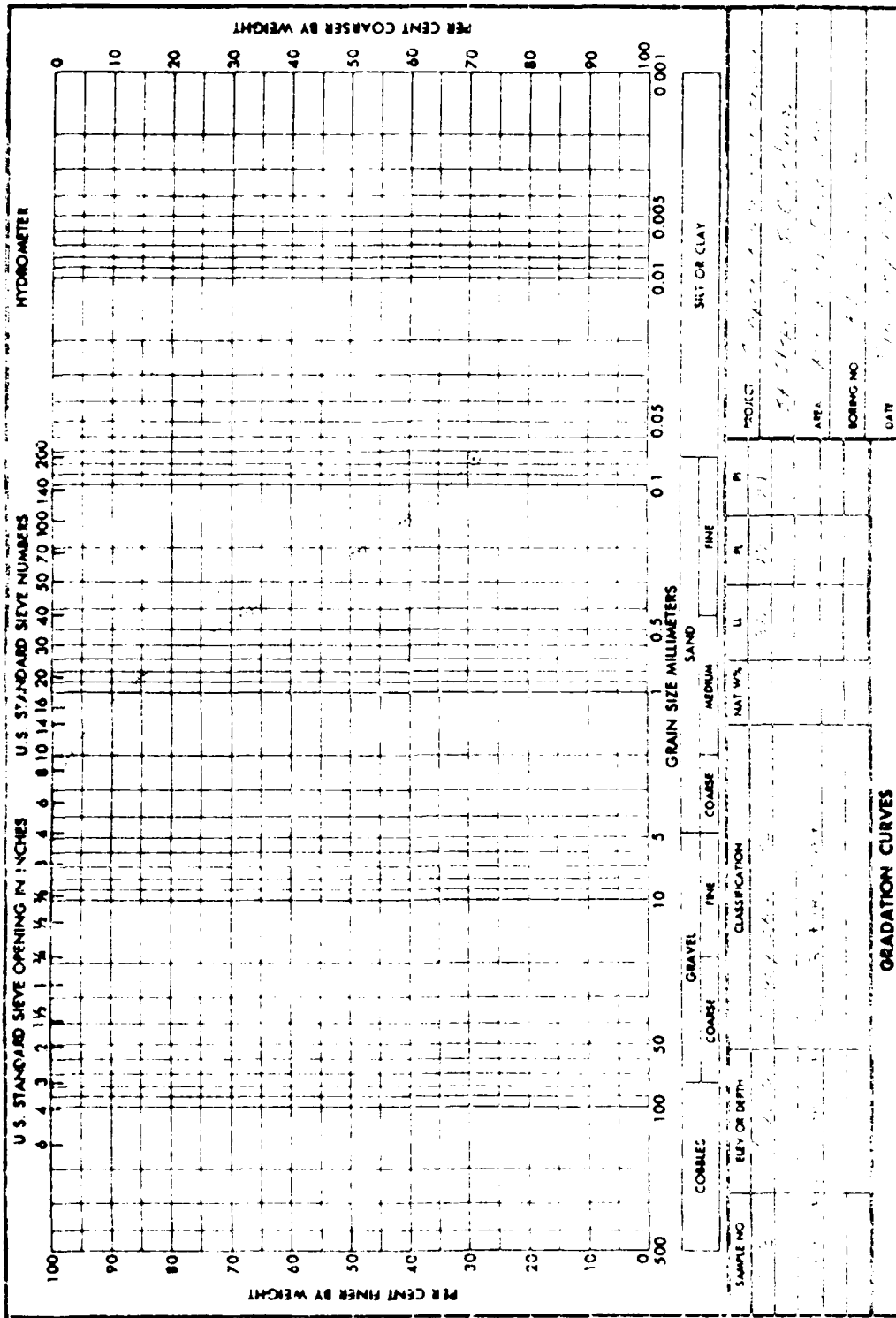
C-3 depth: 1.0 to 12.0'
Brown Clayey SAND (SC) w/hair roots
LL = 38
PL = 17
PI = 21
G = 2.66

BORING C-4
(Bag Samples)

C-4 depth:
Dark Brown fine Sandy CLAY (CH) w/roots
LL = 64
PL = 26
PI = 38
G = 2.64

779



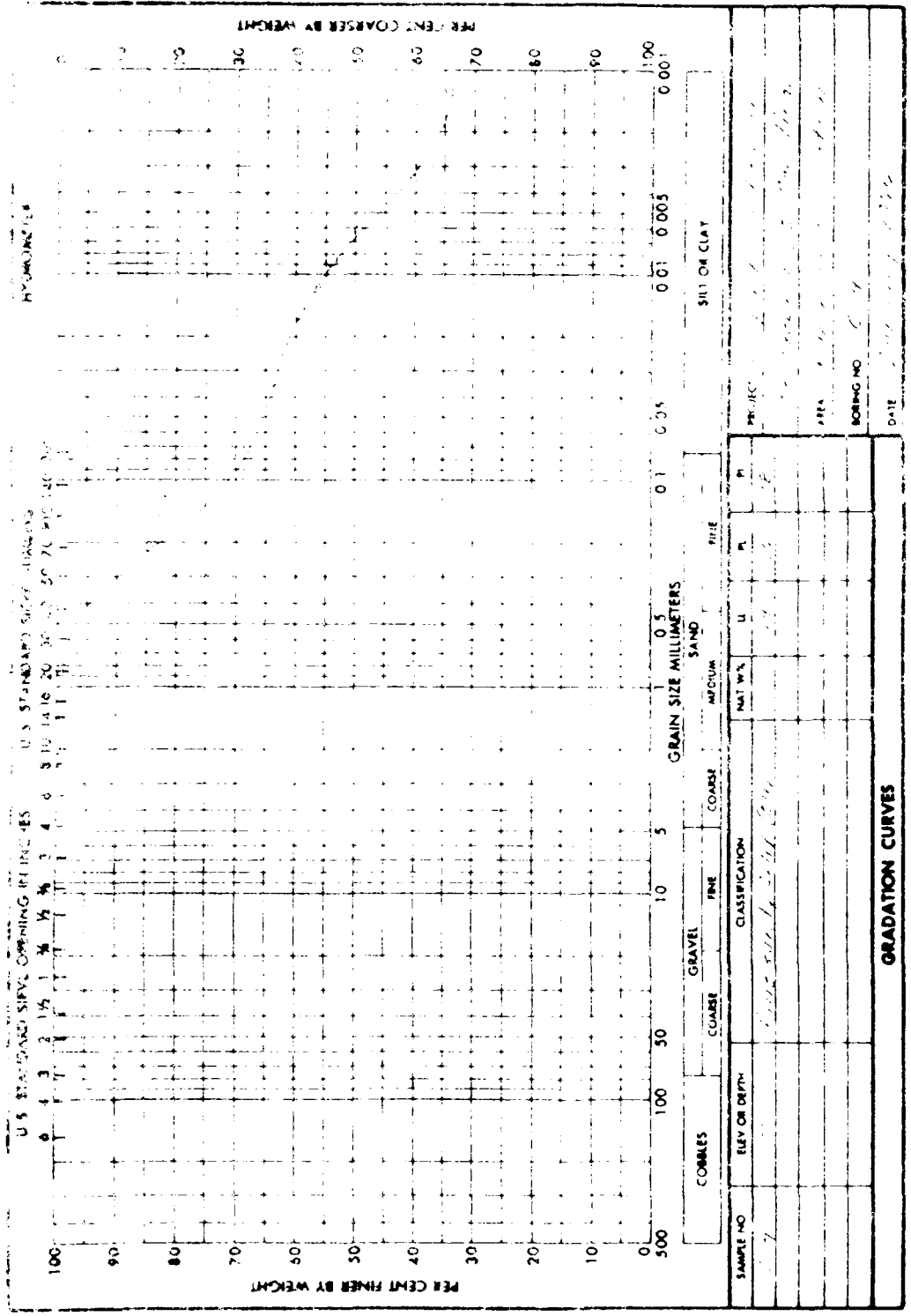


ENG FORM 2087

REPLACES WSS FORM NO. 1231, SEP. 1967, WHICH IS OBSOLETE

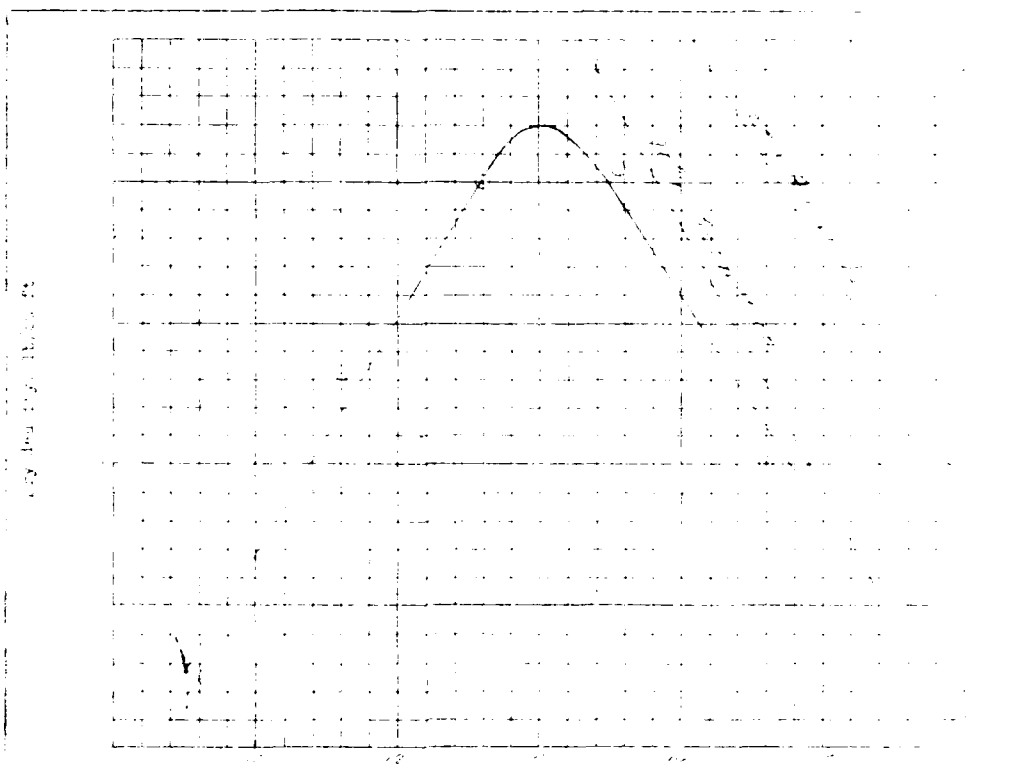
MAY 63

T-151



ENGINEERING FORM 2087
 MAY 63
 REPLACES WES FORM NO 1241, SEP 1962, WHICH IS OBSOLETE
 U.S. GOVERNMENT PRINTING OFFICE: 1962 O - 706 134

T-152-189



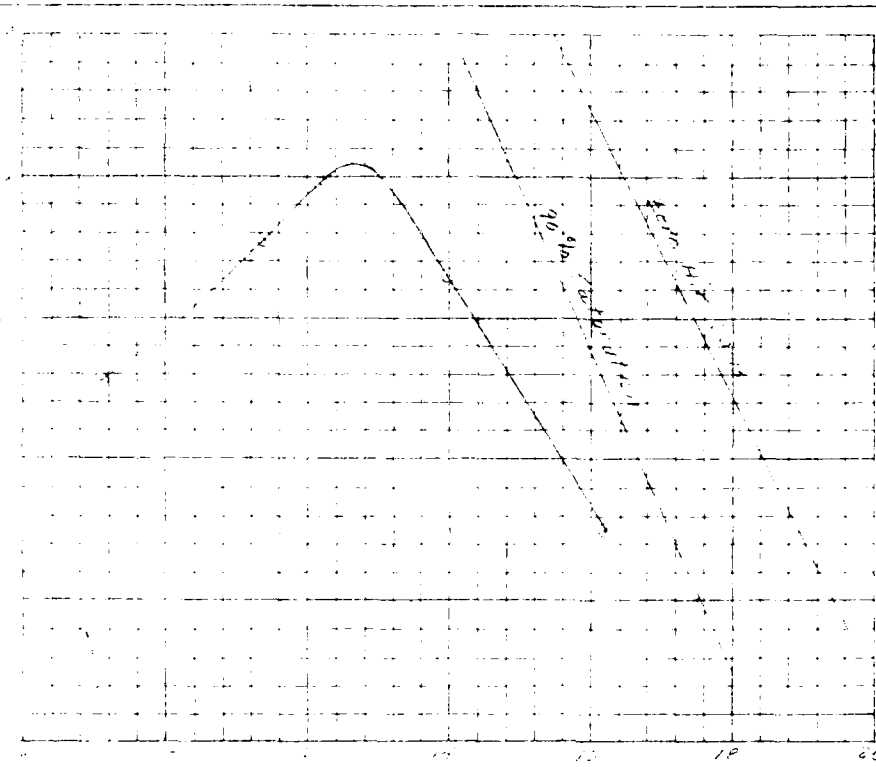
_____ compaction test
 _____ blows per each of _____ layers, with _____ lb. hammer, at _____ inch drop, _____ inch diameter mold

Sample No.	Elev. or Layer	Classification	G	LL	PL	W _p	W _u
1	1	CL					
Sample No.	1						
Maximum water content, percent	20						
Optimum water content, percent	18						
Max dry density, lb./cu. ft.	1.25						
Remarks	Project _____						
	Area _____						
	boring No. _____			Date _____			

COMPACTION TEST REPORT

BY _____ ENGINEER AND OBSERVED BY _____ TRANSMITTED BY _____

T-153-50



Water content, percent of dry weight

This is a _____ compaction test
 Blows per inch of _____ layer, with _____ lb rammer and
 _____ inch drop. _____ inch diameter mold

Sample No.	Elev or Depth	Classification	G	LL	PL	% > No. 4	% > 3/4 in.
		2115 ft. fine sand (see 2115)	74.8	32	15	0	0

Sample No. _____

Natural water content, percent _____

Optimum water content, percent _____

Max dry density, pcf _____

Remarks _____

Project _____

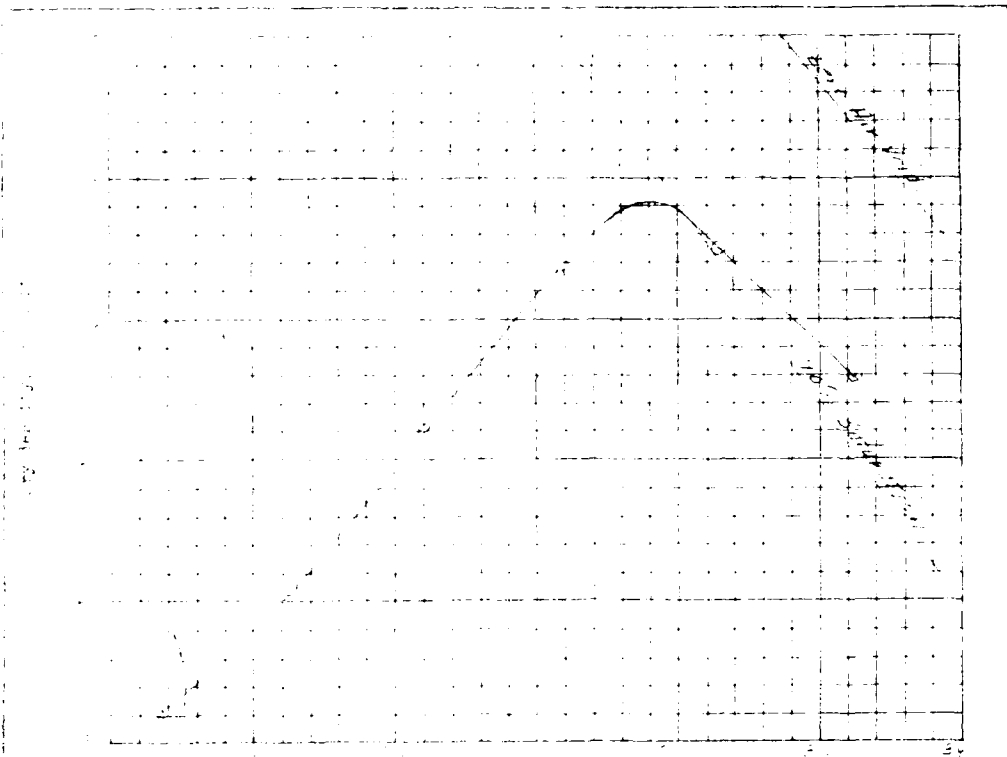
Area _____

Working No. _____ Date _____

COMPACTION TEST REPORT

THIS REPORT IS TO BE PREPARED BY THE FIELD OFFICE AND IS TO BE TRANSLUCENT

FISA-151



Notes: (1) Moisture content of dry weight

(2) Maximum expansion limit

(3) Base permeability of _____ layer, with _____ rubber and

drain pipe, _____ in diameter soil

Sample No.	Flow or Depth	Classification	w	L _d	PL	% > No. 4	% > 3/4 in.
1		CL	18.4	14	26	0	0

Sample No.

Natural water content, percent

Optimum water content, percent

Max dry density, g/cm³

Remarks

Project: _____

Area: _____

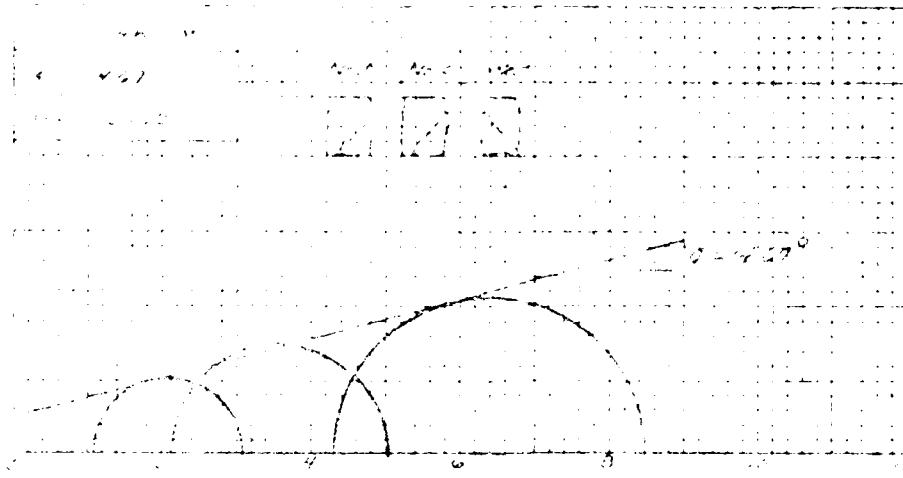
Starting No. _____

Date: _____

COMPACTION TEST REPORT

Form No. _____ TRANSLUCENT

T-1567-153

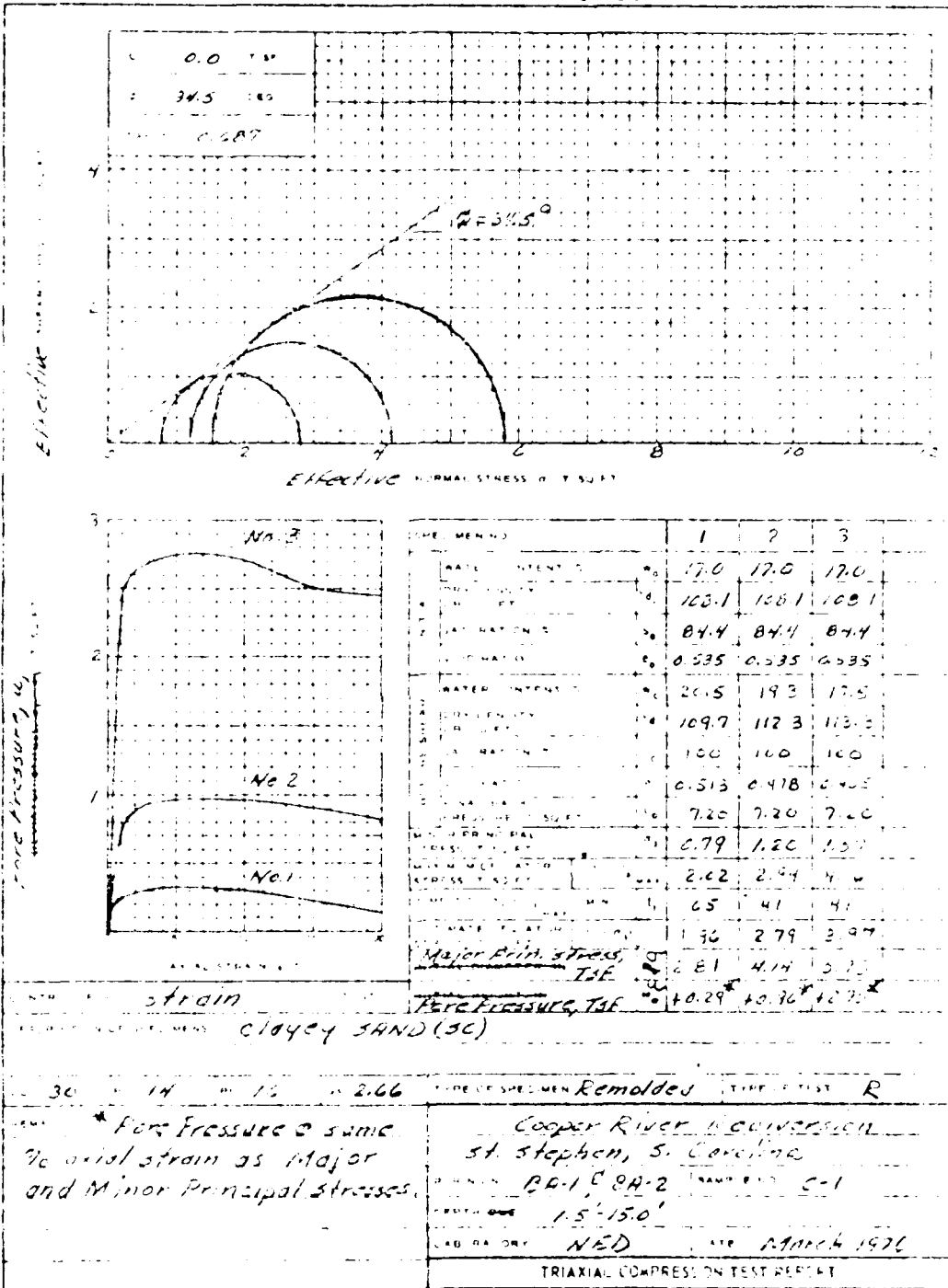


NORMAL STRESS (LBS/IN²)

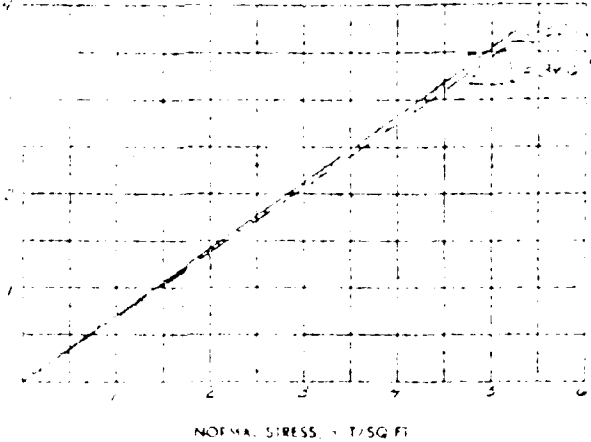
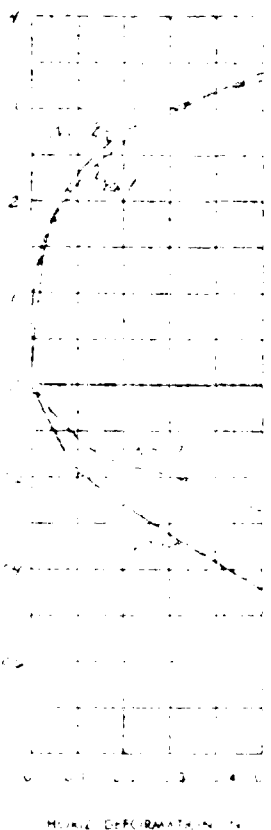
TEST NUMBER	1	2	3
AXIAL STRESS	170	170	170
CONFINING PRESSURE	100	200	300
AXIAL STRAIN	0.44	0.44	0.44
CONFINING STRAIN	0.335	0.335	0.335
WATER CONTENT	1.65	1.93	1.65
MOISTURE RATIO	107.9	112.3	112.0
UNIT WEIGHT	110	110	110
POISSON'S RATIO	0.53	0.46	0.405
UNIT VOLUME	2.00	2.00	2.00
UNIT WEIGHT	1.68	2.16	4.87
UNIT WEIGHT	2.62	2.94	4.16
UNIT WEIGHT	65	41	41
UNIT WEIGHT	1.90	2.79	3.97
UNIT WEIGHT	1.42	1.42	1.42
UNIT WEIGHT	3.15	3.15	3.15

14 10 20
 Cooper River Rediversion
 at Stephen, S. Carolina
 44-1524-2
 NED
 11/26/1970
 TRIAXIAL COMPRESSION TEST REPORT

T-158-155



T-159 T-156



SOIL STRENGTH PARAMETERS

$\phi = 54.6^\circ$
 $c = 0.075$
 $\sigma'_{vm} = 0.0$

	1	2
WATER CONTENT	100.0	170.0
SHRINKAGE	0.106	0.536
SURFACE AREA	84.4	84.4
WATER CONTENT	106.1	108.1
VOLUME RATIO AFTER	0.489	0.452
WATER CONTENT	0.5	0.5
WATER CONTENT	10.2	16.5
COEFFICIENT	0.074	0.375
COEFFICIENT	100	100
COEFFICIENT	4.85	4.60
COEFFICIENT	3.40*	3.31*
COEFFICIENT	60	60
RATE OF STRAIN	0.0083	0.0083
COEFFICIENT	-	-

TYPE OF SPECIMEN: *Remolded*** 3.0 IN SQUARE 0.50 IN THICK
 SOIL: *CLAY SAND (SC)*
 TEST NO: *10* *2.00*

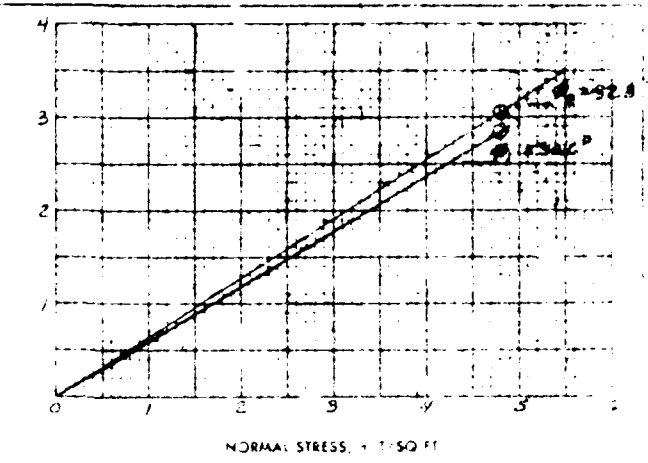
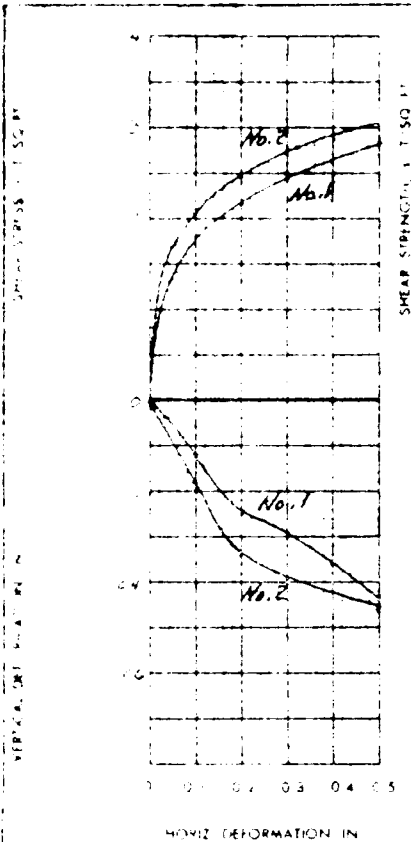
* Stress 20's horizontal deformation
 ** Samples molded @ moisture content of 120% (comp. + 5%)
 (1.5% maximum density)

PROJECT: *Cooper River Rediversion,
 St. Stephen S. Carolina*
 ROAD: *Railroad Relocation*
 SECTION: *BA-1; BA-2* STATION: *C-1*
 DATE: *12-15-66* DATE TESTED: *March 1970*

DIRECT SHEAR TEST REPORT

SNG FORM 7094
 JUN 65

F-160 5



SHEAR STRENGTH PARAMETERS

$c = 30.6$

$\phi = 0.590$

$\sigma' = 0.0$ T/50 FT

TEST NO.	1	2
WATER CONTENT	14.0%	14.0%
VOID RATIO	0.535	0.535
SATURATION	29.6%	29.6%
DRY DENSITY (LB/CCU FT)	108.1	108.1
VOID RATIO AFTER CONSOLIDATION	0.450	0.487
TIME FOR 50 PERCENT CONSOLIDATION (MIN)	0.5	0.5
WATER CONTENT	16.6%	16.5%
VOID RATIO	0.367	0.378
SATURATION	100%	100%
NORMAL STRESS (T/50 FT)	4.80	4.80
MAXIMUM SHEAR STRESS (T/50 FT)	2.83*	3.06*
ACTUAL TIME TO FAILURE (MIN)	60	60
RATE OF STRAIN (IN/MIN)	0.0083	0.0083
ULTIMATE SHEAR STRESS (T/50 FT)	-	-

TYPE OF SPECIMEN: *Remolded*** 3.0 IN SQUARE 0.50 IN THICK

CLASSIFICATION: *clayey SAND (SC)*

PI: 30 PL: 14 PI: 16 PL: 2.0

REMARKS: *Stress @ 0.50" horizontal deformation.*

*** Samples molded @ approx. moisture content of 14.0% (p.m.) and dry density of 108.1 Pcf. (45% maximum density)*

PROJECT: *Cooper River Rediversion*

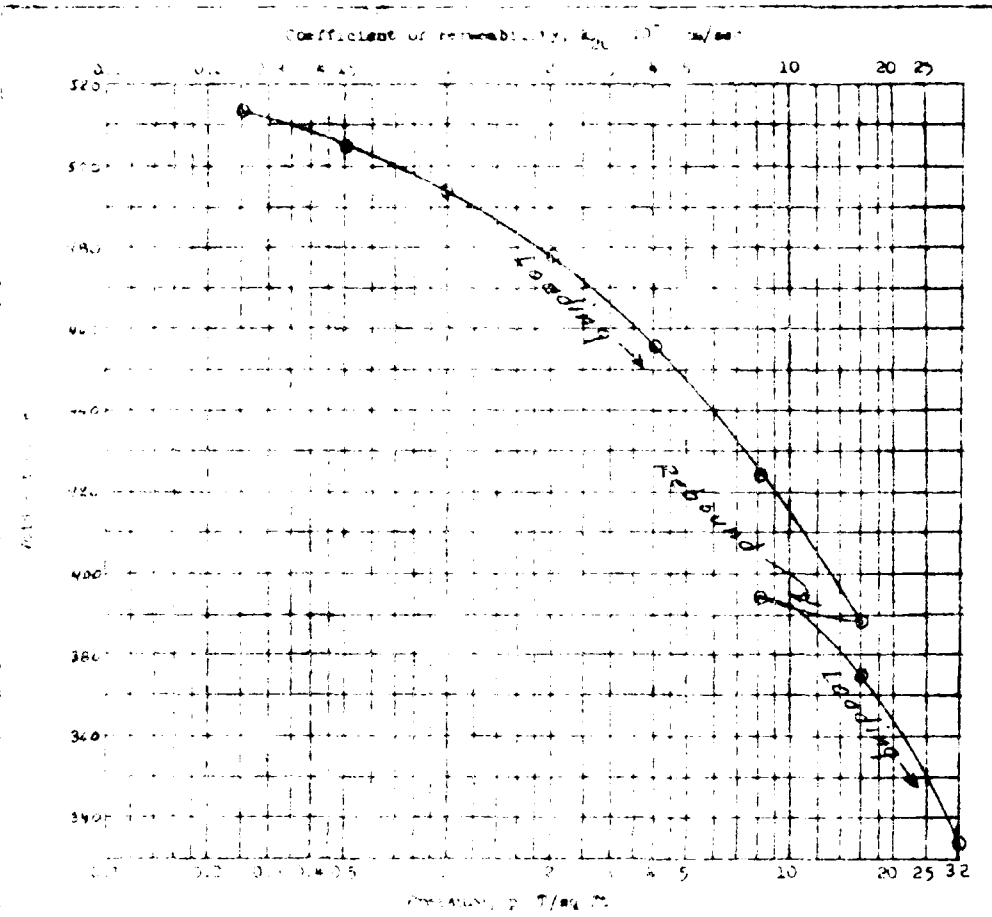
St. Stephen, S. Carolina

AREA: *Railroad Relocation*

APPROX. NO. *BA-1 & BA-2* SAMPLING NO. *C-1*

DEPTH: *1.5' - 15.0'* DATE: *March 1970*

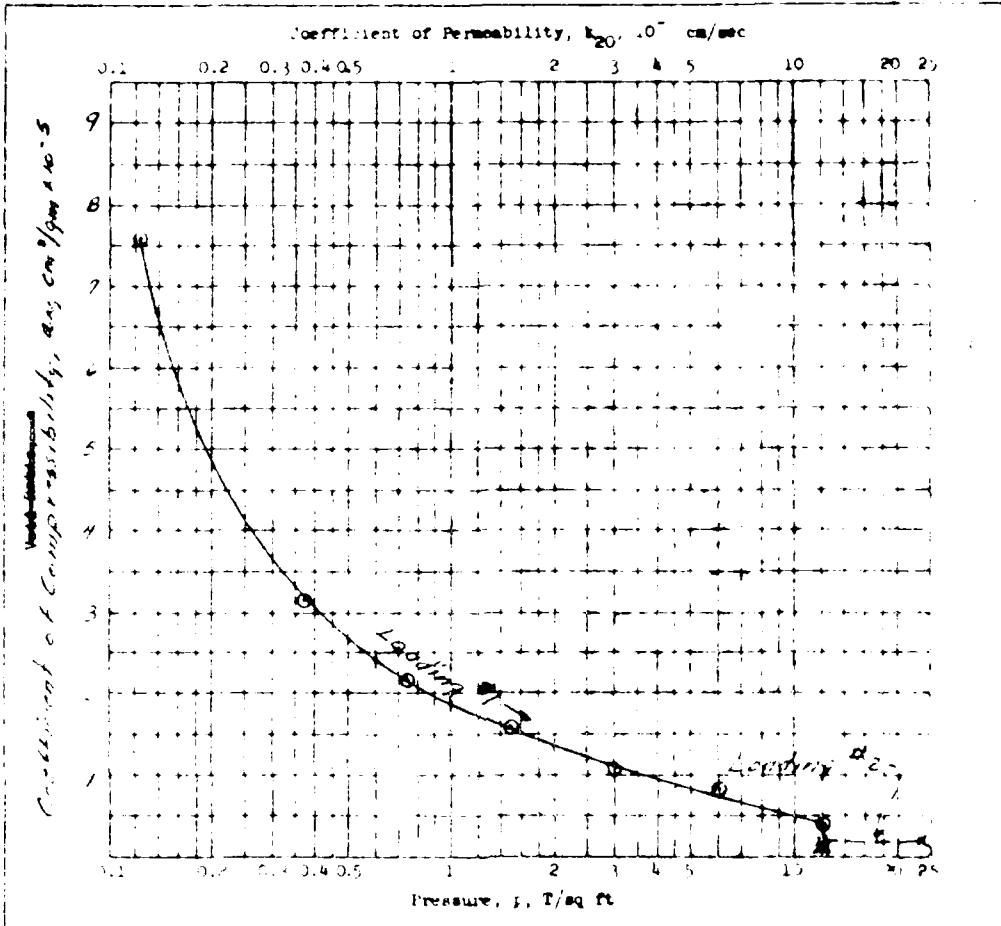
DIRECT SHEAR TEST REPORT



Type of Specimen		Before Test		After Test			
Diam	1.45 in.	Ht	1.0 in.	Water Content, w_0	16.9 %	w_f	12.6 %
Overburden Pressure, P_0	1/eq ft	Void Ratio, e_0	0.537	e_f	0.834		
Consolid. Pressure, P_c	1/eq ft	Saturation, S_0	84.4 %	S_f	100 %		
Compression Index, C_c	0.12	Dry Density, γ_d	108.4 lb/ft ³				
Classification	clayey SAND (SC)	k_{20} at $e_0 =$	$\times 10^{-7}$ cm/sec				
L_{50}	30	G_s	2.66	Project Cooper River Rediversion			
U_{50}	14	P_{10}		St. Stephen, S. Carolina			
Remarks: Samples molded @ moisture content of 12.6% (0.716 - 1.8%) and dry density of 108.1 pcf (95% maximum density)		Area	RAILROAD RELOCATION				
		Boxing No.	AA-1 / EA-2	Sample No.	C-1		
		Depth	1.5' - 15.0'	Date	March 1976		
		CONSOLIDATION TEST REPORT					

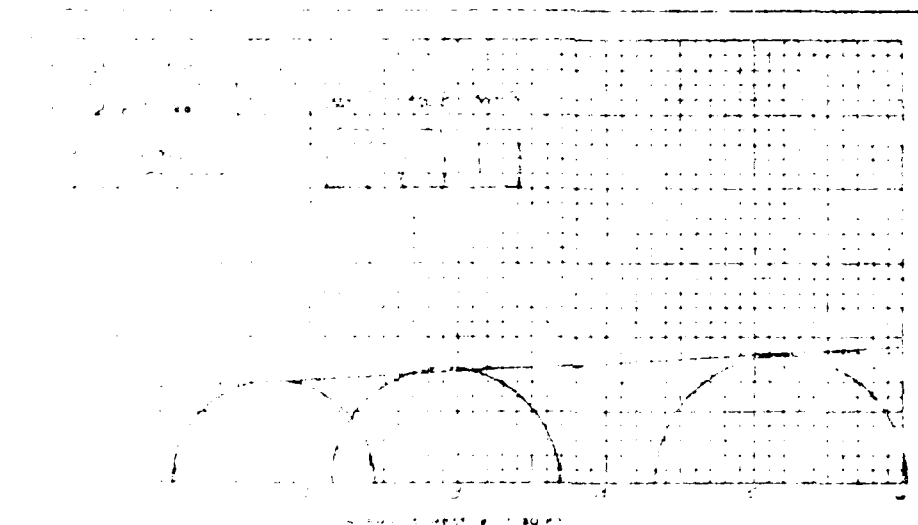
sheet 1 of 2

T-162
T-159



Type of Specimen		Before Test		After Test				
Diam	4.45 in.	Ht	1.0 in.	Water Content, w_0	16.9 %	w_1	12.6 %	
Overburden Pressure, P_0	T/sq ft			Void Ratio, e_0	0.532	e_1	0.334	
Preconsol. Pressure, P_c	T/sq ft			Saturation, S_0	84.4 %	S_1	100 %	
Compression Index, C_c	0.12			Dry Density, γ_d	108.4 lb/ft ³			
Classification	CLAY SAND (SC)			k_{20} at e_0	$\times 10^7$ cm/sec			
σ_c	30	σ_b	266	Project Cooper River Rediversion				
Pl.	14			St. Stephen, S. Carolina				
Remarks	Spec. k_{20} mtd. @ moisture content of 17.0% (o.h.c. 13%) and dry density of 108.1 lb/ft ³ (95% maximum density)			Area	RAILROAD RELOCATION			
				Boring No.	BA-1 & BA-2		Sample No.	C-1
				Depth	1.5' - 15.0'		Date	MARCH 1976

CONSOLIDATION TEST REPORT



GRAVITY CORRECTED CURVES

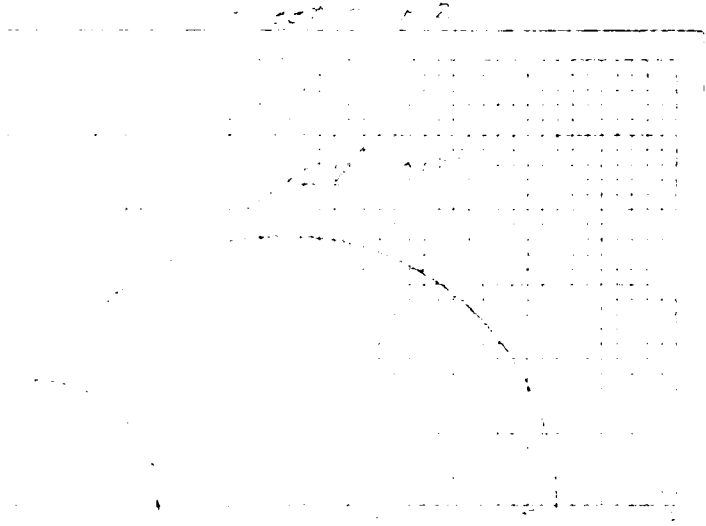
	1	2	3
WATER CONTENT %	32.4	32.3	32.1
LIQUIDITY INDEX	83.1	82.9	83.1
PLASTICITY INDEX	49.7	49.3	49.3
UNSATURATED WATER CONTENT %	6.983	6.987	6.981
SHRINKAGE WATER %			
SHRINKAGE LIMIT %			
FLUIDITY			
MINIMUM LIQUIDITY INDEX	1.28	1.16	1.32
MINIMUM PLASTICITY INDEX	1.35*	1.50*	1.71*
MINIMUM UNSATURATED WATER CONTENT %	15	15	15
MINIMUM FLUIDITY	-	-	-
MINIMUM SHRINKAGE WATER %	1.42	1.42	1.42
MINIMUM SHRINKAGE LIMIT %	3.15	3.15	3.15

Soils are fine sand clay (CH)

1.00
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TYPE OF TEST	Q
PROJECT	Cooper River Rediversion
LOCATION	St. Stephen, S. Carolina
SAMPLE NO.	C-4
DATE	March 1976
LABORATORY	NED
TRIALS - COMPRESSION TEST REPORT	

T-164

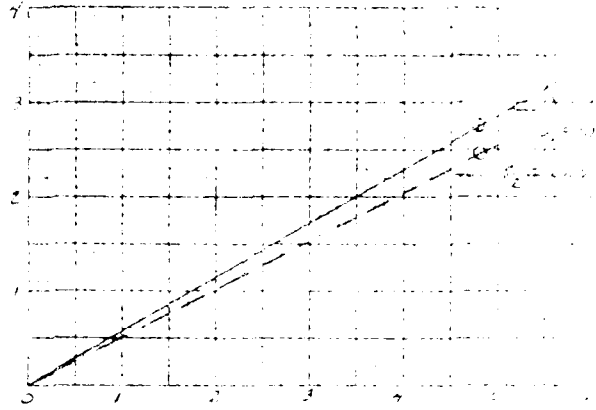
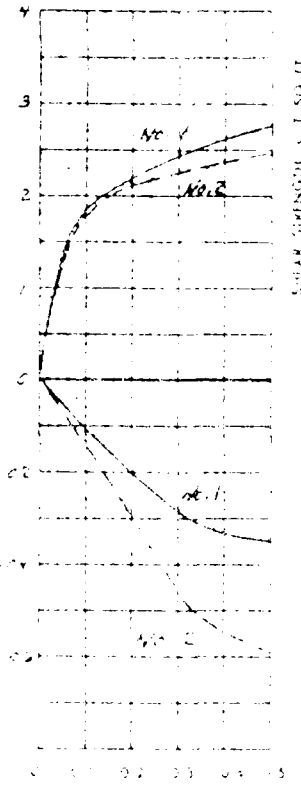


A series of faint, illegible handwritten notes or a list of specifications, possibly describing the dimensions or material of the part shown in the drawing above.

Additional faint handwritten text, likely a title block or further technical specifications, which is mostly illegible due to fading.

T-166
 7-23

V. A. PRESS & T. SUZUKI



SHEAR STRENGTH PARAMETERS
 $\phi = 29.3^\circ$
 $c = 0.510$
 $\sigma'_{vm} = 0.400$

TEST NO.	1	2
WATER CONTENT	W 32.6	28.6
LIQUIDITY	L 4.181	2.170
PLASTICITY INDEX	PI 39.8	37.1
LIQUIDITY INDEX	LI 22.2	21.4
VOID RATIO AFTER CONSOLIDATION	e 0.814	0.823
WATER CONTENT AFTER CONSOLIDATION	W 26.0	25.0
WATER CONTENT	W 30.2	28.9
LIQUIDITY	L 0.480	0.339
SATURATION	S 100	100
NORMAL STRESS (k.t. 50 FT)	4.80	4.80
MAXIMUM SHEAR STRESS (k.t. 50 FT)	2.77*	2.45*
AT FAILURE		
FAILURE MODE	F 0.0	0.0
FAILURE STRAIN (%)	0.0005	0.002
MAX. SHEAR STRESS (k.t. 50 FT)		

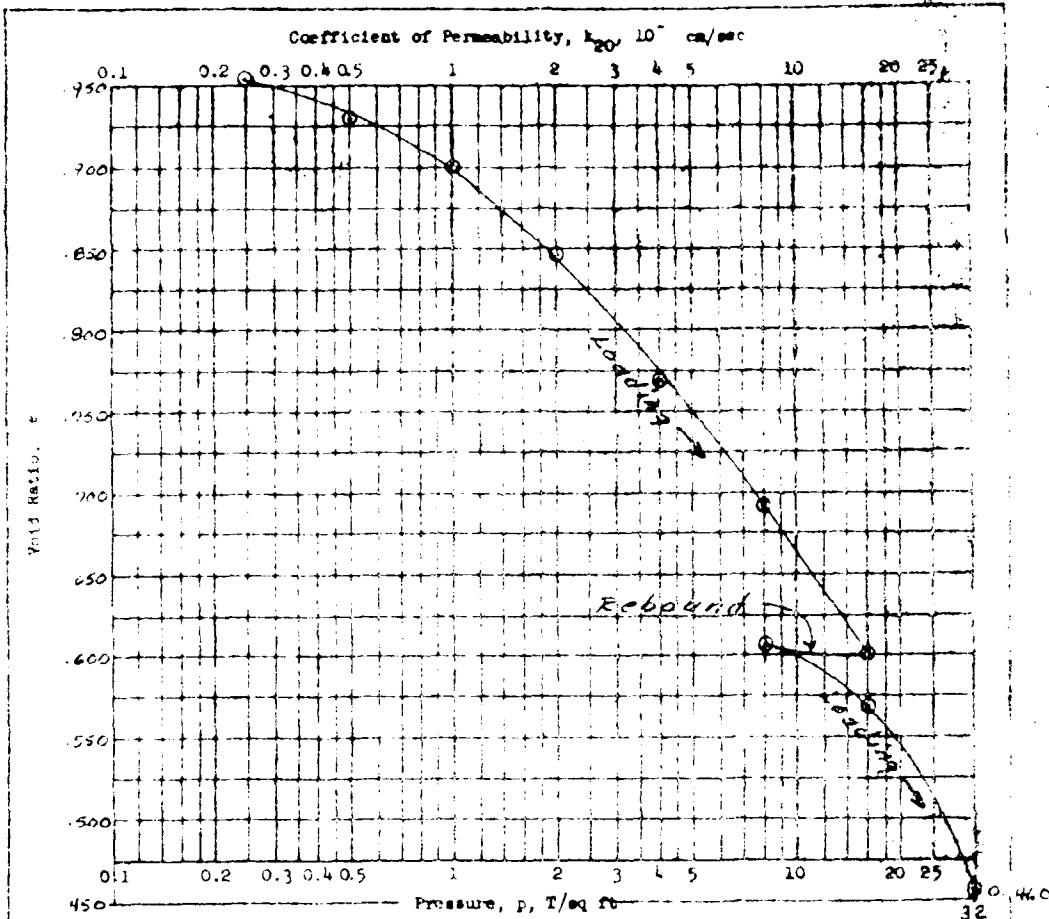
TYPE OF SOIL: *fine sandy silt (SH)*
 SOURCE: *...*
 DATE: *...*

* Sample molded @ approx. moisture content of *...*
 ** *...*

PROJECT: *Cooper River Relocation*
St. Stephen, S.C.
 AREA: *Railroad Relocation*
 SHEET: *0-4*

DIRECT SHEAR TEST REPORT

7-1-63



Type of Specimen		Before Test		After Test	
Area	4.45 in. π	Water Content, w_0	38.6 %	w_1	30.6 %
Vertical Pressure, P_0	7/eq ft	Void Ratio, e_0	0.920	e_1	0.460
Preconsol. Pressure, P_c	1/eq ft	Saturation, S_0	87.9 %	S_1	100 %
Compression Index, C_c	0.39	Dry Density, γ_d	88.2 lb/ft ³		
Classification	fine sand, clay (cl)	k_{20} , 10^{-7} cm/sec			
IL	64	Project	Cooper River Redirection		
PL	26		St. Stephen, S. Carolina		
Remarks	Samples molded @ approx. moisture content of 38.6% (6.0% + 3.0%) and dry density of 88.2 Pcf (95% maximum density)	Area	RAILROAD RELOCATION		
		Forcing No.	C-4	Sample No.	C-4
		Depth	-	Date	March 1976

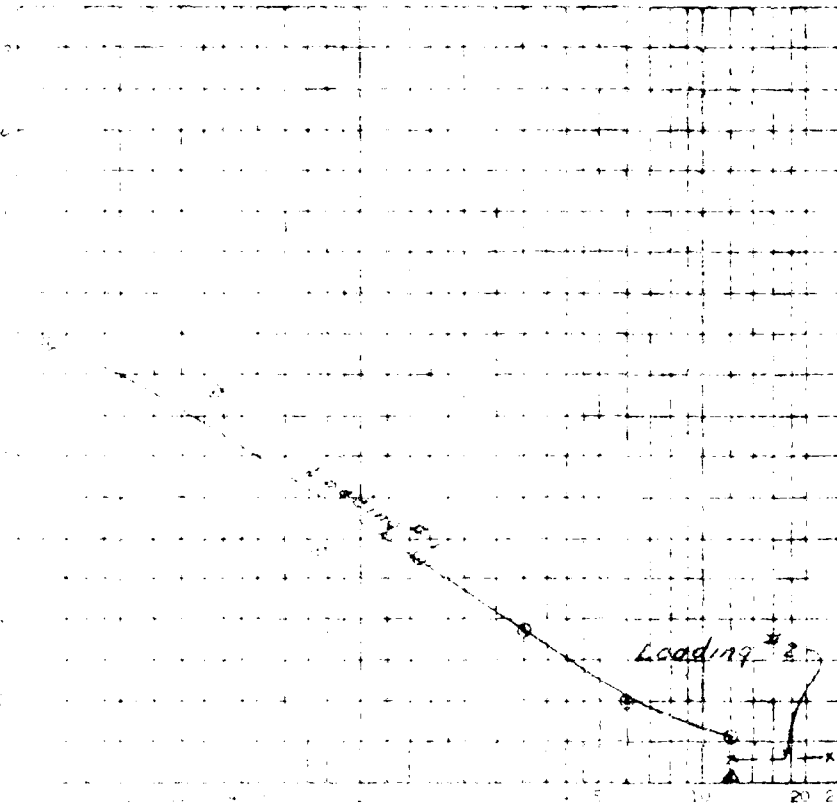
CONSOLIDATION TEST REPORT

7-108
7-166

Coefficient of permeability $k_{20} \times 10^{-7}$ cm/sec

1 2 3 4 5 10 20

10 20



Pressure, P, lbs/sq ft

Remarks		Before Test	After Test
Area	sq ft	Water Content, w_0	w_f
Area	sq ft	Void Ratio, e_0	e_f
Area	sq ft	Saturation, S_0	S_f
Coefficient of permeability	0.21	Dry Density, γ_d	12.7
Description of fine sandy (CLAY R.H.)		$k_{20} \times 10^{-7}$ cm/sec	
Project		Cooper River Rediversion	
Location		St. Stephen, S. Carolina	
Purpose		RAILROAD RELOCATION	
Boring No.		C-4	Sample No. C-4
Date		March 1976	
Remarks		CONSOLIDATION TEST REPORT	

T-10

BORING NO. 23
 SAMPLE NO. 2-1
 DEPTH: 2.5 to 11.5 ft.

PROJECT 2000
 DATE 1/15/00
 COMP. By ... CHK'D By ...

LABORATORY LOG	DESCRIPTION	W, CAN NO	TEST SAMPLES
24			
23			
22			
21			
20			
19			
18			
17			
16			
15			
14			
13			
12	1.00 Sample		
11	1.00 Sample		
10			
9			
8			
7			
6			
5			
4			
3			
2			
1			
0			

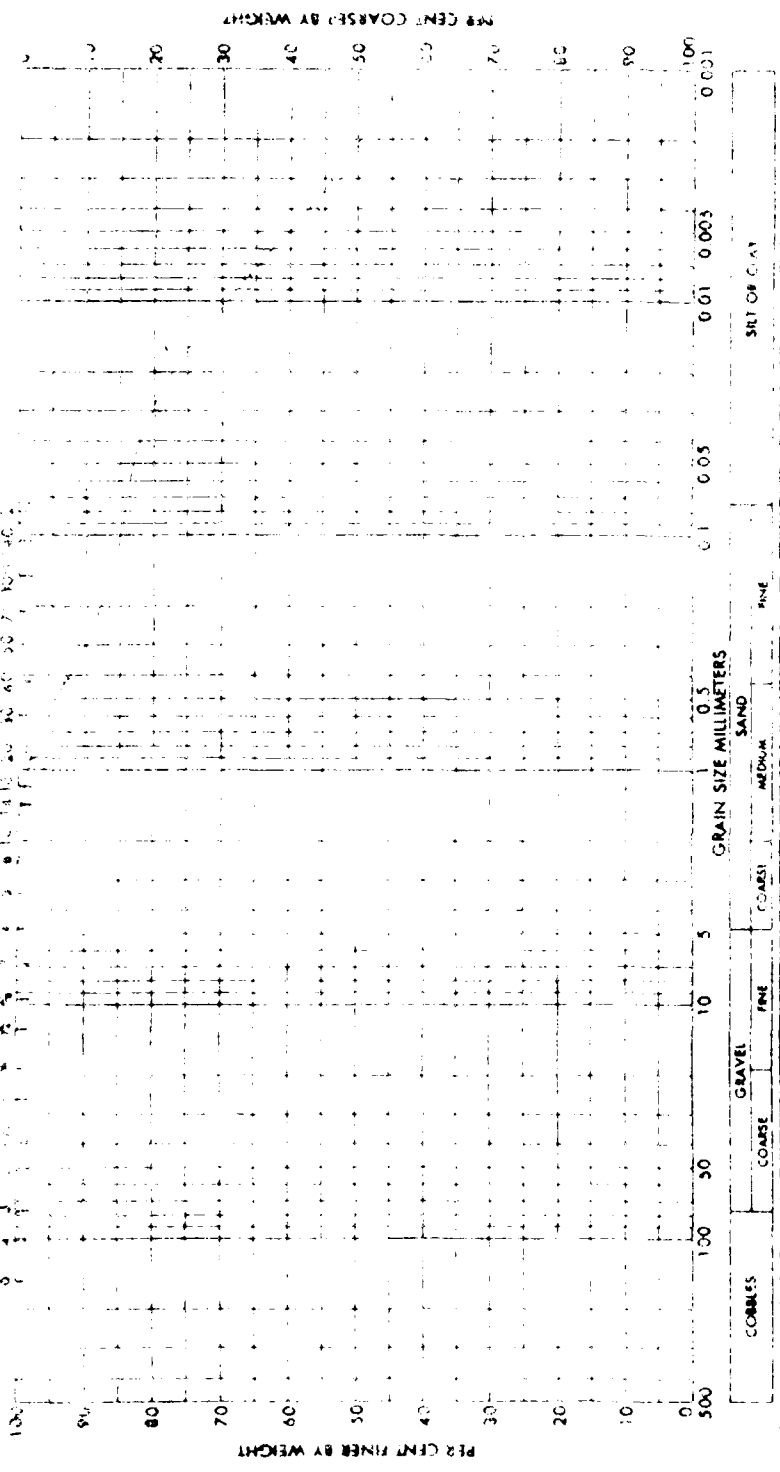
Length of Sample, L 1.00 in.
 Weight of Tube and Wet Soil 2.25 g.
 Weight of Tube 1.25 g.
 Weight of Wet Soil, W 1.00 g.
 Diameter of Tube, D 0.50 in.
 Total Unit Weight, $\gamma_t = \frac{4.85 W}{LD^2} = \frac{4.85 \times 1.00}{1.00 \times 0.25^2} = 776$ lbs/cu.ft.

- LEGEND**
- W_n - Natural Water Content
 - MA - Mechanical Analysis
 - LL - Atterberg Limits
 - G - Specific Gravity
 - C - Consolidation
 - Q - Unconsolidated Undrained
 - Y₀ - Dry Density
 - R - Consolidated Undrained
 - S - Consolidated Drained
 - UC - Unconfined Compression

UNDISTURBED SAMPLE LOG

MILLIMETERS

PER CENT FINER BY WEIGHT

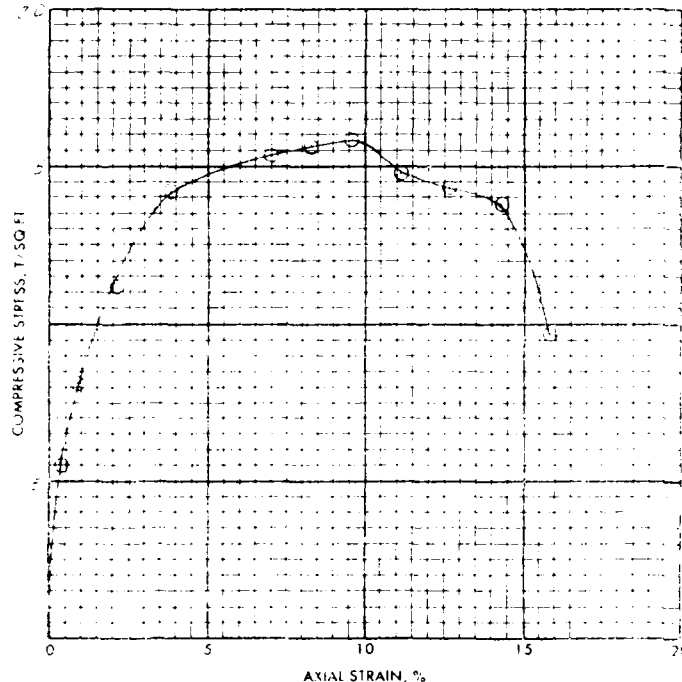


SAMPLE NO.		ELEV OR DEPTH		CLASSIFICATION		GRAIN SIZE MILLIMETERS		SRT OR CLAY	
1		10		SAND		0.075 0.15 0.3 0.6 1.2 2.5 5 10 20 40 75 150 300 600 1200 2500		SAND	
DATE		BORING NO.		AREA		PROJECT		SHEET NO.	
1/1/62		10		10		10		10	

ENGINEERING FORM 2087
 1 MAY 63
 REPLACES WES FORM NO 1241, SEP 1962, WHICH IS OBSOLETE

F-172
 69

FAILURE SKETCHES



CONTROLLED STRESS
 CONTROLLED STRAIN

TEST NO

TYPE OF SPECIMEN

undisturbed

WATER CONTENT

w *21.4*

VOID RATIO

e *0.590*

SATURATION

S *75.3*

DRY DENSITY, LB CU FT

γ *112.8*

TIME TO FAILURE, MIN

t *9*

UNCONFINED COMPRESSIVE STRENGTH, T/SQ FT

q *18.5*

UNDRAINED SHEAR STRENGTH, T/SQ FT

s *—*

SENSITIVITY RATIO

N *—*

INITIAL SPECIMEN DIAMETER, IN

D *1.52*

INITIAL SPECIMEN HEIGHT, IN

Empirical
 H *2.15*

CLASSIFICATION

Light gray clay (CH)

LC *6.8*

PL *2.5*

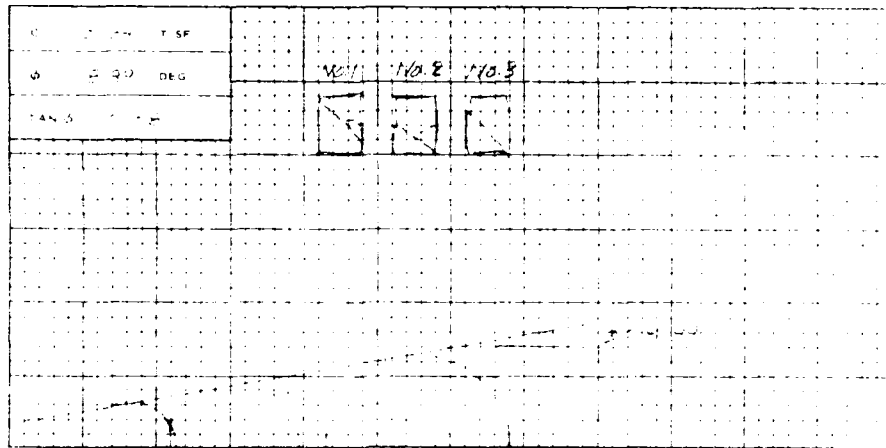
PI *4.3*

IG *2.62*

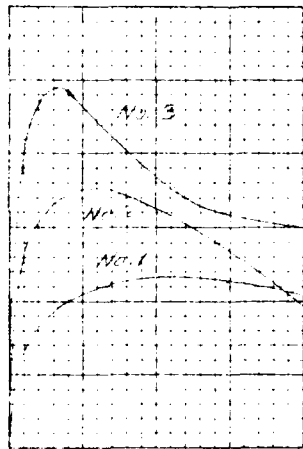
REMARKS

PROJECT *Deep River Reservoir No. 2*
St. Stephens, N. Carolina
 AREA *TRILLAGE CANAL*
 BORING NO *T-18* SAMPLE NO *1-1*
 DEPTH *9.0' - 11.5'* DATE *December 1964*

UNCONFINED COMPRESSION TEST REPORT



NORMAL STRESS (T. SQ. FT.)

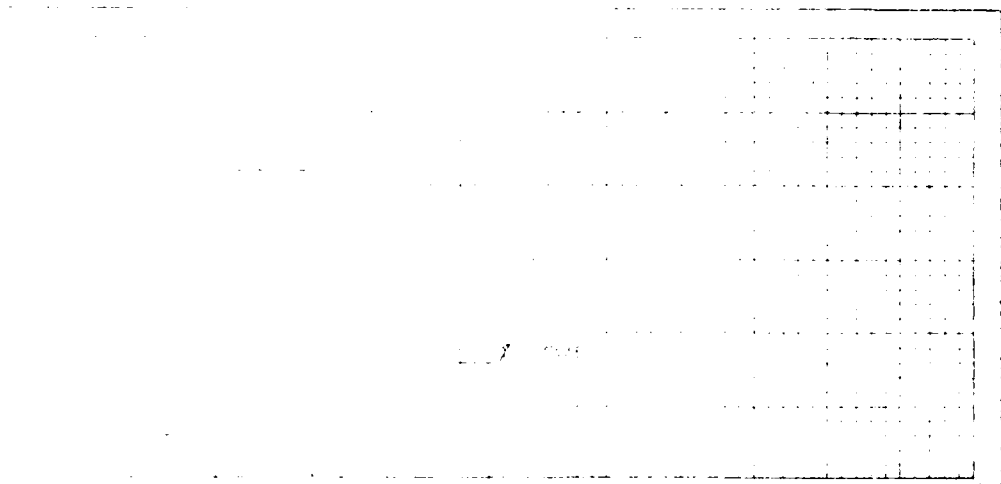


VERTICAL STRAIN (%)

SPECIMEN NO.		1	2	3
BEFORE TEST	WATER CONTENT, %	23.5	23.5	23.5
	DRY DENSITY, LB./CU. FT.	97.8	99.7	97.8
	SATURATION, %	100	100	100
	VOID RATIO	0.876	0.876	0.876
AFTER TEST	WATER CONTENT, %	23.5	23.5	23.5
	DRY DENSITY, LB./CU. FT.	97.8	99.7	97.8
	SATURATION, %	100	100	100
	VOID RATIO	0.876	0.876	0.876
FINAL BACK PRESSURE, T. SQ. FT.	7.25	7.25	7.25	
MINOR PRINCIPAL STRESS, T. SQ. FT.	1.00	2.16	4.32	
MAXIMUM DEVIATOR STRESS, T. SQ. FT.	1.16	1.76	2.88	
TIME TO FAILURE, MIN.	4	53	12	
ULTIMATE DEVIATOR STRESS, T. SQ. FT.	1.16*	1.76*	2.88*	
FINAL DIAMETER, IN.	1.47	1.42	1.43	
FINAL HEIGHT, IN.	3.15	3.15	3.15	

SOIL NAME: *CLAY (CH)*
 SOIL SOURCE: *CLAY (CH)*
 TEST NO.: *47*
 DATE: *11/11/54*
 REMARKS: *TRIALS 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100*
 INSTRUMENT: *TRILINCE CHARGE*
 OPERATOR: *VEE*
 TRIAXIAL COMPRESSION TEST REPORT

T-175



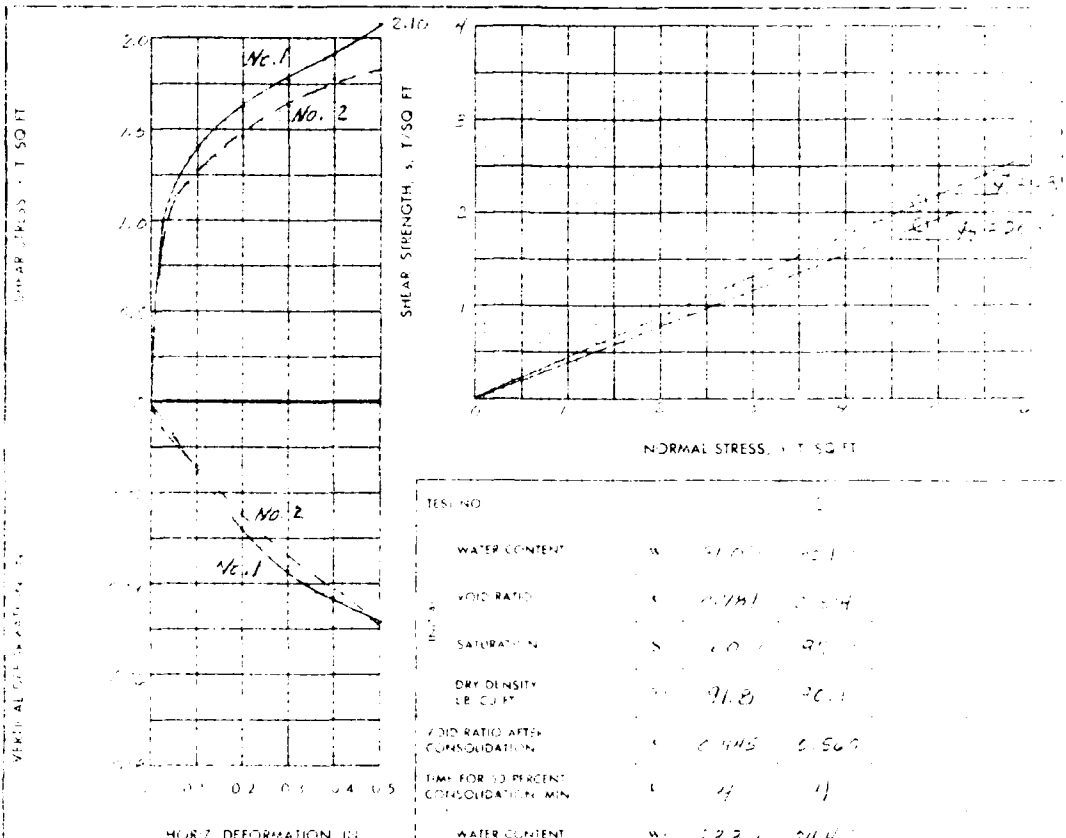
TEST NO.	DATE	TIME	TESTER	REMARKS
171	10/10/52	10:00	J. J.
172	10/10/52	10:00	J. J.
173	10/10/52	10:00	J. J.
174	10/10/52	10:00	J. J.
175	10/10/52	10:00	J. J.
176	10/10/52	10:00	J. J.

TESTED BY: *J. J. ...*
 CHECKED BY: *J. J. ...*
 DATE: *10/10/52*

BIAXIAL COMPRESSION TEST REPORT

T-176

10/10/52



SHEAR STRENGTH PARAMETERS

20.5°
 AT *4.80*
1.80
 AT *4.80*
1.80

TEST NO.		1		2	
INITIAL	WATER CONTENT	W	21.0	22.1	
	VOID RATIO	e	0.781	0.814	
	SATURATION	S	100	91	
	DRY DENSITY	ρ_d	91.8	90.1	
	VOID RATIO AFTER CONSOLIDATION	e	0.445	0.500	
	TIME FOR 50 PERCENT CONSOLIDATION, MIN	t	4	4	
FINAL	WATER CONTENT	W	23.1	24.4	
	VOID RATIO	e	0.280	0.308	
	SATURATION	S	100	100	
	NORMAL STRESS, T/SQ FT		4.80	4.80	
	MAXIMUM SHEAR STRESS, T/SQ FT		2.40*	1.88*	
	ACTUAL TIME TO FAILURE, MIN	t	180	180	
	RATE OF STRAIN, IN/MIN		0.0025	0.0025	
	ULTIMATE SHEAR STRESS, T/SQ FT				

TYPE OF SPECIMEN: *undisturbed fine sandy* AREA: *5.0* IN SQUARE
 APPROPRIATE: *ASTM D 2434 (2H)*

REMARKS: *20.5°*
longitudinal observation

PROJECT: *Cooper River Navigation*
at Stapleton, S. Carolina
 AREA: *THURGOOD CHANNEL*
 RECORD NO.: *7-111*
 DATE: *6/25/50*

DIRECT SHEAR TEST REPORT *7-111*

BORING NO. _____
 SAMPLE NO. _____
 DEPTH _____ to _____ ft

PROJECT _____
 DATE _____
 COMP. By _____ CHK'D By _____

LABORATORY LOG	DESCRIPTION	W, CAN NO.	TEST SAMPLES
24			
23			
22			
21			
20			
19			
18	Light gray silty clay	W-180	SL-180
17	Light gray silty clay		SL-180
16	Light gray silty clay		SL-180
15	Light gray silty clay		SL-180
14	Light gray silty clay		SL-180
13	Light gray silty clay	W-180	SL-180
12			
11			
10	Light gray silty clay		
9	Light gray silty clay	W-180	SL-180
8	Light gray silty clay		
7	Light gray silty clay		
6	Light gray silty clay		
5			
4			
3			
2			
1			

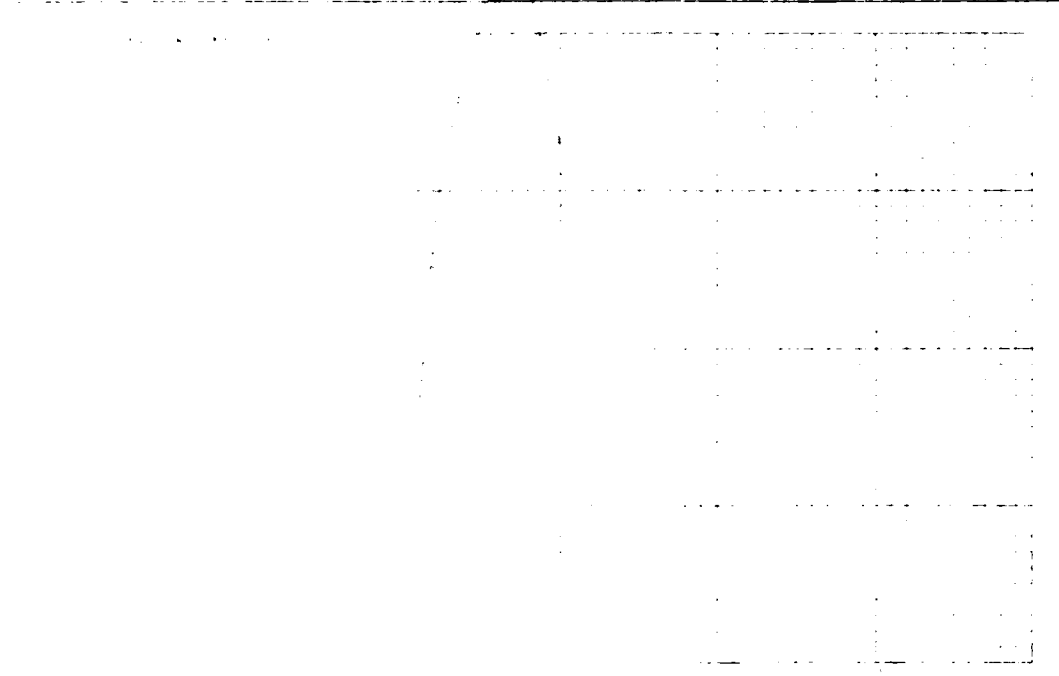
SAMPLE DEPTH IN FEET

SAMPLE LENGTH IN INCHES

- LEGEND**
- W_n - Natural Water Content
 - MA - Mechanical Analysis
 - L₁₀ - Atterberg Limits
 - G - Specific Gravity
 - Q - Consolidation
 - Q - Unconsolidated undrained
 - γ_d - Dry Density
 - R - Consolidated Undrained
 - S - Consolidated Drained
 - UC - Unconfined Compression

Weight of water, W _____ g
 Weight of tube and water, W_t _____ g
 Weight of tube, W_o _____ g
 Weight of water, W _____ g
 Diameter of tube, D _____ in
 Total Unit Weight, γ = $\frac{4.85 W}{L D^2}$ lbs/cu ft.

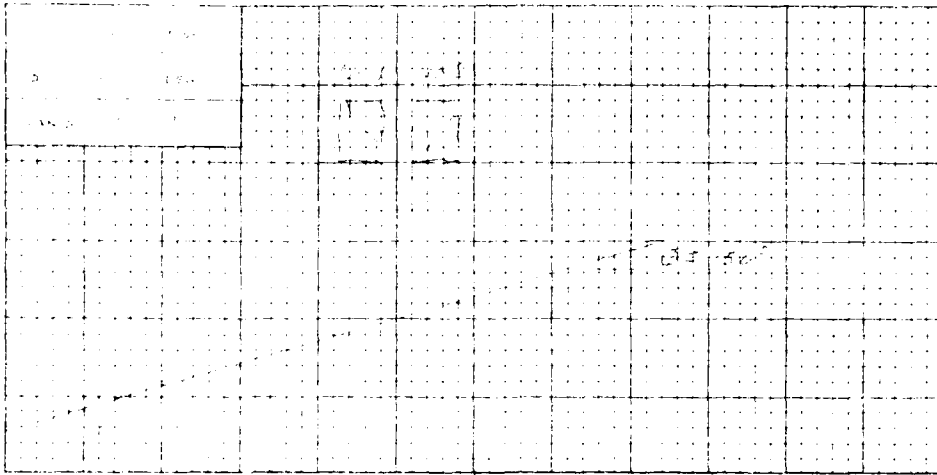
UNDISTURBED SAMPLE LOG



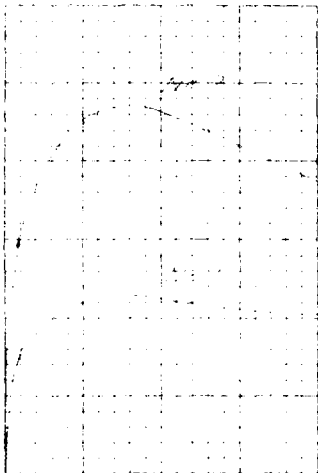
PROJECT: *...*
 AREA: *...*
 BORING NO.: *...*
 DEPTH: *...*
 DATE: *...*

TEST DATE: <i>...</i> TEST TIME: <i>...</i> TESTER: <i>...</i> PROJECT: <i>...</i> AREA: <i>...</i> BORING NO.: <i>...</i> DEPTH: <i>...</i> DATE: <i>...</i>	PROJECT: <i>...</i> AREA: <i>...</i> BORING NO.: <i>...</i> DEPTH: <i>...</i> DATE: <i>...</i>
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UNCONFINED COMPRESSION TEST REPORT



NORMAL STRESS - 100 LB/IN²



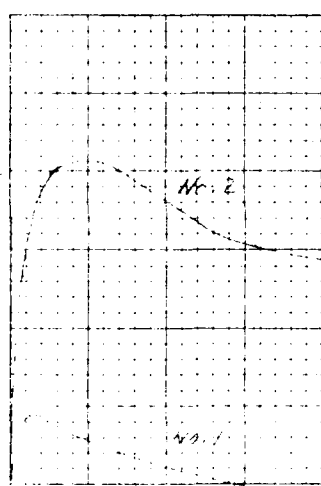
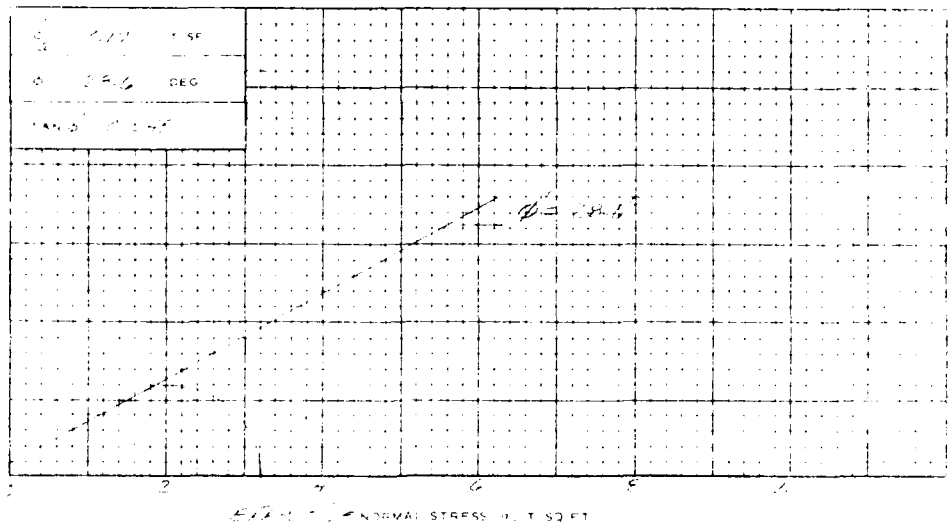
NO.	1	2	3
WATER CONTENT %	22.2	22.2	
FLUIDITY	10.1	10.1	
PLASTICITY	10.1	10.1	
FLATNESS	10.1	10.1	
WATER CONTENT %	22.2	22.2	
FLUIDITY	10.1	10.1	
PLASTICITY	10.1	10.1	
FLATNESS	10.1	10.1	
WATER CONTENT %	22.2	22.2	
FLUIDITY	10.1	10.1	
PLASTICITY	10.1	10.1	
FLATNESS	10.1	10.1	
WATER CONTENT %	22.2	22.2	
FLUIDITY	10.1	10.1	
PLASTICITY	10.1	10.1	
FLATNESS	10.1	10.1	
WATER CONTENT %	22.2	22.2	
FLUIDITY	10.1	10.1	
PLASTICITY	10.1	10.1	
FLATNESS	10.1	10.1	

This report is to be used for the purpose of determining the strength of the material under test. The test was conducted in accordance with the procedure described in the test report. The results of the test are as follows:

TRIAXIAL COMPRESSION TEST REPORT

T-192 T-179

31-1-2062

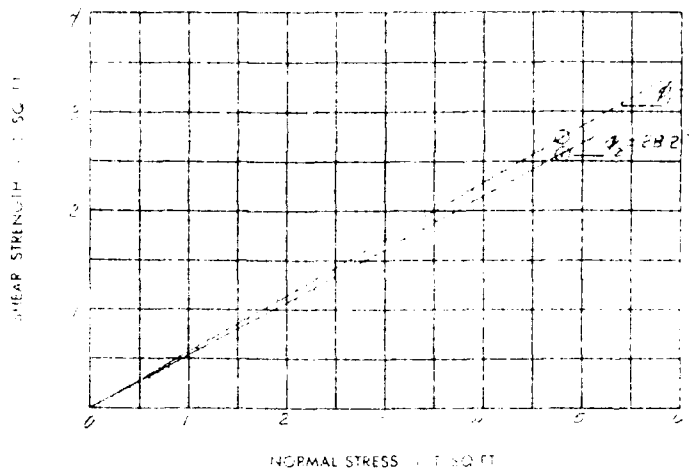
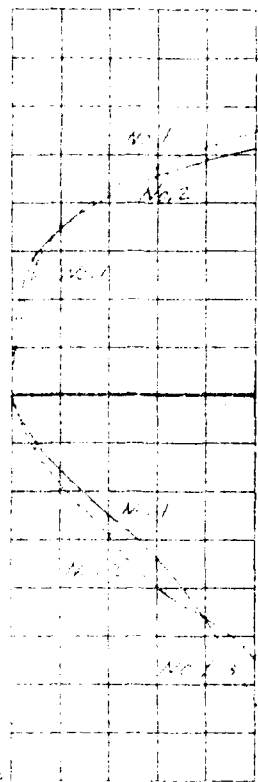


SPECIMEN NO.		
INITIAL	WATER CONTENT	w_0
	DRY DENSITY	ρ_d
	LB. / CU. FT.	
	SATURATION	S_0
BEFORE SHEAR	WATER CONTENT	w_c
	DRY DENSITY	ρ_d
	LB. / CU. FT.	
	SATURATION	S_c
	VOID RATIO	e_0
	VOID RATIO	e_c
	CONFINING PRESSURE	p_0
	MAJOR PRINCIPAL STRESS	σ_1
	MINOR PRINCIPAL STRESS	σ_3
	MAXIMUM DEVIATOR STRESS	$\sigma_1 - \sigma_3$
	DEVIATOR STRESS	$\sigma_1 - \sigma_3$
	CONFINING PRESSURE	p_0
	WATER CONTENT AFTER	

Handwritten notes and data fields at the bottom of the page, including specimen details and test parameters.

TRIAxIAL COMPRESSION TEST REPORT

T-183



TEST NO.	2092	
WATER CONTENT	W	27.4
VOID RATIO	V	1.00
SATURATION	S	83.0
DRY DENSITY LB/CC FT		95.0
VOID RATIO AFTER CONSOLIDATION	V	0.905
TIME FOR 50 PERCENT CONSOLIDATION MIN	T	1.5
WATER CONTENT	W	27.7
VOID RATIO	V	1.02
SATURATION	S	100
NORMAL STRESS PSI		4.0
MAXIMUM SHEAR STRESS PSI		4.0
ACTUAL TIME TO FAILURE MIN		60
RATE OF STRAIN IN MIN		0.009
ULTIMATE SHEAR STRESS PSI		4.0

STATE OF ILLINOIS
 DEPARTMENT OF TRANSPORTATION
 DIVISION OF HIGHWAYS
 CHICAGO, ILLINOIS
 TEST NO. 2092
 DATE TESTED 10/1/55
 LOCATION OF TEST
 PROJECT
 AREA
 RING NO.
 DATE

PROJECT: *Chicago River Extension*
 AREA: *THIRD ST. CANAL*
 RING NO.: *T-16*
 DATE: *10/1/55*
 TEST NO.: *2092*
 DATE TESTED: *10/1/55*
 DIRECT SHEAR TEST REPORT

BORING NO. _____
 SAMPLE NO. _____
 DEPTH: _____ to _____ ft.

PROJECT _____
 DATE _____
 COMP. By _____ CHK'D By _____

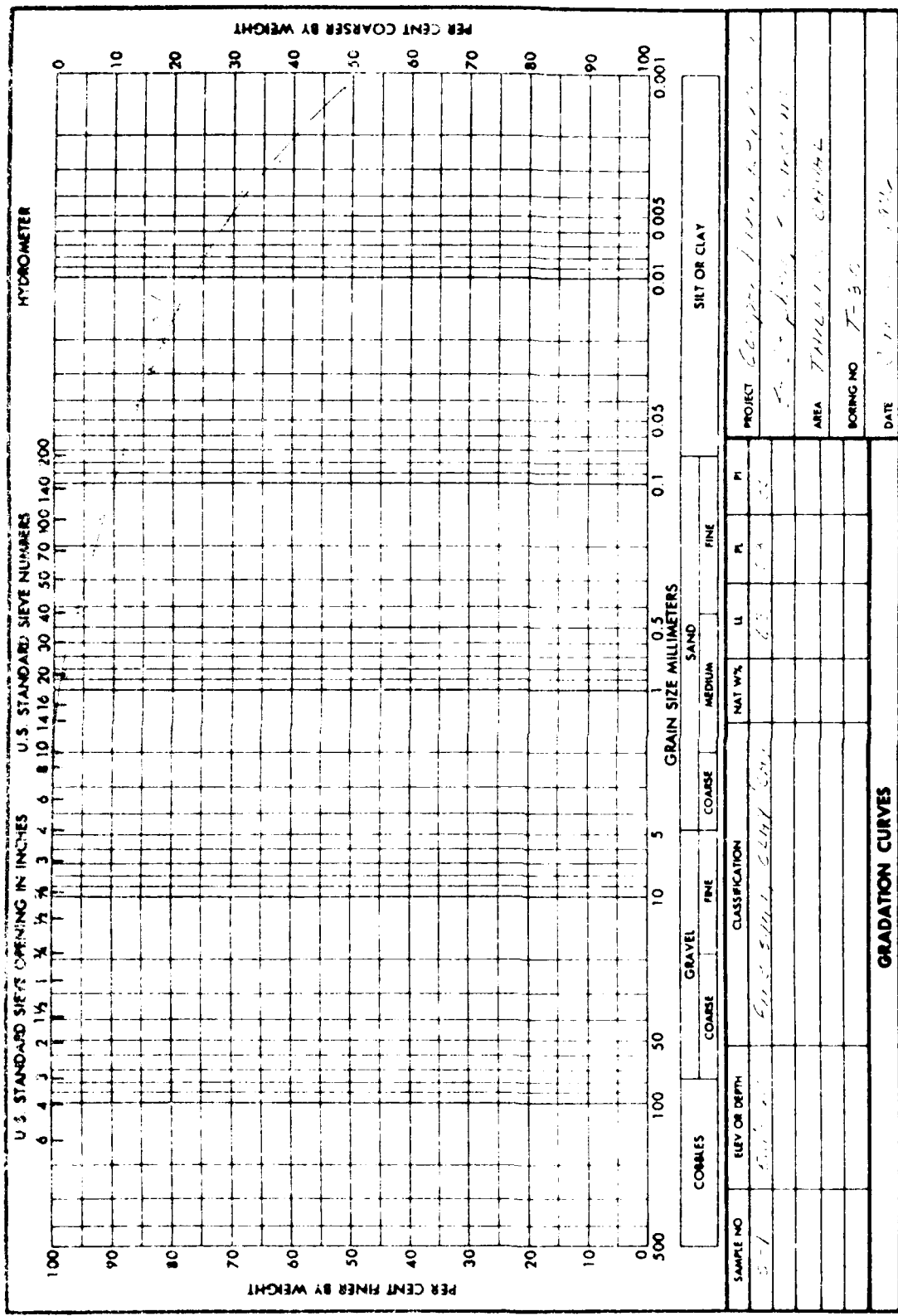
LABORATORY LOG		DESCRIPTION	W, CAN NO.	TEST SAMPLES
24				
23				
22				
21				
20				
19				
18				
17				
16				
15				
14				
13				
12				
11				
10				
9		FINE SAND		
8		CLAYEY SAND, CO.		
7				
6				
5				
4				
3				
2				
1				
0				

Length of Sample, L _____ in.
 Weight of Tube and Wet Soil _____ g.
 Weight of Tube _____ g.
 Weight of Wet Soil, W _____ g.
 Diameter of Tube, D _____ in.
 Total Unit Weight, $\gamma_t = \frac{4.85 W}{L D^2}$ _____ lbs/cu.ft.

LEGEND

- W_n - Natural Water Content
- MA - Mechanical Analysis
- LL - Atterberg Limits
- G - Specific Gravity
- C - Consolidation
- Q - Unconsolidated Undrained
- γ_d - Dry Density
- R - Consolidated Undrained
- S - Consolidated Drained
- UC - Unconfined Compression

UNDISTURBED SAMPLE LOG



U.S. STANDARD SIEVE OPENING IN INCHES U.S. STANDARD SIEVE NUMBERS

6 4 3 2 1 3/4 3/8 1/4 1/8 1/16 1/32 1/64 1/128 1/256 1/512 1/1024 1/2048

6 10 14 16 20 30 40 50 70 100 140 200

0 10 20 30 40 50 60 70 80 90 100

PER CENT FINER BY WEIGHT PER CENT COARSER BY WEIGHT

500 100 50 10 5 2.5 1.25 0.625 0.3125 0.15625 0.078125 0.0390625 0.01953125 0.009765625 0.0048828125

COBBLES GRAVEL SAND SILT OR CLAY

COARSE FINE COARSE MEDIUM FINE

SAMPLE NO. ELEV OR DEPTH CLASSIFICATION NAT W% U P PI

5-1 100' SAND 65 35 0

PROJECT AREA BORING NO. DATE

Cooper Hill, N.Y. Tully, Central T-30 11/1/54

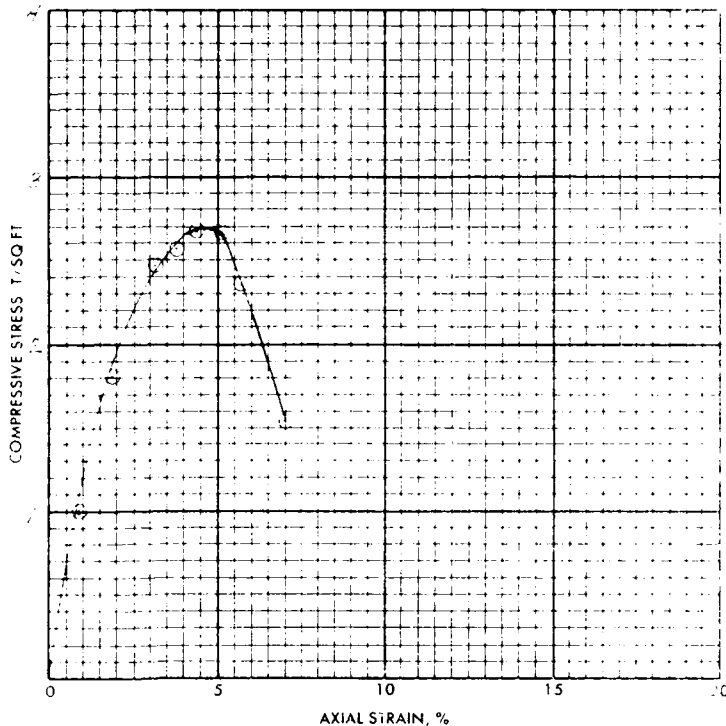
GRADATION CURVES

ENG FORM 2087 REPLACES WES FORM NO 1241, SEP 1952, WHICH IS OBSOLETE

1 MAY 63 U.S. GOVERNMENT PRINTING OFFICE 1954 O-799-124

T-186 = 183

FAILURE SKETCHES



- CONTROLLED STRESS
- CONTROLLED STRAIN

TEST NO	1		
TYPE OF SPECIMEN	Unconsolidated		
WATER CONTENT	w	26.5 %	
VOID RATIO	e	0.738	
SATURATION	S	96 %	
PORT DENSITY (LB CU FT)	ρ	123	
TIME TO FAILURE, MIN	t _f	4	
UNCONFINED COMPRESSIVE STRENGTH, T/SQ FT	q	16.2	
UNDRAINED SHEAR STRENGTH, T/SQ FT	s	—	
SENSITIVITY RATIO	S	—	
INITIAL SPECIMEN DIAMETER, IN	D	1.42	
INITIAL SPECIMEN HEIGHT, IN	H	2.15	

CLASSIFICATION: *CLAY (CI)*

FL: *6* PL: *28* PI: *35* G: *2.15*

REMARKS	PROJECT	<i>Cosco Water Treatment</i>	
	AREA	<i>St. Stephen, S. Carolina</i>	
	BORING NO	<i>130</i>	SAMPLE NO
	DEPTH	<i>5.0</i>	DATE

UNCONFINED COMPRESSION TEST REPORT

ENG FORM 3659
1 JUN 65

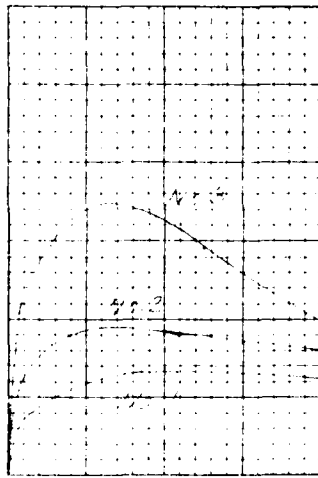
1-1100-2-1964

TRANSMITTED

T-137



NORMAL STRESS, σ , T/50 FT



		SPECIMEN NO.		
INITIAL	WATER CONTENT %	w_0	25.1	25.2
	DRY DENSITY LB/CU FT	ρ_d	98.1	98.2
	SATURATION %	S_0	100	100
	VOID RATIO	e_0	0.70	0.70
BEFORE SHEAR	WATER CONTENT %	w_c	25.1	25.2
	DRY DENSITY LB/CU FT	ρ_d	98.1	98.2
	SATURATION %	S_c	100	100
	VOID RATIO	e_c	0.70	0.70
FINAL BACK PRESSURE, T/50 FT		U_0	0.0	0.0
MINOR PRINCIPAL STRESS, T/50 FT		σ_3	0.0	0.0
MAXIMUM DEVIATOR STRESS, T/50 FT		$\sigma_1 - \sigma_3$	100	100
TIME TO $\sigma_1 = \sigma_3$, MAX. MIN.		t_1	10	10
ULTIMATE DEVIATOR STRESS, T/50 FT		$\sigma_1 - \sigma_3$	100	100
INITIAL DIAMETER, IN		d_c	0.5	0.5
INITIAL HEIGHT, IN		h_0	1.0	1.0

NAME OF CONTRACTOR: *...*
 PROJECT: *...*
 LOCATION: *...*
 DATE: *...*
 TYPE OF SPECIMEN: *...*
 NAME OF TESTER: *...*
 LABORATORY: *...*
TRIAxIAL COMPRESSION TEST REPORT

T-189

		1	2
INITIAL	TEST NO	1	2
	WATER CONTENT	W 21.7	20.3
	VOID RATIO	e 0.750	0.700
	SATURATION	S 92.4	93.0
	DRY DENSITY, LB. CU FT	γ _d 1.24	1.22
VOID RATIO AFTER CONSOLIDATION		e 0.466	0.435
TIME FOR 50 PERCENT CONSOLIDATION, MIN		t 17	17
FINAL	WATER CONTENT	W 21.5	20.0
	VOID RATIO	e 0.22	0.10
	SATURATION	S 100.0	100.0
NORMAL STRESS, T/SQ FT		σ 4.50	4.50
MAXIMUM SHEAR STRESS, T/SQ FT		τ _{max} 2.10*	2.04*
ACTUAL TIME TO FAILURE, MIN		t _f 26	30
RATE OF STRAIN, IN/MIN		0.015	0.015
ULTIMATE SHEAR STRESS, T/SQ FT		—	—

SHEAR STRENGTH PARAMETERS

$c = 0.013$ T/SQ FT

$\tan \phi = 0.425$

$\phi = 23.5$ T/SQ FT

CONTROLLED STRESS

CONTROLLED STRAIN

TYPE OF SPECIMEN *Unconsolidated - fine sandy* 3.0 IN SQUARE 1/4 IN THICK

CLASSIFICATION *Brown CLAY (CH)*

LL 28 PL 28 PI 35 G 25

REMARKS ** 2.10 & 2.04 are maximum values*

PROJECT *Cooper River Retention*

St. Stephens S. Carolina

AREA *TAILRACE CANAL*

BORING NO *T-30* SAMPLE NO *2-1*

DEPTH *50'-6"* DATE *January 1962*

DIRECT SHEAR TEST REPORT

BORING NO. _____
 SAMPLE NO. _____
 DEPTH _____ to _____ ft.

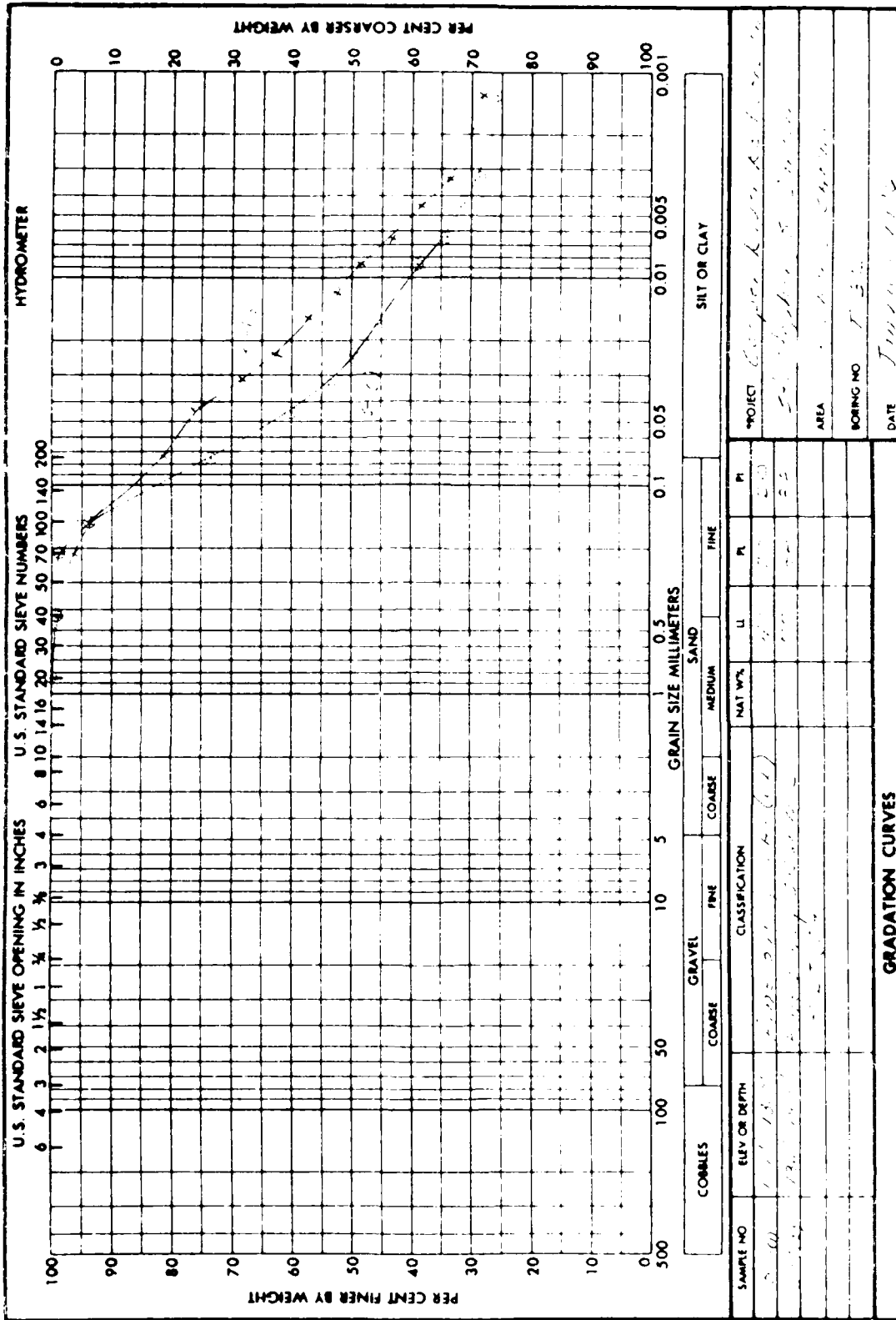
PROJECT _____
 DATE _____
 COMP By _____ CHK'D By _____

LABORATORY LOG	DESCRIPTION	W. CAN NO	TEST SAMPLES
24			
23			
22			
21	(CL)		
20			
19			
18			
17			
16			
15			
14			
13			
12	dark gray fine sand		
11	(organic silt (OH) w/		R ₁ , R ₂ , R ₃
10	scattered roots and		MA, UC, S
9	small pieces of pebbles		
8			
7			S ₂
6			
5			
4			UC
3			
2			
1			
0	bottom of sample		

Length of Sample, L _____ in.
 Weight of Tube and Wet Soil _____ g.
 Weight of Tube _____ g.
 Weight of Wet Soil, W _____ g.
 Diameter of Tube, D _____ in.
 Total Unit Weight, $\gamma_t = \frac{4.85 W}{LD^2}$ _____ lbs/cu. ft.

- LEGEND**
- W_n - Natural Water Content
 - MA - Mechanical Analysis
 - LL - Atterberg Limits
 - G - Specific Gravity
 - C - Consolidation
 - Q - Unconsolidated Undrained
 - γ_d - Dry Density
 - R - Consolidated Undrained
 - S - Consolidated Drained
 - UC - Unconfined Compression

UNDISTURBED SAMPLE LOG



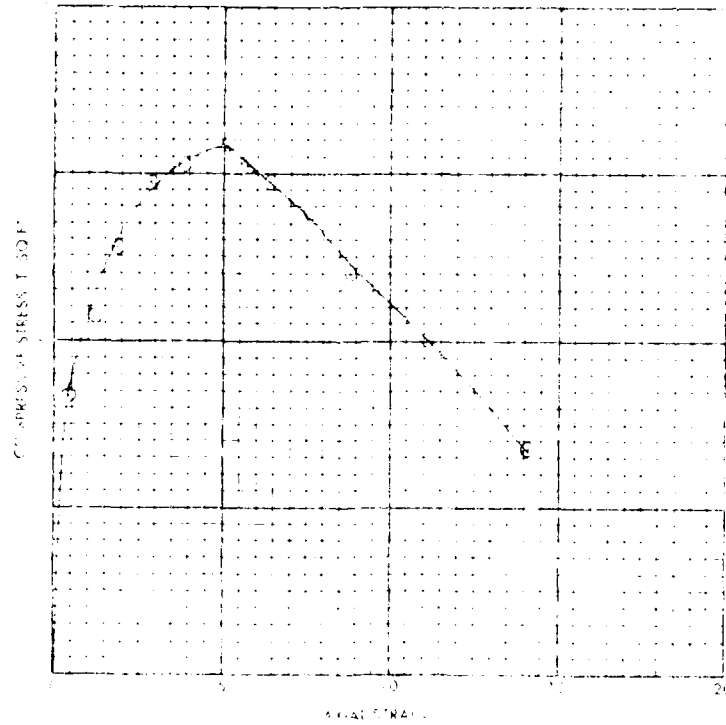
U.S. GOVERNMENT PRINTING OFFICE 1962 O-790-168

REPLACES WES FORM NO. 1741, SEP. 1962, WHICH IS OBSOLETE

ENG FORM 2087
 MAR 53

T-193 87

FAILURE SKETCHES



TEST NUMBER: 10650
DATE: 11/19/54
PROJECT: ...
SPECIMEN: ...
TESTER: ...
LABORATORY: ...

TEST RESULTS: ...
STRESS: ...
STRAIN: ...
FAILURE MODE: ...
REMARKS: ...

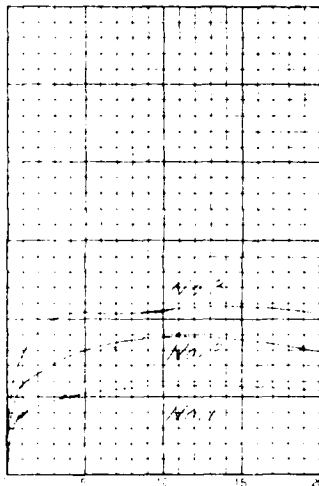
TEST NUMBER	10650
DATE	11/19/54
PROJECT	
SPECIMEN	
TESTER	
LABORATORY	

UNCONFINED COMPRESSION TEST REPORT

T-194



NORMAL STRESS - T. SO. FT.

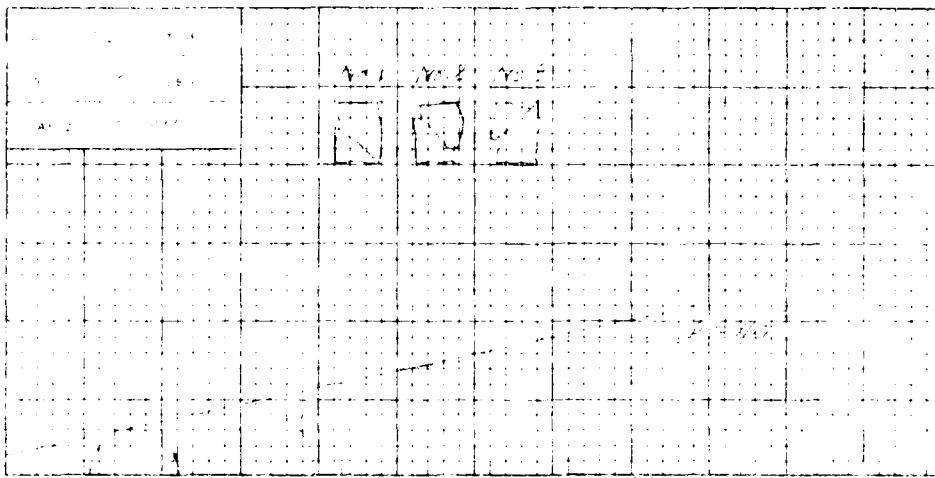


SPECIMEN NO.				
WATER CONTENT	W_0			
DRY DENSITY	ρ_d			
LB. CU. FT.				
SATURATION	S_0			
VOID RATIO	e_0			
WATER CONTENT	W_c			
DRY DENSITY	ρ_d			
LB. CU. FT.				
SATURATION	S_c			
VOID RATIO	e_c			
FIN. GASK				
PRESSURE T. SO. FT.	P_0			
MIN. PRINCIPAL STRESS T. SO. FT.	σ_3			
MAX. PRINCIPAL STRESS T. SO. FT.	σ_1			
INITIAL DIAMETER IN.	D_0			
INITIAL HEIGHT IN.	H_0			

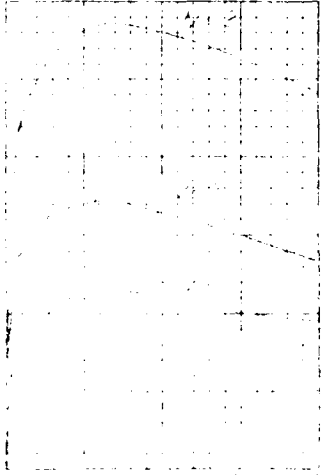
AXIAL STRAIN %

NO. OF TESTS: <i>1</i> TEST: <i>1</i> NO. OF INSTRUMENTS: <i>1</i>	TYPE OF SPECIMEN: <i>Optimum</i>
PROJECT: <i>State Highway Dept.</i> LOCATION: <i>Highway</i> ROAD NO.: <i>7-21</i> SAMPLE NO.: <i>100</i> TEST ROOM: <i>100</i> APPROX. DATE: <i>10/10</i>	TRIAXIAL COMPRESSION TEST REPORT

T-195



TRIAxIAL COMPRESSION TEST REPORT



TESTING	
WATER CONTENT	W
DETERMINED	
BY WEIGHT	
ATURATION	
TEMPERATURE	
ATMOSPHERIC	
TEMPERATURE	
RELATIVE HUMIDITY	
TEST DATE	
TEST TIME	
TEST LOCATION	
TEST OPERATOR	
TEST INSTRUMENT	
TEST METHOD	
TEST SPECIFICATION	
TEST RESULT	
TEST COMMENTS	

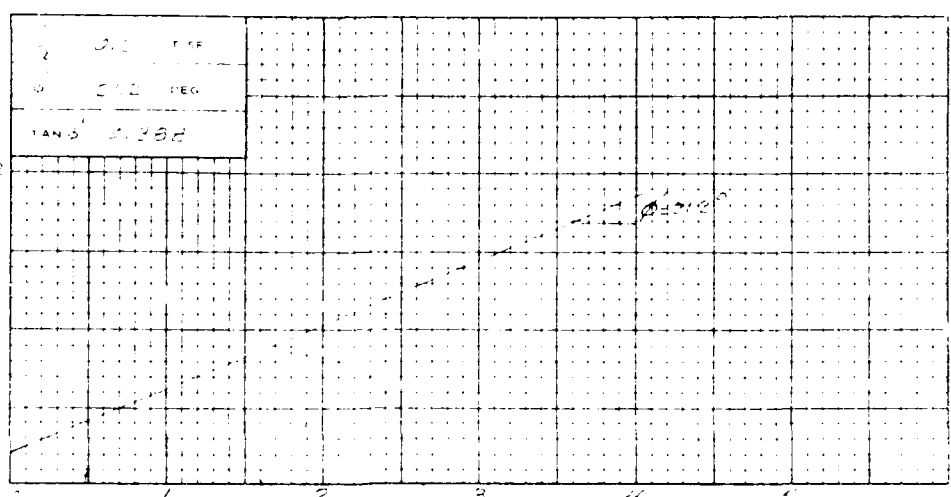
This report was prepared by the
 author of the test. It is the property of
 the U.S. Army Corps of Engineers and
 should be returned to the
 Engineer in Charge, District Office,
 when the test is completed.

TRIAxIAL COMPRESSION TEST REPORT

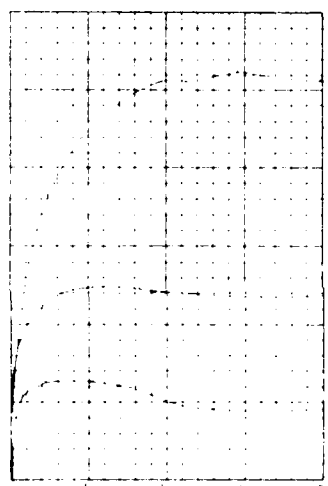
DISTRICT OFFICE, WASHINGTON, D.C. 20315
 (FORM 10-60)

T-196-192

Sheet 1 of 1



EFFECTIVE NORMAL STRESS (lb/ft²) vs. STRAIN (%)



SIE MEN		1	2	3
1	WATER CONTENT	20.0	20.0	20.0
2	LIQUIDITY	70.0	70.0	70.0
3	PLASTICITY	20.0	20.0	20.0
4	FLAT RATION			
5	FLAT RATION			
6	FLAT RATION			
7	FLAT RATION			
8	FLAT RATION			
9	FLAT RATION			
10	FLAT RATION			
11	FLAT RATION			
12	FLAT RATION			
13	FLAT RATION			
14	FLAT RATION			
15	FLAT RATION			
16	FLAT RATION			
17	FLAT RATION			
18	FLAT RATION			
19	FLAT RATION			
20	FLAT RATION			
21	FLAT RATION			
22	FLAT RATION			
23	FLAT RATION			
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25	FLAT RATION			
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43	FLAT RATION			
44	FLAT RATION			
45	FLAT RATION			
46	FLAT RATION			
47	FLAT RATION			
48	FLAT RATION			
49	FLAT RATION			
50	FLAT RATION			

MAJOR PRINCIPAL STRESS: 180 lb/ft²
 MINOR PRINCIPAL STRESS: 0 lb/ft²
 POISSON'S RATIO: 0.3

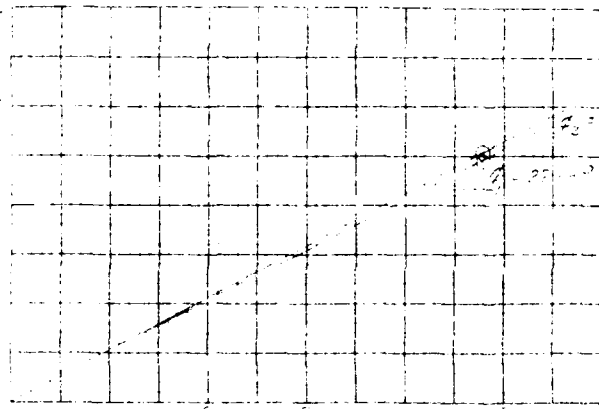
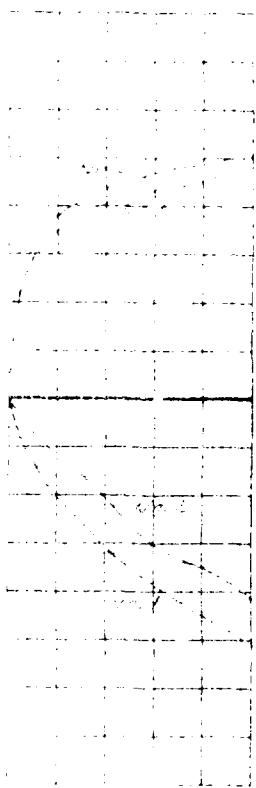
TEST RESULTS: The test results show that the soil is a fine-grained soil with a high plasticity index. The soil is classified as a clay. The test results also show that the soil is highly compressible and that the volume change is significant. The test results are summarized in the table below.

TEST NO.	DATE	TESTER	TEST RESULTS
1	7-92	JM	WATER CONTENT: 20.0%
2	7-92	JM	LIQUIDITY: 70.0%
3	7-92	JM	PLASTICITY: 20.0%
4	7-92	JM	FLAT RATION: 20.0%
5	7-92	JM	FLAT RATION: 20.0%
6	7-92	JM	FLAT RATION: 20.0%
7	7-92	JM	FLAT RATION: 20.0%
8	7-92	JM	FLAT RATION: 20.0%
9	7-92	JM	FLAT RATION: 20.0%
10	7-92	JM	FLAT RATION: 20.0%
11	7-92	JM	FLAT RATION: 20.0%
12	7-92	JM	FLAT RATION: 20.0%
13	7-92	JM	FLAT RATION: 20.0%
14	7-92	JM	FLAT RATION: 20.0%
15	7-92	JM	FLAT RATION: 20.0%
16	7-92	JM	FLAT RATION: 20.0%
17	7-92	JM	FLAT RATION: 20.0%
18	7-92	JM	FLAT RATION: 20.0%
19	7-92	JM	FLAT RATION: 20.0%
20	7-92	JM	FLAT RATION: 20.0%
21	7-92	JM	FLAT RATION: 20.0%
22	7-92	JM	FLAT RATION: 20.0%
23	7-92	JM	FLAT RATION: 20.0%
24	7-92	JM	FLAT RATION: 20.0%
25	7-92	JM	FLAT RATION: 20.0%
26	7-92	JM	FLAT RATION: 20.0%
27	7-92	JM	FLAT RATION: 20.0%
28	7-92	JM	FLAT RATION: 20.0%
29	7-92	JM	FLAT RATION: 20.0%
30	7-92	JM	FLAT RATION: 20.0%
31	7-92	JM	FLAT RATION: 20.0%
32	7-92	JM	FLAT RATION: 20.0%
33	7-92	JM	FLAT RATION: 20.0%
34	7-92	JM	FLAT RATION: 20.0%
35	7-92	JM	FLAT RATION: 20.0%
36	7-92	JM	FLAT RATION: 20.0%
37	7-92	JM	FLAT RATION: 20.0%
38	7-92	JM	FLAT RATION: 20.0%
39	7-92	JM	FLAT RATION: 20.0%
40	7-92	JM	FLAT RATION: 20.0%
41	7-92	JM	FLAT RATION: 20.0%
42	7-92	JM	FLAT RATION: 20.0%
43	7-92	JM	FLAT RATION: 20.0%
44	7-92	JM	FLAT RATION: 20.0%
45	7-92	JM	FLAT RATION: 20.0%
46	7-92	JM	FLAT RATION: 20.0%
47	7-92	JM	FLAT RATION: 20.0%
48	7-92	JM	FLAT RATION: 20.0%
49	7-92	JM	FLAT RATION: 20.0%
50	7-92	JM	FLAT RATION: 20.0%

TRIAxIAL COMPRESSION TEST REPORT

TEST NO. 197 DATE 7-92 TESTER JM

T-197



NORMAL STRESS - LB/ SQ FT

TEST NO. _____

DATE _____

LOCATION _____

DEPTH _____

TYPE OF SOIL _____

TEST METHOD _____

TESTER _____

REMARKS _____

TESTED BY _____

DATE _____

PROJECT _____

AREA _____

SECTION _____

NO. _____

DEPTH _____

TEST METHOD _____

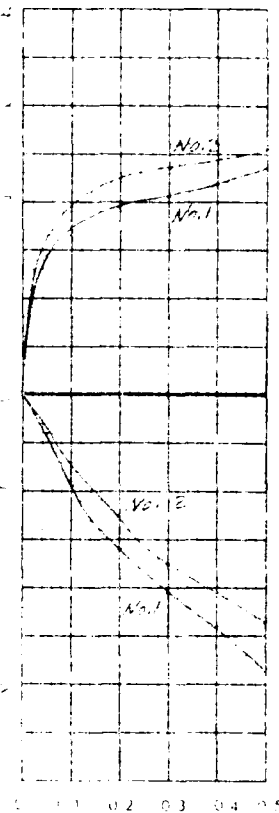
TESTER _____

REMARKS _____

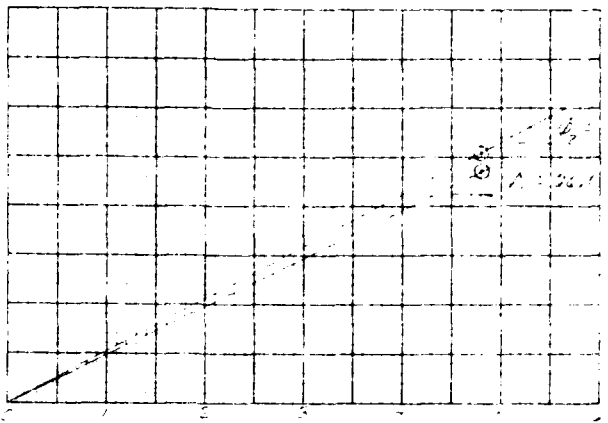
DIRECT SHEAR TEST REPORT

SHEAR STRESS - T. SQ. FT.

VERTICAL DEFORMATION IN.



SHEAR STRESS - T. SQ. FT.



NORMAL STRESS - T. SQ. FT.

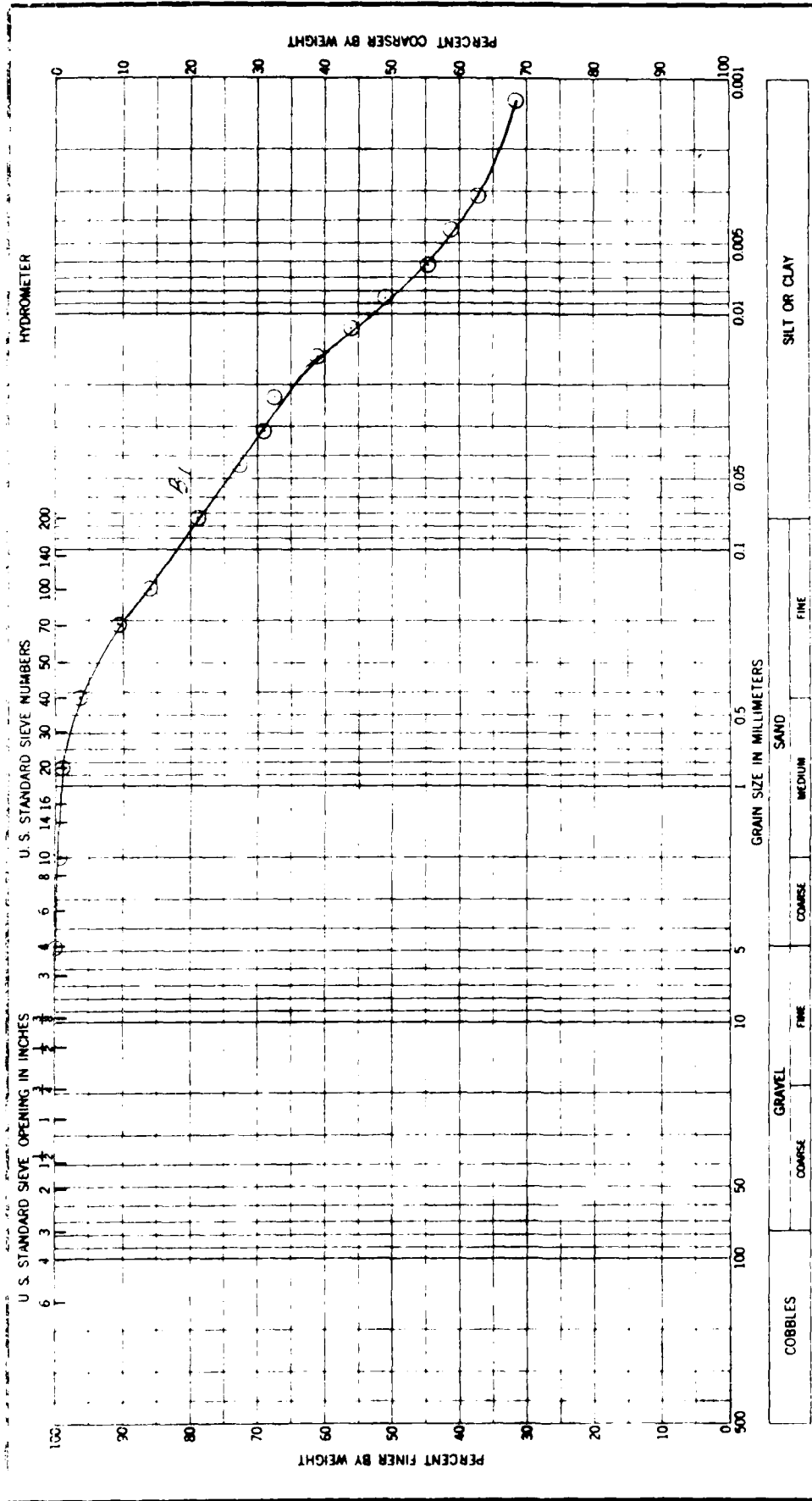
TEST NO.	
WATER CONTENT	W. 20.00 20.20
VOID RATIO	e 1.200 1.200
SATURATION	S 20.00 20.00
DRY LENGTH (LB. CU. FT.)	Y 5.00 5.00
VOID RATIO AFTER CONSOLIDATION	e 1.200 1.200
TIME FOR 50 PERCENT CONSOLIDATION MIN.	T 2.00
WATER CONTENT	W. 20.00 20.20
VOID RATIO	e 1.200 1.200
SATURATION	S 20.00 20.00
NORMAL STRESS (T. SQ. FT.)	N 1.00 1.00
MAXIMUM SHEAR STRESS (T. SQ. FT.)	M 0.50 0.50
ACTUAL TIME TO FAILURE MIN.	F 1.00 1.00
RATE OF STRAIN IN MIN.	R 0.50 0.50
ULTIMATE SHEAR STRESS (T. SQ. FT.)	U 0.50 0.50

INITIAL STRESS
 INITIAL VOID RATIO
 INITIAL SATURATION
 INITIAL WATER CONTENT

TEST NO. 7-202 DATE JUN 25 1955
 PROJECT CONSTRUCTION OF AIRPORT
 AREA CONSTRUCTION OF AIRPORT
 LOCATION CONSTRUCTION OF AIRPORT
 DEPTH CONSTRUCTION OF AIRPORT
 NAME CONSTRUCTION OF AIRPORT

PROJECT CONSTRUCTION OF AIRPORT
 AREA CONSTRUCTION OF AIRPORT
 LOCATION CONSTRUCTION OF AIRPORT
 DEPTH CONSTRUCTION OF AIRPORT
 NAME CONSTRUCTION OF AIRPORT

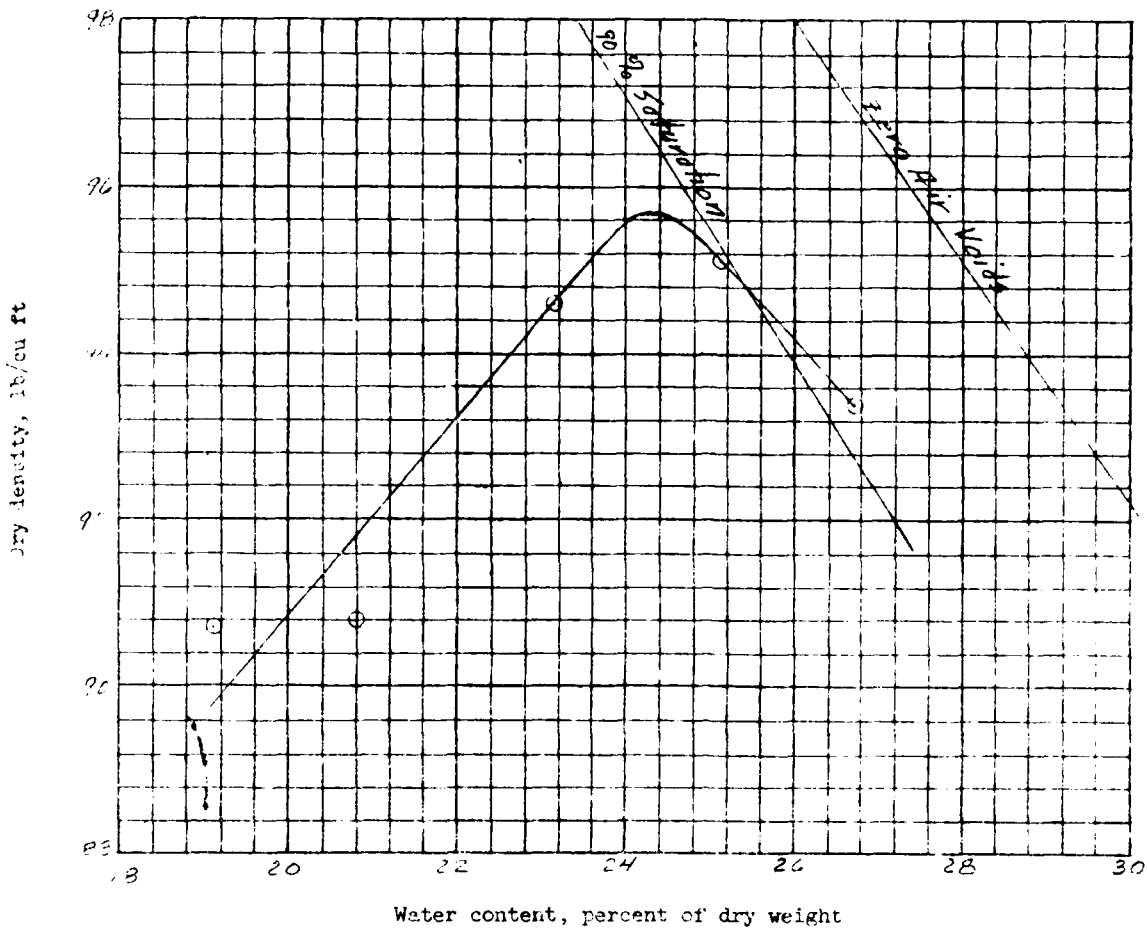
DIRECT SHEAR TEST REPORT



Sample No B1	Elev or Depth 10' - 60'	Classification Fine sandy CLAY (CL) w/roots	Net w %		PI	
			22.4	4.9	25	24
COBBLES			SAND		SILT OR CLAY	
			COARSE	MEDIUM	FINE	
GRADATION CURVES			Project: Cooper River Rediversion Area: St. Stephen, S. Carolina Boring No: T-11 Date: December 1975			

ENG FORM 1 MAY 61 2087

T-203 T-179



Standard compaction test

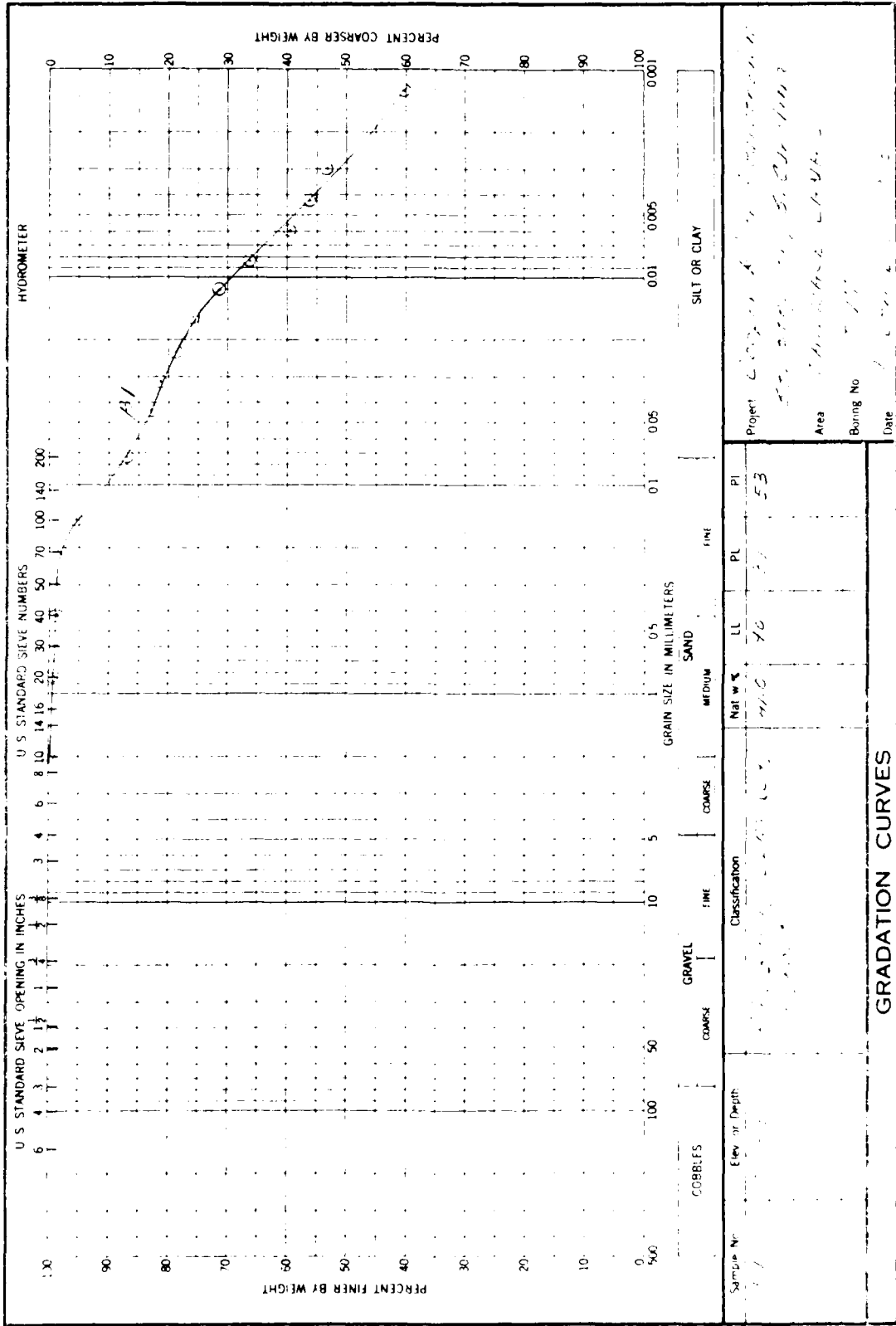
25 blows per each of 3 layers, with 5.5 lb rammer and

12 inch drop. 4 inch diameter mold

Sample No.	Elev or Depth	Classification	G	LL	PL	% > No. 4	% > 3/4 in.
81	1'-2.0'	Fine sandy CLAY (CL) w/ roots	2.66	49	25	0	0

Sample No.	31				
Natural water content, percent	22.4				
Optimum water content, percent	24.3				
Max dry density, lb/cu ft	95.7				

Remarks	Project Cooper River Rediversion	
	St. Stephen, S. Carolina	
	Area THIRLACE CANAL	
	Boring No. T-11	Date December 1975
COMPACTION TEST REPORT		

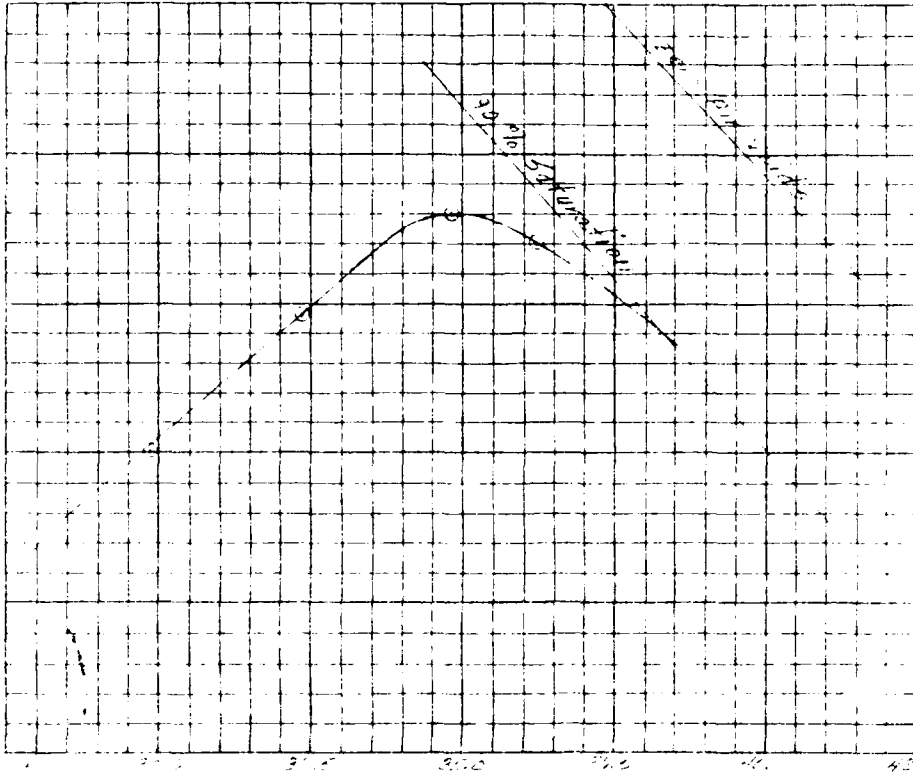


GRADATION CURVES

ENG 2087

T-205

Dry density, lb/cu ft

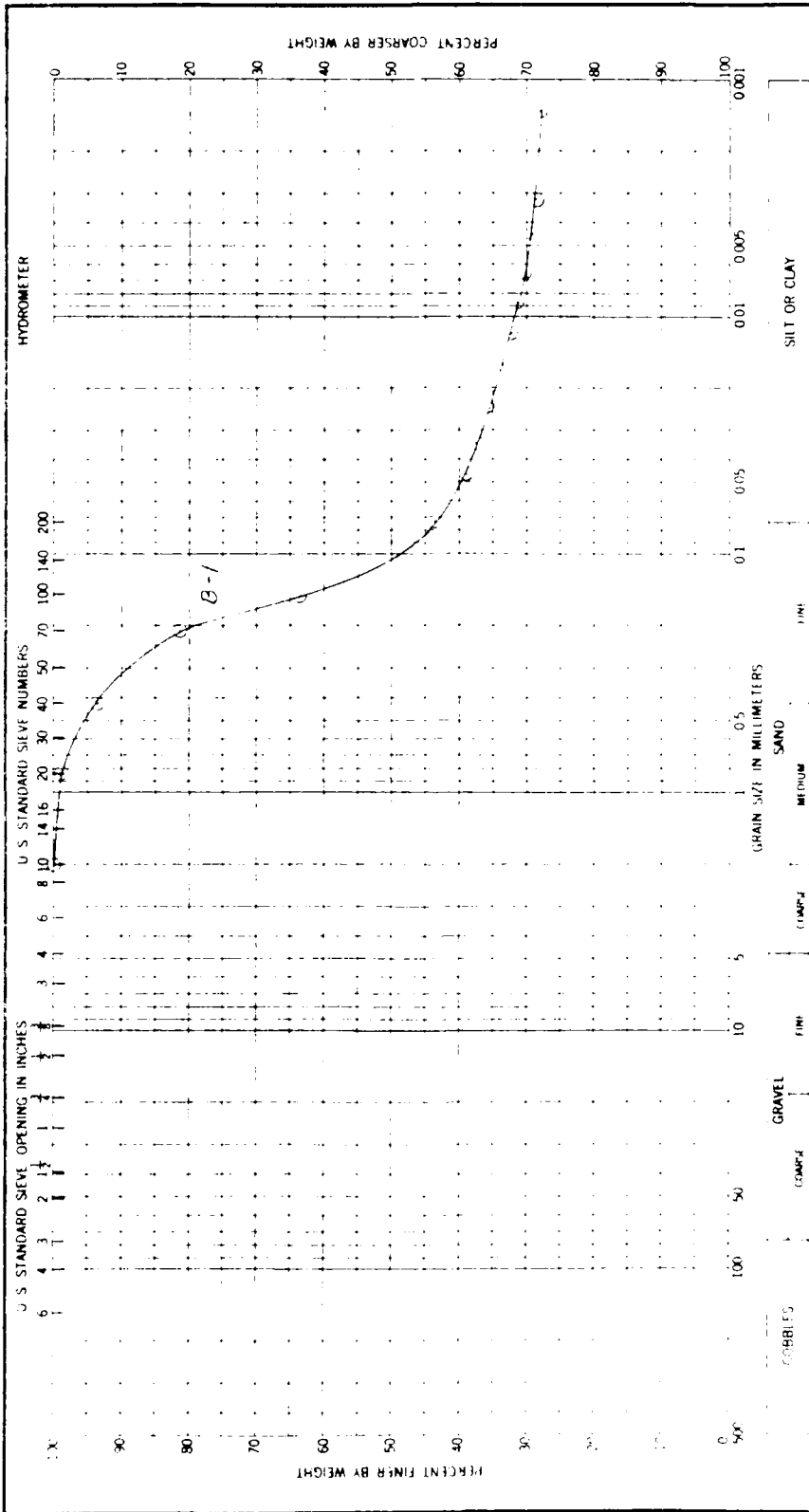


Water content, percent of dry weight

Standard compaction test

blows per inch of 2 layers, with 25 lb rammer and
 10 mm base, 7 inch diameter mold

Sample No.	Classification	G	LL	PL	$\frac{L}{U}$ No. 4	$\frac{L}{U}$ 3/4 in.
41	CL (CH)	20	90	30	0	0
Sample No.	41					
Natural water content, percent	41.0					
Optimum water content, percent	24.8					
Maximum dry density, lb/cu ft	110					
Remarks:	Project <u>COOPER RIVER BRIDGE</u>					
	<u>ST. STEPHEN, S. CAROLINA</u>					
	Area <u>TRUCKEE CANAL</u>					
	Boring No. <u>T-17</u>			Date <u>10-11-55</u>		
COMPACTION TEST REPORT						



Soils No. _____

Site or Depth _____

Classification _____

Project _____

Area _____

Boring No. _____

Date _____

PI _____

LL _____

PL _____

Moisture Content _____

Shrinkage _____

Specific Gravity _____

Void Ratio _____

Porosity _____

Unit Weight _____

Stress _____

Strain _____

Modulus _____

Poisson's Ratio _____

Compressibility _____

Permeability _____

Skempton's B _____

Consolidation _____

Preconsolidation Pressure _____

Compression Index _____

Swelling Index _____

Unconfined Compressive Strength _____

Shear Strength _____

Angle of Friction _____

Cohesion _____

Stress Path _____

Failure Plane _____

Failure Mode _____

Failure Stress _____

Failure Strain _____

Failure Angle _____

Failure Cohesion _____

Failure Friction Angle _____

Failure Stress Ratio _____

Failure Strain Ratio _____

Failure Angle Ratio _____

Failure Cohesion Ratio _____

Failure Friction Angle Ratio _____

Failure Stress Ratio _____

Failure Strain Ratio _____

Failure Angle Ratio _____

Failure Cohesion Ratio _____

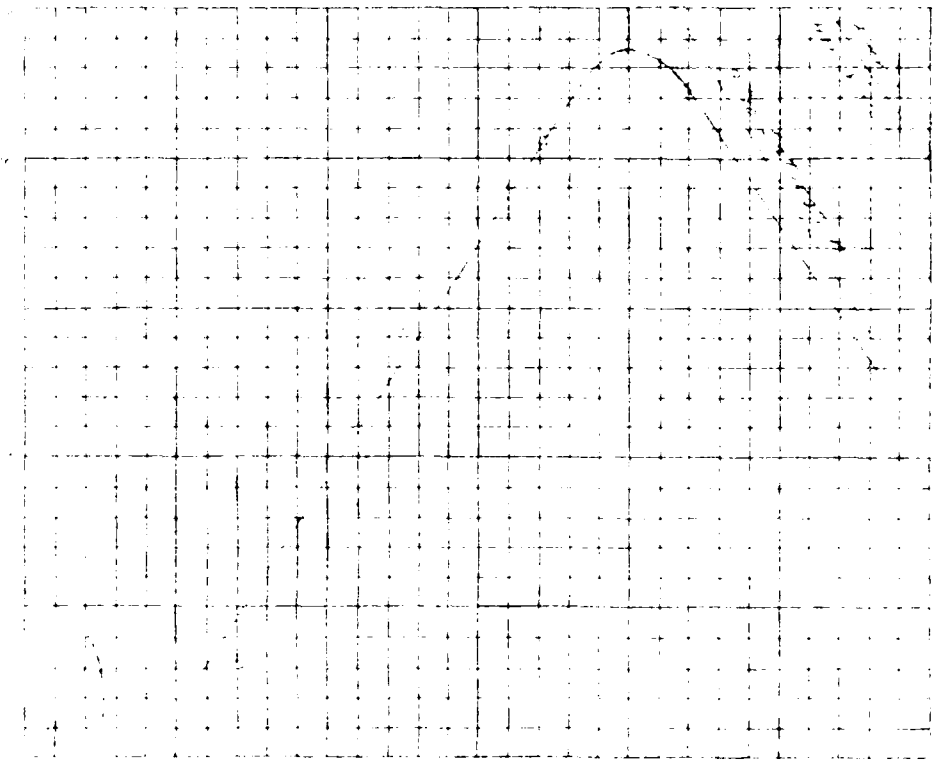
Failure Friction Angle Ratio _____

GRADATION CURVES

ENG 2087

T-207

City, County, State



When obtained, percent of dry weight

Moisture content

Number of layers, viz. _____

Number of blows, _____ inch diameter mallet

No.	Classification	W	M	D ₅₀	No. of Blows	W ₁	W ₂	W ₃	W ₄	W ₅	W ₆	W ₇	W ₈	W ₉	W ₁₀	W ₁₁	W ₁₂	W ₁₃	W ₁₄	W ₁₅	W ₁₆	W ₁₇	W ₁₈	W ₁₉	W ₂₀	W ₂₁	W ₂₂	W ₂₃	W ₂₄	W ₂₅	W ₂₆	W ₂₇	W ₂₈	W ₂₉	W ₃₀	W ₃₁	W ₃₂	W ₃₃	W ₃₄	W ₃₅	W ₃₆	W ₃₇	W ₃₈	W ₃₉	W ₄₀	W ₄₁	W ₄₂	W ₄₃	W ₄₄	W ₄₅	W ₄₆	W ₄₇	W ₄₈	W ₄₉	W ₅₀	W ₅₁	W ₅₂	W ₅₃	W ₅₄	W ₅₅	W ₅₆	W ₅₇	W ₅₈	W ₅₉	W ₆₀	W ₆₁	W ₆₂	W ₆₃	W ₆₄	W ₆₅	W ₆₆	W ₆₇	W ₆₈	W ₆₉	W ₇₀	W ₇₁	W ₇₂	W ₇₃	W ₇₄	W ₇₅	W ₇₆	W ₇₇	W ₇₈	W ₇₉	W ₈₀	W ₈₁	W ₈₂	W ₈₃	W ₈₄	W ₈₅	W ₈₆	W ₈₇	W ₈₈	W ₈₉	W ₉₀	W ₉₁	W ₉₂	W ₉₃	W ₉₄	W ₉₅	W ₉₆	W ₉₇	W ₉₈	W ₉₉	W ₁₀₀																																																																																																			
1	CL	15	40	0.075	25	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150	155	160	165	170	175	180	185	190	195	200	205	210	215	220	225	230	235	240	245	250	255	260	265	270	275	280	285	290	295	300	305	310	315	320	325	330	335	340	345	350	355	360	365	370	375	380	385	390	395	400	405	410	415	420	425	430	435	440	445	450	455	460	465	470	475	480	485	490	495	500	505	510	515	520	525	530	535	540	545	550	555	560	565	570	575	580	585	590	595	600	605	610	615	620	625	630	635	640	645	650	655	660	665	670	675	680	685	690	695	700	705	710	715	720	725	730	735	740	745	750	755	760	765	770	775	780	785	790	795	800	805	810	815	820	825	830	835	840	845	850	855	860	865	870	875	880	885	890	895	900	905	910	915	920	925	930	935	940	945	950	955	960	965	970	975	980	985	990	995	1000

Project: _____

Area: _____

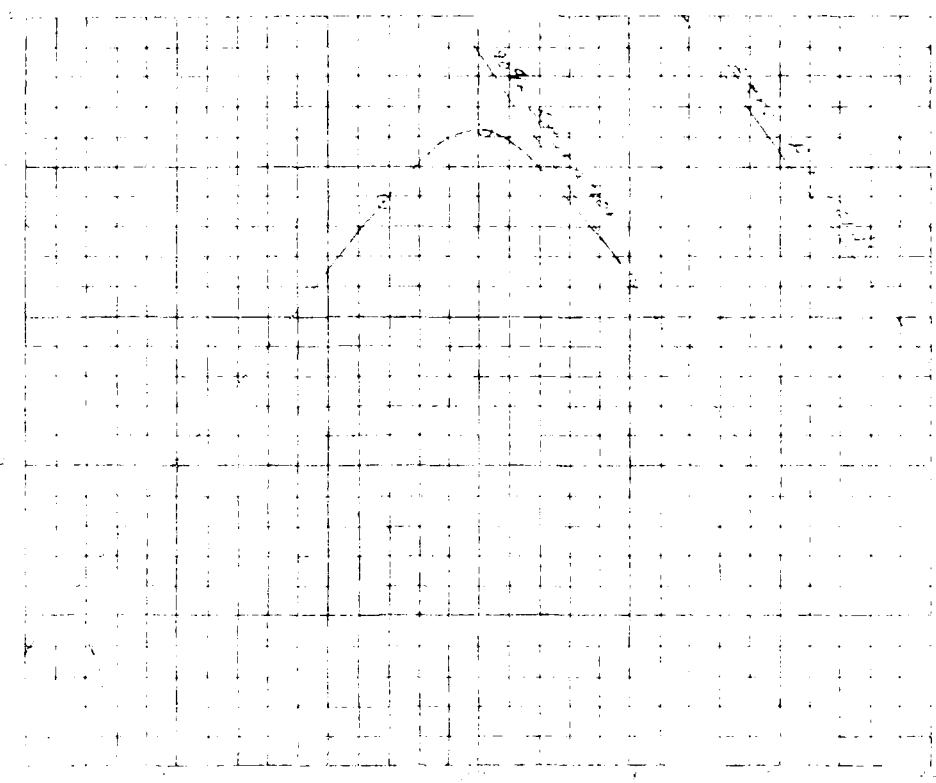
Testing No.: _____

COMPACTION TEST REPORT

ALL DIMENSIONS ARE ABSOLUTE UNLESS OTHERWISE SPECIFIED

T-208-202

Dry Density Report



Water content, percent

Maximum dry density

Optimum water content

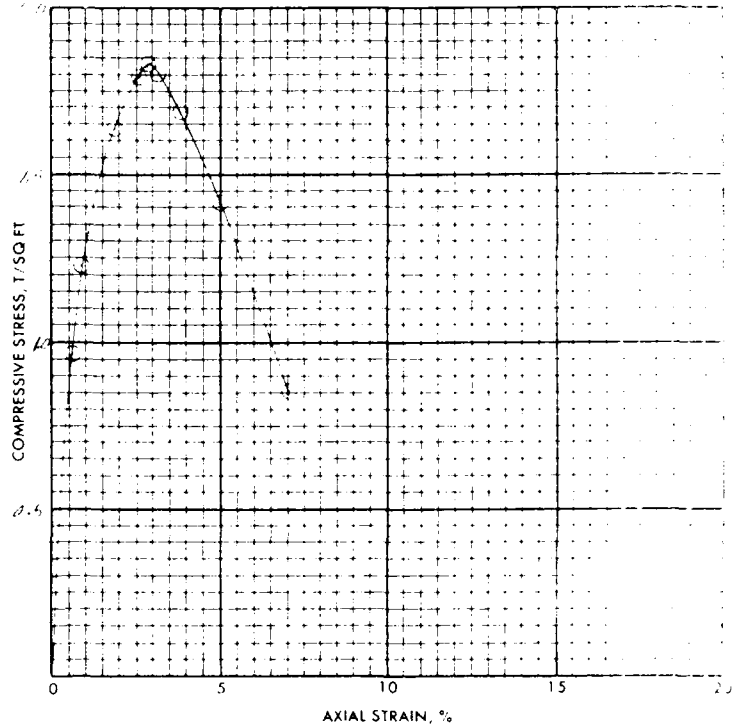
Minimum dry density

Project No.	Classification	RD	MI
Section No.	Location		
Stationing	Remarks		
Test No.	Operator		
Date	Time		
Moisture	Temperature		
Wet Weight	Dry Weight		
Volume	Specific Gravity		
Wet Density	Dry Density		
Water Content	Optimum Water Content		
Maximum Dry Density	Minimum Dry Density		
Remarks	Remarks		

COMPACTION TEST REPORT

T-210 7-206

FAILURE SKETCHES



CONTROLLED STRESS
 CONTROLLED STRAIN

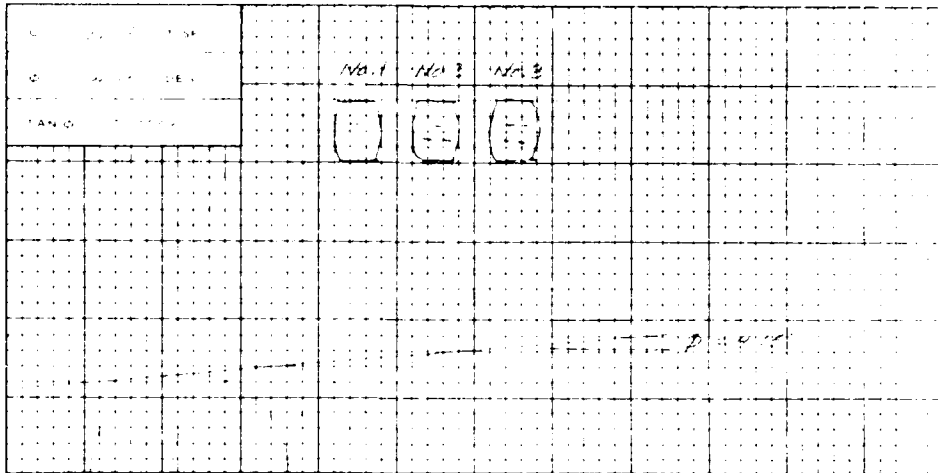
TEST NO	1
TYPE OF SPECIMEN	Rectangular
WATER CONTENT	w = 27.1 %
VOID RATIO	e = 0.911
SATURATION	S = 92.7 %
DRY DENSITY, LB/ CU FT	$\gamma_d = 86.0$
TIME TO FAILURE, MIN	t = 2.8
UNCONFINED COMPRESSIVE STRENGTH, T/SQ FT	q = 1.83
UNDRAINED SHEAR STRENGTH, T/SQ FT	s = -
SENSITIVITY RATIO	S = -
INITIAL SPECIMEN DIAMETER, IN	D = 1.41
INITIAL SPECIMEN HEIGHT, IN	H = 3.15

CLASSIFICATION *LL - 20 - 40 (CH)*
 LL *20* PI *40*

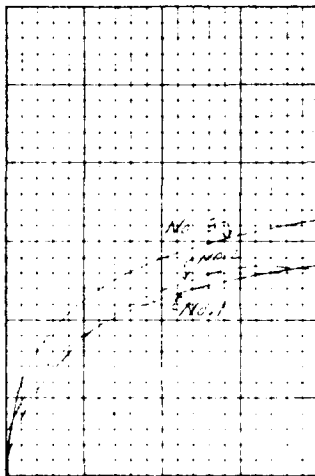
REMARKS *Specimen failed in compression. Failure was sudden and brittle. No significant lateral expansion observed.*

PROJECT *Construction of...*
 AREA *...*
 BORING NO *...* SAMPLE NO *...*
 DEPTH *...* DATE *...*

UNCONFINED COMPRESSION TEST REPORT



NORMAL STRESS (lb./sq. ft.)



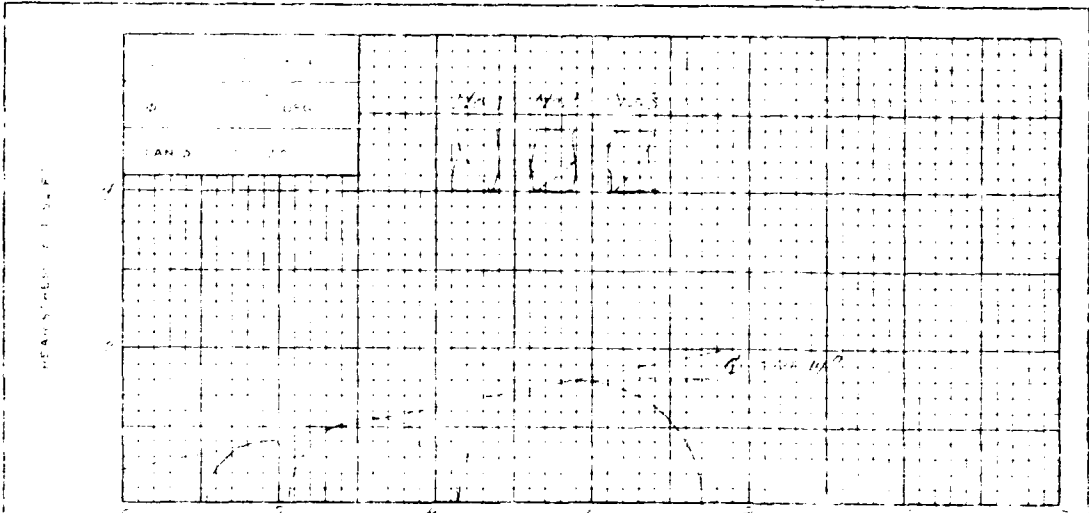
HORIZONTAL STRESS (lb./sq. ft.)

SPECIMEN NO.		1	2	3
WET	WATER CONTENT, %	22.0	22.0	22.0
	DRY DENSITY, LB./CU. FT.	116	116	116
	SATURATION, %	82.0	82.0	82.0
	VOID RATIO	1.40	1.40	1.40
DRAINAGE	WATER CONTENT, %			
	DRY DENSITY, LB./CU. FT.			
	SATURATION, %			
	VOID RATIO			
UNSATURATED				
MIN. PRELIM. PRESSURE, LB./SQ. FT.		100	100	100
MAX. M. EVAPOR. PRESSURE, LB./SQ. FT.		250	250	250
TIME, MIN.		15	15	15
WATER REL. AT W. (%)				
REL. HUMIDITY (%)				
NOM. DIAMETER, IN.		4.0	4.0	4.0
NOM. HEIGHT, IN.		4.0	4.0	4.0

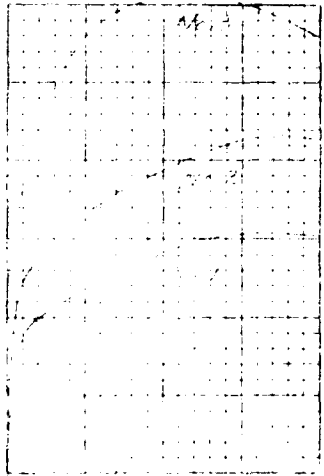
PROJECT: LARGE CANAL, 254' DIAMETER
 LOCATION: ...
 DATE: ...
 OPERATOR: ...
 TRIAXIAL COMPRESSION TEST REPORT

F-215 7.2.1

Sheet 1 of 2



NORMAL STRESS (L.T. 50 FT)



SPECIMEN NO.		1	2	3
WATER CONTENT (%)	WATER CONTENT (%)	30	30	30
	DENSITY (LB/CF)	120	120	120
	SATURATION (%)	80	80	80
	VOID RATIO	0.5	0.5	0.5
MINOR STRESS (L.T. 50 FT)	WATER CONTENT (%)	30	30	30
	DENSITY (LB/CF)	120	120	120
	SATURATION (%)	80	80	80
	VOID RATIO	0.5	0.5	0.5
MAXIMUM STRESS (L.T. 50 FT)	WATER CONTENT (%)	30	30	30
	DENSITY (LB/CF)	120	120	120
	SATURATION (%)	80	80	80
	VOID RATIO	0.5	0.5	0.5

Handwritten notes in the bottom left section, including specimen identification and test parameters.

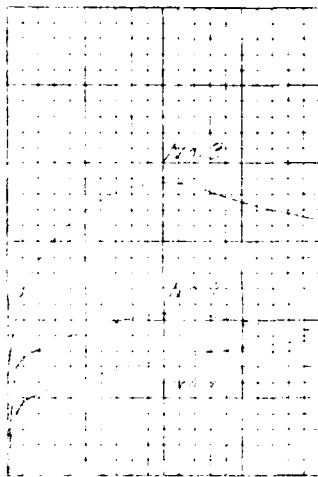
Handwritten notes in the bottom right section, including test results and dates.

TRIAxIAL COMPRESSION TEST REPORT

T-216-212



NORMAL STRESS (lb/in.²) SOIL



SPECIMEN NO.		1	2	3
WATER CONTENT (%)	w_c	23.3	26.5	26.4
	w_L	20.4	27.4	27.4
	S_0	100	100	100
	e_0	0.26	0.267	0.267
WATER CONTENT (%)	w_c	23.3	26.5	26.4
	w_L	20.4	27.4	27.4
	S_0	100	100	100
	e_0	0.26	0.267	0.267
MINOR DEVIATORIAL STRESS (lb/in.²)	σ_3	0	0	0
MAXIMUM DEVIATORIAL STRESS (lb/in.²)	$\sigma_1 - \sigma_3$	1.24	2.06	3.01
MINOR DEVIATORIAL STRESS (lb/in.²)	σ_3	0	4.5	1.5
ULTIMATE DEVIATORIAL STRESS (lb/in.²)	$\sigma_1 - \sigma_3$	—	1.7	3.51
DIAMETER (IN)	d	0.25	0.25	0.25
HEIGHT (IN)	h	0.5	0.5	0.5

NO. OF SPECIMENS: 3

NAME OF TEST: *Triaxial Compression*

NAME: *Thompson, J. R.*

LABORATORY: *500*

PLANS NO.: *7-14-23*

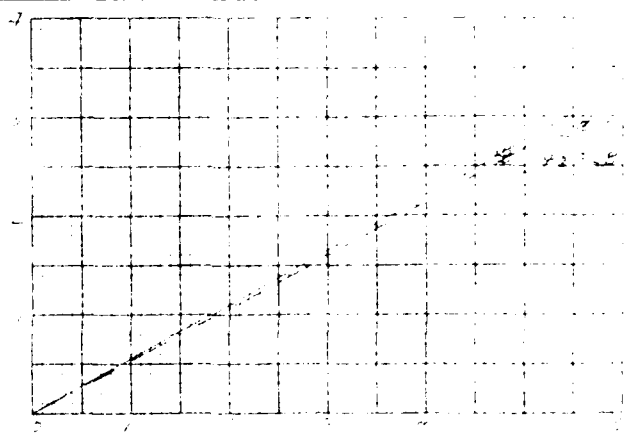
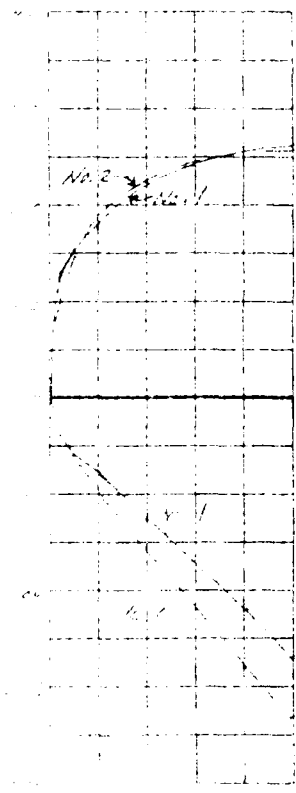
DATE: *January 1916*

LABORATORY: *1153*

TRIAxIAL COMPRESSION TEST REPORT

TRANSLUCENT 16-11-1900

F218-2/4



TEST NO.	
WATER CONTENT	W. 20.0%
VOID RATIO	e 0.65
SATURATION	S 100%
DRY DENSITY LB. CU. FT.	112.0
VOID RATIO AFTER CONSOLIDATION	e 0.65
TIME FOR ST. PRESENT CONSOLIDATION	10 MIN.
WATER CONTENT	W. 20.0%
VOID RATIO	e 0.65
SATURATION	S 100%
NORMAL STRESS T, SO. FT.	100
MAXIMUM SHEAR STRESS, T, SO. FT.	40
ALL AT TIME	10 MIN.
RATE OF STRESS T, SO. FT. / MIN.	10
TEST RESULTS	

TEST PARAMETERS

Soil: *CL*
 Area: *7.06 sq. in.*
 Height: *1.0 in.*
 Rate: *10 lb./sq. ft./min.*

PROJECT: *...*

AREA: *7.06 sq. in.*

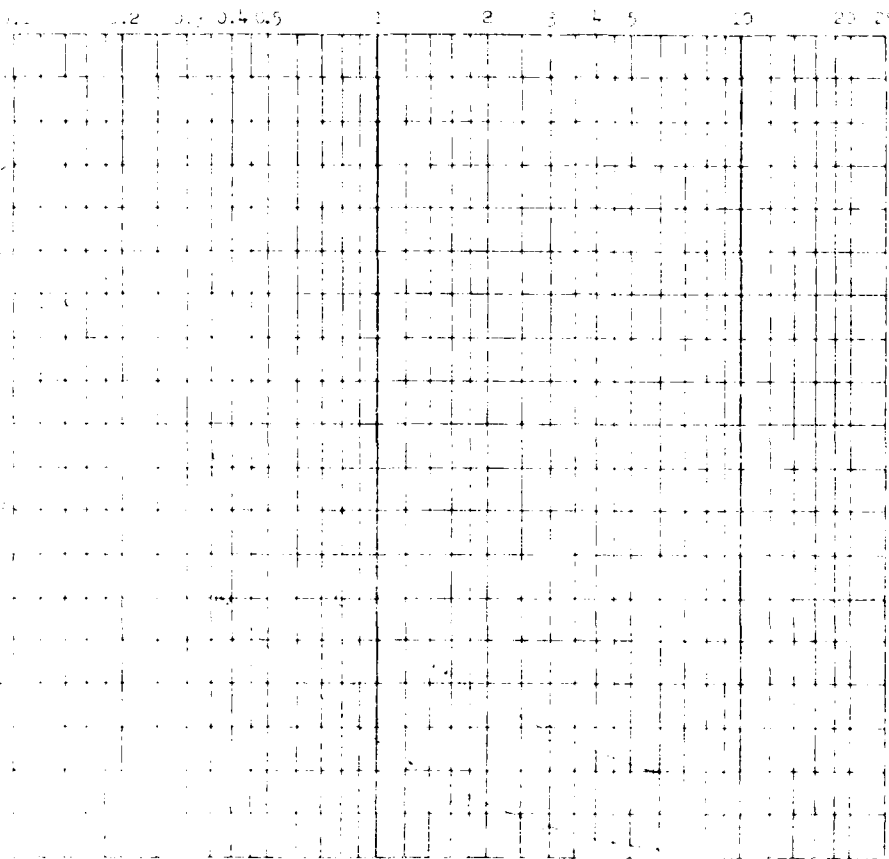
HEIGHT: *1.0 in.*

DATE: *...*

TEST RESULTS

DIRECT SHEAR TEST REPORT

Coefficient of Permeability, k_{20} , cm/sec



Pressure, p , Pounds per Square Foot

	Before Test	After Test
Water Content, w_0	w_0	w_1
Void Ratio, e_0	e_0	e_1
Specific Gravity, G_s	G_s	G_s
Sample Density, γ_0	γ_0	γ_1
Area, A	A	A
Length, L	L	L
Depth, H	H	H
Date		

CONSOLIDATION TEST REPORT

F-222 218

AD-R149 732

COOPER RIVER REDIVERSION PROJECT LAKE MOULTRIE AND
SANTEE RIVER SOUTH CAR. (U) CORPS OF ENGINEERS
CHARLESTON SC CHARLESTON DISTRICT JUN 76

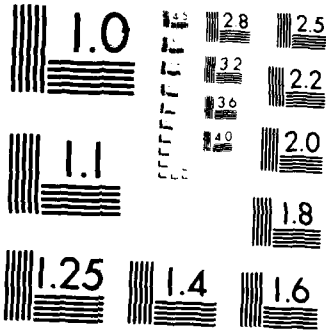
5/5

UNCLASSIFIED

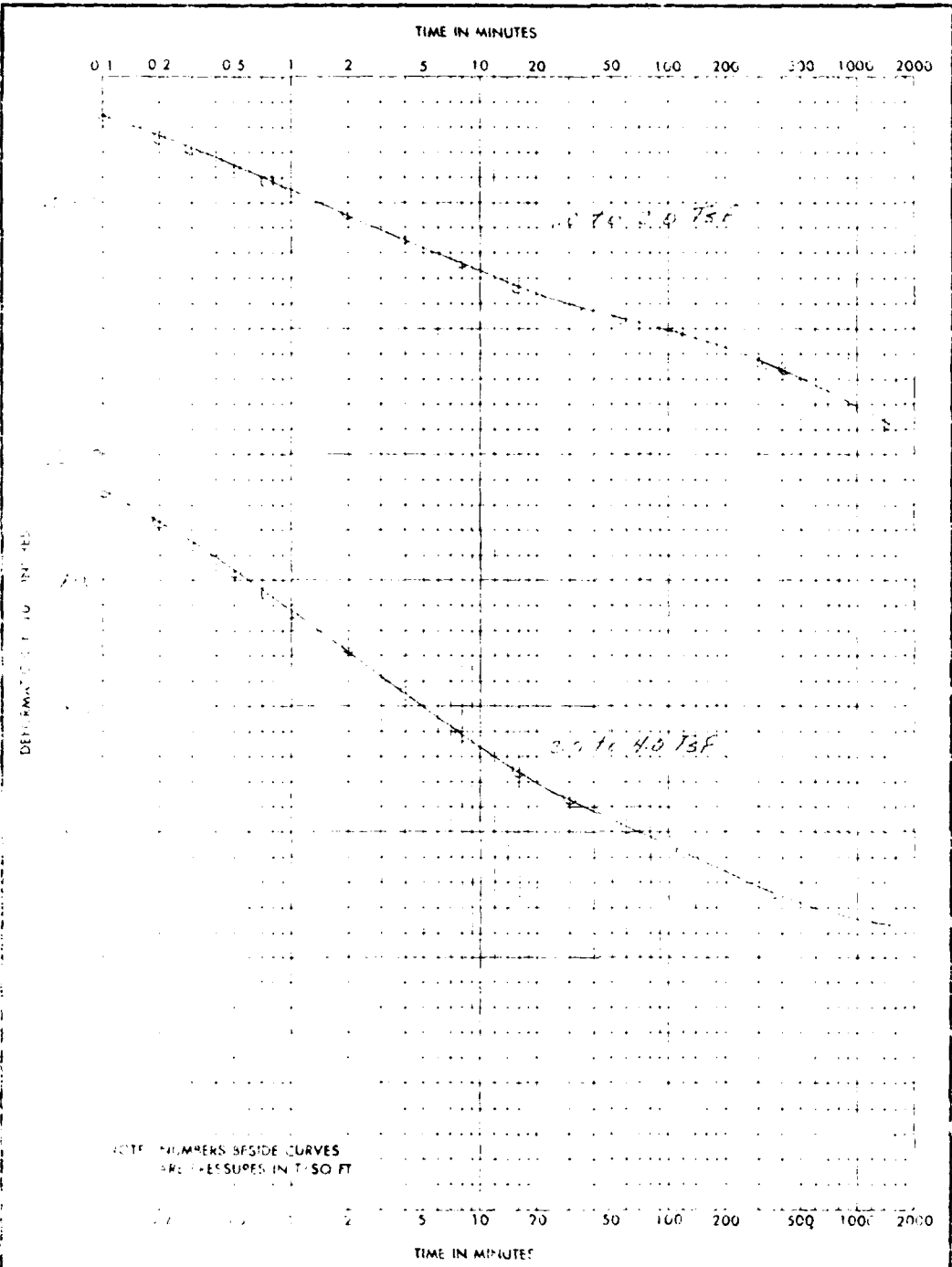
F/G 8/13

NL

										END			



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A



NO. *1000*

ALY *1000*

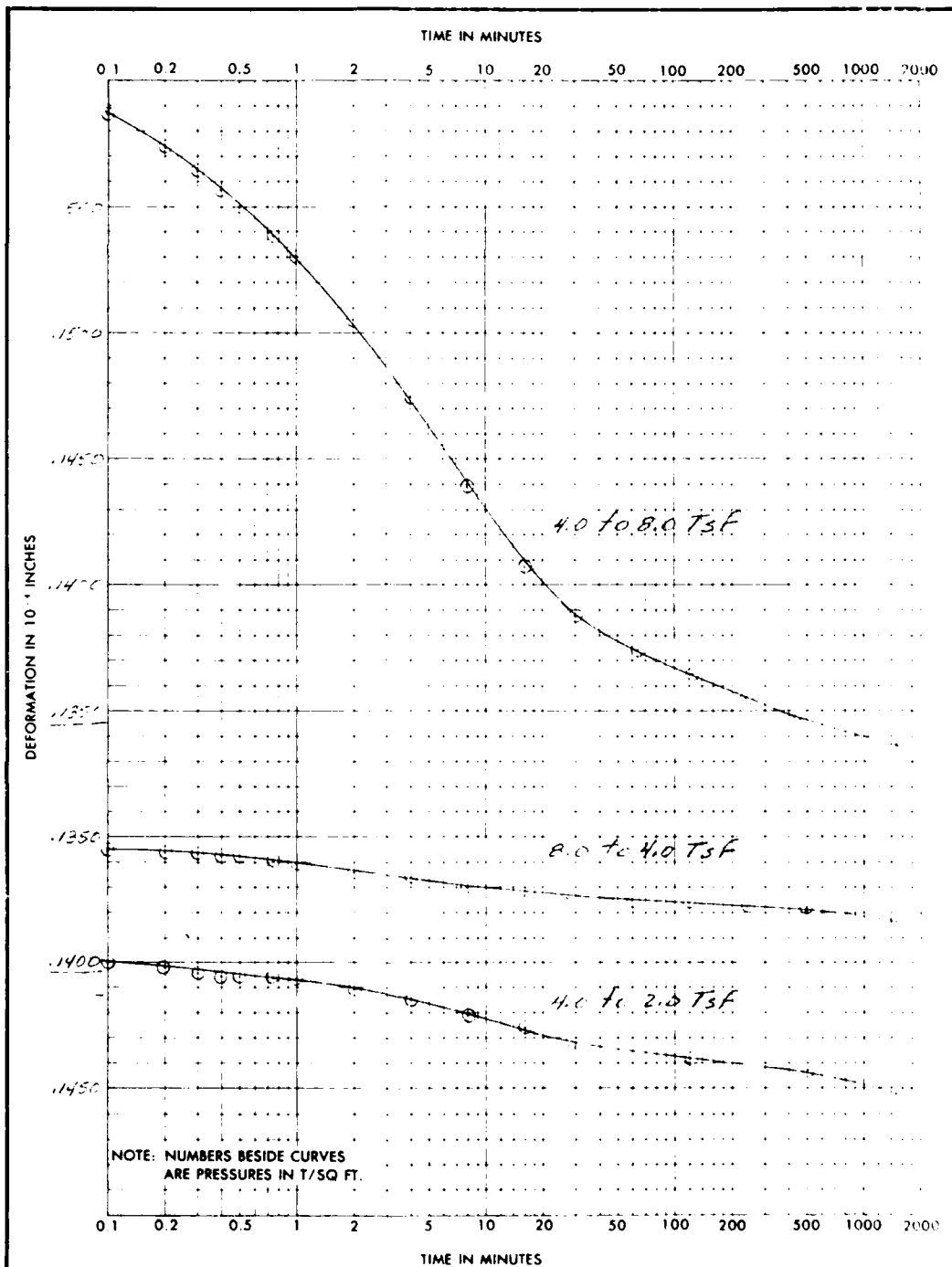
RC 2247, NY *1000* SAMPLE NO *SS #1* ** DEPTH *2.975* DATE *January 1946*

ENG FORM 2088 PREVIOUS EDITIONS ARE OBSOLETE **CONSOLIDATION TEST—TIME CURVES** (TRANSLUCENT)

** *1000* (1100+2%)
175% density

about 4.075

T-224
 T-220



PROJECT *Cooper River Rediversion, St. Stephen, S. Carolina*

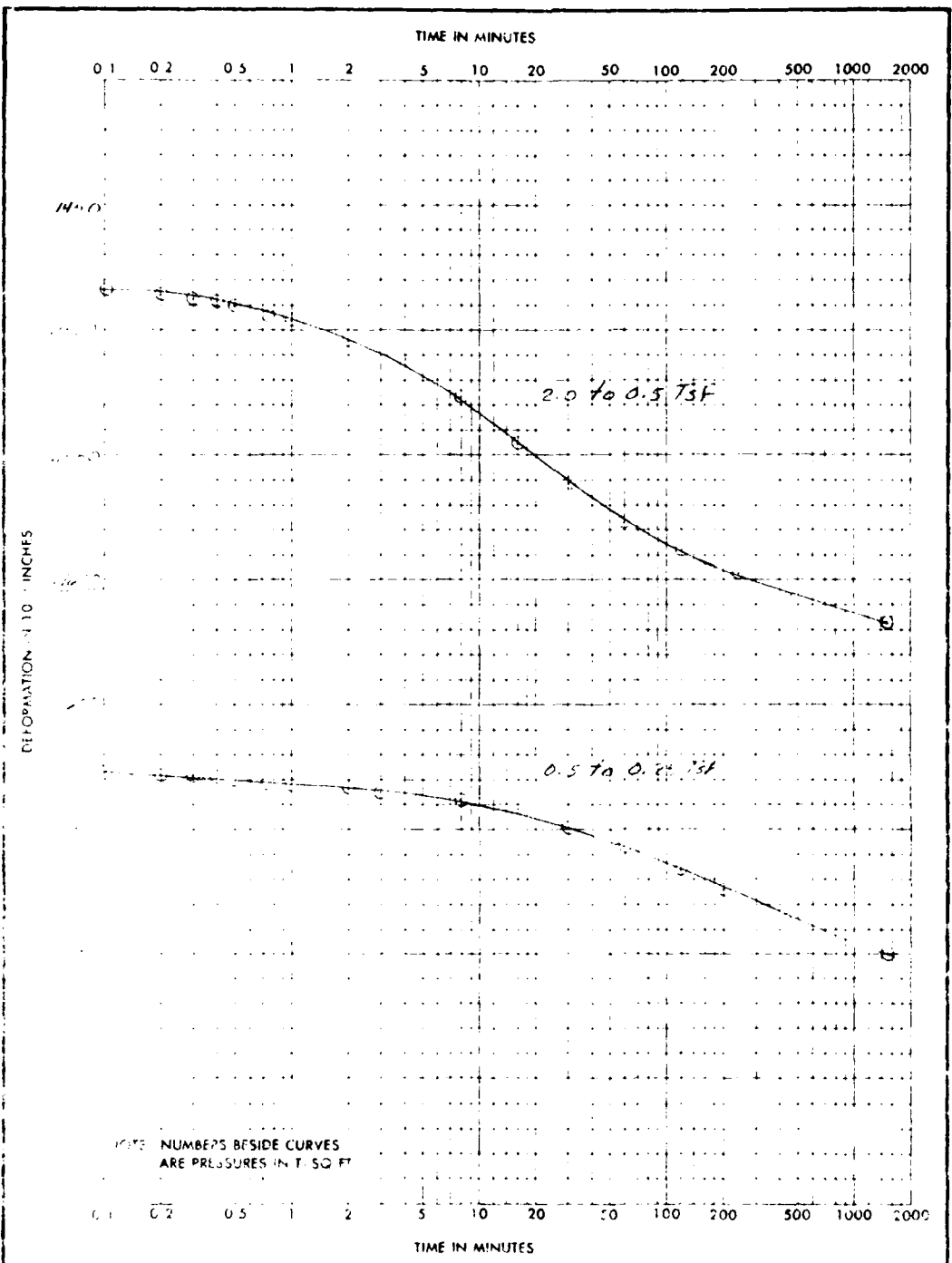
AREA *TAILRACE CANAL*

BORING NO *24, 23, 25, 30* SAMPLE NO *CS #1* ** DEPTH *8.0' - 9.0'* DATE *January 1976*

ENG FORM **2088** PREVIOUS EDITIONS ARE OBSOLETE **CONSOLIDATION TEST—TIME CURVES** (TRANSLUCENT)

** *Remolded:*
 $w_n = 27.7\%$ (o.m.c. + 2%)
 $H_g = 82.9 \text{ Pcf}$ (95% density)

sheet 3 of 6
7-225
 T-221



PROJECT: *200 ft. diameter, 51' depth, S. Carolina*

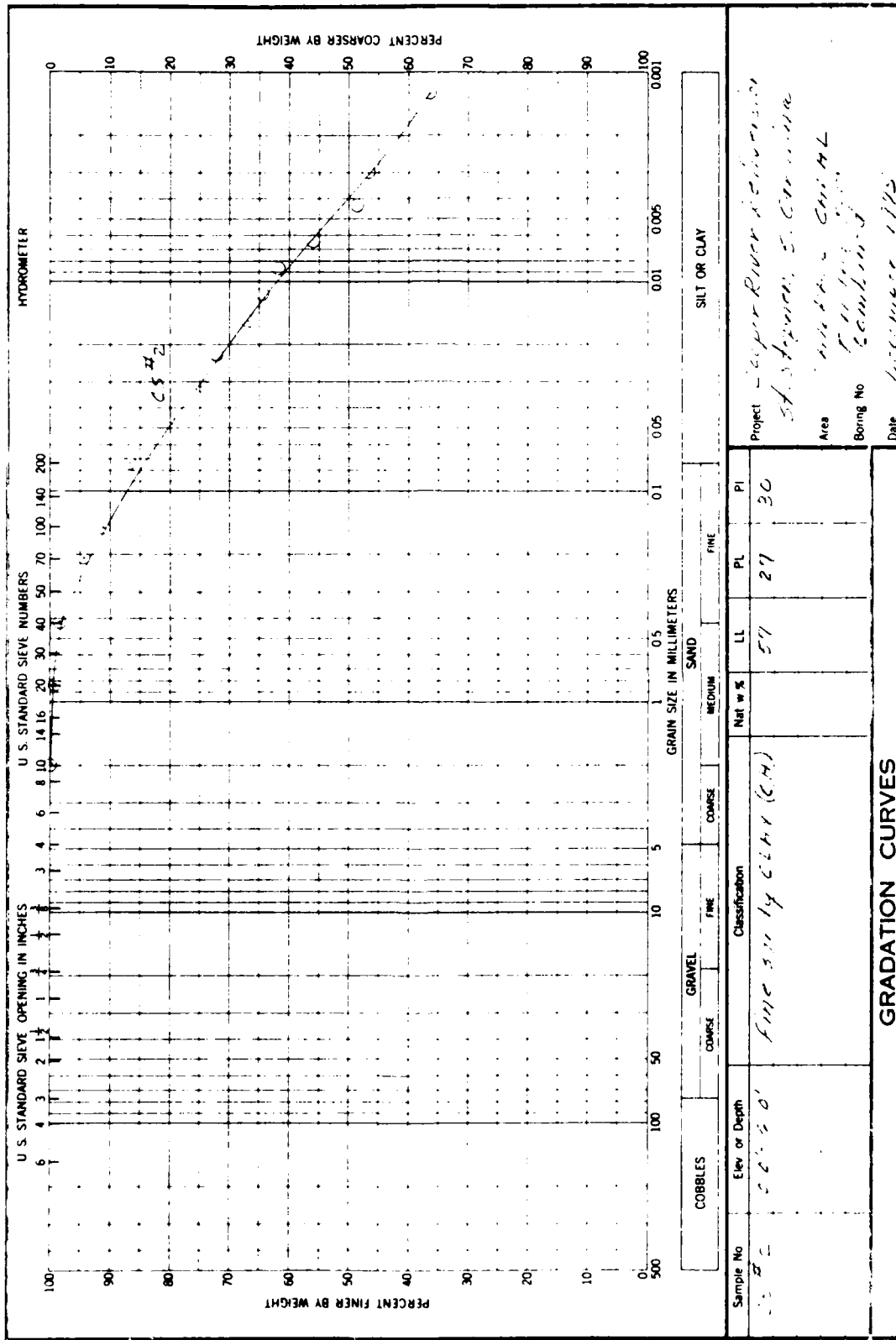
AREA: *...*

BORING NO: *...* SAMPLE NO: *CS #1 *** DEPTH: *0.0' - 9.0'* DATE: *January 1976*

ENG FORM 2088 PREVIOUS EDITIONS ARE OBSOLETE **CONSOLIDATION TEST—TIME CURVES** (TRANSLUCENT)

200 ft. dia. (60.0% density)
17.5 ft. dia. (95% density)

Sheet 6 of 6 **T-226**
 T-222



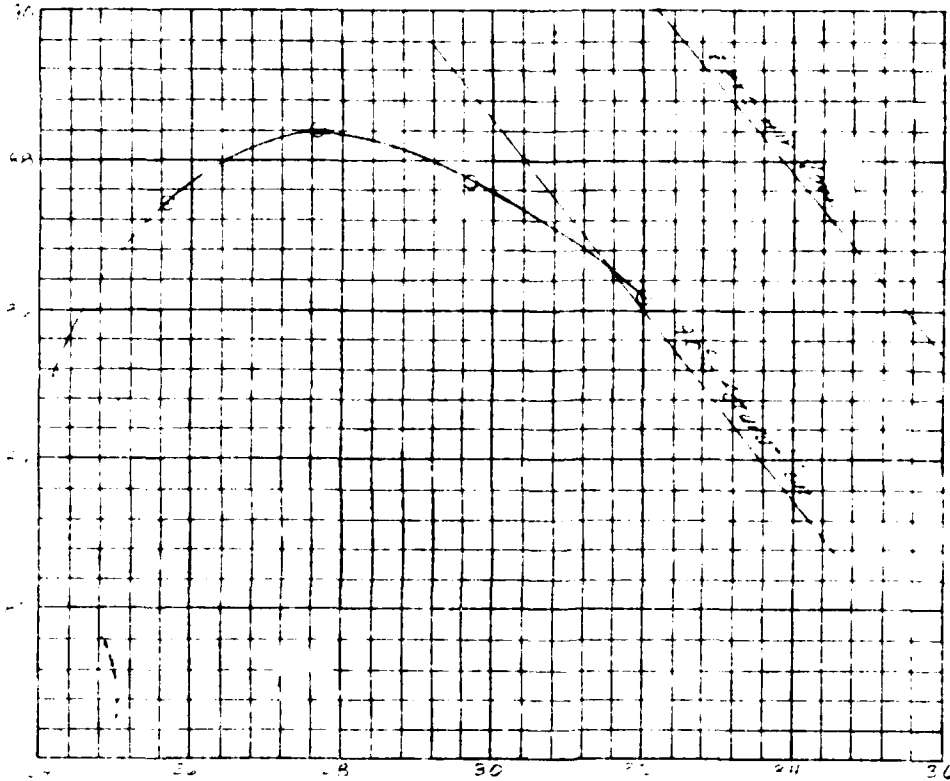
GRADATION CURVES

ENG FORM
 W.A.S. 2087

T-227
 T-223

Figure 5

Dry density, lb/cu ft



Water content, percent of dry weight

_____ compaction test
 _____ blows per each of _____ layers, with _____ lb rammer and
 _____ inch drop. _____ 4 inch diameter mold

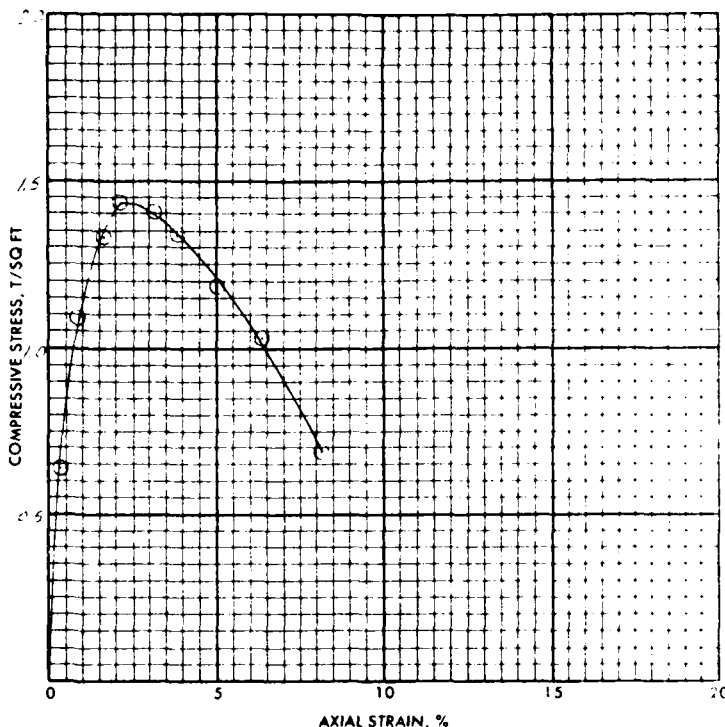
Sample No.	Yield or Depth	Classification	G	LL	PL	% > No. 4	% > 3/4 in.
CS #2		CLAY (CH)	2.67	51	27	0	0

Sample No.	CS #2		
Natural water content, percent			
Optimum water content, percent	27.0		
Max dry density, lb/cu ft	38.4		

Remarks * T-11B, T-17B, 2	Project Cooper River Pollution
1.0 in. combined	St. Stephen S. Sinc 1972
2.0 in. combined	Area TAILRACE CANAL
Sample CS #2	Boring No. T-11B; T-17B * Date December 1975

COMPACTION TEST REPORT

FAILURE SKETCHES



- CONTROLLED STRESS
- CONTROLLED STRAIN

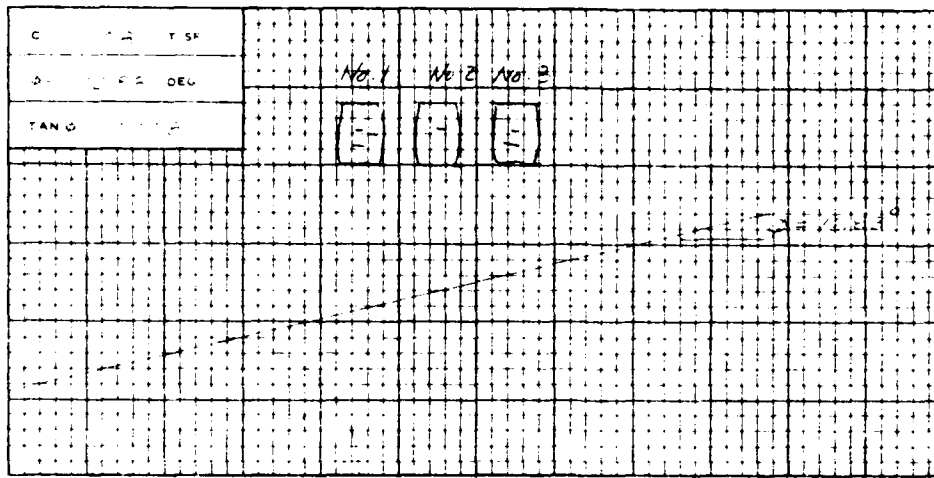
TEST NO.	1			
TYPE OF SPECIMEN	Remolded			
INITIAL	WATER CONTENT	w _n	27.9 %	
	VOID RATIO	e _n	1.002	
	SATURATION	S _n	74.8 %	
	DRY DENSITY, LB/CU FT	γ _d	83.8	
TIME TO FAILURE, MIN	t _r	2		
UNCONFINED COMPRESSIVE STRENGTH, T/SQ FT	q _u	1.44		
UNDRAINED SHEAR STRENGTH, T/SQ FT	s _u	—		
SENSITIVITY RATIO	S	—		
INITIAL SPECIMEN DIAMETER, IN	D	1.40		
INITIAL SPECIMEN HEIGHT, IN	H	3.15		

CLASSIFICATION	Fine sandy clay (CH)			
LL	57	PL	27	PI
				30
				G. 2.07

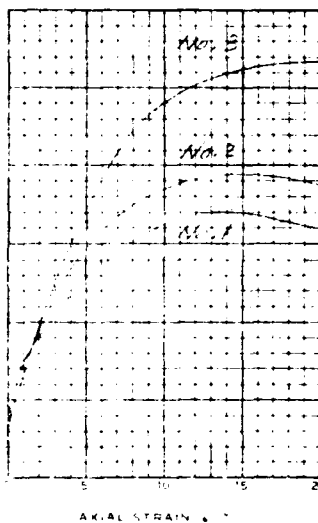
REMARKS: Sample remolded & 44% moisture content at 24°C. (Controlled strain dry density of 84.8 lb/cu ft 95% maximum density)

PROJECT	Cooper River Retention		
	St. Stephens S. Channel		
AREA	TAILRAKE CANAL		
BORING NO.	T-11 & T-17	SAMPLE NO.	25 #2
DEPTH	Combined	DATE	Dec 1965
	0.0' - 6.0'		

UNCONFINED COMPRESSION TEST REPORT



NORMAL STRESS, σ , T. SQ FT



AXIAL STRAIN, ϵ , %


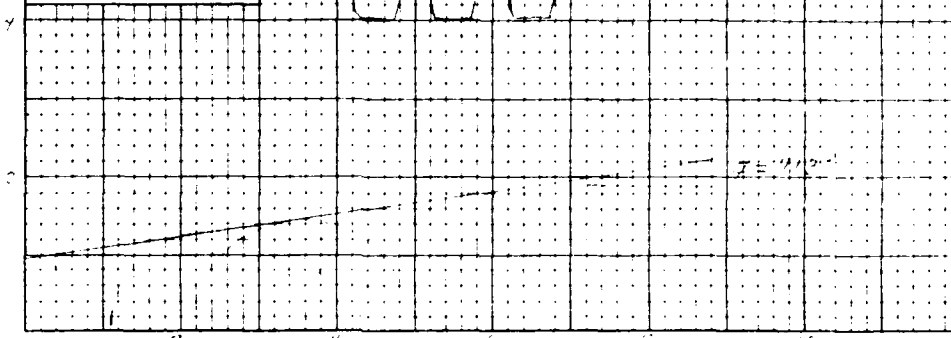
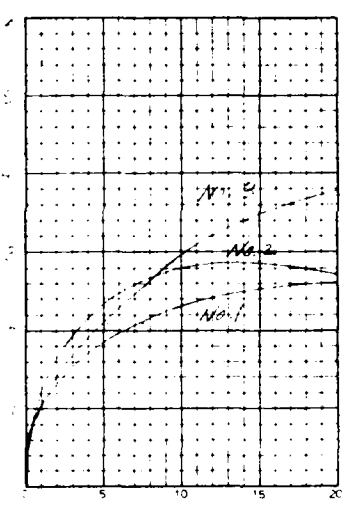
SPECIMEN NO		1	2	3
INITIAL	WATER CONTENT %	w_0 25.8	25.9	27.0
	DRY DENSITY LB/ CU FT	γ_d 1.21	1.22	1.23
	SATURATION %	s_0 32.0	32.9	33.7
	VOID RATIO	e_0 1.25	1.26	1.27
BEFORE SHEAR	WATER CONTENT %	w_c		
	DRY DENSITY LB/ CU FT	γ_d		
	SATURATION %	s_c		
	VOID RATIO	e_r		
FINAL BACK PRESSURE, T. SQ FT	u_0			
MINOR PRINCIPAL STRESS, T. SQ FT	σ_3	0.8	2.16	4.20
MAXIMUM DEVIATOR STRESS, T. SQ FT	$\sigma_1 - \sigma_3$ MAX	3.12	3.83	5.0*
TIME TO $\sigma_1 - \sigma_3$ MAX, MIN	t_f	4	14	15
ULTIMATE DEVIATOR STRESS, T. SQ FT	$\sigma_1 - \sigma_3$ ULT	3.41*	3.87*	-
INITIAL DIAMETER, IN.	d_0	1.42	1.41	1.41
INITIAL HEIGHT, IN.	h_0	3.15	3.10	3.10

DESCRIPTION OF SPECIMENS *fine sand, CH (CH)*

TEST NO. <i>100</i>	TYPE OF SPECIMEN <i>Pen-11-1</i>	TYPE OF TEST <i>C</i>
PROJECT <i>TAILRACE CHANNEL, Cooper River</i>	BORING NO. <i>ST-504</i>	
DEPTH-ELEV. <i>2.5</i>	SAMPLE NO. <i>CS #2</i>	
LABORATORY <i>NED</i>	DATE <i>January, 1976</i>	

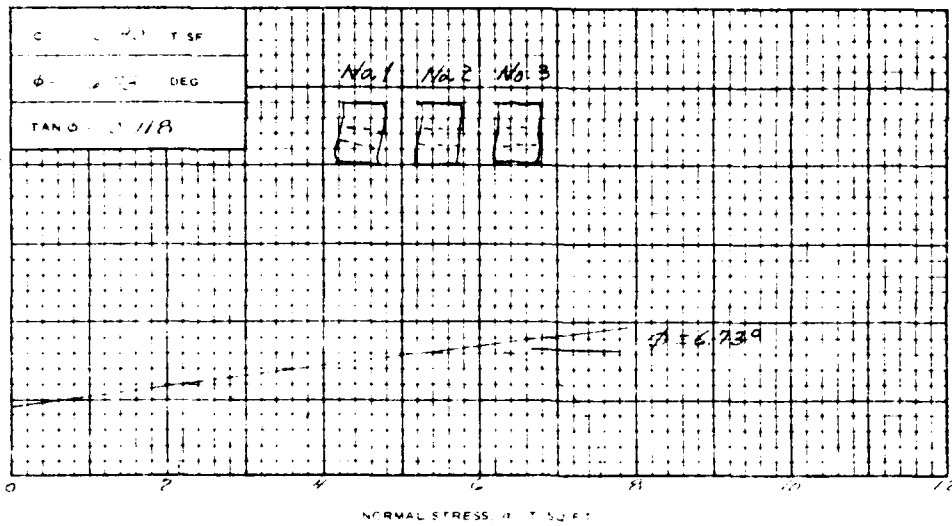
TRIAxIAL COMPRESSION TEST REPORT

T-230
T-226

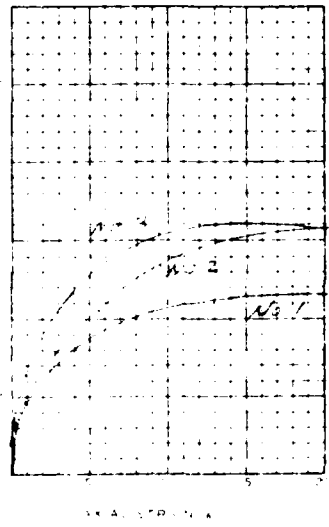
C = 2.74 T SF φ = 27.5 DEG TAN φ = 0.52	TEST NO. 102 																																																																										
SHEAR STRESS, τ , T SQ FT 	NORMAL STRESS, σ , T SQ FT																																																																										
DEVIATOR STRESS, $\sigma_1 - \sigma_3$, T SQ FT 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">SPECIMEN NO.</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td rowspan="4">INITIAL:</td> <td>WATER CONTENT %</td> <td>w_0</td> <td>27.1</td> <td>27.7</td> </tr> <tr> <td>DRY DENSITY LB CU FT</td> <td>ρ_d</td> <td>1.22</td> <td>1.21</td> </tr> <tr> <td>SATURATION %</td> <td>s_0</td> <td>100</td> <td>100</td> </tr> <tr> <td>VOID RATIO</td> <td>e_0</td> <td>1.02</td> <td>1.03</td> </tr> <tr> <td rowspan="4">BEFORE SHEAR:</td> <td>WATER CONTENT %</td> <td>w_c</td> <td></td> <td></td> </tr> <tr> <td>DRY DENSITY LB CU FT</td> <td>ρ_{dc}</td> <td></td> <td></td> </tr> <tr> <td>SATURATION %</td> <td>s_c</td> <td></td> <td></td> </tr> <tr> <td>VOID RATIO</td> <td>e_c</td> <td></td> <td></td> </tr> <tr> <td colspan="2">FINAL BULK PRESSURE T SQ FT</td> <td>u_0</td> <td></td> <td></td> </tr> <tr> <td colspan="2">MIN. PRINCIPAL STRESS T SQ FT</td> <td>σ_3</td> <td>1.02</td> <td></td> </tr> <tr> <td colspan="2">MAXIMUM DEVIATOR STRESS T SQ FT</td> <td>$\sigma_1 - \sigma_3$</td> <td>6.5</td> <td></td> </tr> <tr> <td colspan="2">TIME TO FAILURE MIN</td> <td>t_f</td> <td>15</td> <td></td> </tr> <tr> <td colspan="2">ULTIMATE DEVIATOR STRESS T SQ FT</td> <td>$\sigma_1 - \sigma_3$</td> <td></td> <td></td> </tr> <tr> <td colspan="2">INITIAL DIAMETER IN</td> <td>D_0</td> <td>1.42</td> <td>1.42</td> </tr> <tr> <td colspan="2">INITIAL HEIGHT IN</td> <td>H_0</td> <td>2.5</td> <td>2.5</td> </tr> </table>	SPECIMEN NO.		1	2	3	INITIAL:	WATER CONTENT %	w_0	27.1	27.7	DRY DENSITY LB CU FT	ρ_d	1.22	1.21	SATURATION %	s_0	100	100	VOID RATIO	e_0	1.02	1.03	BEFORE SHEAR:	WATER CONTENT %	w_c			DRY DENSITY LB CU FT	ρ_{dc}			SATURATION %	s_c			VOID RATIO	e_c			FINAL BULK PRESSURE T SQ FT		u_0			MIN. PRINCIPAL STRESS T SQ FT		σ_3	1.02		MAXIMUM DEVIATOR STRESS T SQ FT		$\sigma_1 - \sigma_3$	6.5		TIME TO FAILURE MIN		t_f	15		ULTIMATE DEVIATOR STRESS T SQ FT		$\sigma_1 - \sigma_3$			INITIAL DIAMETER IN		D_0	1.42	1.42	INITIAL HEIGHT IN		H_0	2.5	2.5
SPECIMEN NO.		1	2	3																																																																							
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INITIAL HEIGHT IN		H_0	2.5	2.5																																																																							
CONTROLLED: <i>strain</i> TEST																																																																											
PREPARATION OF SPECIMENS: <i>Hand 5.14 5.15 5.16</i>																																																																											
PL 27	PL 30	PL 31	PL 32	TYPE OF SPECIMEN: <i>CU-110</i>	TYPE OF TEST:																																																																						
REMARKS: <i>Specimens 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000</i>				PROJECT: <i>TRAILBLAZE HIGHWAY</i> LOCATION: <i>Redwood City, California</i> BORING NO.: <i>101</i> SAMPLE NO.: <i>101-1</i> DEPTH: <i>6.50</i> <i>0.5</i> ft LABORATORY: <i>NLU</i> DATE: <i>July 1962</i>																																																																							

T-231
T-227

SHEAR STRESS, T, SOE



VOLUME CHANGE, %



SPECIMEN NO.		1	2	3
INITIAL	WATER CONTENT %	27.4	27.8	27.5
	DRY DENSITY LB/CU FT	140	140	145
	SATURATION %	81.2	81.2	81.2
	VOID RATIO	1.24	1.24	1.24
FINAL	WATER CONTENT %			
	DRY DENSITY LB/CU FT			
	SATURATION %			
	VOID RATIO			
INITIAL MOISTURE PRESSURE (SOE)	1.42	1.42	1.42	
MINOR PRINCIPAL STRESS (SOE)	0.8	2.6	4.3	
MAXIMUM LATERAL STRESS (SOE)	2.2	7.2	3.7	
TIME TO FAILURE (MIN)	15	15	15	
ULTIMATE LATERAL STRESS (SOE)				
INITIAL TEMPERATURE	40	42	42	
INITIAL HUMIDITY	40	35	35	

Soil Name: *Train* TEST

Soil Description: *Fine sandy CLAY (cl)*

W	27	P	30	S	0.67	TYPE OF SPECIMEN	<i>Triaxial</i>	TYPE OF TEST	<i>R</i>
REMARKS	<i>Sample compacted @ approx. moisture content of 27% (same as 100% and dry density of 89 lb/cu ft. (95% maximum density))</i>					PROJECT	<i>TAILRACE CANAL, Cooper River</i>		
						REDIVERSION	<i>St. Stephen, S. Carolina</i>		
						BORING NO.	<i>F-11</i>	SAMPLE NO.	<i>CS #2</i>
						DEPTH	<i>0.6' - 6.0'</i>		
						LABORATORY	<i>NEU</i>	DATE	<i>December 1975</i>

TRIAXIAL COMPRESSION TEST REPORT

F-232
7-178

C 0.03 T SF O 17.1 DEG TANG 0.308	No. 1 No. 2 No. 3																																																																																			
SHEAR STRESS, T SQ FT																																																																																				
NORMAL STRESS, P, T SQ FT																																																																																				
SHEAR STRESS, T SQ FT																																																																																				
AXIAL STRAIN, %																																																																																				
	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2">SPECIMEN NO</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td rowspan="4">INITIAL</td> <td>WATER CONTENT</td> <td>w_o</td> <td>22.2</td> <td>21.6</td> <td>22.1</td> </tr> <tr> <td>DRY DENSITY LB CU FT</td> <td>ρ_d</td> <td>84.0</td> <td>84.0</td> <td>84.0</td> </tr> <tr> <td>SATURATION</td> <td>u_o</td> <td>0.0</td> <td>0.0</td> <td>0.0</td> </tr> <tr> <td>VOID RATIO</td> <td>e_o</td> <td>0.988</td> <td>0.988</td> <td>0.988</td> </tr> <tr> <td rowspan="4">BEFORE SHEAR</td> <td>WATER CONTENT</td> <td>w_c</td> <td>35.2</td> <td>32.0</td> <td>31.0</td> </tr> <tr> <td>DRY DENSITY LB CU FT</td> <td>ρ_d</td> <td>82.2</td> <td>82.0</td> <td>79.0</td> </tr> <tr> <td>SATURATION</td> <td>u_c</td> <td>100</td> <td>100</td> <td>100</td> </tr> <tr> <td>VOID RATIO</td> <td>e_c</td> <td>0.748</td> <td>0.748</td> <td>0.748</td> </tr> <tr> <td colspan="2">FINAL BACK PRESSURE T SQ FT</td> <td>p_o</td> <td>7.25</td> <td>7.25</td> <td>7.25</td> </tr> <tr> <td colspan="2">MIN. DRAIN. CELL STRESS T SQ FT</td> <td>σ_3</td> <td>1.05</td> <td>1.05</td> <td>1.05</td> </tr> <tr> <td colspan="2">MAXIMUM DEVIATOR STRESS T SQ FT</td> <td>$\sigma_1 - \sigma_3$</td> <td>0.93</td> <td>1.40</td> <td>3.05</td> </tr> <tr> <td colspan="2">FIN. STATE DEVIATOR STRESS T SQ FT</td> <td>$\sigma_1 - \sigma_3$</td> <td>0.74</td> <td>1.60</td> <td>0.83</td> </tr> <tr> <td colspan="2">INITIAL DIAMETER IN</td> <td>D_o</td> <td>1.42</td> <td>1.42</td> <td>1.42</td> </tr> <tr> <td colspan="2">INITIAL HEIGHT IN</td> <td>H_o</td> <td>3.5</td> <td>3.15</td> <td>3.15</td> </tr> </table>	SPECIMEN NO		1	2	3	INITIAL	WATER CONTENT	w_o	22.2	21.6	22.1	DRY DENSITY LB CU FT	ρ_d	84.0	84.0	84.0	SATURATION	u_o	0.0	0.0	0.0	VOID RATIO	e_o	0.988	0.988	0.988	BEFORE SHEAR	WATER CONTENT	w_c	35.2	32.0	31.0	DRY DENSITY LB CU FT	ρ_d	82.2	82.0	79.0	SATURATION	u_c	100	100	100	VOID RATIO	e_c	0.748	0.748	0.748	FINAL BACK PRESSURE T SQ FT		p_o	7.25	7.25	7.25	MIN. DRAIN. CELL STRESS T SQ FT		σ_3	1.05	1.05	1.05	MAXIMUM DEVIATOR STRESS T SQ FT		$\sigma_1 - \sigma_3$	0.93	1.40	3.05	FIN. STATE DEVIATOR STRESS T SQ FT		$\sigma_1 - \sigma_3$	0.74	1.60	0.83	INITIAL DIAMETER IN		D_o	1.42	1.42	1.42	INITIAL HEIGHT IN		H_o	3.5	3.15	3.15
SPECIMEN NO		1	2	3																																																																																
INITIAL	WATER CONTENT	w_o	22.2	21.6	22.1																																																																															
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CONTROLLED <i>strain</i> TEST																																																																																				
DESCRIPTION OF SPECIMENS <i>Fine sandy CLAY (CH)</i>																																																																																				
No. 57	Pl. 27	P. 30	LG. 2.69	TYPE OF SPECIMEN <i>Remolded</i>	TYPE OF TEST <i>1</i>																																																																															
REMARKS <i>* Stress @ 15% axial strain</i> <i>Samples remolded @ approx. moisture content of 27.8% (0.15 + 2%) and dry density of 84.0 lb. (15% maximum density.)</i> <i>See Sheet 2 of 2</i>				PROJECT <i>THILPAC CANAL</i> <i>Reversion, St. Stephens, S. C.</i> BORING NO. <i>T-11 & T-17</i> <i>(Combined)</i>																																																																																
LABORATORY <i>NED</i>				DATE <i>Jan 1968</i>																																																																																
TRIAXIAL COMPRESSION TEST REPORT																																																																																				

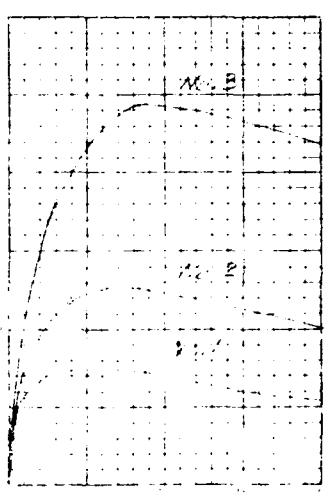
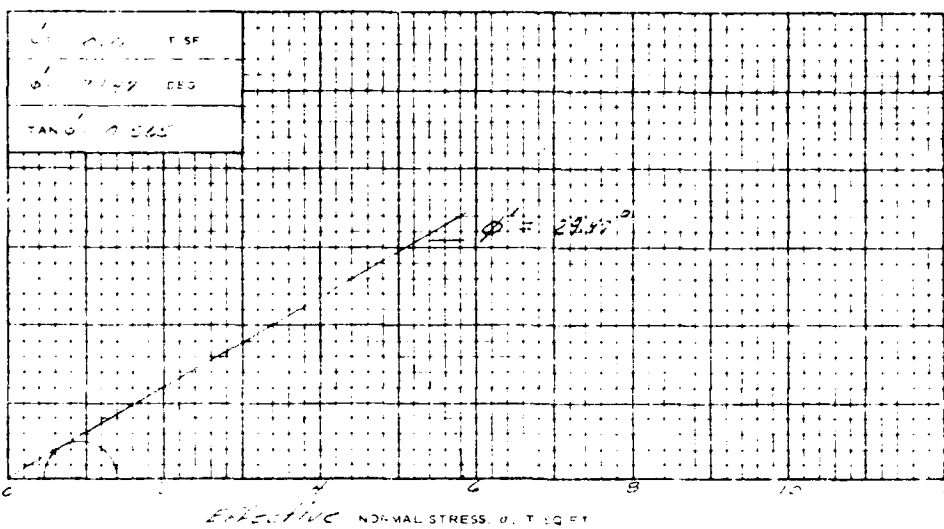
ENR FORM NO. 2089
REV. JUNE 1970

PREVIOUS EDITION OBSOLETE

TRANSLUCENT

(EM 1110-2-106)

T-233



SPECIMEN NO.		1	2	5
INITIAL	WATER CONTENT, %	45	45	45
	DRY DENSITY, LB. CU. FT.	9.5	9.5	9.5
	SATURATION			
	VOID RATIO			
OFF-PILE SHEAR	WATER CONTENT, %			
	DRY DENSITY, LB. CU. FT.			
	SATURATION			
	VOID RATIO			
MIN. PILE TIP STRESS, LB. SQ. FT.		44		
MAX. PILE TIP STRESS, LB. SQ. FT.				
MAX. PILE TIP PRESSURE, T. SQ. FT.				
MAX. PILE TIP STRESS, LB. SQ. FT.				
MAX. PILE TIP PRESSURE, T. SQ. FT.				
MAX. PILE TIP STRESS, LB. SQ. FT.				
MAX. PILE TIP PRESSURE, T. SQ. FT.				
MAX. PILE TIP STRESS, LB. SQ. FT.				
MAX. PILE TIP PRESSURE, T. SQ. FT.				

REMARKS: *... early (LA) (1)*

57 87 2.47

REMARKS: *... THILPA 3 CHAN, Cooper River, Robinson, Stephens, 5 Cond. ...*

DATE: *12/17/45* SAMPLE NO: *2270*

ANALYST: *EDD* DATE: *December 1945*

TR AXIAL COMPRESSION TEST REPORT

T-234
T-230

	T. SF.				
DEV.	DEV.	DEV.	DEV.	DEV.	DEV.
TAN δ	0.04	VAL. 1	VAL. 2	VAL. 3	VAL. 4

SPECIMEN NO.			
INITIAL	WATER CONTENT	w_0	21.15
	DRY DENSITY	d_s	8.7
	SATURATION	S_0	0.77
	VOID RATIO	e_0	0.77
BEFORE SHEAR	WATER CONTENT	w_c	30.4
	DRY DENSITY	d_s	8.48
	SATURATION	S_c	0.70
	VOID RATIO	e_c	1.00
FINAL BACK PRESSURE (T. SOFT)		u_0	0.20
VOID RATIO AT MAXIMUM DEVIATOR STRESS (T. SOFT)		e_1	0.8
MAXIMUM DEVIATOR STRESS (T. SOFT)		$\sigma_1 - \sigma_3$	1.2
TIME TO FAILURE (MIN)		t_f	20
TIME TO FAILURE (HOURS)			
INITIAL DIAMETER (IN)		d_0	1.42
INITIAL HEIGHT (IN)		h_0	2.75

NET LOAD (T. SOFT)	TEST	NET HEIGHT (IN)	h_0	2.75
LOCATION OF SPECIMENS				
DATE OF SPECIMENS				

REMARKS: *Specimens were prepared in accordance with ASTM D 1585-67. The specimens were tested in a triaxial compression test. The test results are as follows:*

PROJECT: *TALLICE DAM*

REPORT NO.: *TR-235*

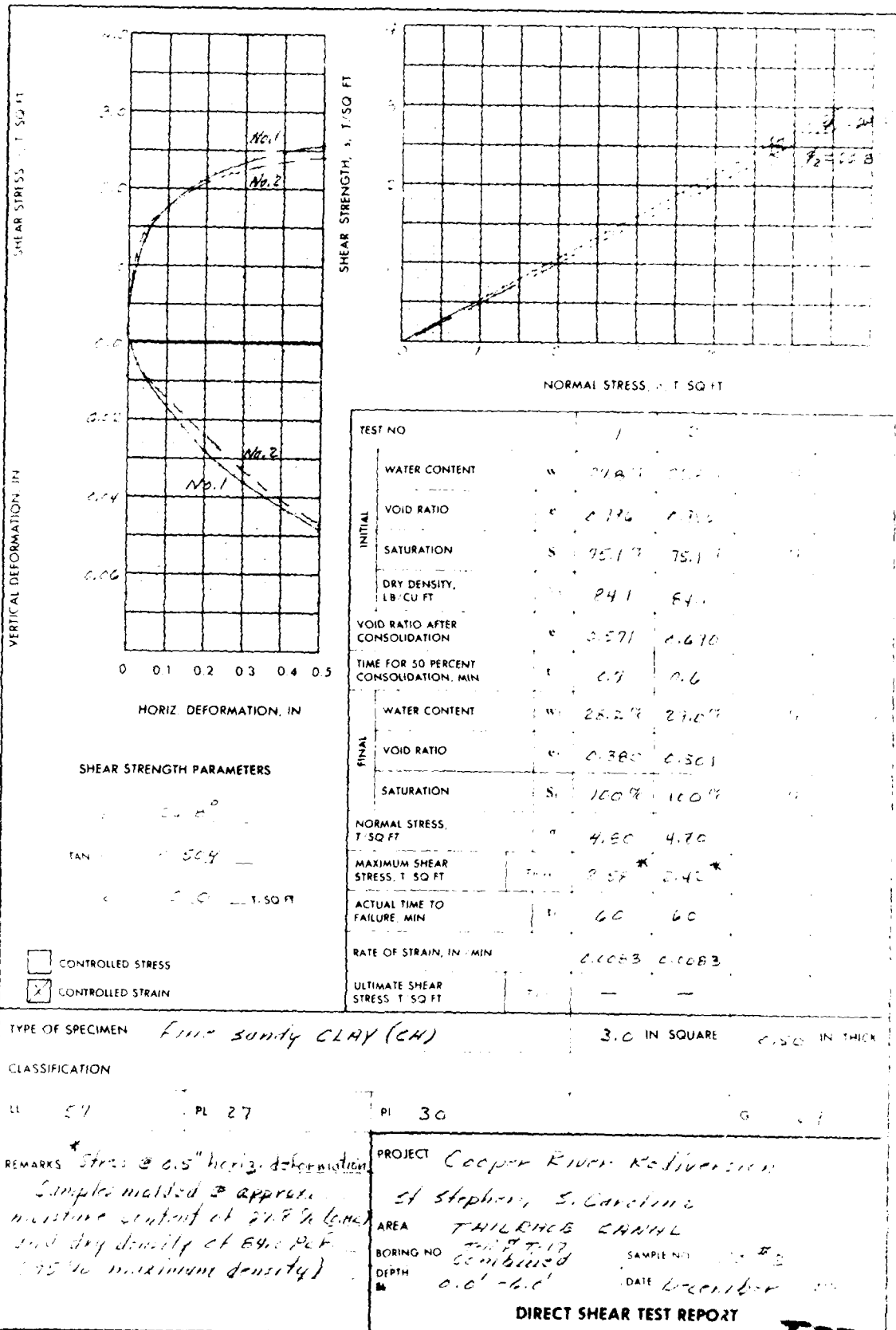
DATE: *10/1/66*

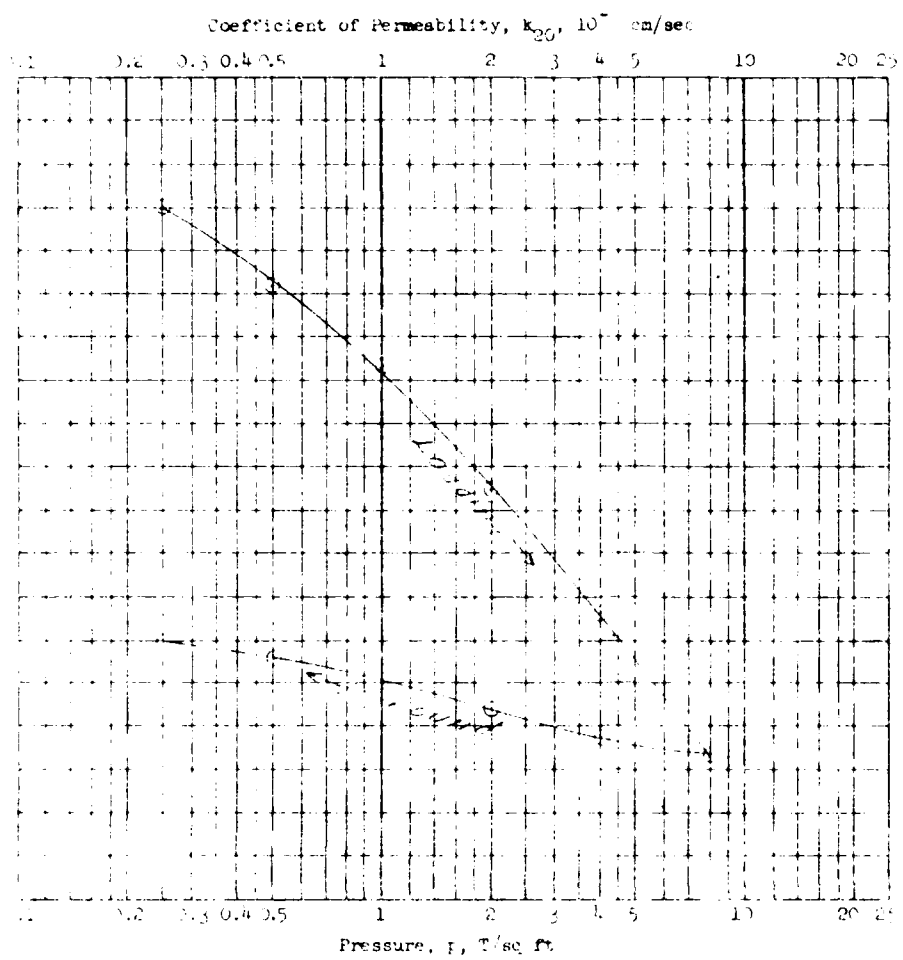
BY: *W. J. ...*

APPROVED BY: *W. J. ...*

TRIAxIAL COMPRESSION TEST REPORT

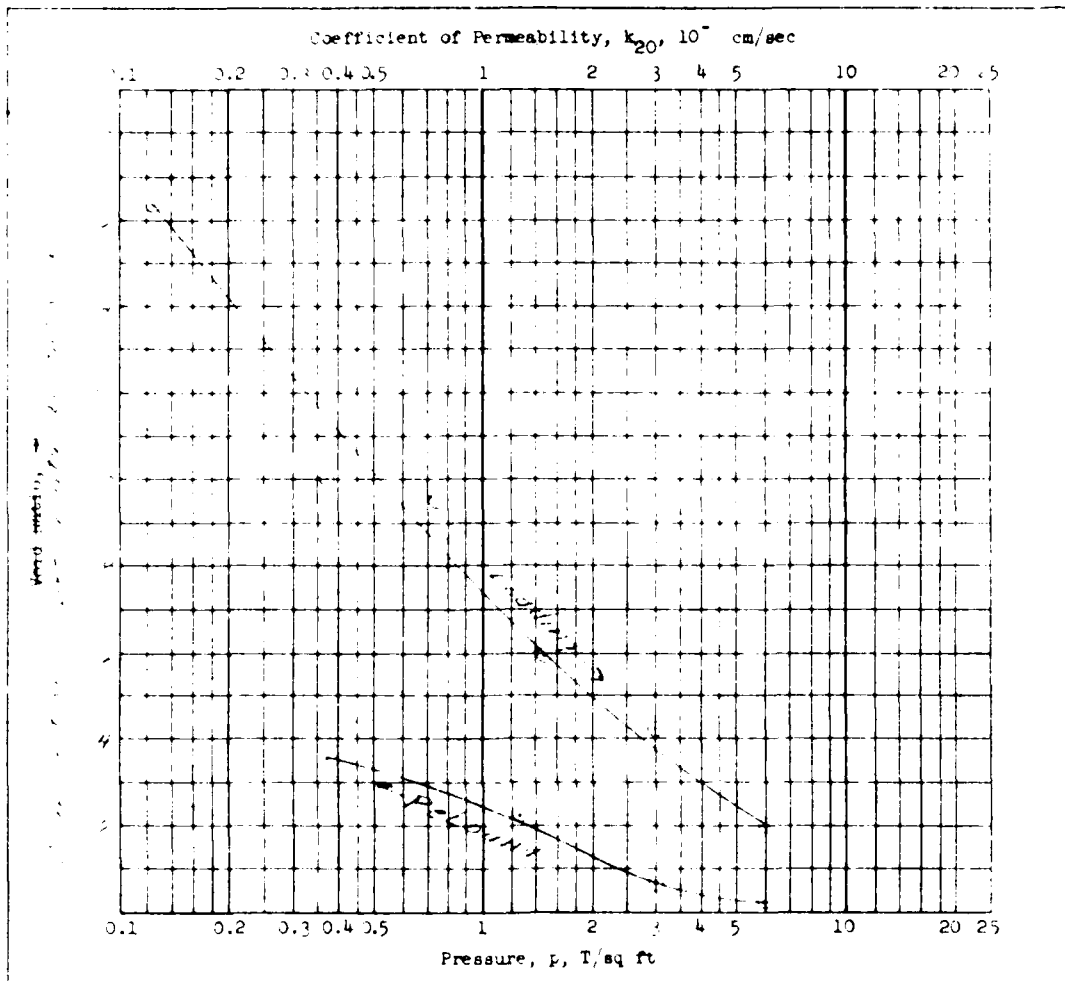
T-235



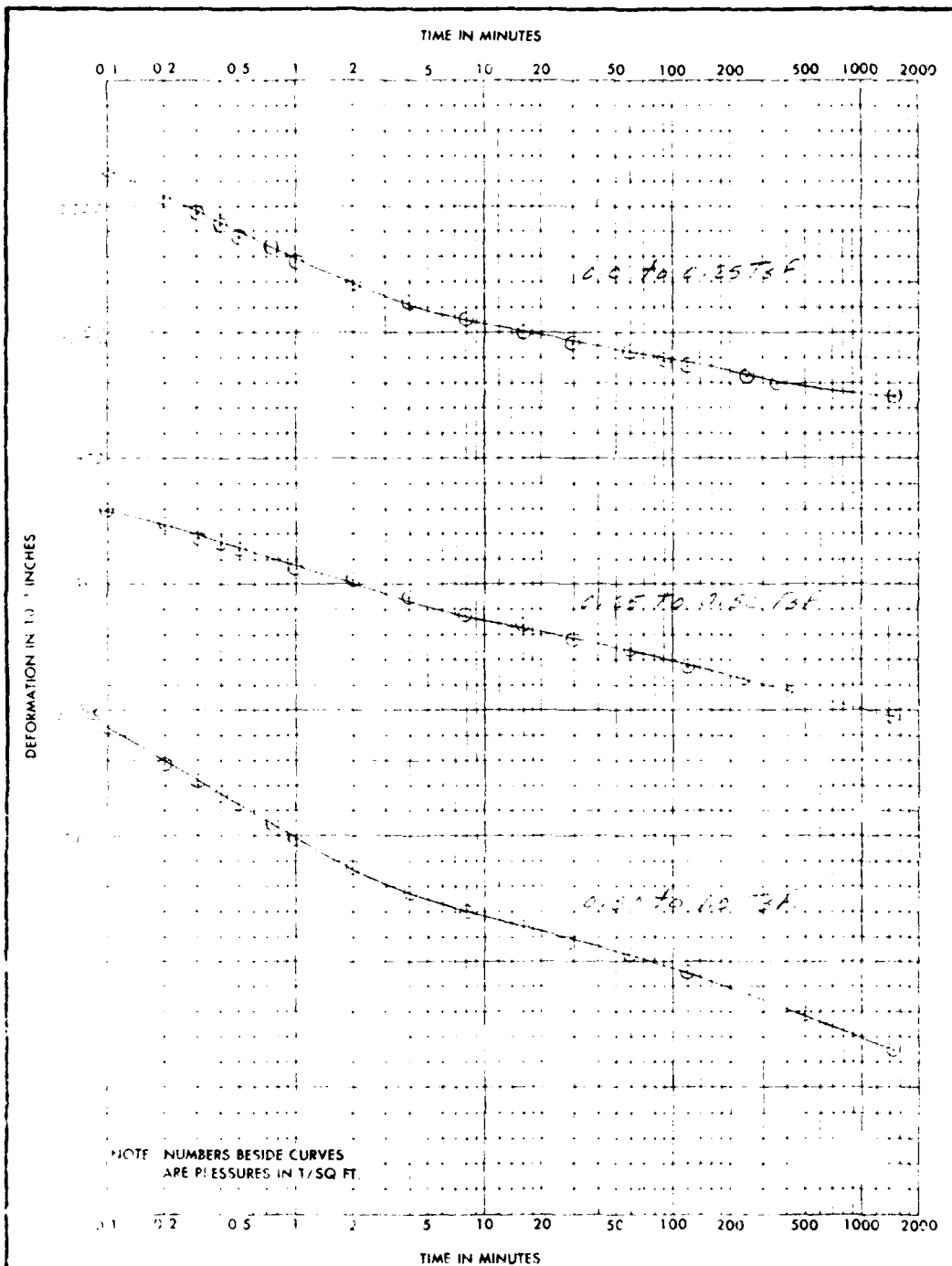


		Before Test		After Test	
Water Content, w_0	23.8 %	w_f	20.0 %		
Void Ratio, e_0	0.771	e_f	0.727		
Saturation, S_0	85.0 %	S_f	100 %		
Fry Density, γ_f	127.1 lb/ft ³				
k_v at e_0	$\times 10^{-7}$ cm/sec				
Project	[Handwritten Project Name]				
Area	[Handwritten Area]				
Boring No.	[Handwritten Boring No.]	Sample No.	[Handwritten Sample No.]		
Depth	[Handwritten Depth]	Date	[Handwritten Date]		

CONSOLIDATION TEST REPORT



Type of Specimen		Before Test		After Test	
Diam <i>1.25</i> in.	Ht <i>1.00</i> in.	Water Content, w_o	<i>27.8</i> %	w_f	<i>20</i> %
Overburden Pressure, p_o	T/sq ft	Void Ratio, e_o	<i>0.74</i>	e_f	<i>0.70</i>
Preconsol. Pressure, p_c	T/sq ft	Saturation, S_o	<i>100</i> %	S_f	<i>100</i> %
Compression Index, C_c	<i>0.26</i>	Dry Density, γ_d	<i>84.7</i> lb/ft ³		
Classification	<i>CL-ML (CH)</i>	k_{20} at $e_o =$	$\times 10^{-7}$ cm/sec		
LL <i>57</i>	G_s <i>2.67</i>	Project <i>Cooper River, Redwood</i>			
PL <i>27</i>	D_r	<i>57 517 100 2-11-10</i>			
Remarks <i>Comp. cell 1000 lb</i>		Area <i>3.1416 sq ft</i>			
<i>Soil 517 100 2-11-10</i>		Boring No. <i>FH 17-17</i>	Sample No. <i>100</i>		
<i>Soil 517 100 2-11-10</i>		Depth <i>100</i>	Date <i>2-11-10</i>		
<i>Soil 517 100 2-11-10</i>		CONSOLIDATION TEST REPORT			

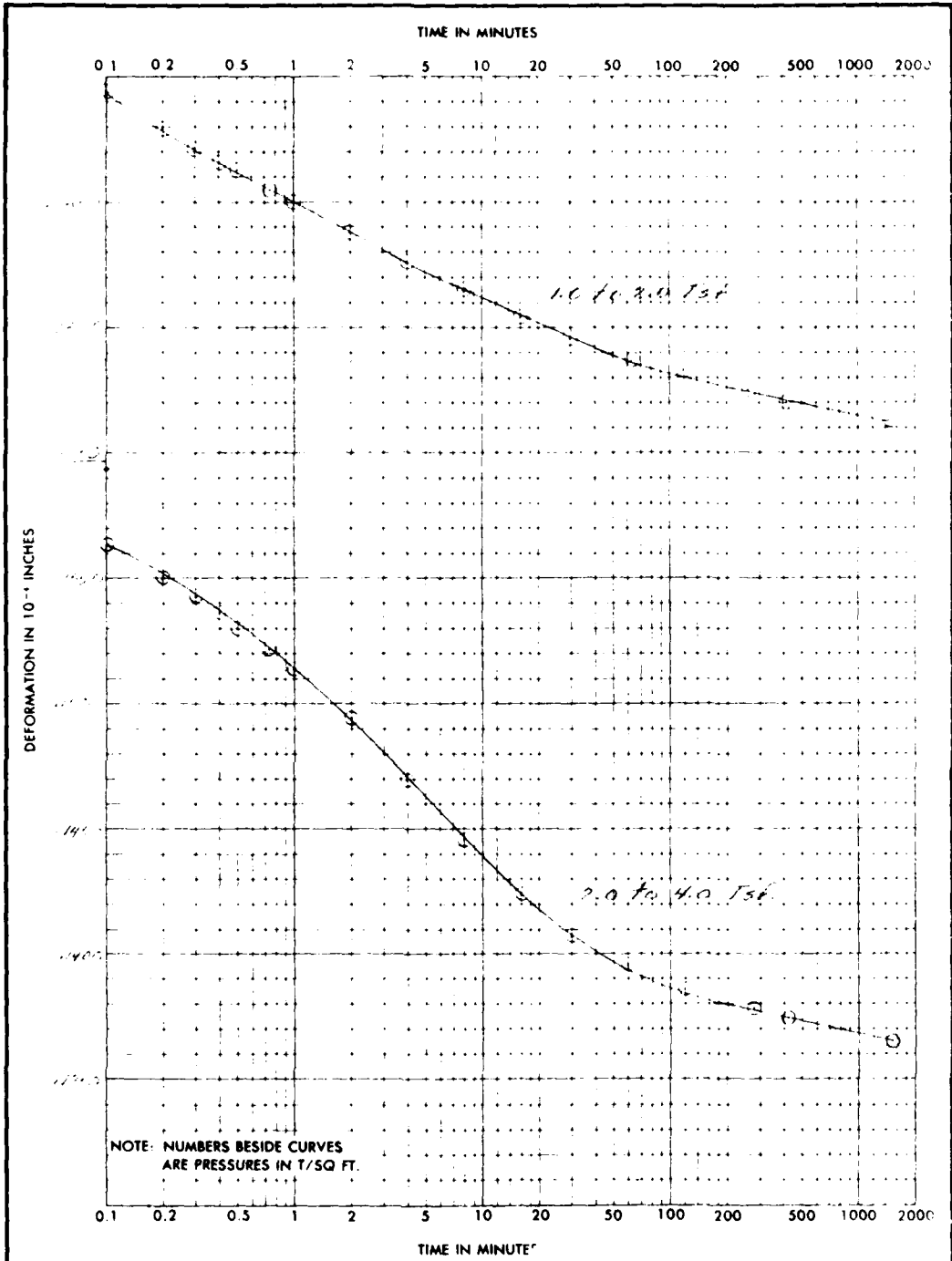


PROJECT: *San Joaquin Hills, California*
 AREA: *San Joaquin Hills*
 BORING NO: *CS-17* SAMPLE NO: *CS-2*** DEPTH: *0.0' to 1.0'* DATE: *January 1970*
 ENG FORM 2088 PREVIOUS EDITIONS ARE OBSOLETE **CONSOLIDATION TEST—TIME CURVES** (TRANSLUCENT)
 MAY 63

** *San Joaquin Hills*
 $w_L = 74\%$ (A.M.C. + 2%)
 $\rho_s = 2.65 \text{ g/cm}^3$ (75% density)

sheet 3 of 6

T-290
 T-236



PROJECT *Cooper River Reimersion, St. Stephen, S. Carolina*

AREA *TRILLACT CANAL*

BORING NO *T-11 S T-17* SAMPLE NO *CS #2* ** DEPTH *0.0' - 6.0'* DATE *January 1972*

ENG FORM 2088 PREVIOUS EDITIONS ARE OBSOLETE **CONSOLIDATION TEST—TIME CURVES** (TRANSLUCENT)

1 MAY 63

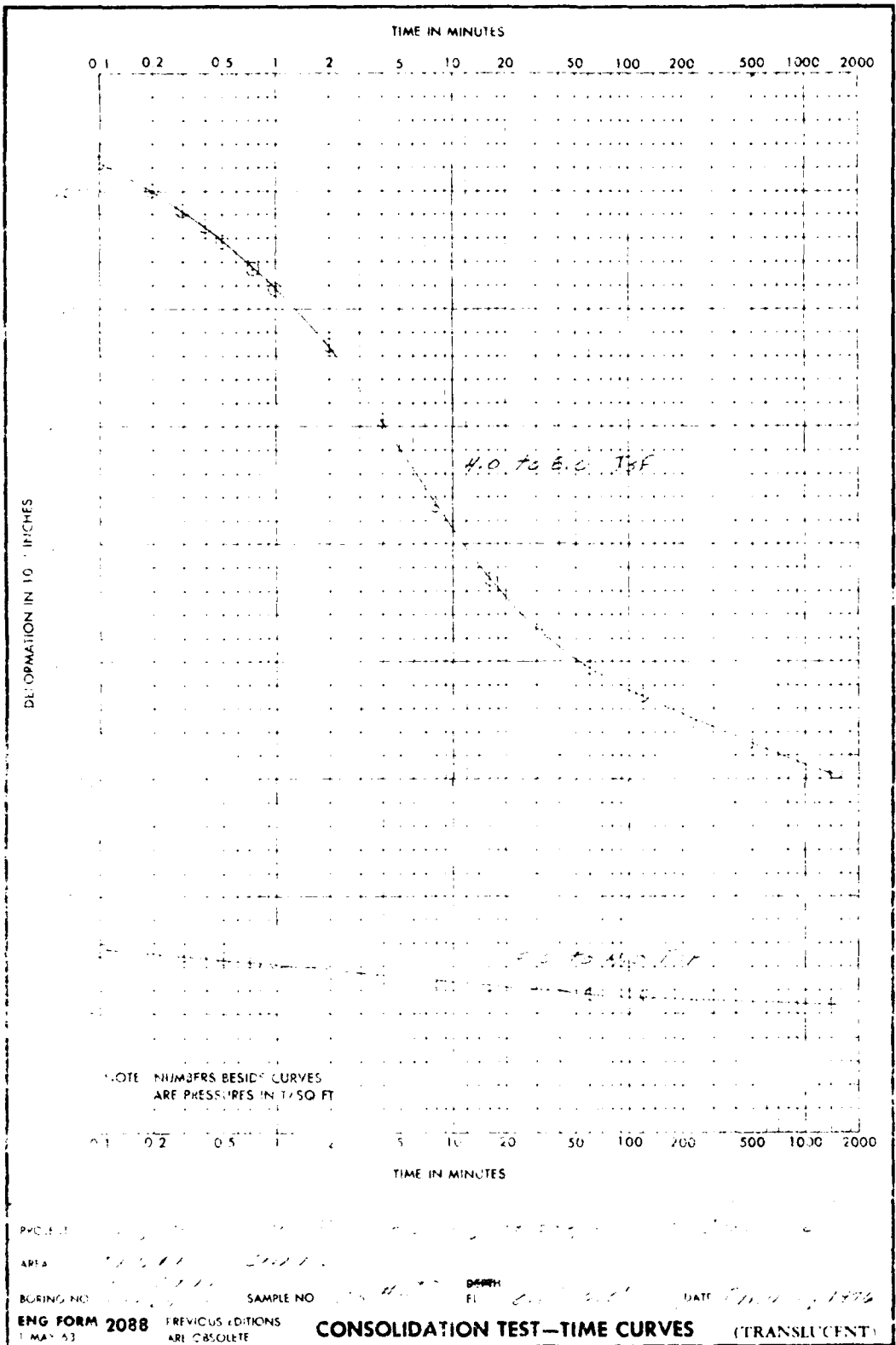
** *Revised*

w_s = 27.8% (0.110.1290)

v₀ = 84.0 HF (95% density)

Sheet 4 of 6

T-29
T-28



PROJECT: *...*

AREA: *...*

BORING NO: *...* SAMPLE NO: *...* DEPTH: *...* DATE: *...*

ENG FORM 2088 PREVIOUS EDITIONS ARE OBSOLETE

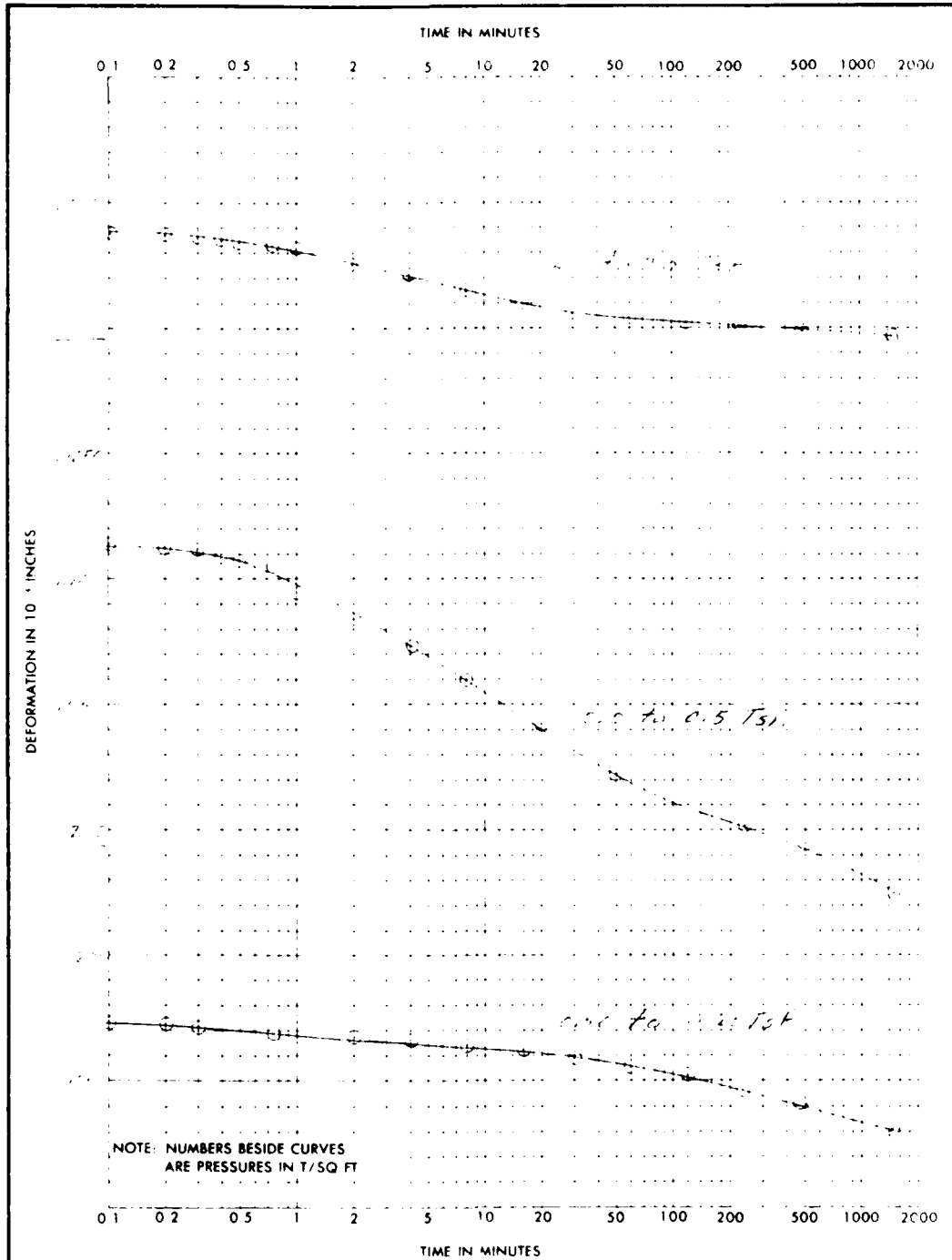
CONSOLIDATION TEST—TIME CURVES (TRANSLUCENT)

... 274 (100% density)

... 241 (95% density)

... sheet 5 of 5

T-242
T-238



PROJECT *Cooper River Extension, 2nd Street to 1st Street*

AREA *1st Street Channel*

BORING NO. *T-119-111* SAMPLE NO. *2080 *** DEPTH *6'* DATE *July 1963*

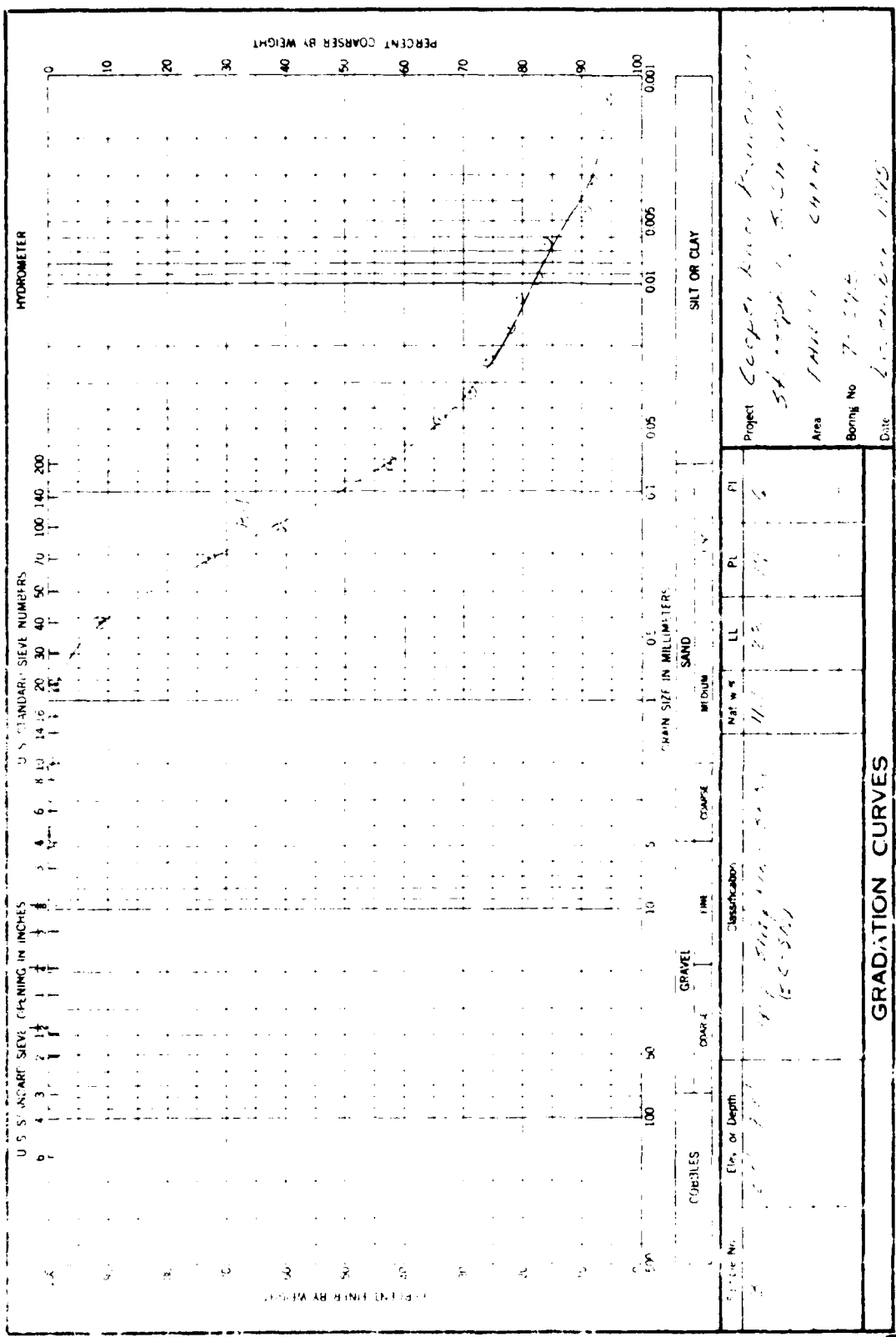
ENG FORM 2088 PREVIOUS EDITIONS ARE OBSOLETE

CONSOLIDATION TEST—TIME CURVES (TRANSLUCENT)

*** Rechecked
 1/2 = 2280 (1000-1200)
 1/3 = 2400 (1200-1600)*

Sheet 6 of 6

T-243



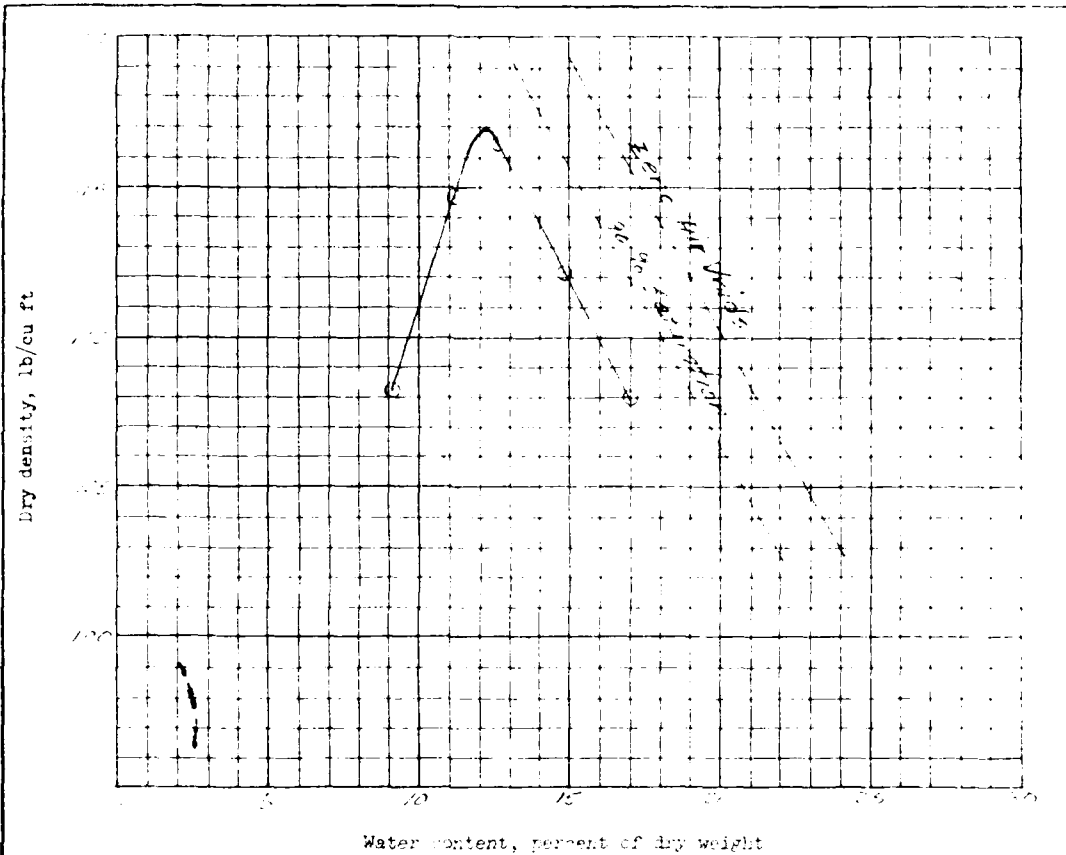
GRADATION CURVES

Project: *Cooper River Bridge*
 Station: *5+00 to 5+50*
 Area: *1 Mile*
 Boring No: *7-244*
 Date: *December 1975*

ENG. 2087

T-244

1-240



Standard Proctor compaction test
 25 blows per each of 3 layers, with 5.5 lb rammer and
 1/2 inch drop. 4 inch diameter mold

Sample No.	Elev or Depth	Classification	G	LL	PL	% > No. 4	% < 5/4 in.
10	10'	clayey silty fine sand (SCSM)	100	25	17	10	3

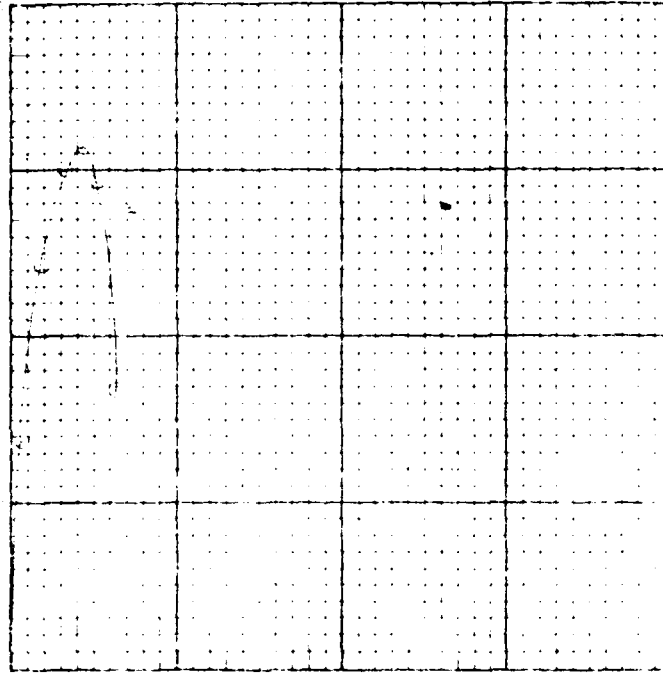
Sample No.	W	L	P
	12.2	118	100

Remarks: _____
 Project: _____
 Area: THIRLAGE HALL
 Boring No.: _____ Date: 2/11/55

COMPACTION TEST REPORT

Failure Sketches

Compressive Stress, T/eq ft



- Controlled stress
- Controlled strain

Axial Strain, %

Test No.							
Type of specimen							
Material							
Condition							
Length, in./ft							
Initial diameter, in.							
Initial compressive strength, psi							
Ultimate compressive strength, psi							
Modulus of elasticity, psi							
Initial specimen diameter, in.							
Initial specimen weight, lb.							
Label/Remarks							
Specimen	Pl.	II					
Grade							
Bridge							
Span							
Embedment No.							
Depth							
Sample No.							
Date							

UNREFINED COMPRESSION TEST REPORT

APR 1955

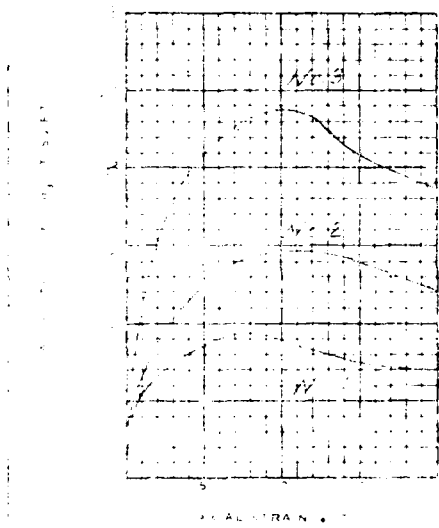
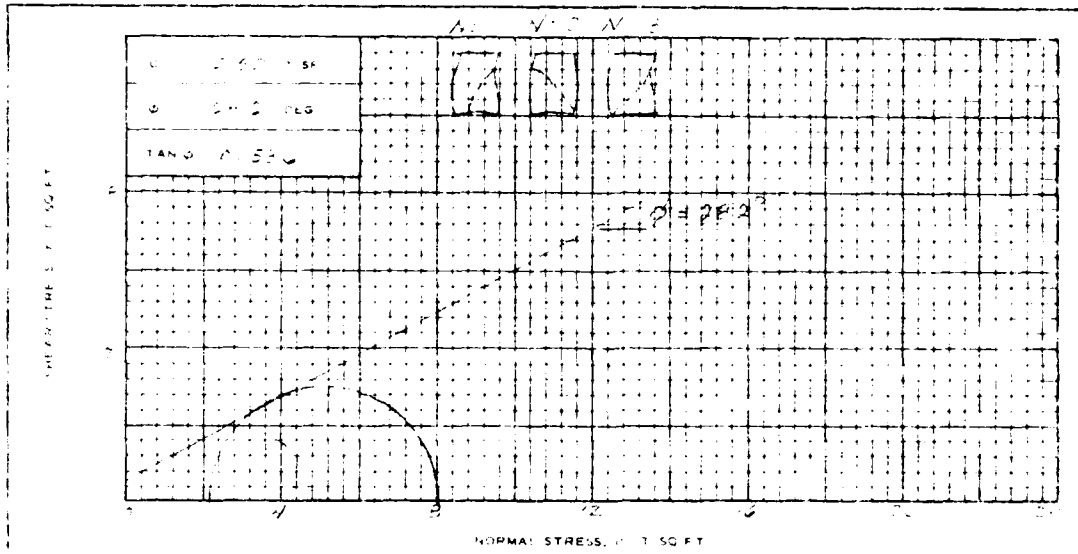
PLATE 7

T-246T 42

SHEAR STRESS, τ , T SQ FT 0 4 8 12 16	
DEVIATOR STRESS, $\sigma_1 - \sigma_3$, T SQ FT 0 5 10 15 20	
NORMAL STRESS, σ , T SQ FT 0 4 8 12 16	
SPECIMEN NO. 2 3	
WATER CONTENT, % w_o 13.1 13.1 13.1	
DRY DENSITY, LB/ CU FT γ_d 111.7 112.1 112.2	
SATURATION, % s_o 64.6 65.1 64.7	
VOID RATIO e_o 0.273 0.277 0.276	
WATER CONTENT, % w_c	
DRY DENSITY, LB/ CU FT γ_{dc}	
SATURATION, % s_c	
VOID RATIO e_c	
FINAL BACK PRESSURE, T SQ FT u_o	
MINOR PRINCIPAL STRESS, T SQ FT σ_3 3.8 3.16 4.92	
MAXIMUM DEVIATOR STRESS, T SQ FT $\sigma_1 - \sigma_3$ MAX 11.23 11.55 11.25	
TIME TO $10^{-1} \sigma_3$ MAX - MIN t_f 6 15 14	
ULTIMATE DEVIATOR STRESS, T SQ FT $10^{-1} \sigma_3$ ULT 2.87* 3.52* 10.93	
INITIAL DIAMETER, IN D_o 1.42 1.42 1.42	
INITIAL HEIGHT, IN H_o 3.15 3.15 3.15	
CONTROLLED: STRAIN TEST	
DESCRIPTION OF SPECIMENS clayey silty fine SAND (SC-11)	
LL 25 PL 17 PI 6 GI 2.61	TYPE OF SPECIMEN Remolded TYPE OF TEST σ_c
REMARKS * Strain @ 15% axial strain samples used on 2 approx. 1/2 size samples of 1.42 in diam and dry density of 111.2 pcf (95% max density)	
PROJECT TAILLAGE CANAL, SCHEFFEL KODIVISION, ST. STEPHEN, S. CAROLINA	
BORING NO T-27	SAMPLE NO B-1
DEPTH BELOW 0.0 - 1.0'	
LABORATORY NED	DATE December 1953

T-247

T-247



SPECIMEN NO.		1	2
INITIAL	WATER CONTENT, %	20.5	21.5
	DRY DENSITY, LB. / CU. FT.	115	115
	SATURATION, %	70	70
BEFORE SHEAR	WATER CONTENT, %	20.5	21.5
	DRY DENSITY, LB. / CU. FT.	115	115
	SATURATION, %	70	70
FINAL BACK PRESSURE, LB. / SQ. FT.		0	0
MINOR PRINCIPAL STRESS, LB. / SQ. FT.		0	0
MAXIMUM DEVIATOR STRESS, LB. / SQ. FT.		10.4	10.4
TIME TO FAILURE, MIN.		11	11
THIATE DEVIATOR STRESS, LB. / SQ. FT.		10.4	10.4
DIAMETER, IN.		0.5	0.5
INITIAL HEIGHT, IN.		0.5	0.5

TEST TYPE: *Triaxial*

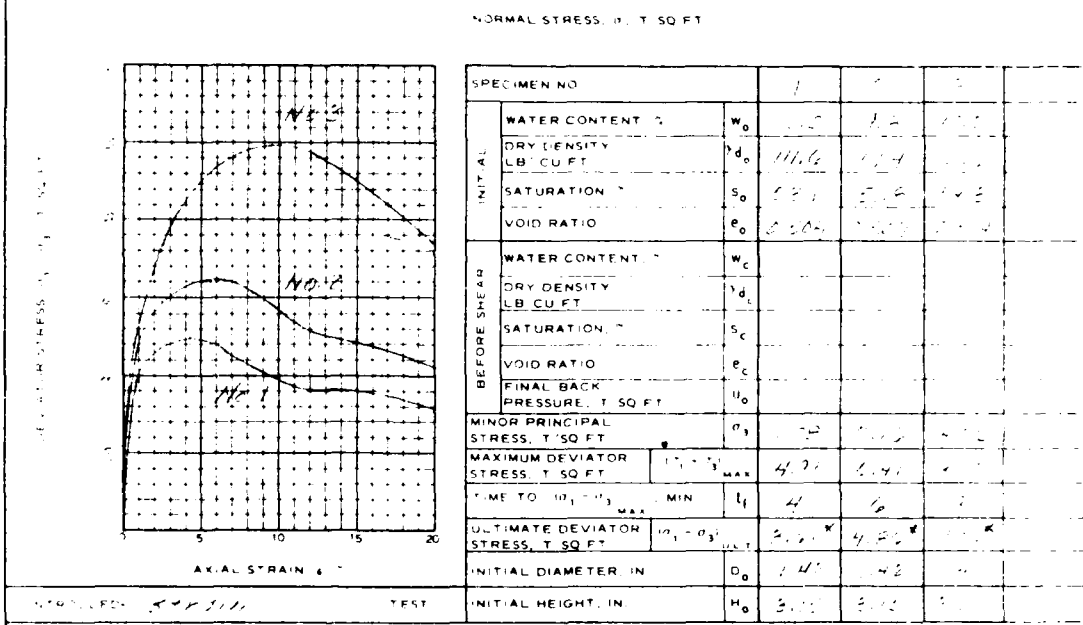
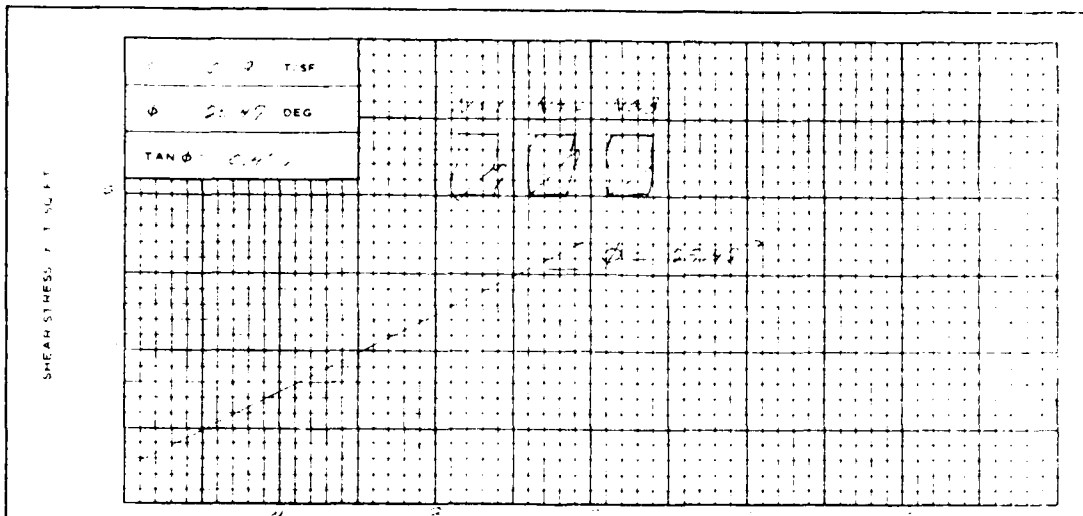
LOCATION OF SPECIMEN: *Clayey fine sand*

PROJECT: <i>TULLAHOE DAM - 6000' PILE</i>	TYPE OF SPECIMEN: <i>Triaxial</i>	TYPE OF TEST: <i>2</i>
BORING NO.: <i>7-27</i>	SAMPLE NO.: <i>12-1</i>	
DEPTH: <i>2.90'</i>	LABORATORY: <i>NED</i>	DATE: <i>10-11-54</i>

TRIAXIAL COMPRESSION TEST REPORT

END FORM NO. 7035 (REV. 1-1954) REF. 30-10-1 IN SUBV. LETE TRANSLUCENT (EM 1110-2-1305)

T-248
-44



TESTED BY: *SPS/111* TEST

TYPE OF SPECIMEN: *Remolded* TYPE OF TEST: *C*

REMARKS: *Specimen 2 15% initial strain. Sample No. 1, 2 & 3 applied moisture content of 10.2%. 2.5" diam, 2.5" and 1.75" height of 10.2% (1.75" diameter) density.*

PROJECT: *THILLAGE SHANK, LOCKPORT, PENNSYLVANIA, ST. JOHNSVILLE, OHIO*

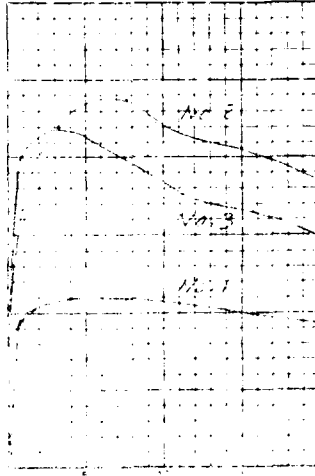
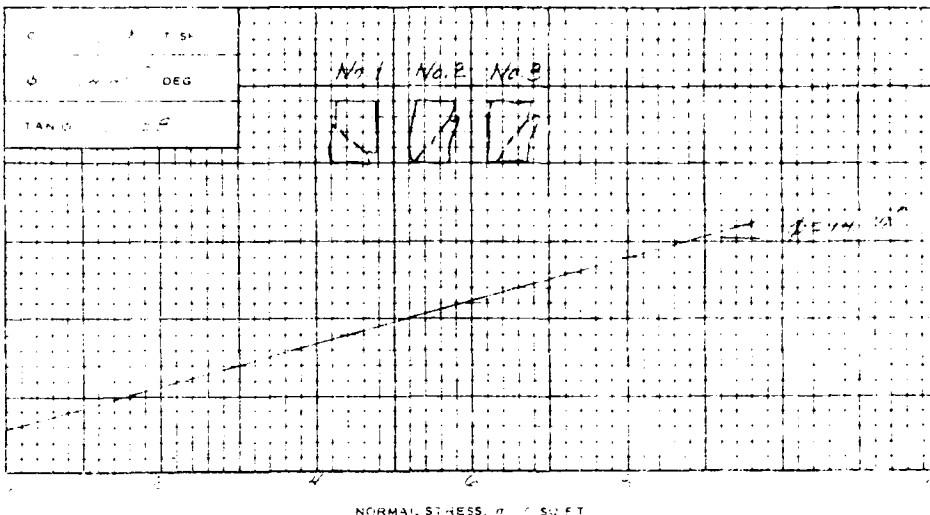
BORING NO: *T-27* SAMPLE NO: *3-1*

DEPTH: *6.0'-9.0'*

LABORATORY: *NED* DATE: *6-1-61*

TRIAXIAL COMPRESSION TEST REPORT

T-249



SPECIMEN NO.		1	2	3
INITIAL	WATER CONTENT, %	24.5	25.5	27.5
	DRY DENSITY, LB/CF	115	118	120
	SATURATION, %	95	95	95
	VOID RATIO	1.5	1.4	1.3
DETERMINED	WATER CONTENT, %	24.5	25.5	27.5
	DRY DENSITY, LB/CF	115	118	120
	SATURATION, %	95	95	95
	VOID RATIO	1.5	1.4	1.3
FINAL BANK PRESSURE, T.S.F.		100	100	100
MINIMUM PRESSURE, T.S.F.		10	10	10
MAXIMUM DEVIATION, T.S.F.		200	200	200
STRESS RATE, T.S.F./MIN		30	30	30
TIME TO FAILURE, MIN		30	30	30
MAXIMUM DEVIATION, T.S.F.		200	200	200
VOID RATIO AT FAILURE		1.5	1.4	1.3
INITIAL VOID RATIO		1.5	1.4	1.3

REMARKS: *Specimens were prepared in the laboratory and tested in the field. The test results are as shown on the attached graphs and tables.*

TYPE OF TEST: *Triaxial Compression*

DATE: *December 1, 1952*

LABORATORY: *U.S. Army Corps of Engineers*

PROJECT: *...*

LOCATION: *...*

DEPTH: *...*

TEST NO.: *...*

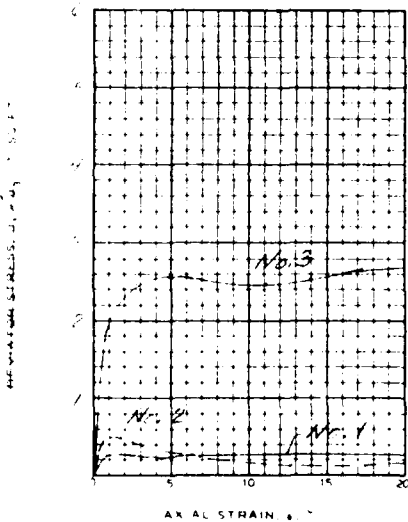
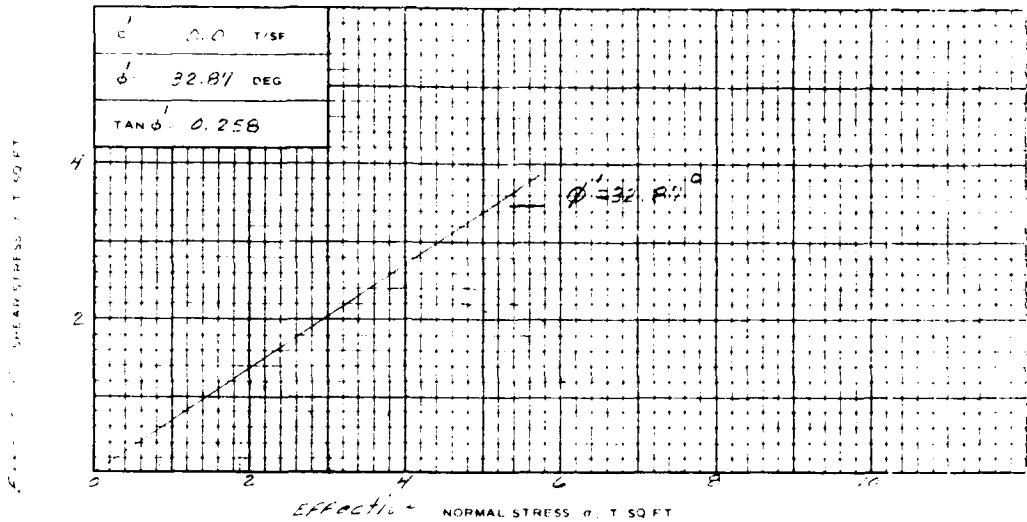
SAMPLE NO.: *...*

TESTER: *...*

APPROVED: *...*

TRIAXIAL COMPRESSION TEST REPORT

T-250
T-246



SPECIMEN NO.		1	2	3
INITIAL	WATER CONTENT, %	7	12.0	13
	DRY DENSITY, LB/ CU FT	111.6	112.8	111.6
	SATURATION, %			
	VOID RATIO			
BEFORE SHEAR	WATER CONTENT, %			
	DRY DENSITY, LB/ CU FT			
	SATURATION, %			
	VOID RATIO			
	FINAL BACK PRESSURE, T SQ FT			
	MINOR PRINCIPAL STRESS, T SQ FT	0.84	1.76	1.81
	MAXIMUM DEVIATOR STRESS, T SQ FT			
	TIME TO $\sigma_3 = \sigma_1$, MIN			
	ULTIMATE DEVIATOR STRESS, T SQ FT			
	MINOR PRINCIPAL STRESS, INITIAL DIAMETER, IN	3.04	6.71	6.25
	INITIAL HEIGHT, IN	40.24	40.20	40.22

TEST: clay (silty fine SAND (SC-SM))

TYPE OF SPECIMEN: Remolded TYPE OF TEST: 1

PROJECT: THILRHCE CANAL, Cooper River

LOCATION: Reiversick, St. Stephens, S. Carolina

BORING NO: T-27 SAMPLE NO: B-1

DEPTH: 0.0' - 7.0'

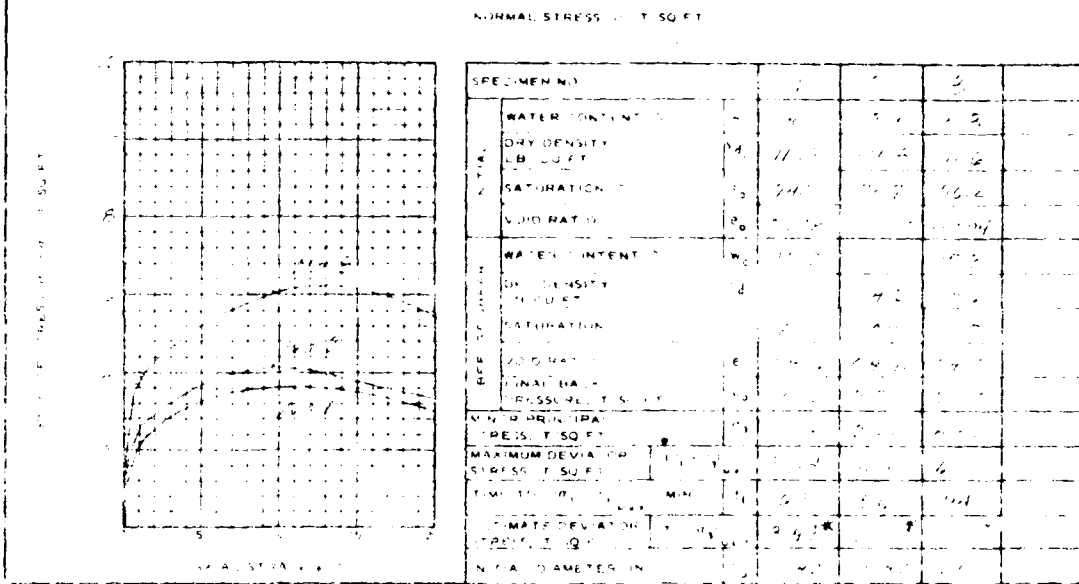
LABORATORY: NEU DATE: December 1975

REMARKS: Sample molded & approx. moisture content of 12.2% (c.n.m.) and dry unit weight of 112.8 p.c. (95% min. density)

TRIAXIAL COMPRESSION TEST REPORT

T-251
T-257

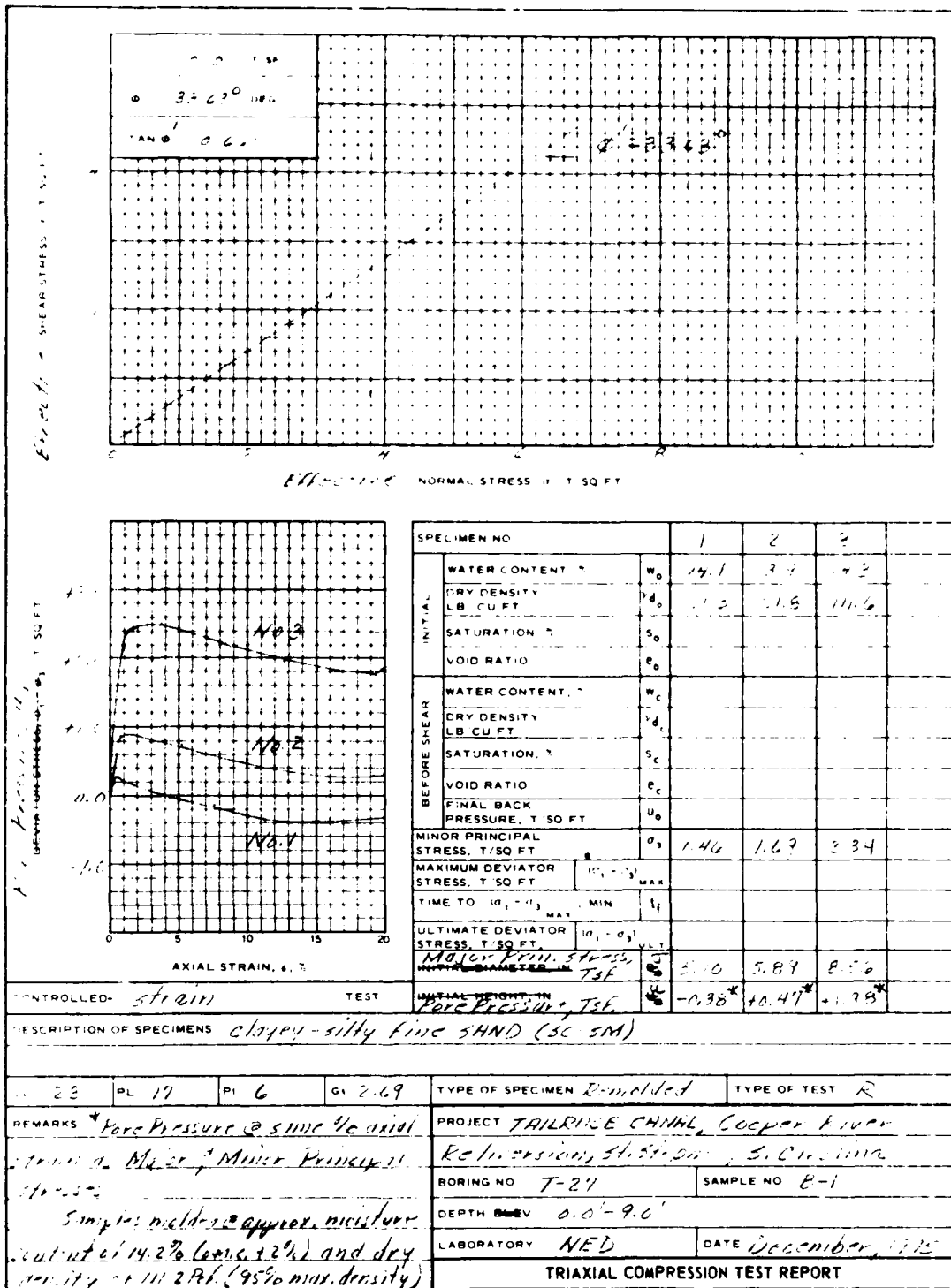
PROJECT NO.		DATE		TEST NO.		LABORATORY	
SPECIAL INSTRUCTIONS		SPECIAL INSTRUCTIONS		SPECIAL INSTRUCTIONS		SPECIAL INSTRUCTIONS	
SPECIAL INSTRUCTIONS		SPECIAL INSTRUCTIONS		SPECIAL INSTRUCTIONS		SPECIAL INSTRUCTIONS	
SPECIAL INSTRUCTIONS		SPECIAL INSTRUCTIONS		SPECIAL INSTRUCTIONS		SPECIAL INSTRUCTIONS	
SPECIAL INSTRUCTIONS		SPECIAL INSTRUCTIONS		SPECIAL INSTRUCTIONS		SPECIAL INSTRUCTIONS	
SPECIAL INSTRUCTIONS		SPECIAL INSTRUCTIONS		SPECIAL INSTRUCTIONS		SPECIAL INSTRUCTIONS	



SPECIMEN NO.	WATER CONTENT (%)		DRY DENSITY (LB/CF)		SATURATION (%)		VOID RATIO	
	W _c	W _p	D	D _{max}	S _w	S _{wp}	e	e _{max}
1	11.5	11.5	112	112	76	76	0.58	0.58
2	11.5	11.5	112	112	76	76	0.58	0.58
3	11.5	11.5	112	112	76	76	0.58	0.58

ENGINEERING NUMBER: 2019 EDITION: 1966 TRANSLUCENT (EM 1113-1-1966)

T-252



ENG FORM NO 2089
 REV JUNE 1970

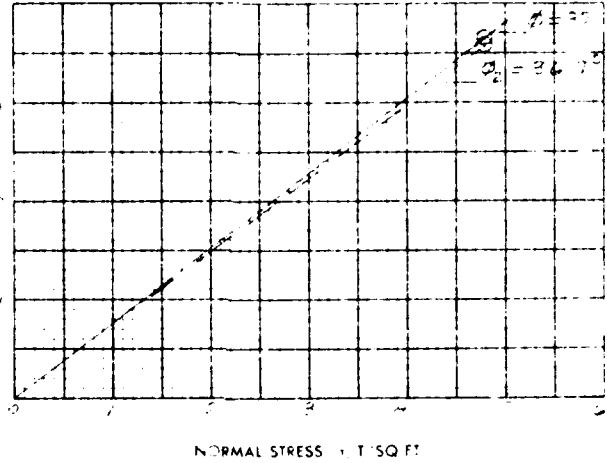
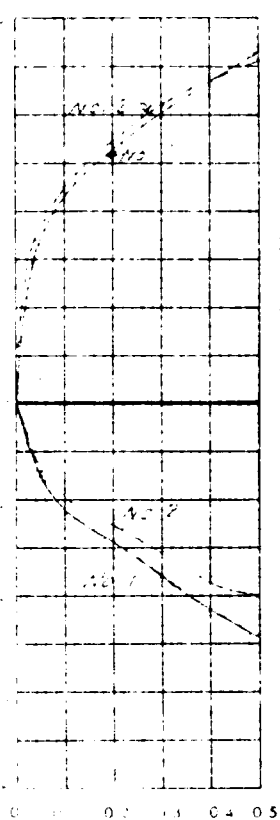
PREVIOUS EDITION IS OBSOLETE

TRANSLUCENT

(EM 1110-2-1906)

T-253

7248



TEST NO.	1	2
INITIAL		
WATER CONTENT	22.7	22.7
VOID RATIO	0.710	0.710
SATURATION	100	100
DRY DENSITY, LB./CU. FT.	112.5	112.5
VOID RATIO AFTER CONSOLIDATION	0.710	0.710
TIME FOR 50 PERCENT CONSOLIDATION, MIN.	10	10
FINAL		
WATER CONTENT	22.7	22.7
VOID RATIO	0.710	0.710
SATURATION	100	100
NORMAL STRESS, T/50 FT.	0.4	0.4
MAXIMUM SHEAR STRESS, T/50 FT.	0.8	0.8
ACTUAL TIME TO FAILURE, MIN.	10	10
RATE OF STRAIN, IN./MIN.	0.005	0.005
ULTIMATE SHEAR STRESS, T/50 FT.		

TYPE OF SPECIMEN: *6.0 IN. SQUARE* 6.0 IN. SQUARE 6.0 IN. THICK

CLASSIFICATION: *U.S. Silty Fine SAND (SC-51)*

LIQUIDITY INDEX: *1.1* PL: *17* PI: *6* G: *2.67*

REMARKS: ** Sample used for determination of compaction method approx. maximum content of 19.2% w.c. and dry density of 112.5 lb./cu. ft. (1.57 min. density)*

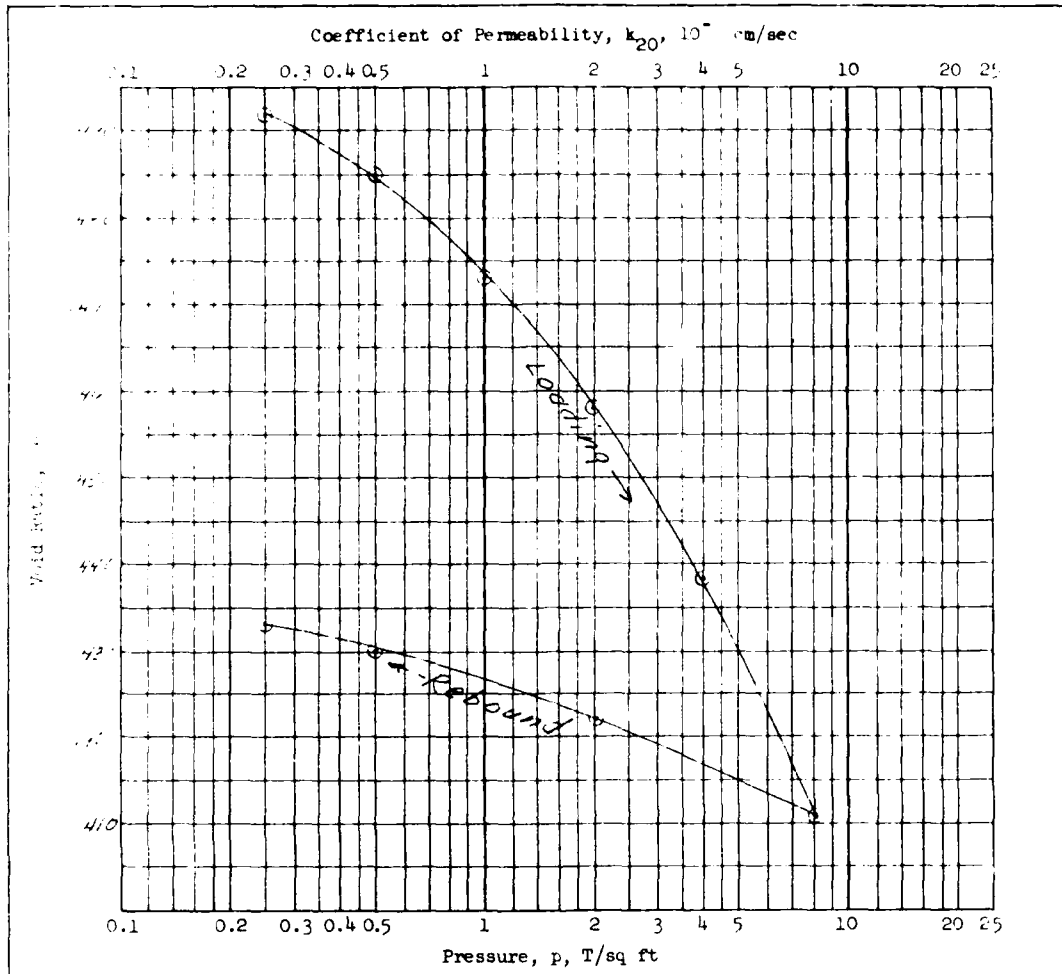
PROJECT: *Cooper River Diversion, St. Stephen, S. Carolina*

AREA: *TAILRACE CANAL*

BORING NO: *T-27B* SAMPLE NO: *B-1*

DEPTH: *0.6' - 9.0'* DATE: *December 1975*

DIRECT SHEAR TEST REPORT **T-254**



Type of Specimen		Before Test		After Test			
Diam	4.45 in.	Ht	1.0 in.	Water Content, w _o	14.0 %	w _f	14.6 %
Overburden Pressure, p _o	T/sq ft			Void Ratio, e _o	0.511	e _f	0.433
Preconsol. Pressure, p _c	T/sq ft			Saturation, S _o	73.7 %	S _f	80.3 %
Compression Index, C _c	0.68			Dry Density, γ _d	111.0 lb/ft ³		
Classification	clayey-silty fine SAND (SC-SM)			k ₂₀ at e _o =	x 10 ⁻⁷ cm/sec		
LL	23	G _s	2.67	Project Cooper River Rediversion			
PL	17	D ₁₀		St. Stephen, S. Carolina			
Remarks		Samples remolded @ approx. moisture content of 14.2% (0.116. 12%) and dry density of 111.2 Pcf. (95% max. density)		Area THILRACE CHANNEL			
				Boring No.	T-27	Sample No.	B-1
				Depth	0.0' - 9.0'	Date	Dec. 1975

CONSOLIDATION TEST REPORT

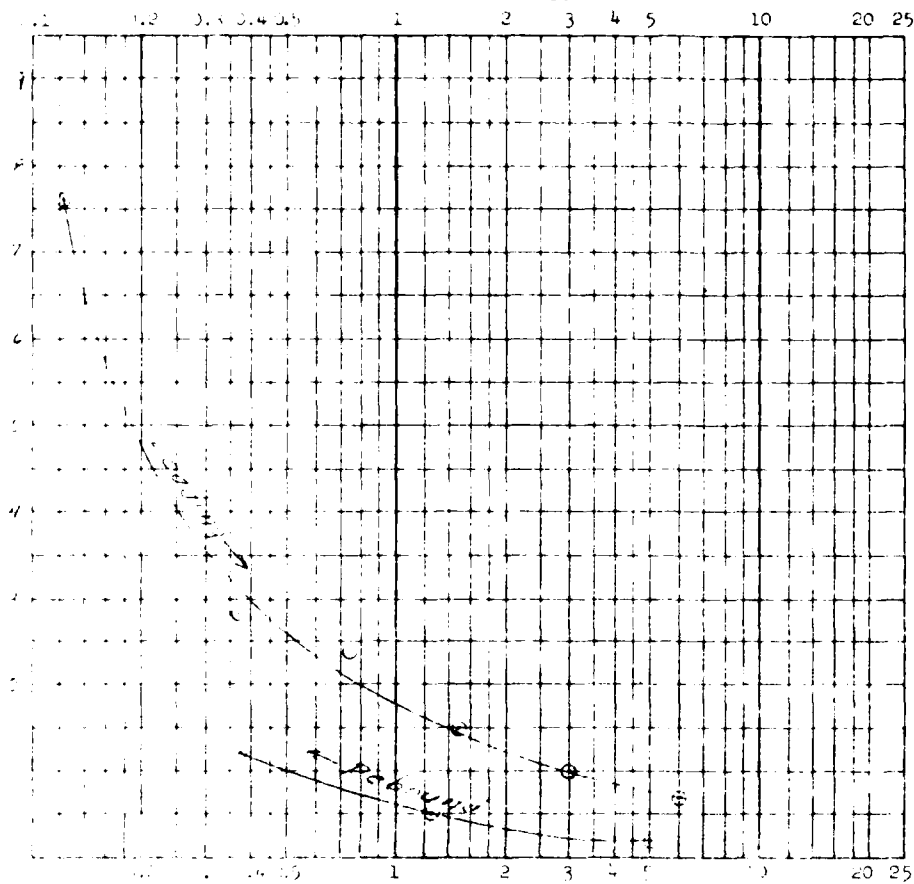
ENG FORM 2090 MAY 61

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Coefficient of Permeability, k_{20} , 10^{-7} cm/sec



Pressure, p , T/sq ft

		Before Test		After Test	
Sample No.	A-1001-1	Water Content, w_o	14.0 %	w_f	14.6 %
Sample Height	1.0 in.	Void Ratio, e_o	0.571	e_f	0.433
Overburden Pressure, p_o	T/sq ft	Saturation, S_o	73.1 %	S_f	80.3 %
Consolidation Pressure, p_c	T/sq ft	Dry Density, γ_d	111.0 lb/ft ³		
Compressibility Index, C_c	0.03	k_{20} at $e_o =$	$\times 10^{-7}$ cm/sec		
Classification	CLAY - SILTY CLAY SAND (SC-SM)	Project	Cooper River Redirection		
			St Stephen, S. Carolina		
Remarks	some consolidation	Area	THURGOOD CANAL		
		Boring No.	T-27	Sample No.	E-1
		Depth	0.0' - 9.0'	Date	Dec. 1972
		CONSOLIDATION TEST REPORT			

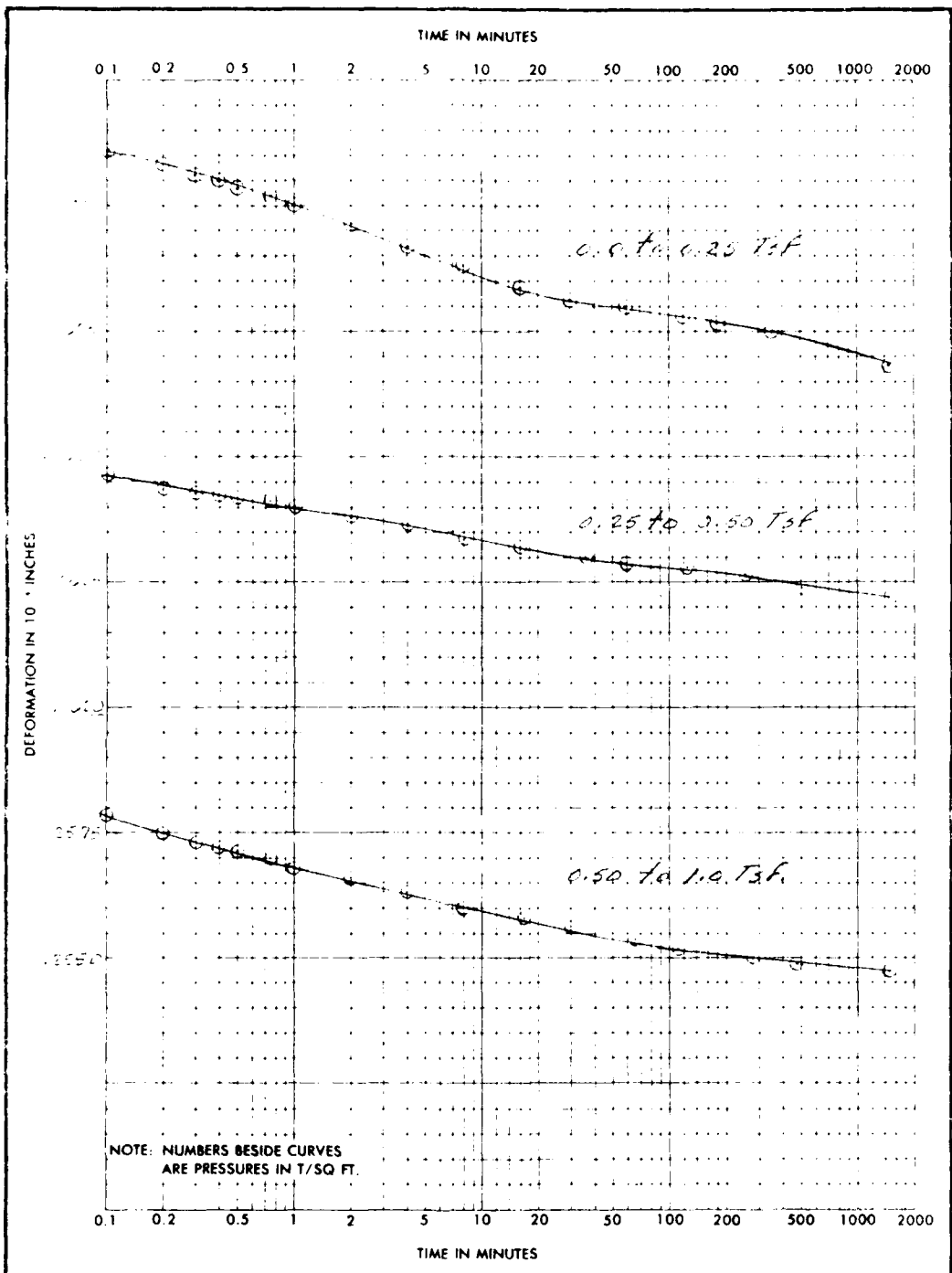
ENG FORM 2090
1 MAY 63

PREVIOUS EDITIONS ARE OBSOLETE

TRANSLUCENT

Sheet 2 of 5

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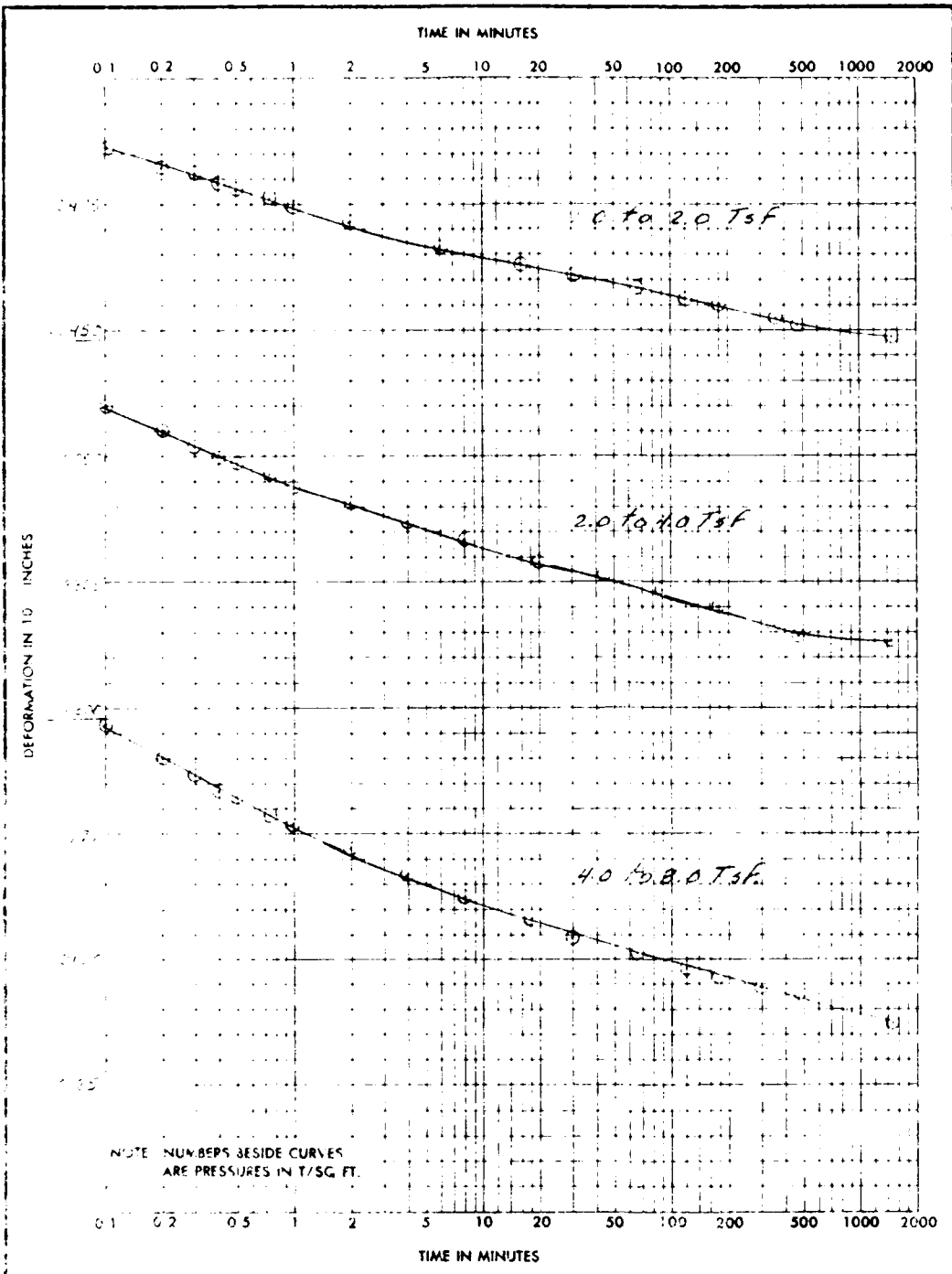
PROJECT *Cooper River Rediversion, St. Stephen, S. Carolina*
 AREA *TAILRACE CANAL*
 BORING NO. *T-27* SAMPLE NO. *B-1* DEPTH *0.0' - 9.0'* DATE *D.C. 1975*
 ENG FORM 2088 PREVIOUS EDITIONS ARE OBSOLETE

CONSOLIDATION TEST-TIME CURVES (TRANSLUCENT)

sheet 3 of 5

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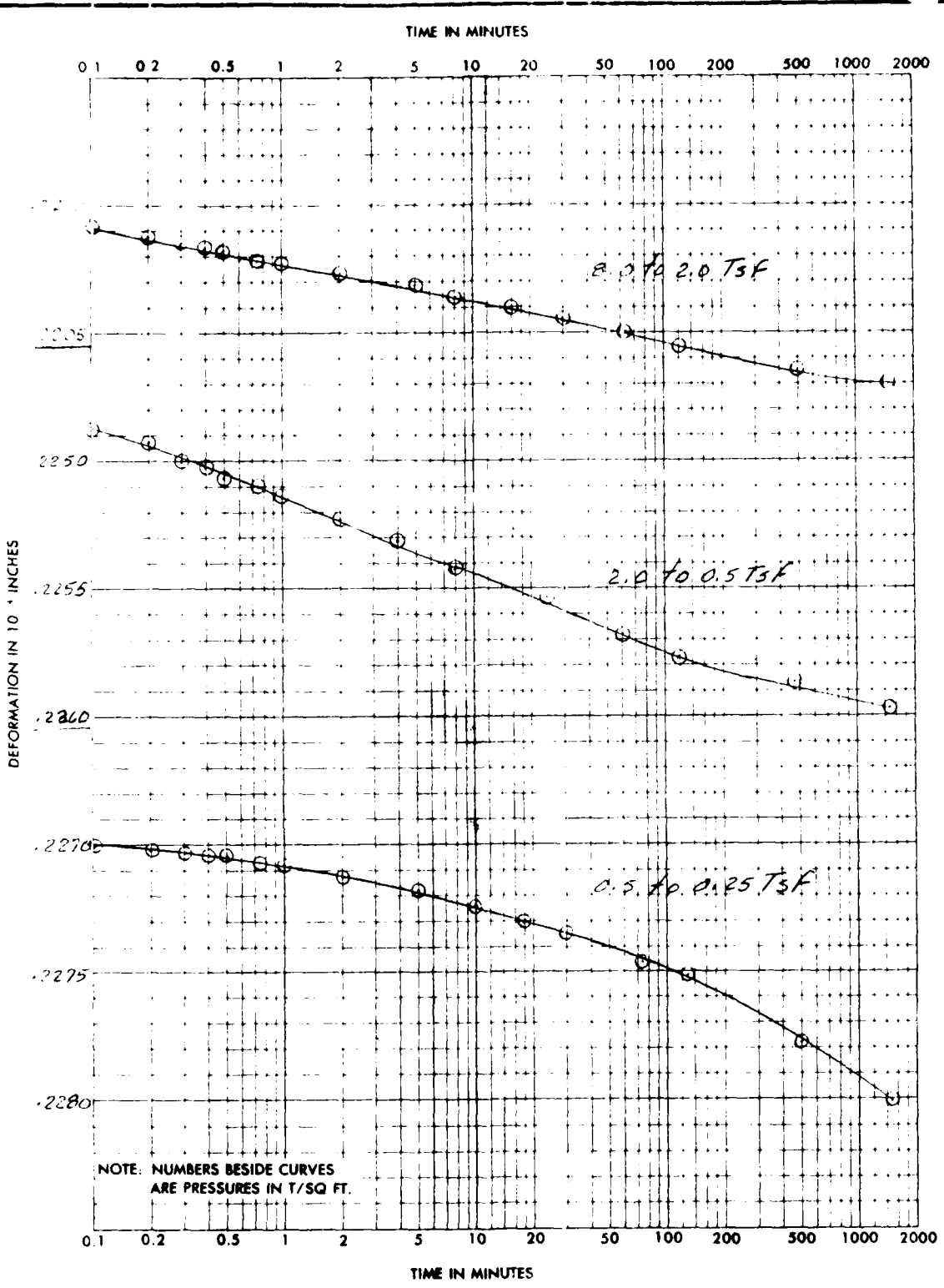


NOTE: NUMBERS BESIDE CURVES ARE PRESSURES IN T/SG FT.

PROJECT *Cooper River Rediversion, St. Stephen, S. Carolina*
 AREA *TALKENCE CANAL*
 BORING NO. *T-27* SAMPLE NO. *B-1* DEPTH *0.0' - 9.0'* DATE *Dec. 1975*
 ENG. FORM 2088 PREVIOUS EDITIONS ARE OBSOLETE **CONSOLIDATION TEST—TIME CURVES** (TRANSLUCENT)

sheet 4 of 5

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PROJECT *Cooper River Rediversion, St Stephen, S. Carolina*

AREA *TAILRACE CANAL*

BORING NO *T-25* SAMPLE NO. *B-1* DEPTH *0.0'-9.0'* DATE *Dec. 1975*

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T-25

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