

---

**ENGINEERING APPENDIX**  
**GEOTECHNICAL INVESTIGATIONS**  
**BORING LOGS AND LABORATORY TESTING**

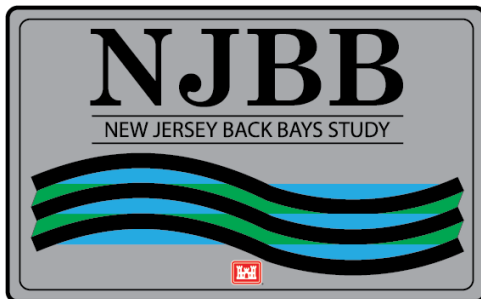
---

**NEW JERSEY BACK BAYS**  
**COASTAL STORM RISK MANAGEMENT**  
**FEASIBILITY STUDY**

**PHILADELPHIA, PENNSYLVANIA**

**APPENDIX B.8**

**August 2021**



**U.S. Army Corps of Engineers**  
**Philadelphia District**

**THIS PAGE HAS BEEN INTENTIONALLY LEFT BLANK**

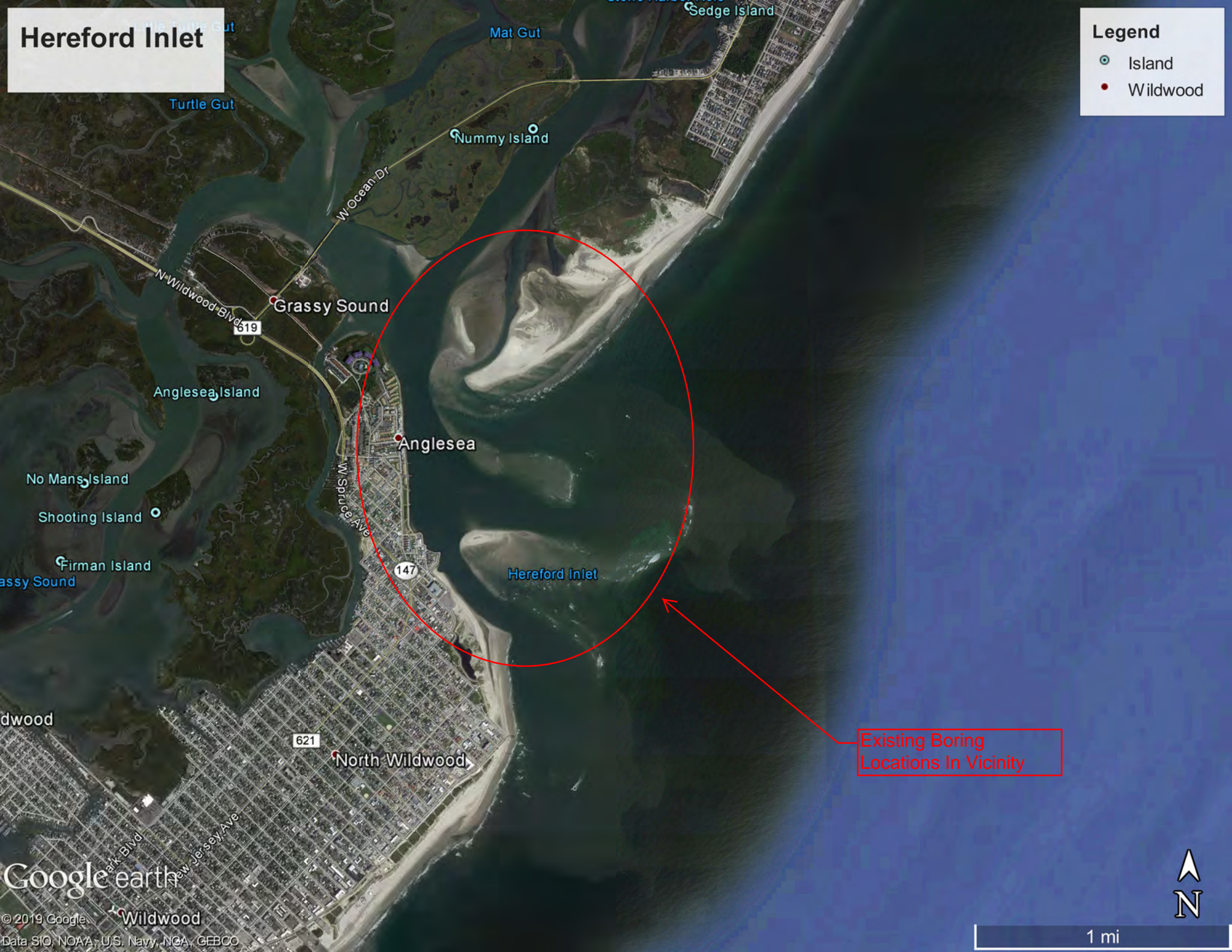
Attachment 1:

U.S. Army Corps of Engineers Geotechnical Investigations N.J. Inlets and Beaches Boring Logs  
and Laboratory Testing

# Hereford Inlet

**Legend**

- Island
- Wildwood



Google earth

© 2019 Google  
Data SIO, NOAA, U.S. Navy, NGA, GEBCO



1 mi

DEPARTMENT OF THE ARMY  
 DIVISION NAD  
 INSTALLATION Philadelphia District Office

1. PROJECT N.J. INLETS & BEACHES SHEET 1 OF 1  
 2. LOCATION (Coordinates or Station) HEREFORD Inlet - N. Wildwood  
 3. DRILLING AGENCY Giles Drilling Corporation  
 5. NAME OF DRILLER Frank Derby

DRILLING LOG

4. HOLE NO. (As shown on drawing title and file No.)  
ANHB-1

6. DIRECTION OF HOLE  
 VERTICAL  INCLINED DEGREES WITH VERTICAL \_\_\_\_\_

7. THICKNESS OF OVERBURDEN \_\_\_\_\_ 8. DEPTH DRILLED INTO ROCK \_\_\_\_\_ 9. TOTAL DEPTH OF HOLE 40'

10. SIZE AND TYPE OF BIT 2" I.D. split spoon 11. DATUM FOR ELEVATION SHOWN (TBM or MSL) IWWD 12. MANUFACTURER'S DESIGNATION OF DRILL T-2 Tractor w/ Tripod

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED 9 UNDISTURBED \_\_\_\_\_ 14. TOTAL NO. CORE BOXES \_\_\_\_\_ 15. ELEV. GROUND WATER +4.3 16. DATE HOLE STARTED 0800 14 AUGUST 64 COMPLETED 1245 14 AUGUST 64

17. ELEV. TOP OF HOLE +6.4 18. TOTAL CORE RECOVERY FOR BORING (%) \_\_\_\_\_ 19. SIGNATURE OF INSPECTOR R. W. Wright

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0	1		Lt tan f. uniform SAND (dry)	1	3	Unless otherwise noted samples were taken with 2" I.D. split spoon & 140 <sup>th</sup> hammer dropping 30 inches  Descriptive adjectives used: silty or sandy = 30-50% some = 12-30% trace = 5-12% slight trace = less than 5% marine life = shells etc
5	2		Same (damp)	3	12	
10	3		Gray f. uniform SAND (wet)	10	13	
15	4		Gray f. SAND (wet)	16	26	
20	5		Gray f. SAND w/ slight trace of marine life	27	24	
25	6		Gray f. SAND w/ slight trace of coarse sand & fine gravel & marine life. [organic odor]	9	12	
30	7		DK gray f. SAND w/ trace of black silt & slight trace of marine life [organic odor]	16	19	
35	8		DK gray f. SAND w/ trace of marine life & slight trace of black silt [slight organic odor]	8	11	
40	9		DK gray f. SAND w/ trace of marine life & slight trace of m. sand & silt [slight organic odor]	7	9	
			Bottom of hole El. - 33.6'	15	20	Sample (6) - slight organic odor due to decayed marine life.
				2	2	(34'-35') - Gray f. sand w/ occasional seams of black silt in wash water
				2	5	
				4	2	
				11	16	
				17	12	
						Ground water level @ 2.1' depth on 14 August 64 @ 1300 hrs High Tide

DEPARTMENT OF THE ARMY DIVISION <u>N.A.D.</u> INSTALLATION <u>Phila. Dist office</u>		1. PROJECT <u>N.J. Inlets &amp; Beaches</u>	SHEET OF
DRILLING LOG		2. LOCATION (Coordinates or Station) <u>Hereford Inlet N.J.</u>	
4. HOLE NO. (As shown on drawing title and file No.) <u>ANHB-2</u>		3. DRILLING AGENCY <u>Warren Giles Drilling Corp.</u>	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEGREES WITH VERTICAL		5. NAME OF DRILLER <u>Jacob Harris</u>	
7. THICKNESS OF OVERBURDEN	8. DEPTH DRILLED INTO ROCK	9. TOTAL DEPTH OF HOLE <u>44'</u>	
10. SIZE AND TYPE OF BIT <u>2" I.D. Split Spoon</u>	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) <u>IWWD</u>	12. MANUFACTURER'S DESIGNATION OF DRILL <u>Acker</u>	
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED <u>12</u> UNDISTURBED	14. TOTAL NO. CORE BOXES	15. ELEV. GROUND WATER <u>2.2</u>	16. DATE HOLE STARTED <u>13 Aug 64</u> COMPLETED <u>14 Aug 64</u>
17. ELEV. TOP OF HOLE <u>+7.70</u>	18. TOTAL CORE RECOVERY FOR BORING (%)	19. SIGNATURE OF INSPECTOR <u>J. J. Ucciferro</u>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
+7.70	0	1	Brn to gray f-uniform SAND dry	24	34	SP Samples taken with 2" I.D. Split Spoon & 14 lb hammer dropped 30 inches
	5	2	Brn to blk. f-uniform SAND damp	10	15	SP Casing is 2 1/2" I.D. began @ 100 hrs. Sample 2 - recovery 15%
	10	3	BLK f-uniform SAND very strong odor, trace of decaying organic matter damp	11	16	SP at 34', small pos. of silt appeared in wash
	15	4	Gray f-uniform SAND wet	19	26	SP
	20	5	Same as above	30	36	SP Sample 8 - silt occurred in clusters
	25	6	Same as above	15	25	SP Spoon appeared to leave region of clay @ 42'
	30	7	same as above	8	16	SP Completed hole 1300 hrs 14 Aug 64
	35	8	DK. gry f-uniform SAND w/ tr silt (strong odor)	25	64	SP
		9a	Gray f-m SAND w/ tr. shell frag. (Very wet)		46	SP
		9b	Brn. org. SILT	45	65	OL
		9c	Gray CLAY w/ tr of decaying org. matter			CH
		10	Gray f-m SAND w/ tr. clay	11	23	SP
	45		Bottom of hole EL. - 36.3			CH

DEPARTMENT OF THE ARMY  
 DIVISION N.A.D.  
 INSTALLATION Phila Dist. Office

1. PROJECT N.J. Inlets & Beaches SHEET 1 OF 1  
 2. LOCATION (Coordinates or Station) Hereford Inlet N.J.  
 3. DRILLING AGENCY Warren Giles Drilling Corp.  
 5. NAME OF DRILLER Jacob Harris

DRILLING LOG

4. HOLE NO. (As shown on drawing title and file no.)  
ANHB-3

6. DIRECTION OF HOLE  
 VERTICAL  INCLINED DEGREES WITH VERTICAL

7. THICKNESS OF OVER-BURDEN  
 8. DEPTH DRILLED INTO ROCK  
 9. TOTAL DEPTH OF 40' HOLE

10. SIZE AND TYPE OF BIT 2" I.D. Split Spoon  
 11. DATUM FOR ELEVATION SHOWN (TBM or MSL) IWWD  
 12. MANUFACTURER'S DESIGNATION OF DRILL Acker

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN  
 DISTURBED 10 UNDISTURBED  
 14. TOTAL NO. CORE BOXES  
 15. ELEV. GROUND WATER 3.35  
 16. DATE HOLE STARTED 17 Aug 64 COMPLETED 17 Aug 64

17. ELEV. TOP OF HOLE 7.75  
 18. TOTAL CORE RECOVERY FOR BORING (%)  
 19. SIGNATURE OF INSPECTOR J. J. Ucciferro

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
7.75	0	1	Brn-gray f-uniform SAND dry	12	56	Samples were taken with 2" I.D. Split Spoon & 140 lb hammer dropped 30 inches casing is 2 1/2" I.D. Work began 1000 hrs
	5	2	Brn-gray f-uniform SAND damp	9	24, 29, 35	
	10	3	Dk-gray f-uniform SAND	6	6, 7	
	15	4	Dk. black silt. Low plasticity Strong odor, organic	17	2, 3	Samples (5-6) Sand & silt occur in layers of about 4 to 6 inches.  Sample 7 - This SAND first appeared in wash at 27.5' from 37-38 m-sand was washed from casing.  Completed 1330 hrs
	20	5a	BIK. f-uniform SAND trace of organic silt	1	2	
		5b	BIK. organic SILT. trace of decaying vegetation, also trace of f-sand	2	1	
	25	6	BIK. SILT w/ layers of f-uniform SAND (strong odor)	2	5, 7, 10	
	30	7	Gray f-uniform SAND	24	25, 16, 28	
	35	8	same as above	36	84, 151, 223	
	40	9	Gray f-SAND, few pcs. of e & f gravel	28	30, 28, 35	
			BOTT. of hole el. -32.25			

DEPARTMENT OF THE ARMY DIVISION <u>NAD</u> INSTALLATION <u>Philadelphia District Office</u>		1. PROJECT <u>N.J. INLETS &amp; BEACHES</u>	SHEET 1 OF 1
DRILLING LOG		2. LOCATION (Coordinates or Station) <u>HEREFORD INLET - No Wildwood</u>	
4. HOLE NO. (As shown on drawing title and file no.) <u>ANHB-4</u>		3. DRILLING AGENCY <u>Giles Drilling Corporation</u>	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEGREES WITH VERTICAL		5. NAME OF DRILLER <u>Frank Derby</u>	
10. SIZE AND TYPE OF BIT <u>2" I.D. split spoon</u>		7. THICKNESS OF OVERBURDEN —	8. DEPTH DRILLED INTO ROCK —
11. DATUM FOR ELEVATION SHOWN (TBM or MSL) <u>IWWD</u>		12. MANUFACTURER'S DESIGNATION OF DRILL <u>T-2 tractor w/ Tripod</u>	
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED <u>9</u> UNDISTURBED —	14. TOTAL NO. CORE BOXES —	15. ELEV. GROUND + <u>2.4</u> WATER —	16. DATE HOLE STARTED <u>1800</u> COMPLETED <u>1500</u> <u>17 August 64</u> <u>17 August 64</u>
17. ELEV. TOP OF HOLE <u>+ 6.90</u>	18. TOTAL CORE RECOVERY FOR BORING (%) —	19. SIGNATURE OF INSPECTOR <u>R.W. Wright</u>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	RECOVERED PERCENT	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0	0	1	lt tan f SAND w/ trace of cgs sand & f. gravel (dry)	100	SP	Unless otherwise noted samples were taken with 2" I.D. split spoon & 140# hammer dropping 30 inches
5	5	2	Brownish-gray f. SAND w/ slight trace of f. gravel & marine life.	100	SP	Descriptive adjectives used Silty or sandy = 30-50% Some = 12-30% Trace = 5-12% slight trace = less than 5% marine life = shells etc.
10	10	3	Gray f SAND w/ slight trace of marine life; $\frac{1}{4}$ blk. silt (organic odor)	100	SP	
15	15	4	Gray f. SAND	100	SP	
20	20	5	Gray f. SAND w/ slight trace of black silt. Still & compact.	100	SP	(12'-15') - Wash water appeared to be a black silty f. SAND (SH)
25	25	6	Gray f. SAND (stiff)	100	SP	
30	30	7	lt. gray c-f SAND w/ trace of marine life	100	SW	
35	35	8	Tan & gray c-f SAND w/ trace of silt & decayed marine life & f. gravel [organic odor]	100	SP-SM	
40	40	9	Gray c-f SAND w/ some f. gravel & slight trace of silt & marine life	100	SP	Ground water level @ 4.5' depth on 17 August 1964 @ 1500 hrs Medium Tide
			Bottom of Hole El-33.1'			



DEPARTMENT OF THE ARMY  
 DIVISION N.R.D.  
 INSTALLATION Phila. Dist. Office

1. PROJECT N.J. Inlets & Beaches SHEET 1 OF 1

2. LOCATION (Coordinates or Station)  
Hereford Inlet

3. DRILLING AGENCY  
Giles Drilling Corp.

DRILLING LOG

4. HOLE NO. (As shown on drawing title and file No.)  
ANHB-5

5. NAME OF DRILLER  
Frank Derby

6. DIRECTION OF HOLE  
 VERTICAL  INCLINED DEGREES WITH VERTICAL

7. THICKNESS OF OVER-BURDEN — 8. DEPTH DRILLED INTO ROCK — 9. TOTAL DEPTH OF HOLE 40'

10. SIZE AND TYPE OF BIT 2" I.D. Spilt Spoon 11. DATUM FOR ELEVATION SHOWN (TBM or MSL) TWWD 12. MANUFACTURER'S DESIGNATION OF DRILL Hoker (Modified)

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED 9 UNDISTURBED — 14. TOTAL NO. CORE BOXES — 15. ELEV. GROUND WATER 5.40 16. DATE HOLE STARTED 18 Aug 64 COMPLETED 19 Aug 64

17. ELEV. TOP OF HOLE + 6.65 18. TOTAL CORE RECOVERY FOR BORING (%) — 19. SIGNATURE OF INSPECTOR J.J. Ucciferro

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	Blow Count	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)	
6.65	0	1	Brn-gray f. uniform SAND dry	2	44	SP	Samples Taken with 2" I.D. Spilt Spoon & 140 lb. hammer dropped 20 inches work began 1500 hrs	
	5	2	alternating brn & gray seams of f. uniform SAND, very small trace of shell frags, damp	6	14	SP		
	10	3	Gray f. uniform SAND wet	3	56	SP		
	15	4	Same as above	7	98	SP		
	20	5	DK-gray f. uniform SAND	4	78	SP		recovery about 5%
	25	6	Brn. f. uniform SAND	11	28	SP		work stopped at 1700 hrs, 18 Aug @ depth of 20'
	30	7	Gray f. uniform SAND	6	10	SP		work began 1100 hrs 19 Aug
	35	8	Gray f. SAND, trace of decaying wood	7	12	SP		work completed 1400 hrs 19 Aug
	40	9	Brn & gray f. uniform SAND, one or two small pcs. of decaying wood	2	16	SP		
			Bottom of hole el -33.35					

DEPARTMENT OF THE ARMY  
 DIVISION N.A.D.  
 INSTALLATION Phila DIST. Office

1. PROJECT N.J. Inlets & Beaches SHEET OF  
 2. LOCATION (Coordinates or Station) Hereford Inlet N.J.  
 3. DRILLING AGENCY Warren Giles Drilling Corp.  
 5. NAME OF DRILLER Jacob Harris

DRILLING LOG

4. HOLE NO. (As shown on drawing title and file no.)  
ANHB-6

6. DIRECTION OF HOLE  
 VERTICAL  INCLINED DEGREES WITH VERTICAL

7. THICKNESS OF OVERBURDEN — 8. DEPTH DRILLED INTO ROCK — 9. TOTAL DEPTH OF HOLE 40'

10. SIZE AND TYPE OF BIT 2" I.D. Split Spoon 11. DATUM FOR ELEVATION SHOWN (TBM or MSL) U.S.E.D. 12. MANUFACTURER'S DESIGNATION OF DRILL Acker (Modified)

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED 9 UNDISTURBED — 14. TOTAL NO. CORE BOXES — 15. ELEV. GROUND WATER — 16. DATE HOLE STARTED 11 Aug 64 COMPLETED 11 Aug 64

17. ELEV. TOP OF HOLE el. -1.0' 18. TOTAL CORE RECOVERY FOR BORING (%) — 19. SIGNATURE OF INSPECTOR J. J. Ucciferro

ELEVATION	ELEVATION DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	5 CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (drilling time, water loss, depth of weathering, etc., if significant)
	0		Ground el. -1.0			
	1		dk-gray f-uniform SAND trace of decaying organic matter	3 3 4 5	SP	Samples taken with 2" I.D. split spoon & 140 lb. hammer dropped 30 inches Casing - 2 1/2" I.D. Work began 1200 Work finished 1900  @ 35', clay first appeared in wash  Sample 8b approx. 40% CLAY 30% gravel 30% sand
5	2		Gray f-uniform SAND	4 3 2 1	SP	
10	3		same as above	7 11 11 13	SP	
15	4		same as above, but with very slight trace of decaying organic matter	9 15 19 25	SP	
20	5		Gray f-uniform SAND	11 20 21 26	SP	
25	6		same as above	6 12 12 16	SP	
30	7		Gray very-f-uniform SAND	22 32 23 20	SP	
35						
40		8a	Gray, highly plastic CLAY some silt, trace of m-f sand	27 22 24	CH	
		8b	Gray f-gravelly c-s sandy CLAY	33	CL	
			Bottom of hole el. -40			

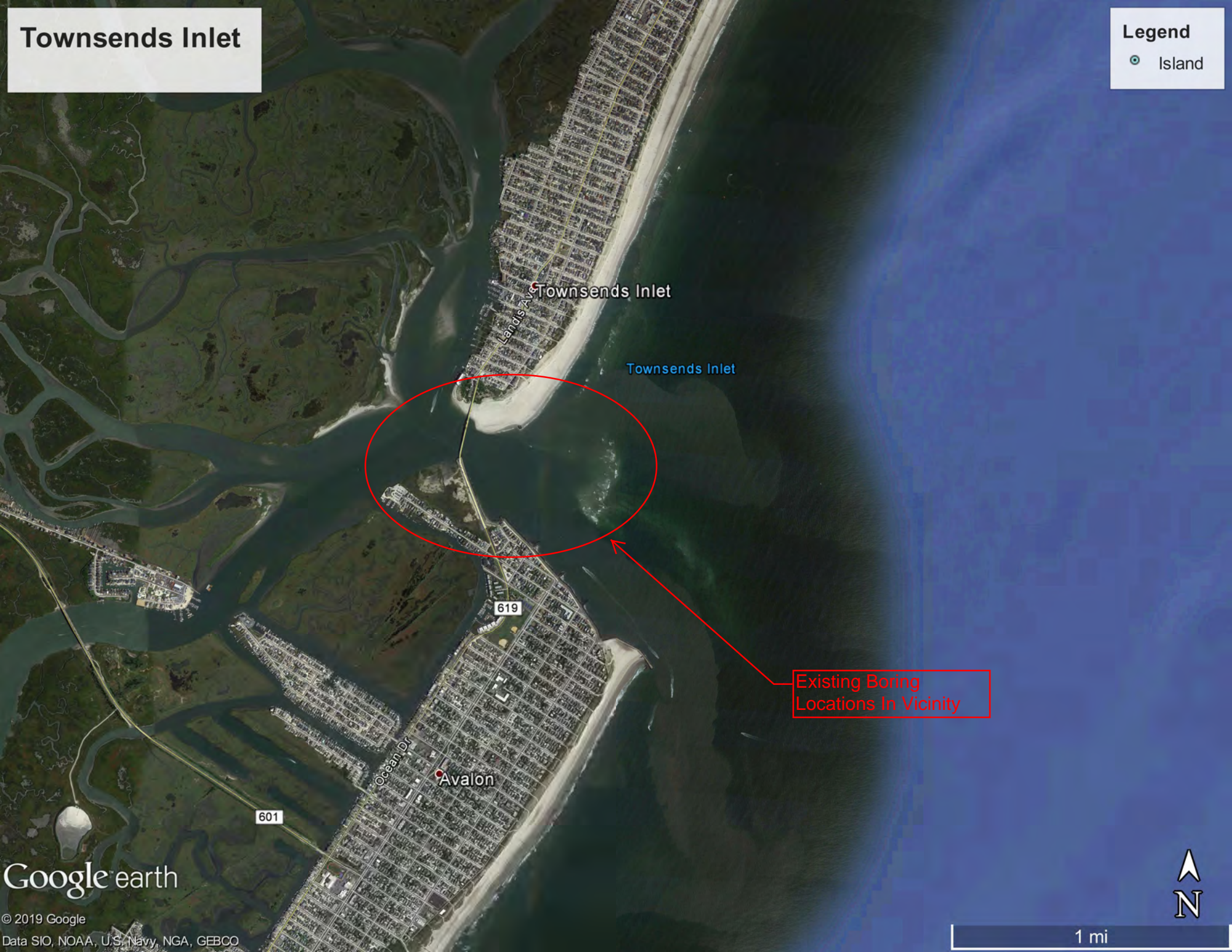
DEPARTMENT OF THE ARMY			1. PROJECT N.J. Inlets & Beaches		SHEET 1 OF 1	
DIVISION <u>N.A.D.</u>			2. LOCATION (Coordinates or Station) <u>Hereford Inlet N.J.</u>			
INSTALLATION <u>Phila. Dist. Off</u>			3. DRILLING AGENCY <u>Warren Gilles Drilling Corp.</u>			
DRILLING LOG			5. NAME OF DRILLER <u>Jacob Harris</u>			
4. HOLE NO. (As shown on drawing title and file no.) <u>ANHB-7</u>			7. THICKNESS OF OVERBURDEN		8. DEPTH DRILLED INTO ROCK	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			DEGREES WITH VERTICAL		9. TOTAL DEPTH OF HOLE <u>40'</u>	
10. SIZE AND TYPE OF BIT <u>2" I.D. Split Spoon</u>		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) <u>IWWD</u>		12. MANUFACTURER'S DESIGNATION OF DRILL <u>Acker</u>		
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED <u>9</u> UNDISTURBED		14. TOTAL NO. CORE BOXES		15. ELEV. GROUND WATER		16. DATE HOLE STARTED <u>10 Aug 64</u> COMPLETED <u>10 Aug 64</u>
17. ELEV. TOP OF HOLE <u>Water Hole (-3)</u>		18. TOTAL CORE RECOVERY FOR BORING (%)		19. SIGNATURE OF INSPECTOR <u>J. J. Ucciferro</u>		

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0			Water			Samples taken with 2" I.D. split spoon & 140 lb. hammer dropped 30 inches. Casing is 2 1/2" I.D. Began 1100 Completed 1600
5	1		Black silty SAND highly organic	66	56	
10	2		DK-gray to black silty s-SAND, very strong odor, Trace of decaying organic matter	43	24	
15	3		DK-gray s-uniform SAND	712	1012	
20	4		Lt-gray s-uniform SAND	318	87	
25	5		Same as above	88	91	
30	6		Same as above	711	1214	
35	7A		Gray CLAY, highly plastic, w/trace of gravel	142	42	
35	7B		Gray CLAY w/ some c-f sand, + gravel	130		
40	8		Gray s-gravelly c-f SAND	1527	3074	
			Bottom of hole el.-40			

# Townsend's Inlet

## Legend

● Island



Townsend's Inlet

Townsend's Inlet

619

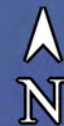
Avalon

601

Existing Boring Locations In Vicinity

Google earth

© 2019 Google  
Data SIO, NOAA, U.S. Navy, NGA, GEBCO



1 mi

<b>DRILLING LOG</b>		DIVISION NAD	INSTALLATION Philadelphia District Office	SHEET 1 OF 1 SHEETS
1. PROJECT N.J. INLETS & BEACHES		10. SIZE AND TYPE OF BIT 2" I.D. Split spoon		
2. LOCATION (Coordinates or Station) TOWNSENDS INLET - Avalon		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) IWWD		
3. DRILLING AGENCY Giles Drilling Corporation		12. MANUFACTURER'S DESIGNATION OF DRILL J-3 Willoy 4-wheel Drive		
4. HOLE NO. (As shown on drawing title and file number) ANTB-1		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED: 12 UNDISTURBED: —		
5. NAME OF DRILLER Frank Derby		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 + 5.33		
7. THICKNESS OF OVERBURDEN —		16. DATE HOLE STARTED 1000 hrs 6 August 64 COMPLETED 1630 hrs 6 August 64		
8. DEPTH DRILLED INTO ROCK —		17. ELEVATION TOP OF HOLE + 8.5		
9. TOTAL DEPTH OF HOLE 50.0'		18. TOTAL CORE RECOVERY FOR BORING — %		
		19. SIGNATURE OF INSPECTOR R. W. Wright		

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
	0	1	lt. tan & black f. uniform SAND (dry)	100%	SP	Unless otherwise noted samples were taken with 2" I.D. split spoon & 140# hammer dropping 30"
	5	2	Tan f. uniform SAND (dry)	92	SP	Descriptive adjectives used Silty or sandy = 30% - 50% Some = 12 - 30% trace = 5 - 12% slight trace = less than 5%
	10	3	Gray f. slightly micaceous uniform SAND (wet)	111	SP	
	15	4	Gray m-f SAND w/ slight trace of marine life.	2436	SP	
	20	5	Gray f SAND	1728	SP	
	25	6	Gray f. SAND w/ trace of m sand & marine life	1322	SP	Ground water level @ 3.17' depth on 6 August 64 @ 1700 hrs Medium tide
	30	7	Gray f. SAND w/ slight trace of marine life	914	SP	
	35	8	Gray m-f SAND w/ slight trace of sand, f. gravel & marine life	2236	SP	(37-40') - Wash water brought up slight trace of black silt
	40	9A	A (40'-40.5') Gray m-f SAND w/ some silt & slight trace of marine life	46	SP	(42'-43') - Mostly sand Wash water brought up trace of black silt
	40	9B	B (40.5'-42') - Gray silty m-f SAND w/ slight trace of marine life	63	SM	
	45	10	Gray m-f SAND w/ small pockets of black organic matter & trace of marine life	1013	SP	(43'-45') - Wash water turned dark brown w/ pieces of black & brown silt & sand [Mostly sand & probably org matter]
	50	11	Brown or tan m-f SAND changing in bottom of shoe to gray c-f sand w/ some f. gravel	1138	SP	(47'-48') - Vacuumed fragments of wash, but mostly c-f sand Bottom of hole @ 50' depth Hole completed 6 August 64 @ 1630 hrs

DEPARTMENT OF THE ARMY  
 DIVISION NAD  
 INSTALLATION Philadelphia District Office

1. PROJECT N.J. INLETS & BEACHES SHEET 1 OF 1  
 2. LOCATION (Coordinates or Station) TOWNSEND'S INLET - AVALON  
 3. DRILLING AGENCY Giles Drilling Corporation  
 5. NAME OF DRILLER Frank Derby

DRILLING LOG

4. HOLE NO. (As shown on drawing title and file No.)  
ANTB-2

6. DIRECTION OF HOLE  
 VERTICAL  INCLINED DEGREES WITH VERTICAL

7. THICKNESS OF OVERBURDEN — 8. DEPTH DRILLED INTO ROCK — 9. TOTAL DEPTH OF HOLE 30'

10. SIZE AND TYPE OF BIT 2" I.D. split spoon 11. DATUM FOR ELEVATION SHOWN (TBM or MSL) IWWD 12. MANUFACTURER'S DESIGNATION OF DRILL T-2 Tractor w/ Tripod

13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN  
 DISTURBED 7 UNDISTURBED — 14. TOTAL NO. CORE BOXES — 15. ELEV. GROUND WATER +2.49 16. DATE MOLE  
 STARTED 1400 12 August 64 COMPLETED 1630 12 August

17. ELEV. TOP OF HOLE +4.29 18. TOTAL CORE RECOVERY FOR BORING (%) — 19. SIGNATURE OF INSPECTOR R. W. Wright

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0	0	1	lt tan f. uniform SAND	2	SP	Unless otherwise noted samples were taken with 2" I.D. split spoon of 140# hammer dropping 30 inches  Descriptive adjectives used Silty or sandy = 30-50% Some = 12-30% trace = 5-12% slight trace = less than 5% marine life = shells, etc
5	5	2	Gray f. SAND w/ trace of organic silt & root matter	12 18 22 25	SP	
10	10	3	Gray f. SAND	7 6 8 11	SP	
15	15	4	Gray f. SAND w/ slight trace of marine life	8 16 15 20	SP	
20	20	5	Gray m-f SAND w/ some marine life & trace of coarse sand	10 39 30 17	SP	
25	25	6	Gray f SAND w/ some c-m sand & f. gravel & slight trace of marine life	8 10 17 19	SP	
30	30	7	Gray c-f SAND w/ slight trace of marine life	10 14 29 23	SP	
			Bottom of hole El. - 25.71'			
						Low Tide 0900 hrs, Ground water level @ 1.8 depth on 13 August 64  ANTB-2 - Location is 23' towards Inlet [Note change on original Boring sheet - Exact location fell on stone bulkhead.]

<b>DRILLING LOG</b>		DIVISION NAD	INSTALLATION Philadelphia District Office	SHEET 1 OF 1 SHEETS
1. PROJECT N.J. INLETS & BEACHES		10. SIZE AND TYPE OF BIT 2" I.D. split spoon		
2. LOCATION (Coordinates or Station) TOWNSENDS INLET - AVALON		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) IWNWD		
3. DRILLING AGENCY Giles Drilling Corporation		12. MANUFACTURER'S DESIGNATION OF DRILL T-2 Tractor w/ Tripod		
4. HOLE NO. (As shown on drawing title and file number) ANTB-3		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 7	DISTURBED —	UNDISTURBED —
5. NAME OF DRILLER Frank Derby		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 4.85'		
7. THICKNESS OF OVERBURDEN —		16. DATE HOLE STARTED 0800 11 August 64 COMPLETED 1200 11 August 64		
8. DEPTH DRILLED INTO ROCK —		17. ELEVATION TOP OF HOLE + 7.85		
9. TOTAL DEPTH OF HOLE 30.0 Ft.		18. TOTAL CORE RECOVERY FOR BORING — %		
		19. SIGNATURE OF INSPECTOR R.W. Wright		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE -RECOV- -ERY Blows per c"	BOX-OR- SAMPLE NO. SYMBOL	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
	0	1	Lt. tan f. uniform SAND w/ slight trace of charred wood (dry)	1 2	SP	Unless otherwise noted Samples were taken with 2" I.D. split spoon & 140# hammer dropping 30"  Descriptive adjectives used silty or sandy = 30-50% silty = 12-30% trace = 5-12% marine life = shells, etc.  (12'-14.5') - Wash water - was f. SAND w/ some f. sandy silt some  (17'-19') - Black organic silt w/ some fine sand	
	5	2	Gray-brown f. SAND w/ slight trace of black silt (wet)	11 14 10 9	SP		
	10	3	Gray f. SAND w/ slight trace of marine life.	3 1 6 11	SP		
	15	4	Black organic SILT w/ trace of f. sand	P P P 2	OH		
	20	5	Gray f. SAND	7 11 12 13	SP		
	25	6	Same	9 17 18 24	SP		Sample 7 - (28'-30')
	30	7	Same	9 18 19 30	SP		
			↖ Bottom of Hole El. - 22.15' ↗			Hole completed @ depth 30' on 11 August 64 @ 1200 hrs  Ground water level @ 3.0 depth on 11 August 1964 @ 1600 hrs Low Tide	

<b>DRILLING LOG</b>		DIVISION NND	INSTALLATION Philadelphia District Office	SHEET 1 OF 1 SHEETS
1. PROJECT N.J. Inlets & Beaches		10. SIZE AND TYPE OF BIT 2" ID split spoon		
2. LOCATION (Coordinates or Station) TOWNSEND'S INLET		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) IWW D		
3. DRILLING AGENCY Giles Drilling Corporation		12. MANUFACTURER'S DESIGNATION OF DRILL I-3 Willey 4-wheel Drive		
4. HOLE NO. (As shown on drawing title and file number) ANTB-4		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 9	DISTURBED 9	UNDISTURBED —
5. NAME OF DRILLER Frank Derby		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 + 4.5'		
7. THICKNESS OF OVERBURDEN —		16. DATE HOLE STARTED 1030 3 August 64 COMPLETED 0935 4 August 64		
8. DEPTH DRILLED INTO ROCK —		17. ELEVATION TOP OF HOLE + 7.28'		
9. TOTAL DEPTH OF HOLE 42.0'		18. TOTAL CORE RECOVERY FOR BORING — %		
		19. SIGNATURE OF INSPECTOR R. W. Wright		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e Blends	BOX OR SAMPLE NO. f SYMBOL	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
	0	1	Lt. tan f. SAND w/ slight trace of drift wood (dry)	1 2 2 1	SP	Unless otherwise noted samples were taken with 2" I.D. split spoon of 140# hammer dropping 30 inches	
	5	2	Lt tan to gray f. SAND w/ trace of marine life & slight trace of f. gravel (moist)	9 12 15 20	SP		
	10	3	Gray f. SAND w/ a zone .15' long @ 10.8' of black f. sand. Trace of marine life thru-out entire sample (moist)	8 13 21 23	SP		
	15	4	Gray m-f SAND w/ some marine life. (moist)	23 48 50 44	SP		
	20	5	Gray m-f SAND w/ some marine life. (moist)	12 19 29 28	SP		
	25	6	Gray f. SAND w/ slight trace of m. sand & marine life (moist)	8 11 12 15	SP		1136 hrs - Drilling rain, wind & sand storm persisted thru-out entire day
	30	7	Lt. tan & gray-black f. SAND w/ slight trace of f. gravel, m-sand & marine life	7 8 8 10	SP		Forced to quit due to incoming tide approaching hole. Work stopped 3 August 64 @ 1430 hrs @ depth 32'. Work started @ 0800 hrs on 4 August 64 @ 32'
	35	8	Gray f. SAND w/ slight trace of cfs. sand & trace of marine life	8 9 8 11	SP		Note: Sample were obtained w/o inspector present. R.W. Wright was employed setting a buoy for hole ANCB-3 - Arsons Inlet
	40	9	Gray m-f SAND w/ some marine life & slight trace of cfs sand	12 10 10 12	SP		Hole completed @ 0925 hr 4 August 64
	45		Bottom of hole El. - 34.72'			Water depth 2.8' @ 4 August 64 @ 1000 hrs Low tide	



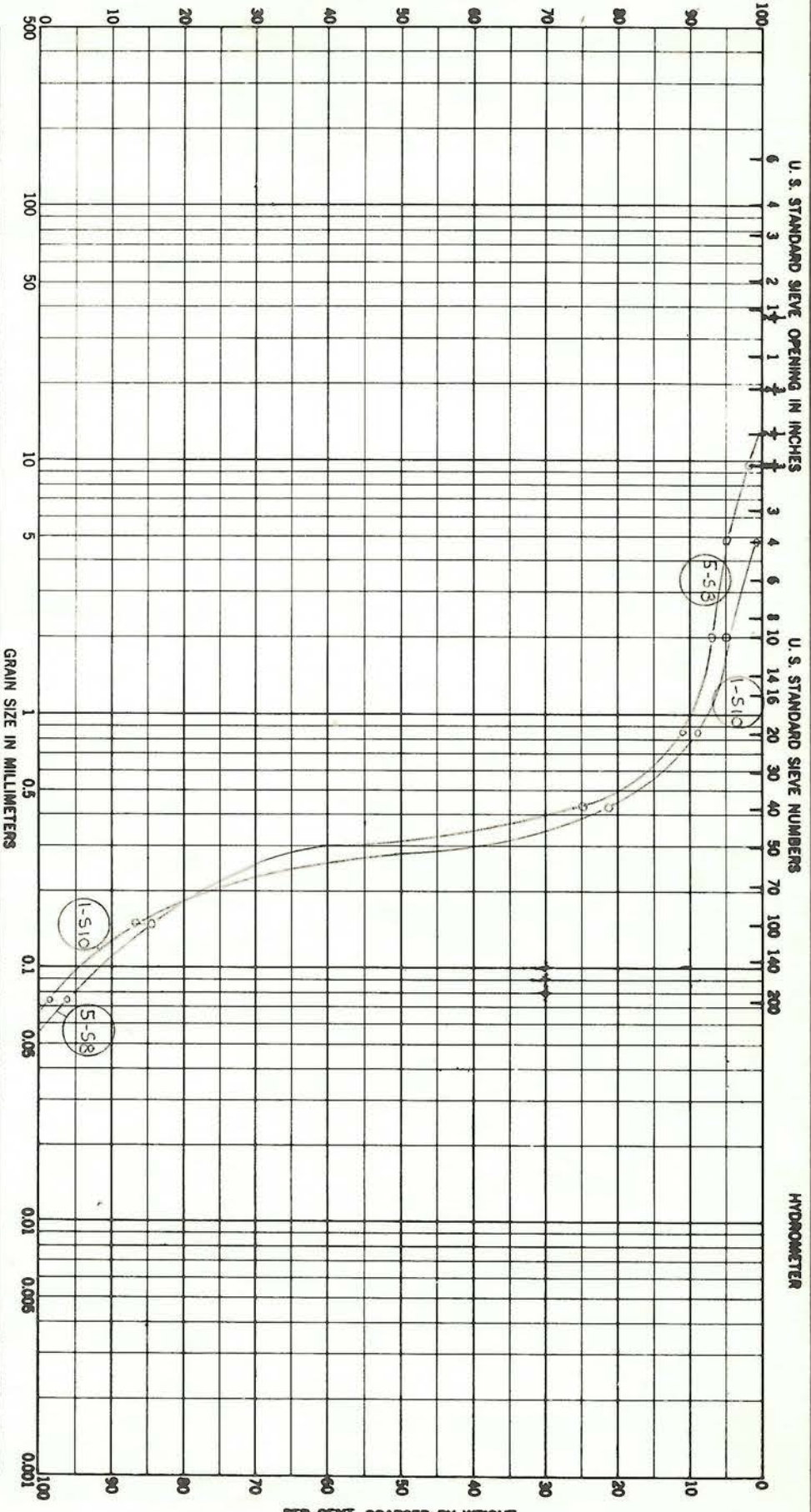
<b>DRILLING LOG</b>		DIVISION NAD	INSTALLATION Philadelphia District Office	SHEET OF 1 SHEETS
1. PROJECT N. J. INLETS & BEACHES		10. SIZE AND TYPE OF BIT 2" I.D. split spoon		
2. LOCATION (Coordinates or Station) TOWNSEND'S INLET		11. DATUM FOR ELEVATION SHOWN (TBM or MSL.) I.W.W.D.		
3. DRILLING AGENCY Giles Drilling Corporation		12. MANUFACTURER'S DESIGNATION OF DRILL J-3 Willey 4-wheel Drive		
4. HOLE NO. (As shown on drawing title and file number) ANTB-5		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 10	DISTURBED 10	UNDISTURBED —
5. NAME OF DRILLER Frank Derby		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 + 5.27'		
7. THICKNESS OF OVERBURDEN —		16. DATE HOLE STARTED 1100 hrs 4 August 64 COMPLETED 1400 hrs 4 August 64		
8. DEPTH DRILLED INTO ROCK —		17. ELEVATION TOP OF HOLE + 7.27'		
9. TOTAL DEPTH OF HOLE 40.0'		18. TOTAL CORE RECOVERY FOR BORING — %		
		19. SIGNATURE OF INSPECTOR R. W. Wright		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e Per Cent	BOX OR SAMPLE NO. f SYMBOL	REMARKS g (Drilling time, water loss, depth of weathering, etc., if significant)
	0	1	Lt. tan f. SAND (dry)	P 2 2 2	SP	Unless otherwise noted samples were taken with 2" I.D. split spoon & 140# hammer dropping 30 inches
	5	2	Lt tan to gray f SAND w/ trace of m. sand & slight trace of marine life (wet)	10 12 15 19	SP	
	10	3	DK. gray f SAND grading down to a m-f SAND w/ trace of marine life & slight trace of org. sand (wet)	12 13 21 21	SP	Sample 3 - Marine life (shells) increased w/ increase in depth
	15	4	DK. gray f. SAND w/ trace of marine life & slight trace of m-c sand (wet)	11 15 15 20	SP	
	20	5	Gray c-f SAND w/ trace of marine life & slight trace of f. gravel (just over 1/4" size)	12 17 25 30	SP	
	25	6	Gray f. SAND w/ some marine life & slight trace of m. sand	10 11 17 19	SP	Wash water @ 24.5' to approx 24.8' turned black & brought up (m-c sand & f. gravel size particles) of graphite or coal
	30	7	Gray f. SAND w/ trace of marine life	5 6 9 15	SP	
	35	8	Gray m-f SAND w/ trace of marine life & slight trace of f. gravel	9 9 10 7	SP	
	40	A	Blk. f. sandy SILT	10 6	ML	
	40	B	Blk. silty, c-f sandy, fine GRAVEL	15 19	GP	Hole completed 4 August 1964 @ 1400hrs
			Bottom of hole El. - 32.73'			Water table 2' depth on 4 August 64 @ Low tide

DEPARTMENT OF THE ARMY DIVISION <u>N.A.D.</u> INSTALLATION <u>Phila. DIST Office</u>		1. PROJECT <u>N.J. Inlets &amp; Beaches</u>	SHEET <u>1</u> OF <u>1</u>
DRILLING LOG		2. LOCATION (Coordinates or Station) <u>Townsend's Inlet N.J.</u>	
4. HOLE NO. (As shown on drawing title and file no.) <u>ANTB-6</u>		3. DRILLING AGENCY <u>Warren Giles Drilling Co.</u>	
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEGREES WITH VERTICAL _____		5. NAME OF DRILLER <u>Frank Derby</u>	
10. SIZE AND TYPE OF BIT <u>2" I.D. Split Spoon</u>		7. THICKNESS OF OVERBURDEN _____	8. DEPTH DRILLED INTO ROCK _____
11. DATUM FOR ELEVATION SHOWN (TBM or MSL) <u>IWWD</u>		12. MANUFACTURER'S DESIGNATION OF DRILL <u>J-3 Wileys 4-Wheel Drive</u>	
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN DISTURBED <u>11</u> UNDISTURBED _____		14. TOTAL NO. CORE BOXES <u>0</u>	15. ELEV. GROUND WATER <u>+4.9'</u>
17. ELEV. TOP OF HOLE <u>+7.6'</u>		16. DATE MOLE STARTED <u>4 Aug 64</u> COMPLETED <u>5 August 64</u>	
18. TOTAL CORE RECOVERY FOR BORING (%) _____		19. SIGNATURE OF INSPECTOR <u>Joseph J. Ucciferro</u>	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
0	0	1	grayish-brn - s uniform SAND	1100	22	Unless otherwise noted samples were taken with 2" I.D. split spoon & 140# hammer dropping 30"
5	5	2	gray s. uniform SAND	910	15	
10	10	3	gray s-m SAND, a small trace of shell fragments, wet	1820	39	med. sand occurred in small clusters held together by a small amt of silt
15	15	4	Gray c-f SAND w/ some marine life (shell) & slight trace of f. gravel & black silt	2334	44, 47	Samples 4 & 5 - Inspector R. W. Wright
20	20	5	Gray m-f SAND w/ trace of org. sand & marine life	1330	52, 52	Work stopped 4 Aug 64 @ 1700 hrs @ depth 22'
25	25	6	lt tan f SAND w/ trace of m. sand & slight trace of marine life	1938	58, 75	Work started 5 Aug 64 @ 0800 hrs @ depth 22' Inspector - R. W. Wright
30	30	7	Tan m-f SAND w/ slight trace of org. sand & marine life	2753	55, 57	Note: Sample (6) gotten @ 1100 hrs due to lack of hose to reach water supply @ extremely Low Tide period
35	35	8	lt gray m-f SAND w/ slight trace of org sand & marine life	97	8	Driller lost approx. 3 hrs working time @ low tide stage due to lack of hose to reach water.
40	40	9A	(38.0 - 38.5) - Gray m-f SAND w/ trace organic silt, org sand & marine life	239	9	
40	40	9B	(38.5 - 40.0) - Greenish-gray-organic SILT w/ some f. sand (dry & compact)	237	7	Hole completed 5 August 64 @ 1700 hrs
45	45	10	Yellowish-brown to dark gray, [org. silty] c-f SAND w/ some f. gravel. [org sand & f. gravel] also appeared in 1" seams thru-out sample	239	9	
			Bottom of hole El. - 35.4			Water table 2.7' depth ON 6 August 64 @ 0830 hrs - medium tide

PER CENT FINER BY WEIGHT



U. S. STANDARD SIEVE OPENING IN INCHES

U. S. STANDARD SIEVE NUMBERS

HYDROMETER

PER CENT COARSER BY WEIGHT

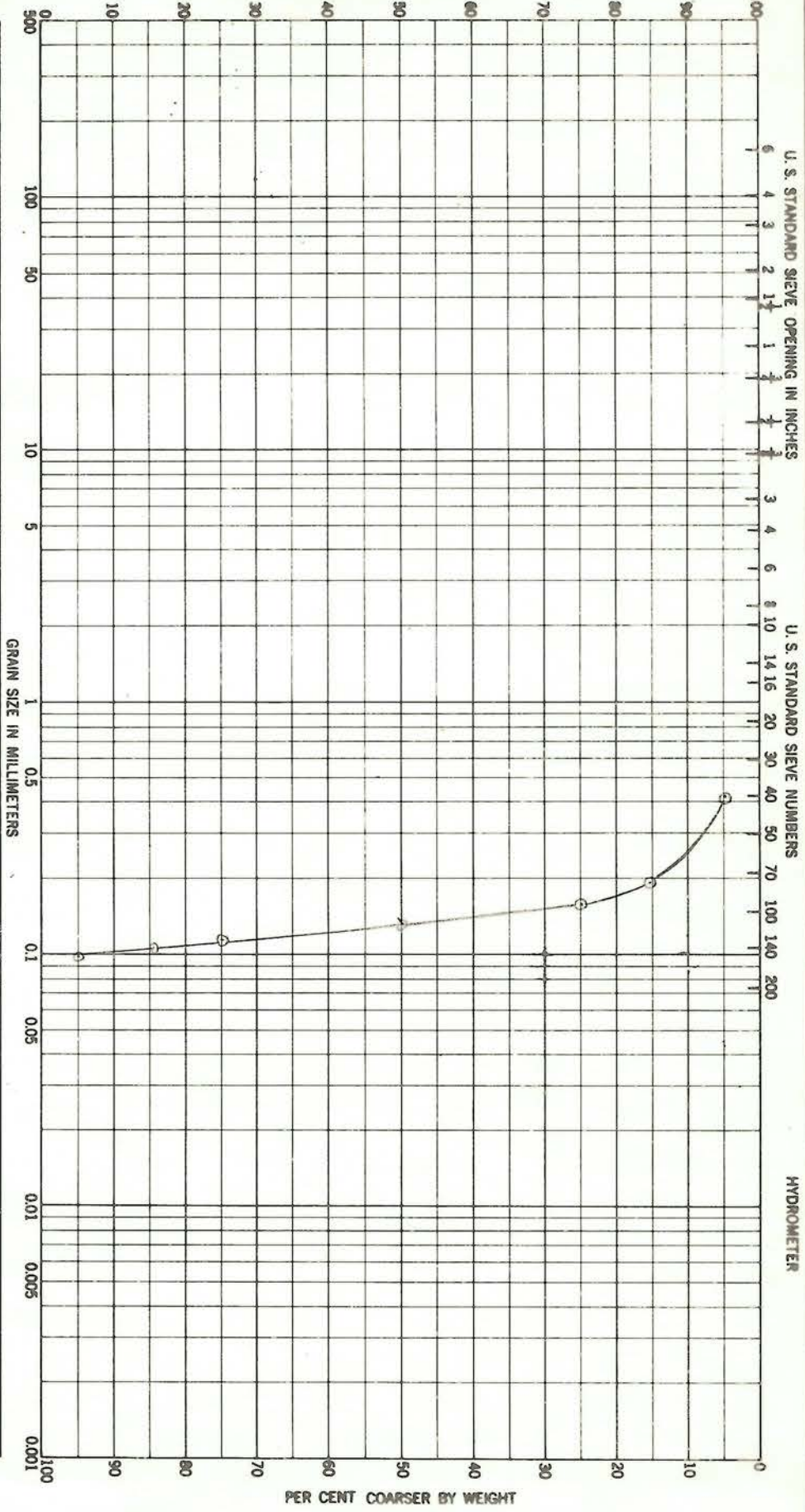
Sample No.	Elev-or Depth	Classification	GRAVEL		SAND		SILT OR CLAY				
			COARSE	FINE	COARSE	MEDIUM	FINE	PL	PI		
1-S10	45-47	DK.GRY. c.-f. SAND									
5-S8	35-37	Lt. GR. c.-f. SAND									

Sample No.	Elev-or Depth	Classification	Nat w %	LL	PL	PI
1-S10	45-47	DK.GRY. c.-f. SAND	23.8			
5-S8	35-37	Lt. GR. c.-f. SAND	19.5			

GRADATION CURVES

Project	Inlets and Beaches
Area	N.J.
Boring No.	ANTB
Date	

PER CENT FINER BY WEIGHT



U. S. STANDARD SIEVE OPENING IN INCHES

U. S. STANDARD SIEVE NUMBERS

HYDROMETER

GRAIN SIZE IN MILLIMETERS

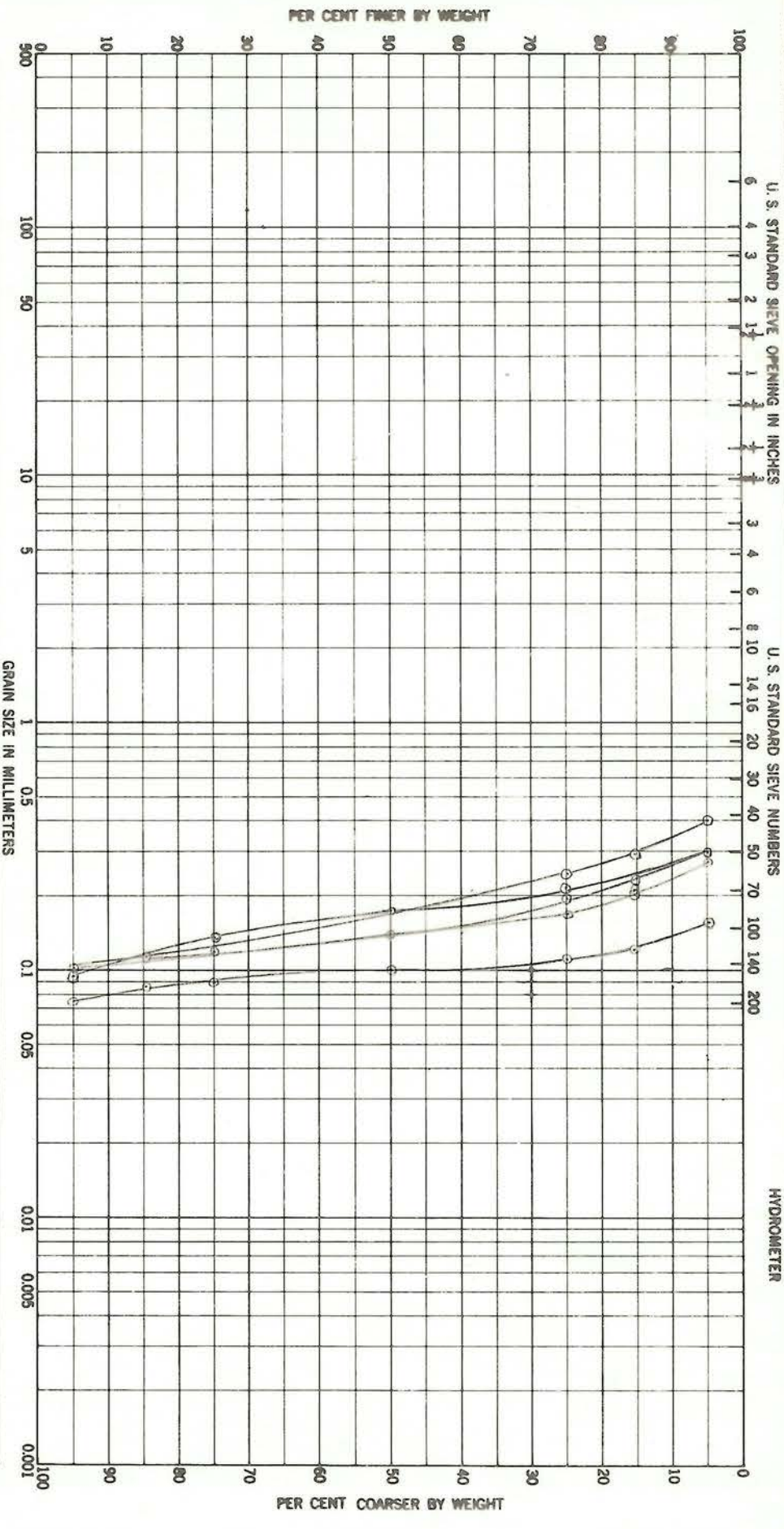
PER CENT COARSER BY WEIGHT

COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Sample No.	Elev or Depth	Classification	Net w %	LL	PL	PI
S-53	-2.7-4.7	Dark gray f. SAND	23			

GRADATION CURVES

Project	Inlets and Beaches
Area	N.J.
Boring No.	ANTB
Date	



**GRADATION CURVES**

Sample No.	Elev or Depth	Classification	GRAVEL			SAND			LL	PL	PI
			COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE			
1-S3	-1.5-3.5	SAND									
1-S5	-11.5-13.5	SAND									
2-S3	-5.7-7.7	SAND									
3-S3	-2.1-4.1	SAND									
3-S5	-12.1-14.1	SAND									

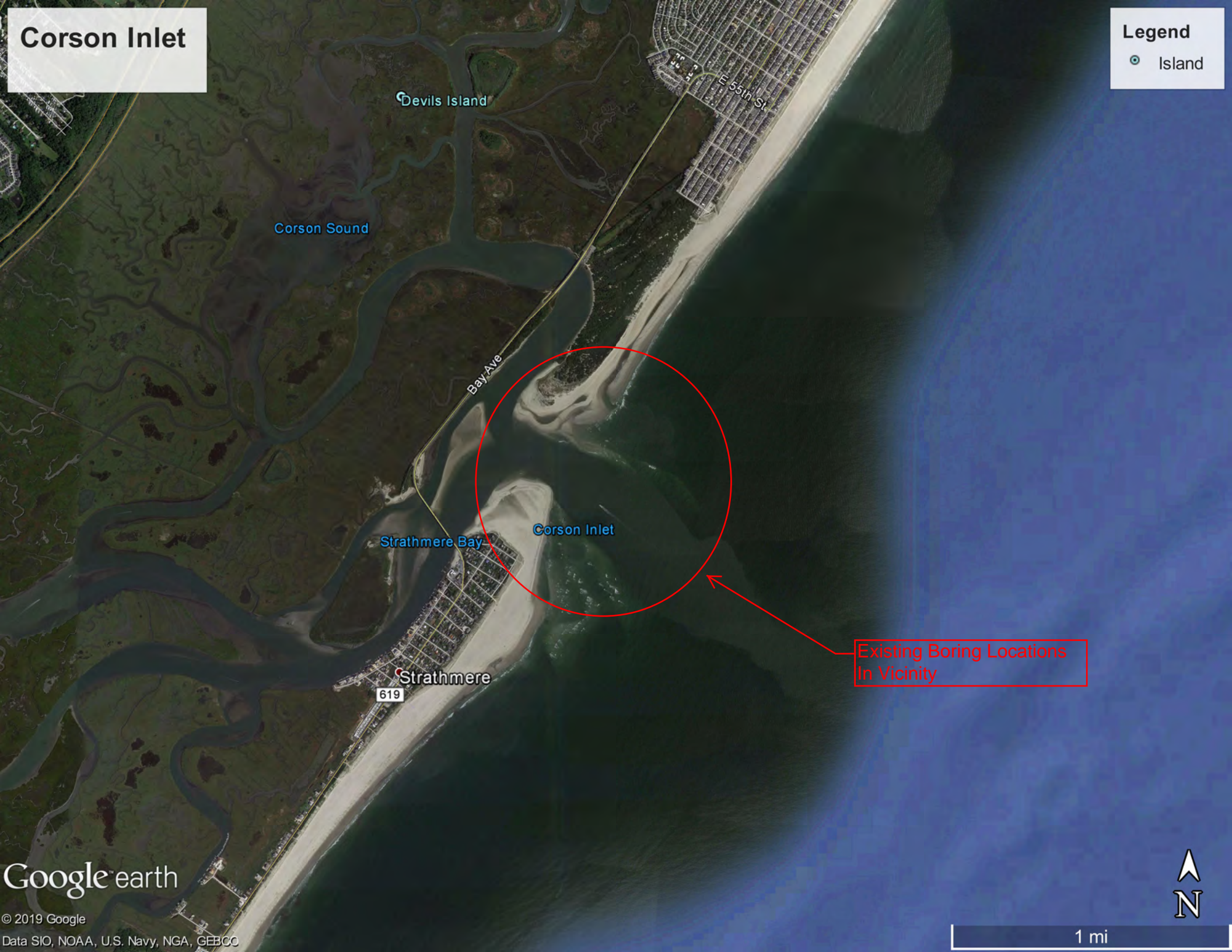
  

Project	Inlets and Beaches
Area	N.T.
Boring No.	ANTB
Date	

# Corson Inlet

## Legend

● Island



Corson Sound

Devils Island

E 55th St

Bay Ave

Strathmere Bay

Corson Inlet

Strathmere

619

Existing Boring Locations  
In Vicinity



<b>DRILLING LOG</b>		DIVISION NAD	INSTALLATION Philadelphia District Office	SHEET 1 OF 1 SHEETS
1. PROJECT N.J. INLETS & BEACHES - CORSON		10. SIZE AND TYPE OF BIT 2" I.D. split spoon		
2. LOCATION (Coordinates or Station) Corson's Inlet		11. DATUM FOR ELEVATION SHOWN (TBM or MSL.) IWW/D		
3. DRILLING AGENCY Giles Drilling Corp.		12. MANUFACTURER'S DESIGNATION OF DRILL J-3 Wilby 4-Wheel Drive		
4. HOLE NO. (As shown on drawing title and file number) ANCB-1		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED 9	UNDISTURBED 0
5. NAME OF DRILLER Frank Derby		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 + 2.66		
7. THICKNESS OF OVERBURDEN —		16. DATE HOLE STARTED 29 July 64 COMPLETED 29 July 64		
8. DEPTH DRILLED INTO ROCK 0.0		17. ELEVATION TOP OF HOLE + 4.66		
9. TOTAL DEPTH OF HOLE 42.0'		18. TOTAL CORE RECOVERY FOR BORING — %		
		19. SIGNATURE OF INSPECTOR R. W. Wright		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY Blows per ft e	BOX-OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g	
	0	1	Lt. brown to yellowish brown f. SAND (clean) moist	3 6 7 8	SP	Unless otherwise noted samples were taken with 2" I.D. split spoon of 140# hammer dropping 30"  Hole was advanced between samples by washing with split spoon	
	5	2	Lt brown to yellowish brown changing to gray f. SAND w/ slight trace of marine life (wet)	7 10 15 22	SP		
	10	3	Gray f. SAND grading into a gray c-f SAND w/ slight trace of marine life (wet)	12 24 28 23	SP		
	15	4	Brownish-gray f. SAND w/ trace of m. SAND & slight trace of marine life (wet)	9 15 17 24	SP		
	20	5	Gray m-f SAND w/ trace of marine life (wet)	12 19 20 21	SP		
	25	6	Gray f. SAND w/ slight trace of marine life (wet)	8 14 15 20	SP		At approximately 24.0' depth wash water brought up black organic silt, & stopped around 24.5' [not enough sample for testing purposes]
	30	7	Gray m-f SAND w/ slight trace of marine life (wet)	6 6 5 8	SP		(27'-30') - did not detect any silt in wash
	35	8	Gray f SAND w/ trace of marine life	31 9 11 11	SP		
	40	9	Gray c-f SAND w/ trace of f. gravel	29 44 67 73	SW		
			Bottom of hole El. - 37.34'				Water Table Depth @ 2.0' on 29 July 64 @ 1645hrs - Low Tide

<b>DRILLING LOG</b>		DIVISION N.A.D.	INSTALLATION Phila. Dist. Office	SHEET 1 OF 1 SHEETS
1. PROJECT N.J. Inlets & Beaches		10. SIZE AND TYPE OF BIT 2" I.D. Split Spoon		
2. LOCATION (Coordinates or Station) Corson's Inlet N.J.		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) IWWD		
3. DRILLING AGENCY Warren Giles Drilling Co.		12. MANUFACTURER'S DESIGNATION OF DRILL J-3 Willeys 4-wheel drive		
4. HOLE NO. (As shown on drawing title and file number) ANCB-2		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED 9	UNDISTURBED
5. NAME OF DRILLER Frank Derby		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 +2'-3" 1100 hrs		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE STARTED 30 July 64 COMPLETED 31 July 64		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE +4.5'		
9. TOTAL DEPTH OF HOLE 42'		18. TOTAL CORE RECOVERY FOR BORING _____ %		
		19. SIGNATURE OF INSPECTOR Blows J. J. Ucciferro		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. SYMBOL	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	0	1	Lt. BRN. f-uniform SAND damp	P 235		Samples were taken with 2" I.D. split spoon & 140 lb hammer dropped 30 inches  2 1/2 inch I.D. casing after spoon was pounded down and the blow count recorded, the rod was raised and dropped several times to insure a sufficient sample recovery.  See back of this sheet for location of this hole  Work stopped on 30 July at 1700 hrs at depth of 30'  Work continued 800 hrs 31 July
	5	2	BRN-Gray f-uniform SAND moist	B 8 11 18		
	10	3	gray f-uniform SAND moist	16 22 30 36		
	15	4	same as above	15 24 32 37	SP	
	20	5	gray f-uniform SAND many pieces of small shell fragments. Also a very small trace of decaying organic matter.	7 9 8 16		
	25	6	Gray f-uniform SAND	10 10 11 13		
	30	7	same as above	8 10 13 18		
	35	8	gray f-m SAND many pieces of shell fragments ranging up to 1/2" in size	7 8 a a		
	40	9	gray f-c SAND with a trace of fine gravel. Also some silt, dark gray in color	12 30 49 88	SP-SM	
			el. Bott. of hole - 37.5'			Sample 9 - silt appeared in thin seams or layers  completed 1100 hrs 31 July 64



<b>DRILLING LOG</b>		DIVISION N.A.D.	INSTALLATION Phila. Dist. Office	SHEET OF SHEETS
1. PROJECT N.J. Inlets & Beaches		10. SIZE AND TYPE OF BIT 2" I.D. Split Spoon		
2. LOCATION (Coordinates or Station) Corson's Inlet N.J.		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) IWD		
3. DRILLING AGENCY Warren Giles Drilling Co.		12. MANUFACTURER'S DESIGNATION OF DRILL Acker		
4. HOLE NO. (As shown on drawing title and file number) ANCB-3		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED 8	UNDISTURBED
5. NAME OF DRILLER Jacob Harris		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		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE STARTED 5 Aug 64 COMPLETED 5 Aug 64		
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE Water Hole! -1.7'		
9. TOTAL DEPTH OF HOLE 40'		18. TOTAL CORE RECOVERY FOR BORING _____ %		
		19. SIGNATURE OF INSPECTOR Blouis J. J. Ucciferro		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. SYMBOL	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	0		Water Ground el. -1.7'			Drilling began 800 hrs, 5 Aug 64. Samples were taken with 2" I.D. Split spoon & 140lb hammer dropped 30 inches.
	5	1	Bkn. f-uniform SAND Very small trace of shell fragments.	36 8 13		Sample # 2 - Casing dropped 6" when taking sample with 140lb hammer. - No recovery when spoon was brought up for 1st time. Spoon was again dropped to same depth and with an up & down motion of rod, sample was obtained.  When washing out 14'-17' fine gravel appeared.
	10	2	gray f-uniform SAND	70 23 36 50		
	15	3	Same as above	34 31 34 23	SP	
	20	4	Same as above, but grain size slightly larger, also small trace of fine shell frag.	19 17 30 20		
	25	5	gray f-uniform SAND	23 13 17 17		
	30	6	Same as above	67 6 8		
	35	7	Same as above, but small trace of shell frag.	65 19 16		
	40	8	gray c-f SAND trace of shell frag	82 29 39 24		
			Bot of hole, el. -40'			Completed 1400 hrs

<b>DRILLING LOG</b>		DIVISION N.A.D.	INSTALLATION Phila. Dist. Office	SHEET 1 OF 1 SHEETS
1. PROJECT N.J. Inlets & Beaches		10. SIZE AND TYPE OF BIT 2" I.D. Split Spoon		
2. LOCATION (Coordinates or Station) Corson's Inlet N.J.		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) IWWD		
3. DRILLING AGENCY Warren Giles Drilling Co.		12. MANUFACTURER'S DESIGNATION OF DRILL Acker modified Rig		
4. HOLE NO. (As shown on drawing title and file number) ANCB-4		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN 6	DISTURBED	UNDISTURBED
5. NAME OF DRILLER Jacob Harris		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		
7. THICKNESS OF OVERBURDEN		16. DATE HOLE 29 July 64	STARTED	COMPLETED 29 July 64
8. DEPTH DRILLED INTO ROCK		17. ELEVATION TOP OF HOLE -12.00'		
9. TOTAL DEPTH OF HOLE 40'-0"		18. TOTAL CORE RECOVERY FOR BORING _____ %		
		19. SIGNATURE OF INSPECTOR J.J. Ucciferro		

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
	0					Samples were taken with 2" I.D. split spoon & 140lb hammer dropped 30 inches 2 1/2 inch I.D. casing
	5		Water			
	10		Ground El. -12.00			No recovery on first attempt. Rag was inserted in spoon to catch sample on next try. 25% recovery 25% recovery 15% recovery 25% recovery 25% recovery
	15	1	LT. Brn. f- uniform SAND Wet	20 24		
	20	2	Gray f- uniform SAND Wet	9 13 21 25		
	25	3	Same as above	15 13 40 24	SP	
	30	4	Same as above	14 16 22 14		
	35	5	Same as above	19 13 21 18		
	40	6	Same as above	17 24 21 17		
			BOTT. of hole, el. -40'0"			Completed 1645 hrs.

<b>DRILLING LOG</b>		DIVISION NAD	INSTALLATION Philadelphia District Office	SHEET 1 OF 1 SHEETS
1. PROJECT N.J. INLETS & BEACHES		10. SIZE AND TYPE OF BIT 2" I.D. Split spoon		
2. LOCATION (Coordinates or Station) CORSONS INLET		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) INWD		
3. DRILLING AGENCY Giles Drilling Corporation		12. MANUFACTURER'S DESIGNATION OF DRILL J-3 Willey 4-wheel Drive		
4. HOLE NO. (As shown on drawing title and file number) ANCB - 5		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED 11	UNDISTURBED
5. NAME OF DRILLER Frank Derby		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 + 3.5		
7. THICKNESS OF OVERBURDEN —		16. DATE HOLE STARTED 0830 30 July 64 COMPLETED 1215 30 July 64		
8. DEPTH DRILLED INTO ROCK —		17. ELEVATION TOP OF HOLE + 4.60		
9. TOTAL DEPTH OF HOLE 42.0'		18. TOTAL CORE RECOVERY FOR BORING — %		
		19. SIGNATURE OF INSPECTOR R. W. Wright		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY PER 6" Blows e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	0-5	1	Dark gray f SAND w/ some swamp matter & surface vegetation	2 3 4 5	SP	Unless otherwise noted samples were taken with 2" I.D. split spoon & 140# hammer dropping 30 inches
	5-10	2	Dark gray f SAND - (slight organic or oily smell)	6 6 4 2	SP	
	10-15	3	Gray-bk silty f SAND	2 1 2	SM	Hole was advanced between samples by washing with split spoon.
	10-15		Gray-bk f sandy org. SILT		OH	
	15-20	4 A B	Dark-brownish-bk f sandy PEAT w/ some sea shell or marine life	2 6	PT	Sample 3 - No Recovery installed rig in contact with basket & tried again  [Note: Wash water appeared to be a silty f SAND from 7' to 8.5' & changing a f sandy org. SILT from 8.5' to 9.5']
	15-20		Brownish-gray f SAND w/ some organic matter	11 8		
	20-25	5	Lt. tan f SAND w/ some m-sand	4 4 5 6	SP	(13'-15') - Wash water brought up dark brown silty Peat
	25-30	6	Dark gray organic SILT w/ some swamp matter & vegetation (sample in 2-jars)	P P 1 1	OH	(17'-20') - Wash water brought up few thin 1/8" to 1/8" seams of gray f brown f sandy org. SILT
	25-30		Dark gray organic SILT w/ some swamp matter & Peat	1 3	OH	
	30-35	7 A B	Lt. tan m-f SAND w/ slight trace of silt	9 12	SP	(22'-24') - Wash water brought up f SAND (24'-25') - Wash water brought up f sandy org SILT
	30-35		Dark gray silty f SAND w/ some c-m sand (organic smell)	7 8 7 7	SM	(27'-30') - Wash water brought up dk. gray org SILT
	35-40	8	Lt gray f white c-f SAND w/ some f gravel (just over 1/4")	12 19 40 56	SW	(37'-40') - Wash water brought up gray silty c-m SAND
	35-40		Bottom of hole El. - 37.4			Water Table Dept 1 @ 1.1' on 30 July 64 @ 1245 hrs

<b>DRILLING LOG</b>	DIVISION <b>NAD</b>	INSTALLATION <b>Phila. District Office</b>	SHEET 1 OF 1 SHEETS
1. PROJECT <b>N.J. Inlets &amp; Beaches</b>	10. SIZE AND TYPE OF BIT <b>IWWD</b>		
2. LOCATION (Coordinates or Station) <b>Corson's Inlet</b>	11. DATUM FOR ELEVATION SHOWN (TBM or MSL.) <b>IWWD</b>		
3. DRILLING AGENCY <b>Giles Drilling Corp.</b>	12. MANUFACTURER'S DESIGNATION OF DRILL <b>J-3 Willey 4 Wheel Drive</b>		
4. HOLE NO. (As shown on drawing title and file number) <b>ANCB-6</b>	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED <b>10</b>	UNDISTURBED <b>0</b>
5. NAME OF DRILLER <b>Frank Derby</b>	14. TOTAL NUMBER CORE BOXES <b>—</b>		
6. DIRECTION OF HOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED _____ DEG. FROM VERT.	15. ELEVATION GROUND WATER <b>+3.09</b>		
7. THICKNESS OF OVERBURDEN <b>42.0</b>	16. DATE HOLE	STARTED <b>23 July '64</b>	COMPLETED <b>23 July '64</b>
8. DEPTH DRILLED INTO ROCK <b>0.0</b>	17. ELEVATION TOP OF HOLE <b>+ 6.09</b>		
9. TOTAL DEPTH OF HOLE <b>42.0</b>	18. TOTAL CORE RECOVERY FOR BORING <b>—</b> %		
19. SIGNATURE OF INSPECTOR <b>J. J. Vaccaro &amp; J. D. Kane</b>			

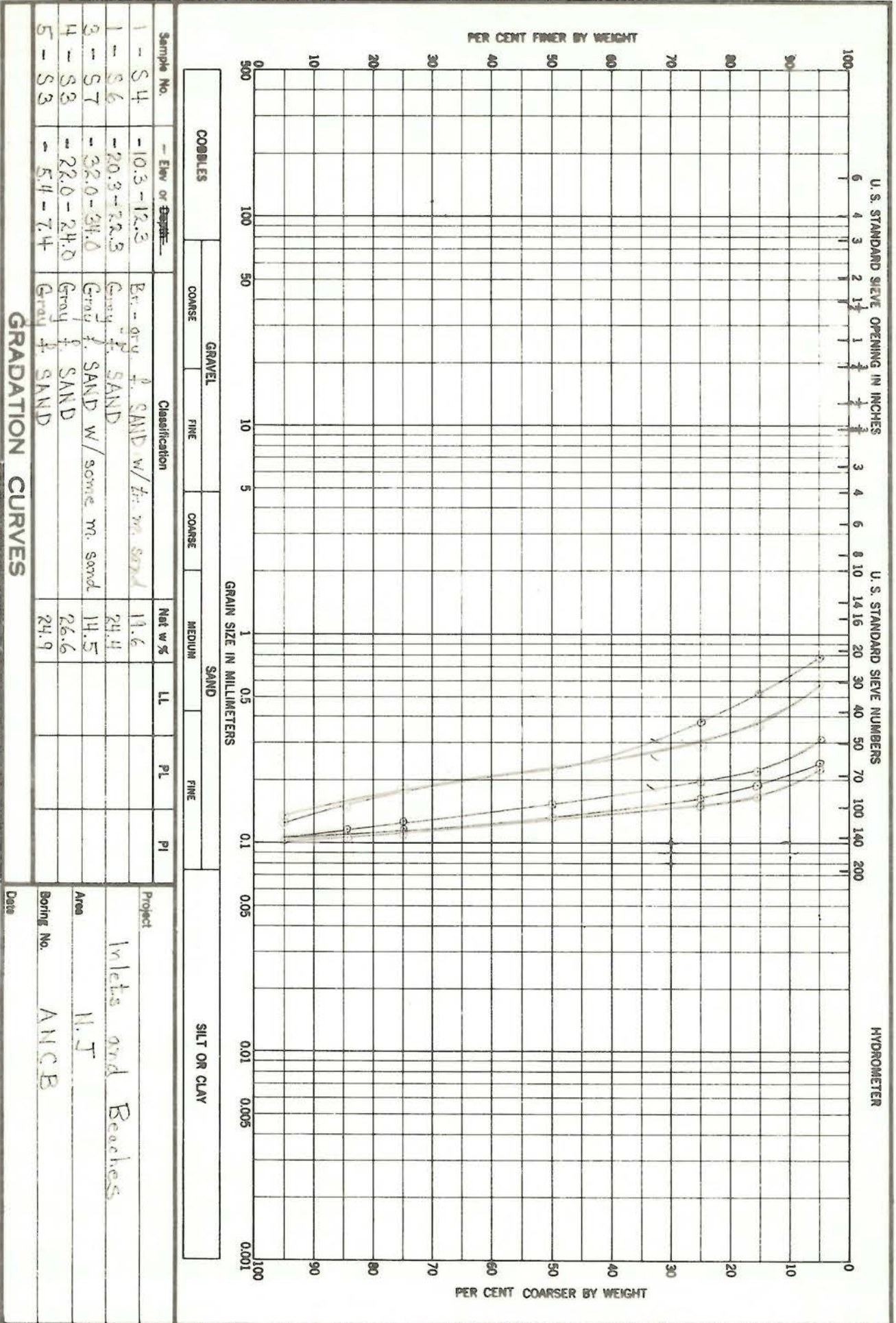
ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e (Blow Count)	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
6.09	0	1	Lt. gry. f. uniform SAND. Damp to moist. Micaceous	Push 24	SP	Unless otherwise noted samples were taken with 2" I.D. split spoon & 140 lb hammer dropping 30 inches.  Hole was advanced between samples by lowering split spoon repeatedly & washing out loosened material.  Casing diameter is 2 1/2" I.D.
	5	2	Same as above. Wet (Sample recovery 60%) Contains few sea shell pcs. (Turns to gry. due to moisture content)	27 54 60 19		
	10	3	Same as above. Wet Contains small pcs. of shells	11 29 37 40	SP	
	15	4	Same as above	9 16 18 26		
	20	5	Gry. med-f. micaceous SAND w/few small pcs. of shells	9 12 11 12		
	25	6	Dr. gry organic CLAY w/many pcs of decaying vegetation. Highly plastic. Some odor wet.	1 2 1 1	OH	From 25 to 30.5 OH material
	30	7a 7b	Brn.-gry. micaceous med-f SAND. Wet	9 16 25 17	SP	
	35	8	Dr. gry. CLAY w/many seams of SAND.	23 16 29 13	CL-SC	
	40	9	Lt. gry f. to c. SAND w/few pcs. of f. to m. GRAVEL	29 75 160 152	SW	Completed @ 1510 on 23 July 64  Water Table Depth @ 3.0' on 23 July @ 1500.
			Bottom of Hole @ El. -35.91			

<b>DRILLING LOG</b>		DIVISION NAD	INSTALLATION Philadelphia District Office	SHEET 1 OF 1 SHEETS
1. PROJECT N.J. Inlets & Beaches		10. SIZE AND TYPE OF BIT 2" I.D. SPLIT SPOON		
2. LOCATION (Coordinates or Station) Corson's Inlet		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) I.W.W.D.		
3. DRILLING AGENCY Warren Giles Drilling Corp.		12. MANUFACTURER'S DESIGNATION OF DRILL Wiley's 4-Wheel Drive		
4. HOLE NO. (As shown on drawing title and file number) ANCB-7		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED 8	UNDISTURBED -
5. NAME OF DRILLER Frank Derby		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 +3.17		
7. THICKNESS OF OVERBURDEN 39.0		16. DATE HOLE STARTED 24 July '64 COMPLETED 24 July '64		
8. DEPTH DRILLED INTO ROCK 0.0		17. ELEVATION TOP OF HOLE + 5.92		
9. TOTAL DEPTH OF HOLE 39.0		18. TOTAL CORE RECOVERY FOR BORING - %		
		19. SIGNATURE OF INSPECTOR J.D. Kane		

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
+5.92	0		Lt. gry. uniform fine SAND. Dry & loose.			Unless otherwise noted, samples were taken with a 2" I.D. split spoon & a 140 lb. hammer dropped 30 inches.  Hole was advanced between samples by slight dropping split spoon repeatedly & washing out loosened material.  Casing $\phi$ is 2 1/2" I.D.
	5	1	Lt. to dk. gry f. micaceous SAND. Moist to wet. Contains few med pcs of SAND.	5/10	16	
	10	2	Dk. gry. micaceous fine SAND w/ many pcs of sea shell fragments. Wet (60% sample recovery) slight odor.	21/21	27/35 SP	
	15	3	Gry. mica. fine SAND slightly coarser than above. Wet. Contains many small pcs. of shells.	14/21	25/35	
	20	4	Same as above	9/80	9	
	25		No Recovery except for many small pcs of shells.	11/89	11 SW	No Recovery From 25.0 to 27.0
	27.0	5	From 27.0 to 28.0, Lt. gry. c. to f. SAND changing @ 28.0 to dk. gry f. SAND. Wet. Some small pcs of gravel	7/8	11/12	
	30		No Recovery	4/3	10/18	No Recovery From 30.0 to 32.0
	35	6	Brn-gry. m-f. SAND w/ small pebbles of brn. organic matter. Wet	23/203	63/54 w/300 lb hammer	
			Gry m-f SAND. Wet. Mica.			SP
		7a	Dk. gry. f. sandy CLAY. Slight odor	12/12	13/24	CI
	40	7b	Bottom of hole @ El. -33.08			
	45					Ground Water Depth @ 2'-9" on 24 July 64 @ 1330.  Completed ANCB-7 @ 1340.

<b>DRILLING LOG</b>		DIVISION NAD	INSTALLATION Philadelphia District Office	SHEET OF 1 SHEETS
1. PROJECT CORSON'S INLET		10. SIZE AND TYPE OF BIT 2" ID. split spoon		
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (TBM or MSL) IWN D		
3. DRILLING AGENCY GILES DRILLING CORPORATION		12. MANUFACTURER'S DESIGNATION OF DRILL J-3 Willey 4-wheel Drive - Hong made		
4. HOLE NO. (As shown on drawing title and file number) ANCB 8		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED 12	UNDISTURBED —
5. NAME OF DRILLER Frank Derby		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 + 3.2		
7. THICKNESS OF OVERBURDEN —		16. DATE HOLE	STARTED 28 July 64	COMPLETED 28 July 64
8. DEPTH DRILLED INTO ROCK —		17. ELEVATION TOP OF HOLE 4.8'		
9. TOTAL DEPTH OF HOLE 42.0'		18. TOTAL CORE RECOVERY FOR BORING %		
		19. SIGNATURE OF INSPECTOR Robert W. Wright		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. SYMBOL	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	0		Brown f. SAND w/ very slight trace of shell or marine life.	P 6 6 9	SP	Work started @ 0800 hrs 28 July 64 - Encountered faulty engine trouble @ start.
	2		Gray f. micaceous SAND w/ trace marine life	5 6 8 6	SP	? El. top of ground is 2.1' lower than marking @ 4.8' - Possibly somebody pulled stake out of ground? or true el is 3.7' due to shifting sand?
	4		Gray f. micaceous SAND w/ some (15%) marine life	4 3 5 7	SP	Descriptive adjectives silty or sandy = 30-50% some - 12-30% trace - 5-12% slight trace - less 5%
	6		Dark gray f. micaceous SAND w/ trace of marine life	9 15 21 23	SP	Sample 4 had a slight oily or organic smell
	8		Dark gray f. micaceous SAND w/ trace m. sand, blk silt & marine life	3 5		
	10	5A	Black organic fibrous SILT w/ slight trace of fine sand & marine life.	1 1	OH	
	12	5B	(G-A) (25'-26.4') - Same as (G-B)	P 1 9 12	OH	Sample 6B - had slight oily or organic smell
	14	6A	(G-B) (26.4'-27') - Dark Gray f. micaceous SAND w/ trace of black silt	4 7 10 10	SP-SM	
	16	6B	Light gray m-f SAND (clean)	12 9 9	SP	
	18		Multicolored c-f SAND w/ some f. gravel	17		Sample 8 - Put in two jars 8A - SAND 8B - SILT A f slight trace of silt
	20	8A	(35.5'-36.2') - Zone of f. sandy org. SILT w/ some c-m sand	13 41 93	SW	
	22	8B	Multicolored c-f SAND w/ some f. gravel.		OL	
	24	8A	(36.2'-37.0') - Same as (8A)		SW	
	26		Brown f. gray m-f SAND w/ some f. gravel & trace of silt		SP	Sample 9 - (40'-42') Brown sand changing to gray @ 41.0'



Sample No.	Ew or Spg	Classification	GRAVEL				SAND				Project
			COARSE		FINE		MEDIUM		FINE		
1 - S4	-10.3-12.3	Br. - gr. SAND w/ h. m. sand									
1 - S6	-20.3-22.3	Gray f. SAND									
3 - S7	-32.0-34.0	Gray f. SAND w/ some m. sand									
4 - S8	-22.0-24.0	Gray f. SAND									
5 - S8	-5.4-7.4	Gray f. SAND									

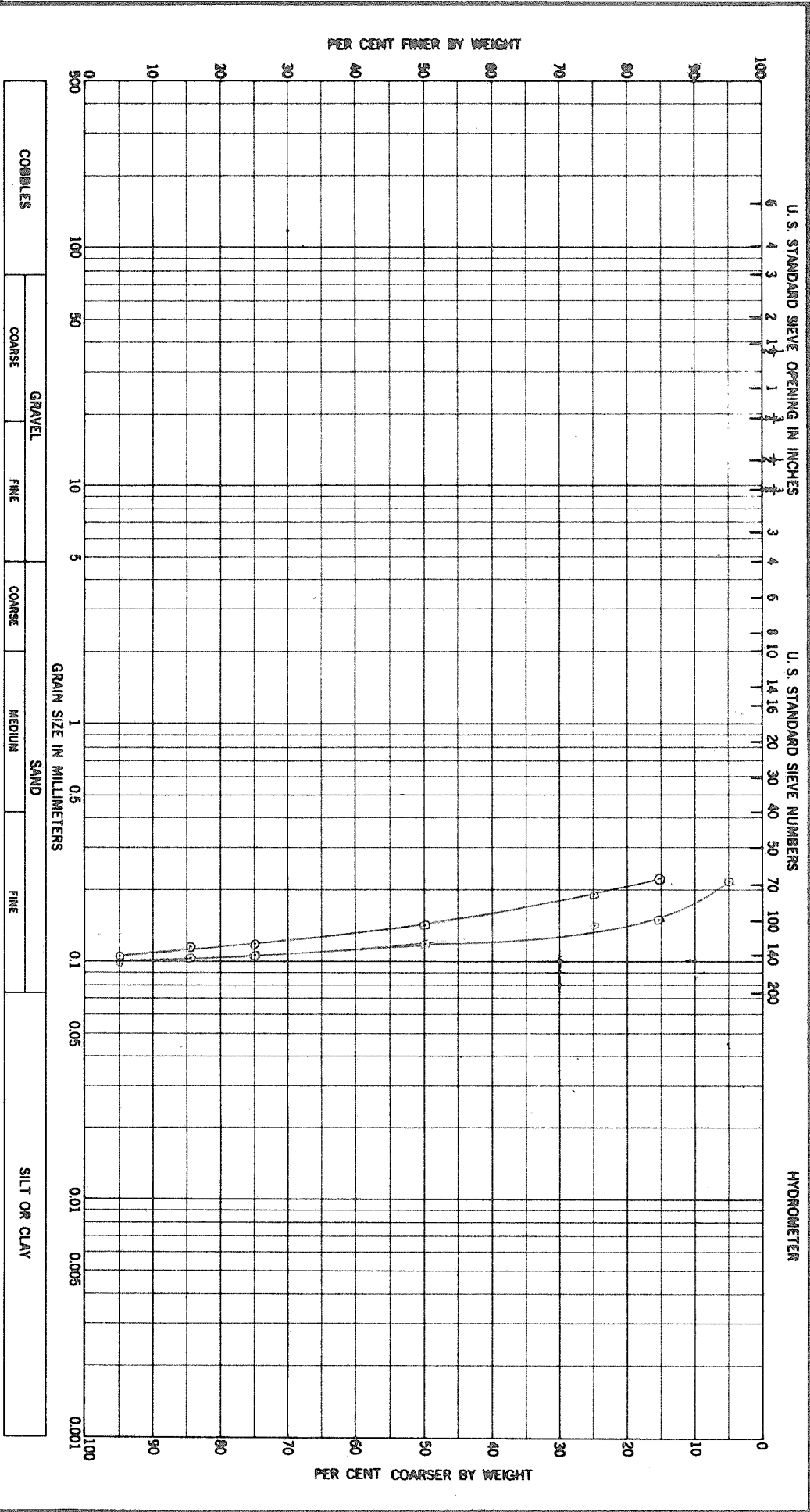
  

Sample No.	Net w %	LL	PL	PI
1 - S4	11.6			
1 - S6	24.4			
3 - S7	14.5			
4 - S8	26.6			
5 - S8	24.9			

Area	Boring No.	Date
Inlets and Beaches	ANC B	
H. J.		

**GRADATION CURVES**



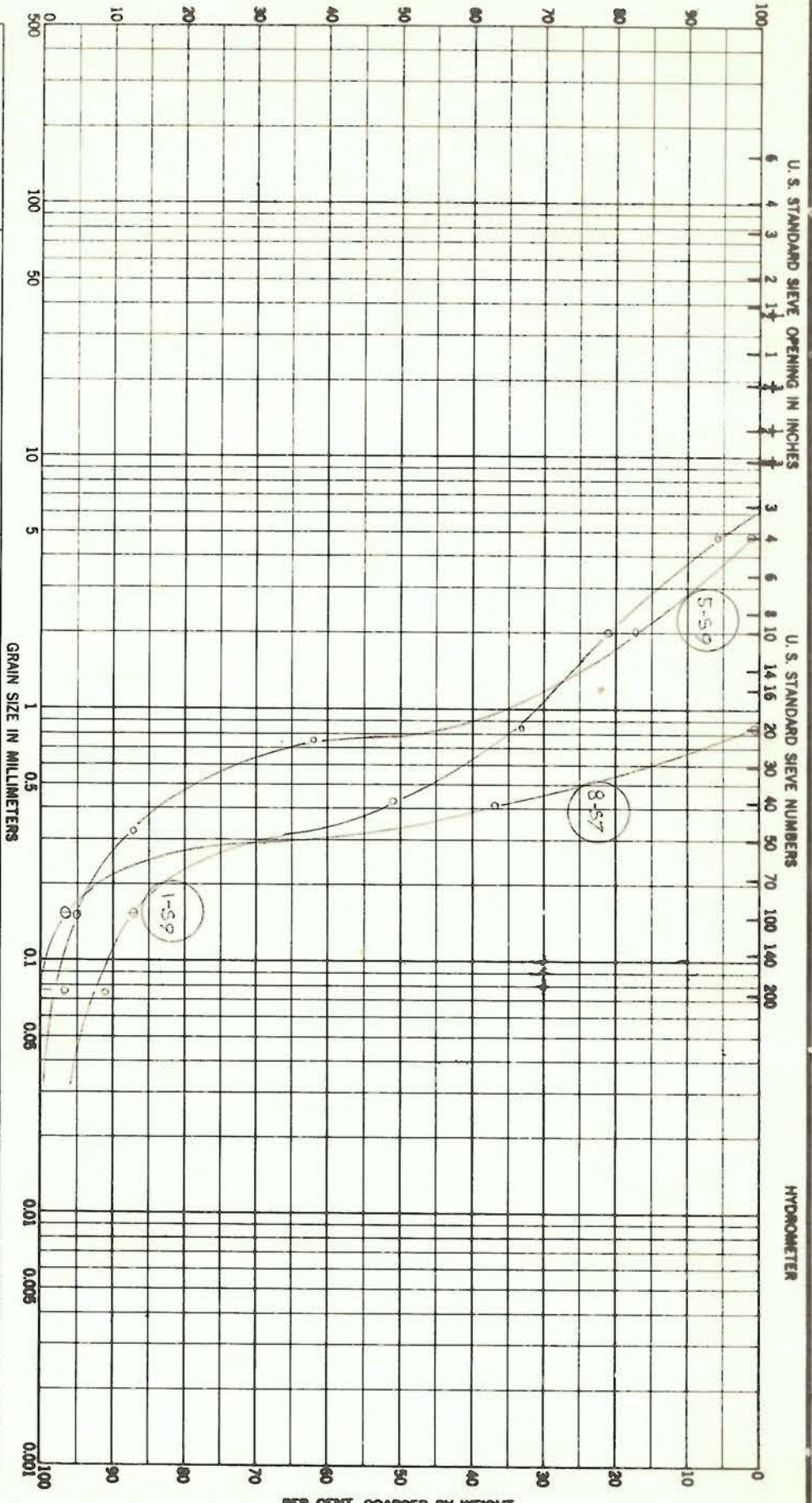
Sample No.	Elev or Depth	Classification	GRAVEL		SAND			SILT OR CLAY				
			COARSE	FINE	COARSE	MEDIUM	FINE	LL	PL	PI		
7-S3	-9.1-11.1	Gray f SAND				22.3						
8-S2	-0.9-2.9	Gray f SAND				23.2						

**GRADATION CURVES**

Project: Inlets and Beaches  
 Area: N.J.  
 Boring No: ANCR  
 Date:



PER CENT FINER BY WEIGHT



COBBLES	GRAVEL		SAND		SILT OR CLAY	
	COARSE	FINE	COARSE	MEDIUM	FINE	

Sample No.	Elev-or Depth	Classification	Net w %	LL	PL	PI
1-59	40-42	Tan c-f. SAND w trace of silt	10			
5-59	40-42	Tan c-f. SAND	13.3			
8-57	30-32	Lt. gray, med-f. SAND	19.4			

GRADATION CURVES

Project: Inlets and Beaches  
 Area: N.J.  
 Boring No.: ANCB  
 Date:

Station ANCB-1 S-4

7/24/4

Date 25 August Time 1500

Tube \_\_\_\_\_ Temp. 24.5 °C

Date analyzed 27 August

Remarks \_\_\_\_\_

W.C. 19.6%

SIZE DISTRIBUTION

Percent Fines by Diameter  
WT (microns)

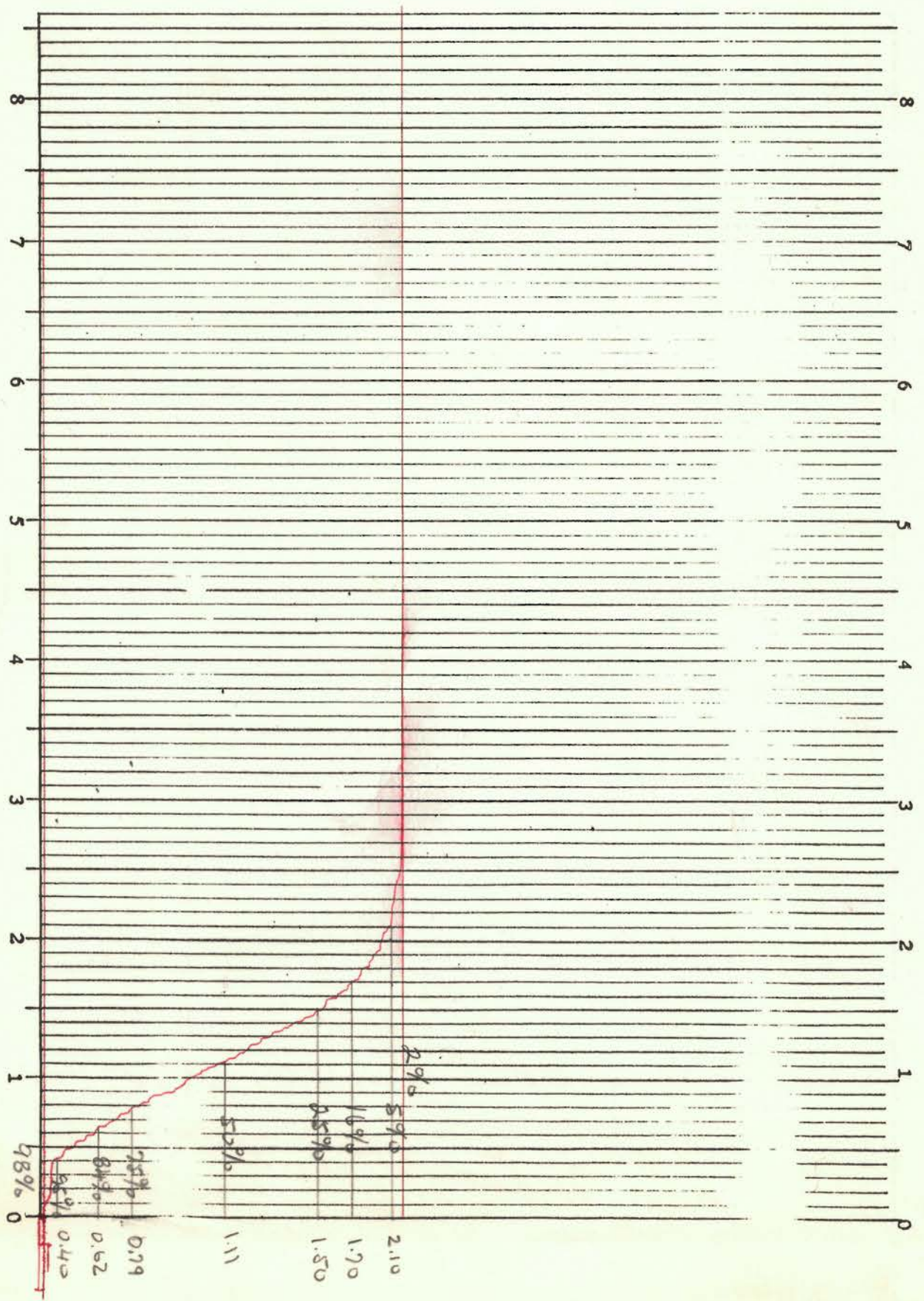
5	142
16	164
25	178
50	226
75	299
84	374
95	586
	585

% Fines 2% % + No. 18 5%  
% CaCO<sub>3</sub> 2%

M<sub>φ</sub> .248 σ<sub>φ</sub> \_\_\_\_\_

Chart speed 2.020 in/min.

CERC - FORM 24



Station ANCB-1 S-6

Job # 1

Date 25 Aug 64 Time 1500

Tube \_\_\_\_\_ Temp. 25.7 °C

Date analyzed 26 Aug 64

Remarks \_\_\_\_\_

W.C. 24.4%

SIZE DISTRIBUTION

Percent	Diameter (microns)
5	102
16	116
25	122
50	138
75	161
84	176
95	224
	225

% Fines 2% % CaCO<sub>3</sub> 0%

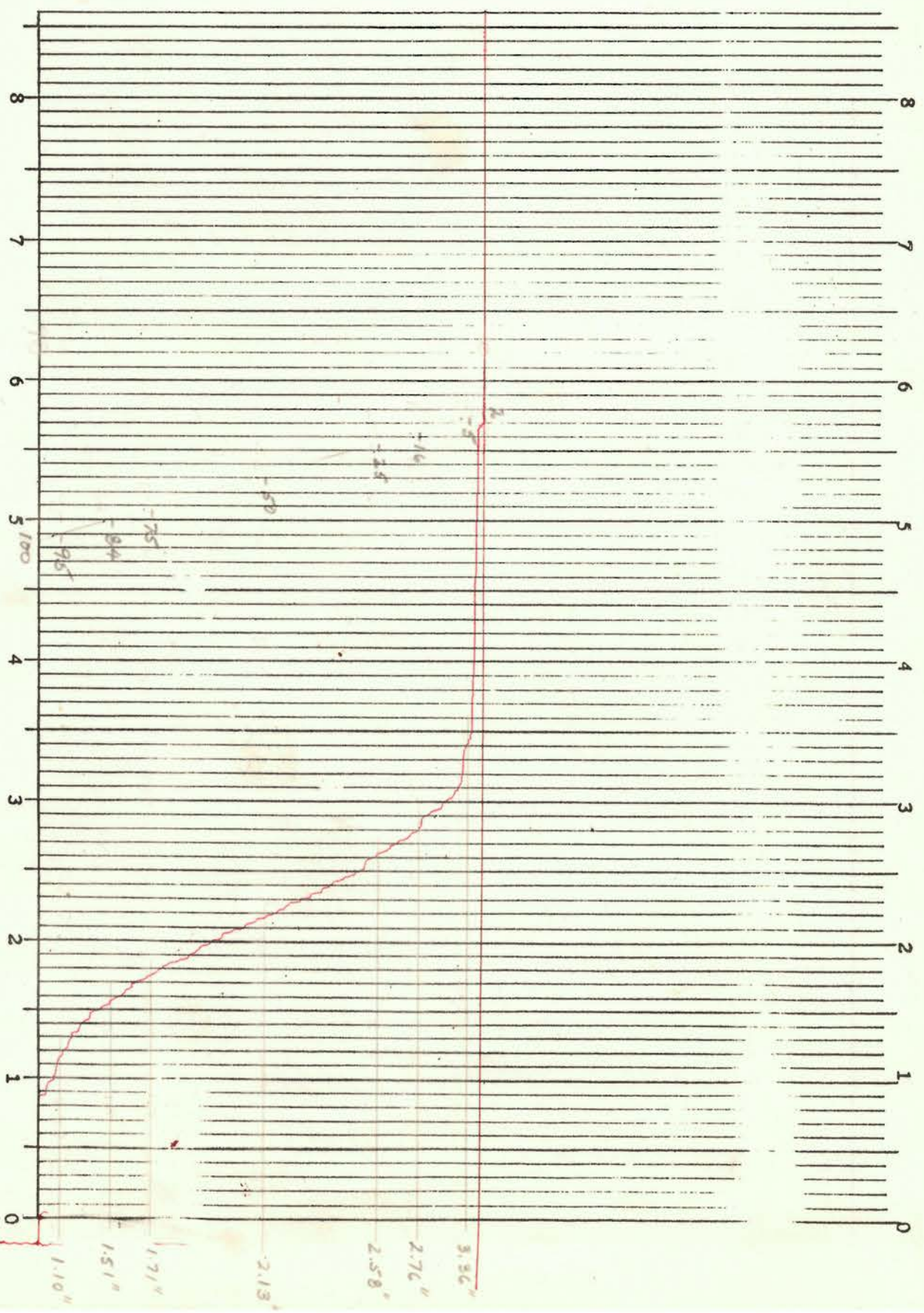
$$M_{\phi} = \frac{\sum (d_i^3 \cdot \%)}{\sum (d_i^3)}$$

$\phi = \frac{100}{M_{\phi}}$

Chart speed 2.020 in/min.

CERC — FORM 24

Nov. 7, 1963



Station ANCB-3 S-7

Test #7

Date 25 Aug 64 Time 1500

Tube 27 Aug 64 Temp. 24.9 °C

Date analyzed \_\_\_\_\_

Remarks \_\_\_\_\_

W.C. : 14.5%

SIZE DISTRIBUTION

Percent	Diameter (microns)
5	135 /
16	163 /
25	178 /
50	233 /
75	385 /
84	518 /
95	788 /
% Fines	1% <sup>H<sub>8</sub></sup> %CaCO <sub>3</sub> 5%

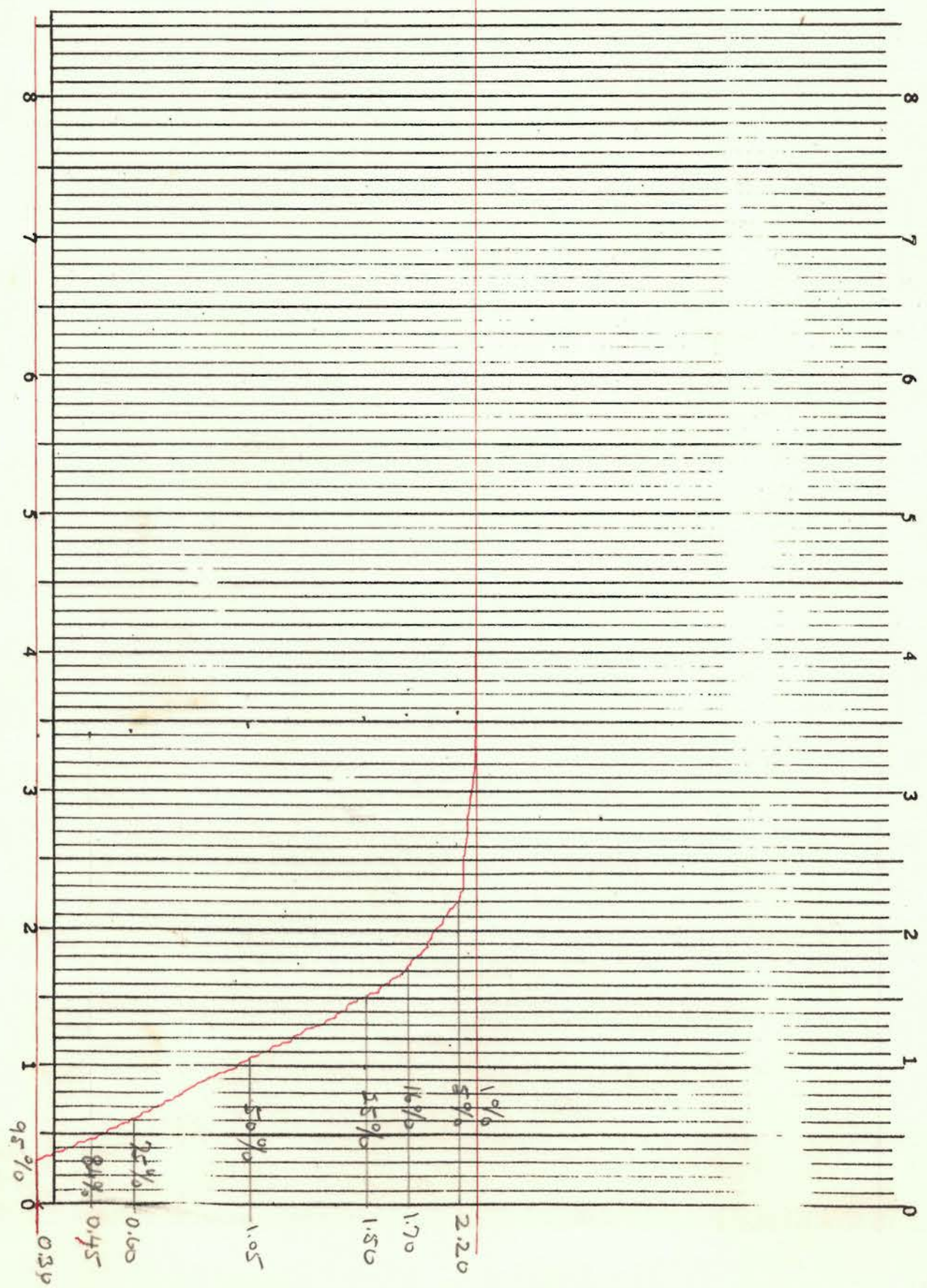


Chart speed 2.020 in/min.

CERC - FORM 24

Station ANCB-4 S-3

Ton # 6

Date 25 Aug 64 Time 1500

Tube 27 A Temp. 24.8 °C

Date analyzed 27 Aug 64

Remarks \_\_\_\_\_

W.C. 26.6%

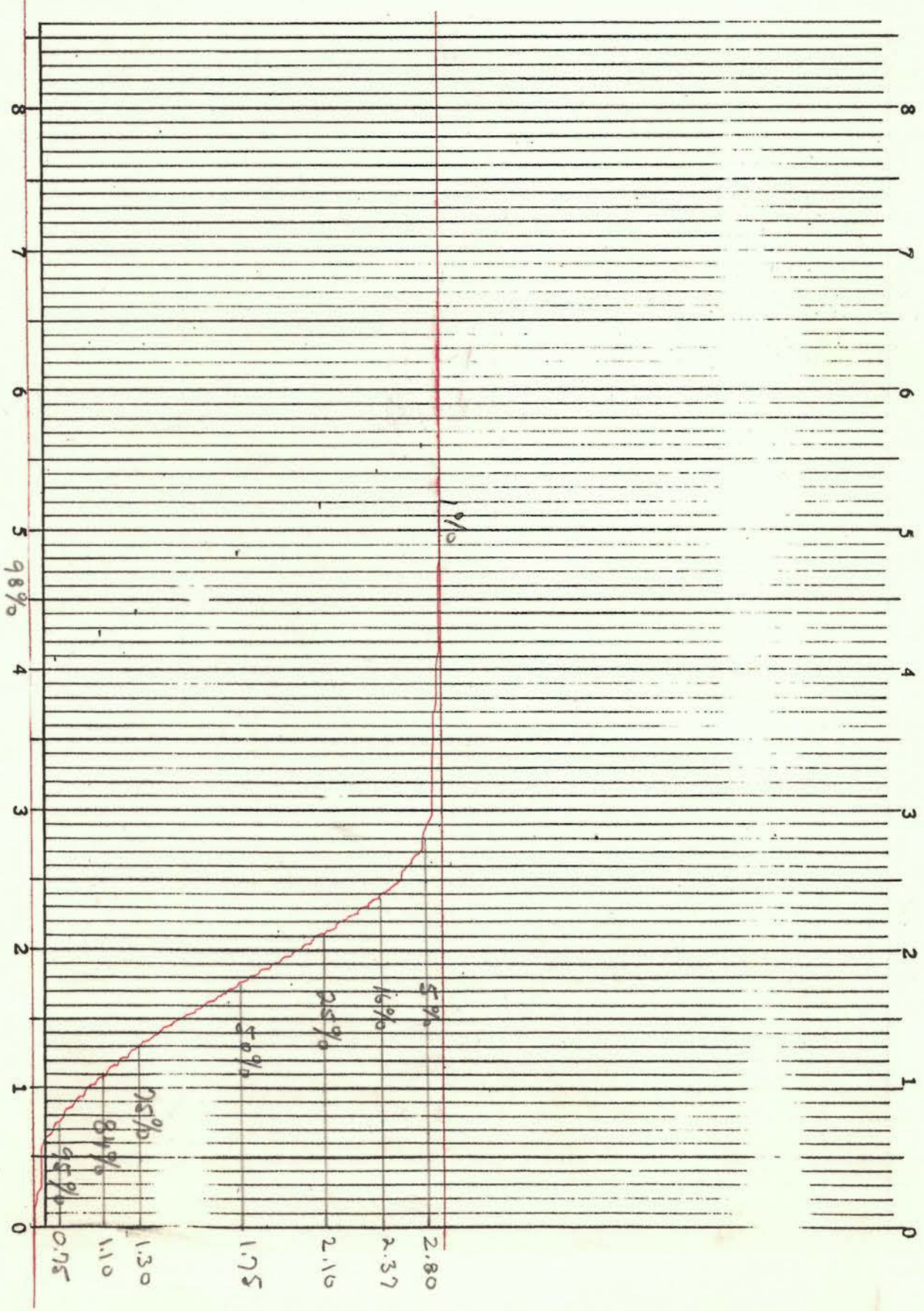
SIZE DISTRIBUTION

Percent	Diameter (microns)
5	116 ✓
16	129 ✓
25	141 ✓
50	160 ✓
75	198 ✓
84	226 ✓
95	312 ✓
% Fines	1% $\frac{9\% + N\%}{8}$ 2%

M<sub>0</sub> \_\_\_\_\_  $\sigma$  \_\_\_\_\_

Chart speed 2.020 in/min.

CERC — FORM 24



Station ANCB-5 S-3

Tar # 13

Date 25 Aug 64 Time 1500

Tube \_\_\_\_\_ Temp. 25.8 °C

Date analyzed 29 Aug 64

Remarks \_\_\_\_\_

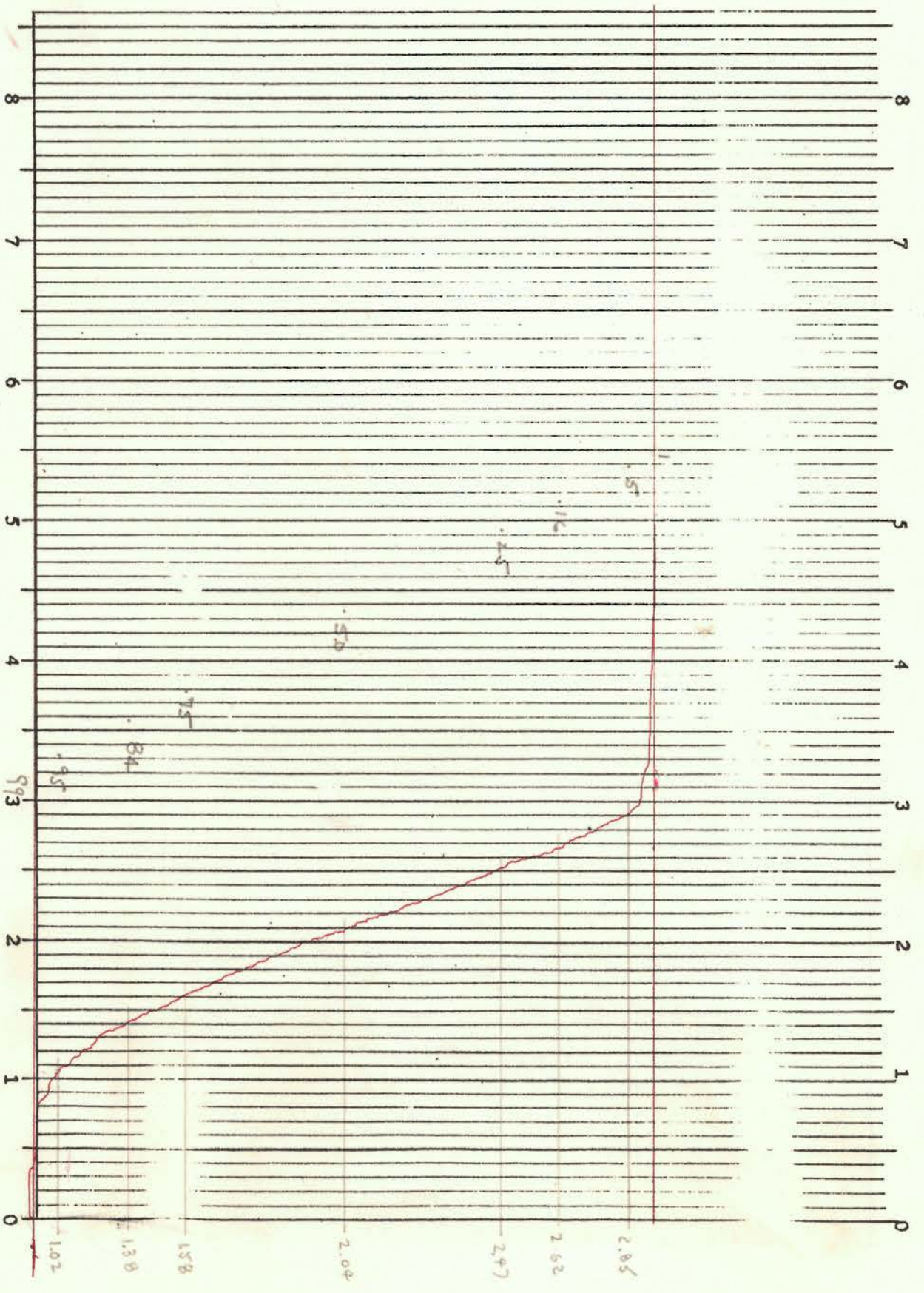
W.G. 24.9%

SIZE DISTRIBUTION	
Percent	Diameter (microns)
5	114 ✓
16	121 ✓
25	125 ✓
50	142 ✓
75	171 ✓
84	188 189
95	237 238
% Fines 1%	$\frac{\% + N_{0.18}}{\% CaCO_3}$ 1%

$M_{\phi}$  \_\_\_\_\_  $\sigma_{\phi}$  \_\_\_\_\_

Chart speed 2.020 in/min.

CERC — FORM 24



Station ANCB-7 S-3

Tot #10

Date 25 Aug 64 Time 1500

Tube \_\_\_\_\_ Temp. 24.6 °C

Date analyzed 27 Aug 64

Remarks \_\_\_\_\_

W.C. 22.3%

SIZE DISTRIBUTION

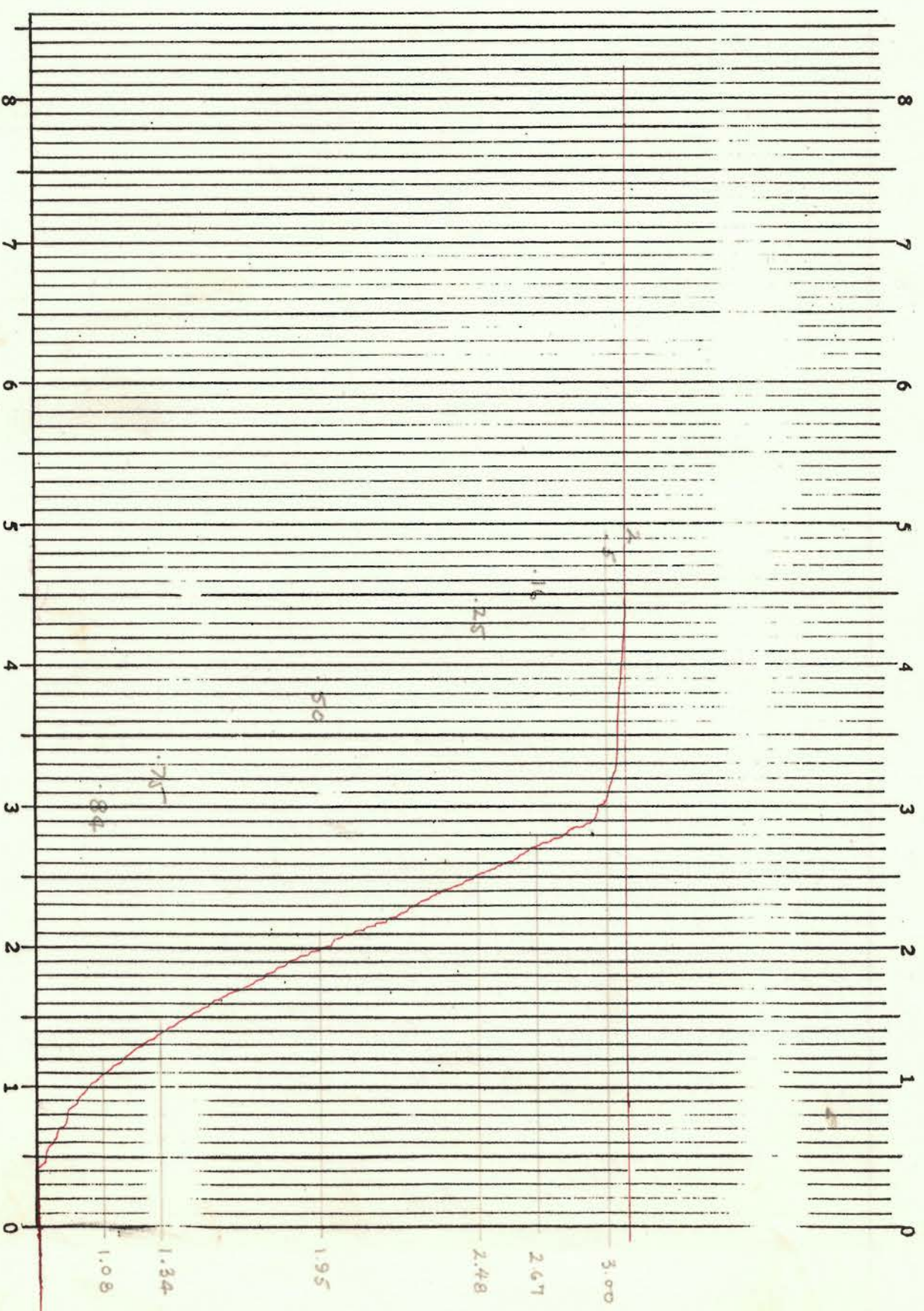
Percent	Diameter (microns)
5	111 ✓
16	120 ✓
25	125 ✓
50	149 ✓
75	195 ✓
84	226 ✓
95	—

% Fines 2% %CaCO<sub>3</sub> 6%

M<sub>φ</sub> \_\_\_\_\_ C<sub>φ</sub> \_\_\_\_\_

Chart speed 2.020 in/min.

CERC — FORM 24



Station ANCR-8 S-2

Tax # 2

Date 25 Aug 64 Time 1500

Tube \_\_\_\_\_ Temp. 24.7 °C

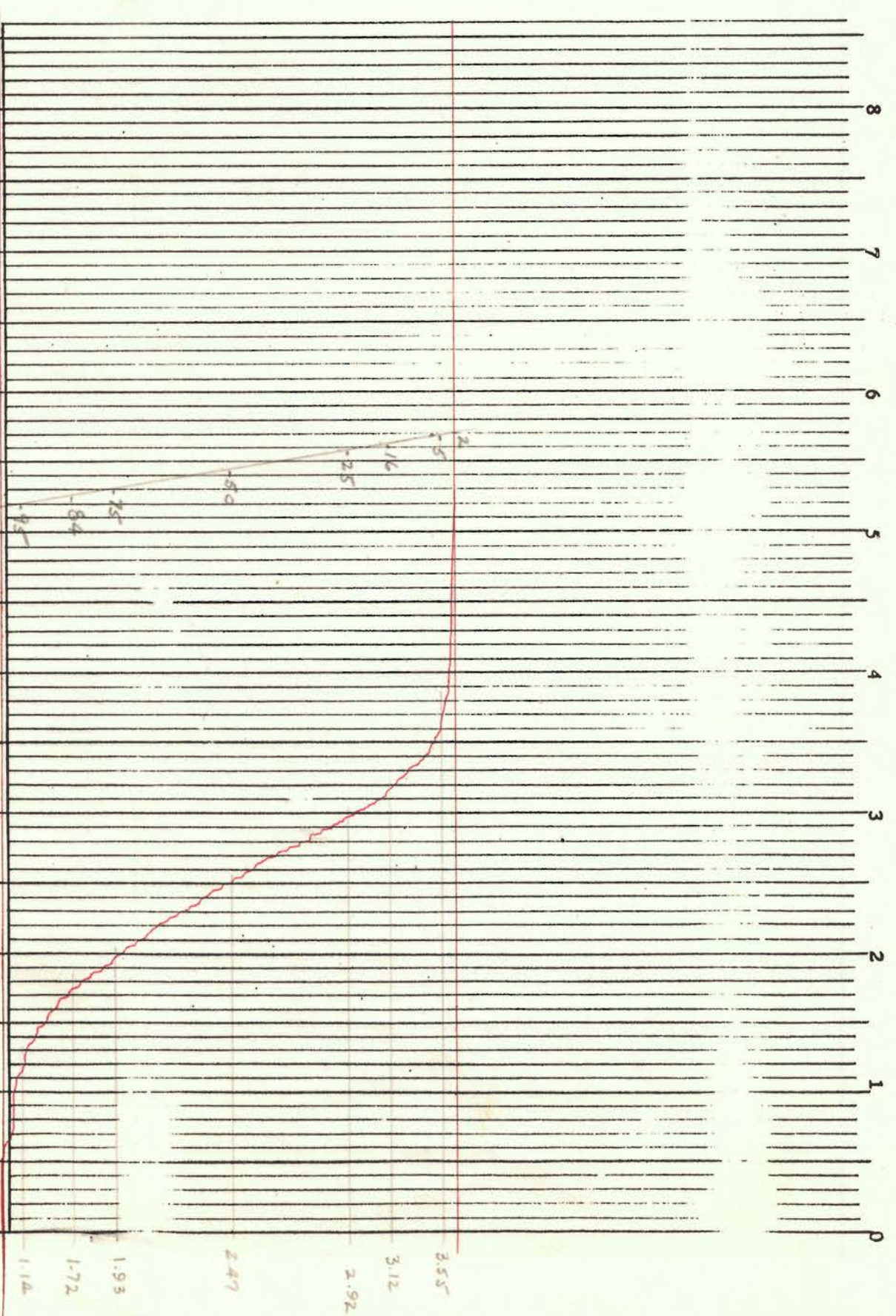
Date analyzed 27 Aug 64

Remarks \_\_\_\_\_

W.G. 23.2%

SIZE DISTRIBUTION

Percent	Diameter (microns)
5	99 ✓
16	108 ✓
25	113 ✓
50	126 ✓
75	149 ✓
84	161 ✓
95	220 ✓



M<sub>φ</sub> \_\_\_\_\_ σ<sub>φ</sub> \_\_\_\_\_

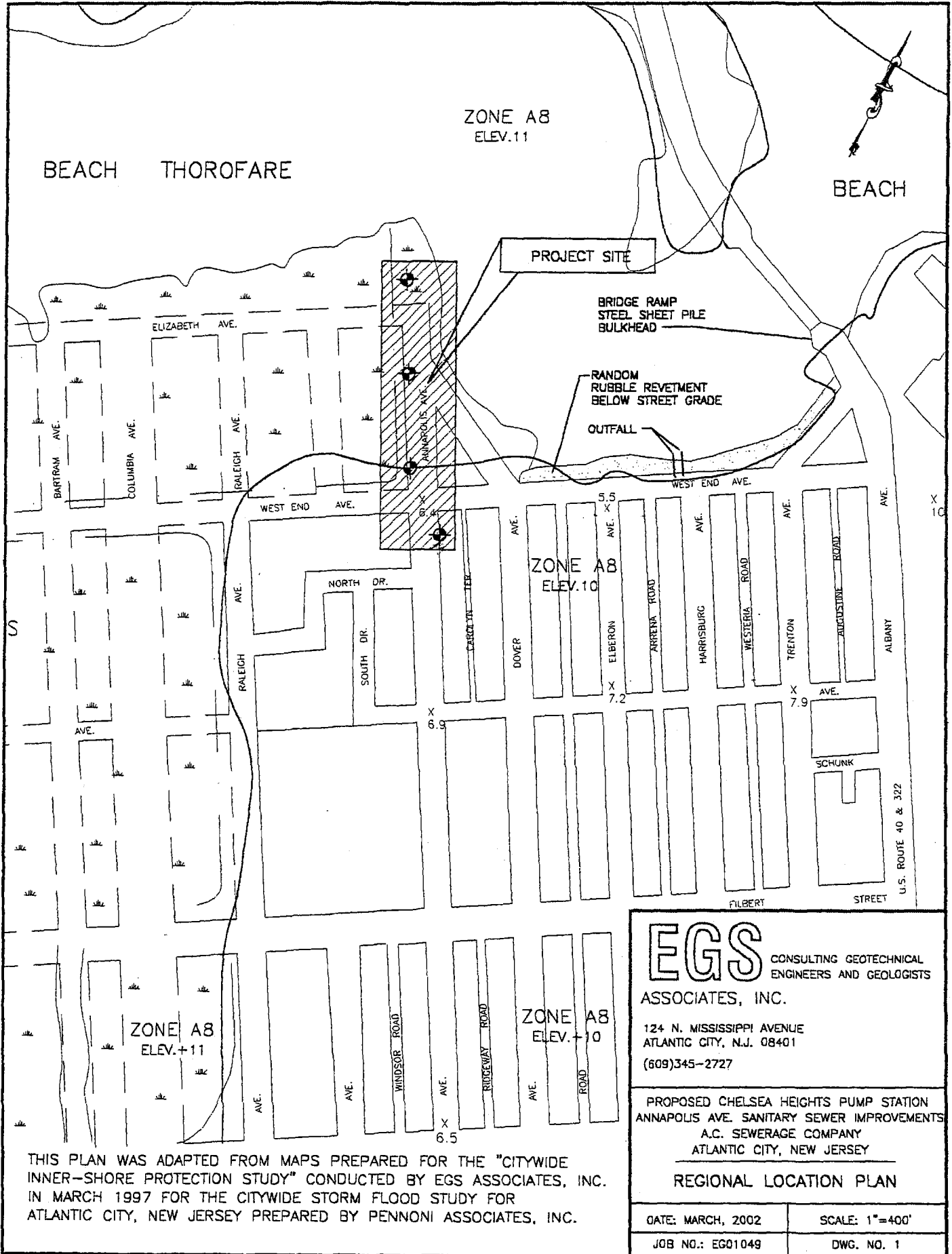
Chart speed 2.020 in/min.

CERC — FORM 24



Attachment 2:

Chelsea Heights Pump Station Boring Logs and Laboratory Testing



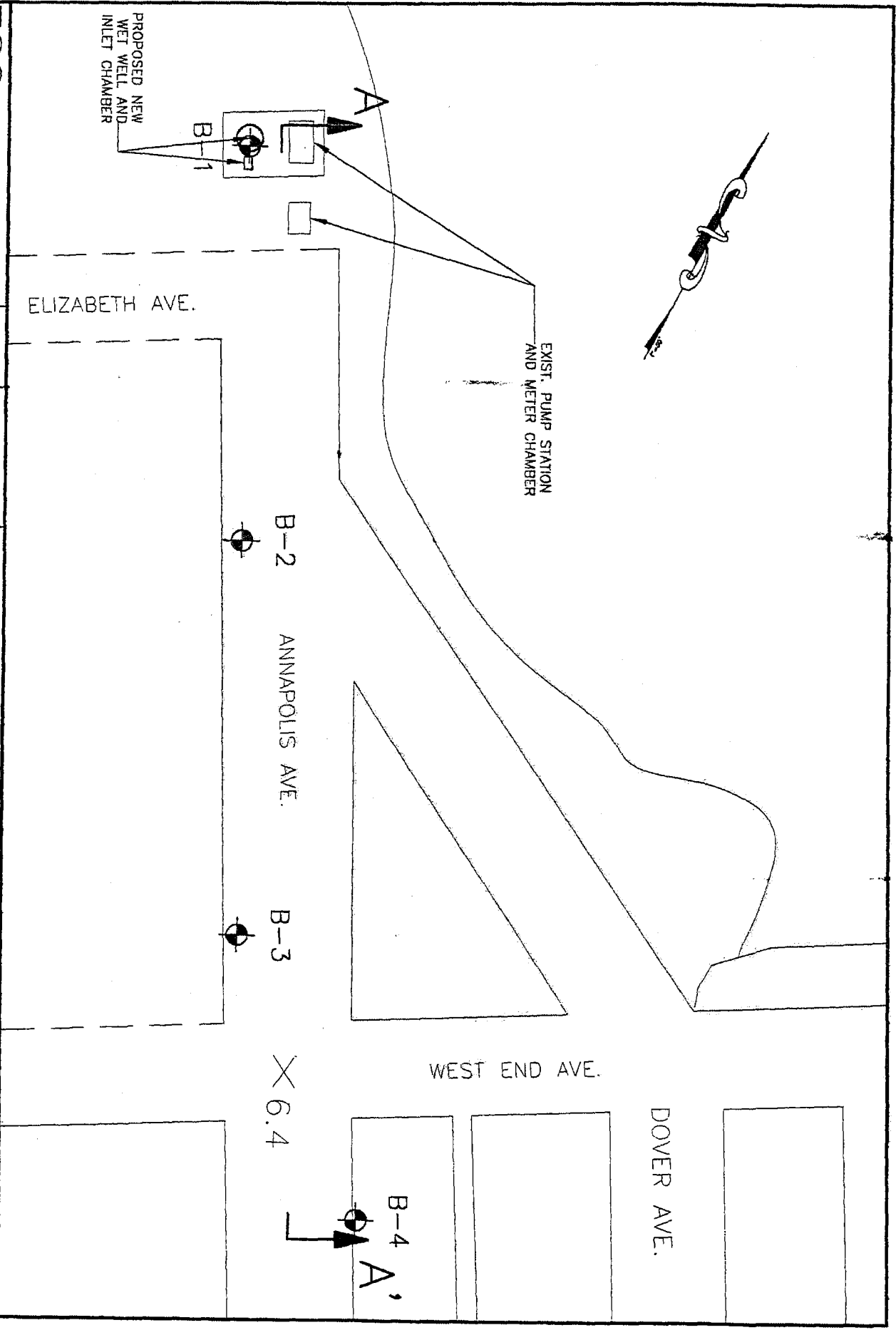
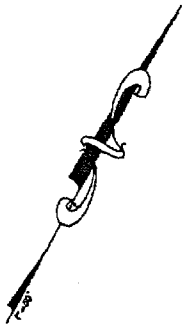
THIS PLAN WAS ADAPTED FROM MAPS PREPARED FOR THE "CITYWIDE INNER-SHORE PROTECTION STUDY" CONDUCTED BY EGS ASSOCIATES, INC. IN MARCH 1997 FOR THE CITYWIDE STORM FLOOD STUDY FOR ATLANTIC CITY, NEW JERSEY PREPARED BY PENNONI ASSOCIATES, INC.

**EGS** CONSULTING GEOTECHNICAL ENGINEERS AND GEOLOGISTS ASSOCIATES, INC.  
 124 N. MISSISSIPPI AVENUE  
 ATLANTIC CITY, N.J. 08401  
 (609)345-2727

PROPOSED CHELSEA HEIGHTS PUMP STATION  
 ANNAPOLIS AVE. SANITARY SEWER IMPROVEMENTS  
 A.C. SEWERAGE COMPANY  
 ATLANTIC CITY, NEW JERSEY

**REGIONAL LOCATION PLAN**

DATE: MARCH, 2002	SCALE: 1"=400'
JOB NO.: EG01049	DWG. NO. 1



PROPOSED NEW  
WET WELL AND  
INLET CHAMBER

EXIST. PUMP STATION  
AND METER CHAMBER

ELIZABETH AVE.

B-2

ANNAPOLIS AVE.

B-3

WEST END AVE.

DOVER AVE.

X 6.4

B-4  
A'

**EGS**

CONSULTING GEOTECHNICAL  
ENGINEERS AND GEOLOGISTS

ASSOCIATES INC.

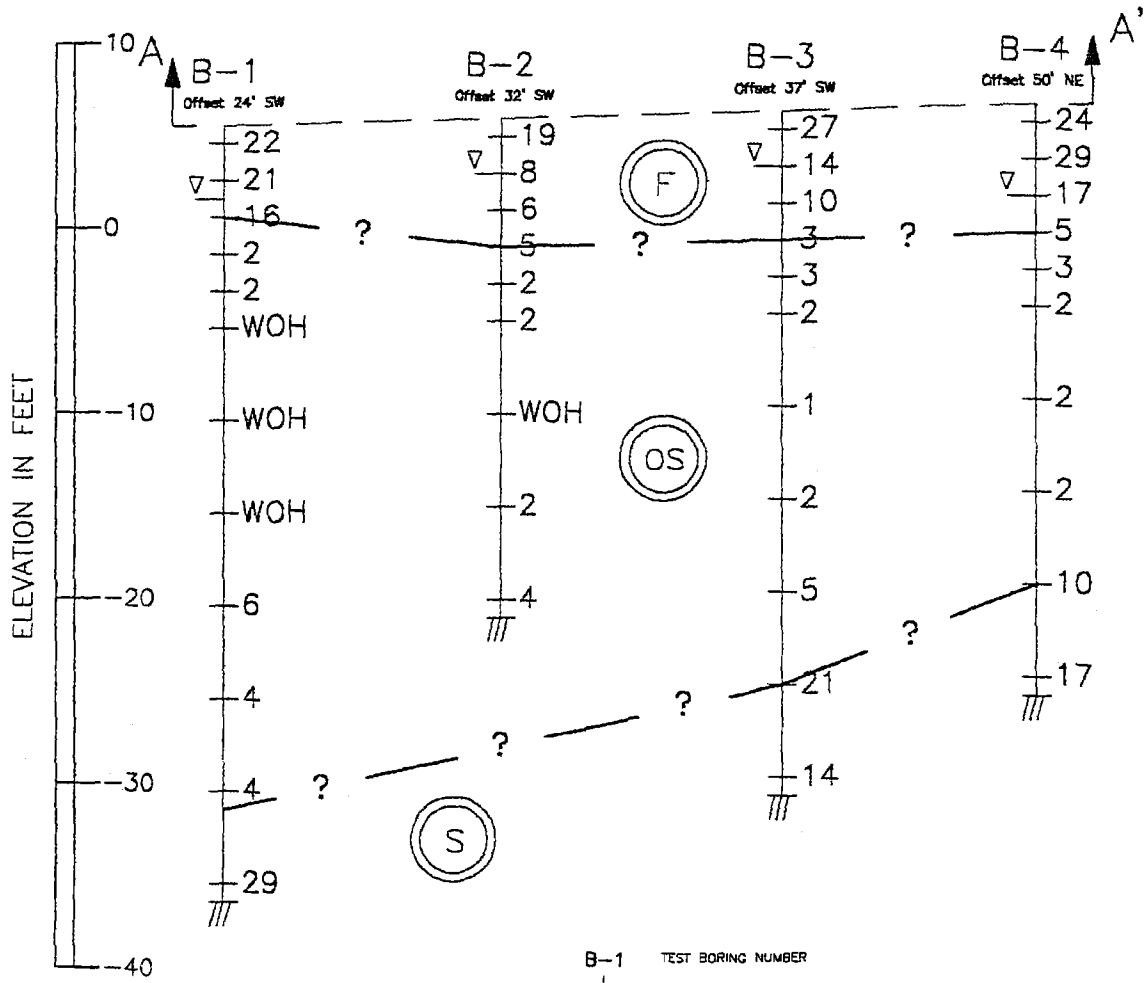
124 N. MISSISSIPPI AVENUE  
ATLANTIC CITY, N.J. 08401  
(609) 349-2727

**BORING LOCATION PLAN**

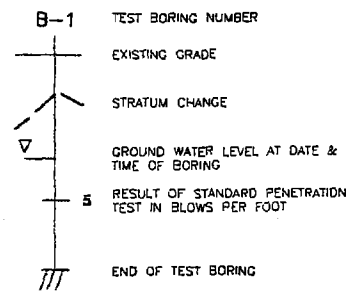
PROPOSED CHELSEA HEIGHTS PUMP STATION  
ANNAPOLIS AVE. SANITARY SEWER IMPROVEMENTS  
A.C. SEWERAGE COMPANY  
ATLANTIC CITY, NEW JERSEY

DATE: MARCH, 2002  
JOB NO. EGO1049




SCALE: 1"=100'  
DWG. NO. 2



ELEVATION IN FEET



GENERALIZED STRATA DESCRIPTIONS

- 
**FILL DEPOSITS LAYER F**  
 FILLS GENERALLY CONSISTING OF COARSE TO FINE SANDS, TRACE SILT, SOME COARSE TO FINE GRAVEL WITH STONE AND CINDER FRAGMENTS, TRACE SHELLS.
- 
**ORGANIC SILT DEPOSIT OS**  
 STRATUM CONSISTING OF ORGANIC SILT, TRACE FIBERS, TRACE SHELLS WITH PENETRATION RESISTANCE N VALUES RANGING FROM WOH TO 21 BLOWS PER FOOT.
- 
**SAND LAYER S**  
 STRATUM CONSISTING OF MEDIUM TO FINE SANDS WITH LITTLE AMOUNTS OF FINES PASSING THE NO. 200 SIEVE, FOUND IN A MEDIUM STATE OF COMPACTION.

## EGS

CONSULTING GEOTECHNICAL  
ENGINEERS AND GEOLOGISTS

**ASSOCIATES, INC.**

124 N. MISSISSIPPI AVENUE  
ATLANTIC CITY, N.J. 08401  
(609)345-2727

---

PROPOSED CHELSEA HEIGHTS PUMP STATION  
ANNAPOLIS AVE. SANITARY SEWER IMPROVEMENTS  
A.C. SEWERAGE COMPANY  
ATLANTIC CITY, NEW JERSEY

---

**SUBSURFACE PROFILE A-A'**

DATE: APRIL, 2002	SCALE: 1"=200' HORZ. 1"=10' VERT.
JOB NO. EGO1049	DWG. NO. 3



**ASSOCIATES, INC.**  
CONSULTING GEOLOGICAL  
ENGINEERS AND  
GEOLOGISTS

**Project:** Chelsea Heights Pump  
Station, Atlantic City, NJ

Sampler: 2 inch split spoon

Sheet: 1 of 2

Hammer/Fall: 140 lbs/30 inch

Boring No.: B-1

Rig Type: Truck

Location Plan: See Plan

Drilling Method:

Drilling Company:

Hollow Stem Auger

M & R Soil Investigations

Project#: EG01049

Ground Elevation: +5.5'

Drilling Inspector: T. Antonetti

Start Date: 3/6/02

Depth To Water: -4.0'

Date/Time:

Soils Engineer: Paul Echaniz, P.E.

End Date: 3/6/02

Ground Water Elev: +1.5'

3/6/02 12:25pm

Depth Below Surface (ft)	Blows					Sample		Identification of Soils/Remarks	Stratigraphy
	Casing per ft.	Sampler per 6 Inches				ID	Depth (ft)		
1		13	12	10	10				
2						S-1	0-2	S-1 Tan cmf SAND, little Silt, some of Gravel. (Fill) (moist)	F
3		12	6	15	13				
4						S-2	2-4	S-2 Dk. Gray mf SAND, little Silt w/brick/stone & cinder fragments. (Fill)	
5		12	11	5	4				
6						S-3	4-6	S-3 Same as S-2 w/little Organic Silt @ bot. (wet)	6.0'
7		1	1	1	1				
8						S-4	6-8	S-4 Dk. Gray Organic Clayey SILT w/fibers. (wet) Rec. = 22"	
9		1	1	1	1				
10						S-5	8-10	S-5 Dk. Gray Organic SILT w/some silt and gravel. (wet) Rec. = 20"	
11		WH	WH	WH	WH				
12						S-6	10-12	S-6 Same as S-5. Rec. = 0	
13									
14									
15									
16		WH	WH	WH	WH				
17						S-7	15-17	S-7 Dk. Gray Organic SILT. (moist) Rec. = 24"	
18									
19									
20									OS
21		WH	WH	WH	WH				
22						S-8	20-22	S-8 Dk. Gray Organic SILT w/fibers. (moist) Rec. = 22"	
23									
24									
25									
26		3	2	4	7				
27						S-9	25-27	S-9 Top: Same as S-8. Rec. = 22" (moist) Bot: Gray f SAND, and Silt w/shell fragments.	
28									
29									
30									
31		3	2	2	3				
32						S-10	30-32	S-10 Top: Dk. Gray Organic SILT w/fibers. Bot: Dk. Gray Organic SILT w/shells.	
33									
34									
35									
36		1	1	3	7				36.5'
37						S-11	35-37	S-11 Gray mf SAND, little Silt. (wet) Rec. = 21"	
38									
39									
40									

**VISUAL IDENTIFICATION TERMS USED**

	Clayey Soils @ Ball Moist		Relative Density (Dr) Of Granular Soils		Consistency of Clayey Soils		Proportions Used	
	Clayey Soils	@ Ball Moist	Very Loose	0-15%	soft (S)	0.1-0.5 tsf	trace	1-10%
Clayey SILT	slight PL	Thread 1/4"	Loose	15-35%	firm (F)	0.5-1.0 tsf	little	10-20%
SILT & CLAY	low PL	Thread 1/8"	Medium	35-65%	med hard (MH)	1.0-2.0 tsf	some	20-35%
CLAY & SILT	med PL	Thread 1/16"	Dense	65-85%	hard (H)	2.0-4.0 tsf	and	35-50%
Silty CLAY	high PL	Thread 1/32"	Very Dense	85-100%	very hard (VH)	over 4.0 tsf		
CLAY	very high PL	Thread 1/64"						



**ASSOCIATES, INC.**  
CONSULTING GEOLOGICAL  
ENGINEERS AND  
GEOLOGISTS

**Project:** Chelsea Heights Pump  
Station, Atlantic City, NJ

Sampler: 2 inch split spoon

Sheet: 2 of 2

Hammer/Fall: 140 lbs/30 inch

Boring No.: B-1

Rig Type: Truck

Location Plan: See Plan

Drilling Method:

Drilling Company:

Hollow Stem Auger

M & R Soil Investigations

Project#: EG01049

Ground Elevation: +5.5'

Drilling Inspector: T. Antonetti

Start Date: 3/6/02

Depth To Water: -4.0'

Date/Time:

Soils Engineer: Paul Echaniz, P.E.

End Date: 3/6/02

Ground Water Elev: +1.5'

3/6/02 12:25pm

Depth Below Surface (ft)	Blows					Sample		Identification of Soils/Remarks	Stratigraphy
	Casing per ft.	Sampler per 6 Inches			ID	Depth (ft)			
40									
41		6	12	11	ZT				S
42					S-12	40-42	S-12 Gray cm <sup>3</sup> SAND, trace <sup>+</sup> Silt, trace f Gravel, trace shells. (wet) Rec. = 20"		42.0'
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									

END OF TEST BORING @ 42.0'

**VISUAL IDENTIFICATION TERMS USED**

	Clayey Soils @ Ball Moist		Relative Density (Dr) Of Granular Soils		Consistency of Clayey Soils		Proportions Used	
	slight PL	Thread 1/4"	Very Loose	0-15%	soft (S)	0.1-0.5 tsf	trace	1-10%
SILT & CLAY	low PL	Thread 1/8"	Loose	15-35%	firm (F)	0.5-1.0 tsf	little	10-20%
CLAY & SILT	med PL	Thread 1/16"	Medium	35-65%	med hard (MH)	1.0-2.0 tsf	some	20-35%
Silty CLAY	high PL	Thread 1/32"	Dense	65-85%	hard (H)	2.0-4.0 tsf	and	35-50%
CLAY	very high PL	Thread 1/64"	Very Dense	85-100%	very hard (VH)	over 4.0 tsf		



**ASSOCIATES, INC.**  
CONSULTING GEOTECHNICAL  
ENGINEERS AND  
GEOLOGISTS

**Project:** Chelsea Heights Pump  
Station, Atlantic City, NJ

Sampler: 2 inch split spoon

Sheet: 1 of 1

Hammer/Fall: 140 lbs/30 inch

Boring No.: B-2

Rig Type: Truck

Location Plan: See Plan

Drilling Method:

Drilling Company:

Hollow Stem Auger

M & R Soil Investigations

Project#: EG01049

Ground Elevation: ~-5.5'

Drilling Inspector: T. Antonetti

Start Date: 3/6/02

Depth To Water: ~-3.0'

Date/Time:

Soils Engineer: Paul Echaniz, P.E.

End Date: 3/6/02

Ground Water Elev: +2.5'

3/6/02 3:14pm

Depth Below Surface (ft)	Blows					Sample		Identification of Soils/Remarks	Stratigraphy
	Casing per ft.	Sampler per 6 Inches			ID	Depth (ft)			
1		5	7	12	12				
2						S-1	0-2	S-1 Dk. Brown & Tan cmf SAND, trace Silt, some of Gravel. (Fill) (moist)	
3		10	5	3	4				F
4						S-2	2-4	S-2 Brown mf SAND, some Silt, some of Gravel. (Fill) (wet) Rec. = 22"	
5		3	3	3	3				
6						S-3	4-6	S-3 Dk. Gray mf SAND, trace Silt, little mf Gravel w/trace shells. (wet)	
7		2	2	3	1				8.0'
8						S-4	6-8	S-4 Dk. Gray mf SAND, trace Silt, some mf Gravel. (wet)	
9		1	1	1	1				
10						S-5	8-10	S-5 Dk. Brown PEAT, little Organic Silt. (wet) Rec. = 8"	
11		1	1	1	1				
12						S-6	10-12	S-6 Gray mf SAND, little Silt. (wet) Rec. = 3"	
13									
14									
15									
16		WH	WH	WH	WH				
17						S-7	15-17	S-7 Dk. Gray Organic SILT w/trace fibers. (moist) Rec. = 24"	
18									OS
19									
20									
21		1	1	1	1				
22						S-8	20-22	S-8 Dk. Gray Organic SILT w/fibers. (moist) Rec. = 20"	
23									
24									
25									
26		1	2	2	1				
27						S-9	25-27	S-9 Top: Same as S-8. Bot: Gray mf SAND, trace Silt w/some shells. (wet) Rec. = 15"	27.0'
28									
29									
30									
31									
32									
33									
34									
35									
36									
37									
38									
39									
40									

VISUAL IDENTIFICATION TERMS USED

	Clayey Soils	@ Ball Moist	Relative Density (Dr) Of Granular Soils		Consistency of Clayey Soils		Proportions Used	
Clayey SILT	slight PL	Thread 1/4"	Very Loose	0-15%	soft (S)	0.1-0.5 tsf	trace	1-10%
SILT & CLAY	low PL	Thread 1/8"	Loose	15-35%	firm (F)	0.5-1.0 tsf	little	10-20%
CLAY & SILT	med PL	Thread 1/16"	Medium	35-65%	med hard (MH)	1.0-2.0 tsf	some	20-35%
Silty CLAY	high PL	Thread 1/32"	Dense	65-85%	hard (H)	2.0-4.0 tsf	and	35-50%
CLAY	very high PL	Thread 1/64"	Very Dense	85-100%	very hard (VH)	over 4.0 tsf		



**ASSOCIATES, INC.**  
CONSULTING GEOLOGICAL  
ENGINEERS AND  
GEOLOGISTS

**Project:** Chelsea Heights Pump  
Station, Atlantic City, NJ

Sampler: 2 inch split spoon

Sheet: 1 of 1

Hammer/Fall: 140 lbs/30 inch

Boring No.: B-3

Rig Type: Truck

Location Plan: See Plan

Drilling Method:

Drilling Company:

Hollow Stem Auger

M & R Soil Investigations

Project#: EG01049

Ground Elevation: ++6.5'

Drilling Inspector: T. Antonetti

Start Date: 3/6/02

Depth To Water: ~3.0'

Date/Time:

Soils Engineer: Paul Echaniz, P.E.

End Date: 3/7/02

Ground Water Elev: +3.5'

3/7/02 11:06am

Depth Below Surface (ft)	Blows				Sample		Identification of Soils/Remarks	Stratigraphy
	Casing per ft.	Sampler per 6 Inches			ID	Depth (ft)		
1		11	10	17	12			
2						S-1	0-2	S-1 Tan cmf SAND, trace Silt, some of Gravel.
3		12	6	8	10			
4						S-2	2-4	S-2 Tan cmf SAND, little Silt, little mf Gravel, trace shells.
5		7	5	5	4			(wet)
6						S-3	4-6	S-3 Gray mf SAND, some Silt, trace shells.
7		2	2	1	1			(wet)
8						S-4	6-8	S-4 Top: Same as S-3.
9		1	1	2	2			Bot: Gray Organic SILT. (wet) Rec. = 20"
10						S-5	8-10	S-5 Dk. Gray Organic SILT w/fibers.
11		1	1	1	1			(moist) Rec. = 19"
12						S-6	10-12	S-6 Dk. Gray Organic SILT.
13								(moist) Rec. = 15"
14								
15								
16		1	1	1	1			
17						S-7	15-17	S-7 Dk. Gray Organic SILT.
18								(moist) Rec. = 20"
19								
20								
21		1	1	1	1			
22						S-8	20-22	S-8 Dk. Gray Organic SILT, trace f Sand.
23								(moist) Rec. = 24"
24								
25								
26		2	2	3	6			
27						S-9	25-27	S-9 Gray Organic SILT, little f Sand w/trace shells.
28								(moist) Rec. = 24"
29								
30								
31		7	10	11	15			
32						S-10	30-32	S-10 Top: Same as S-9.
33								Bot: 6" Gray mf SAND, trace Silt.
34								
35								
36		4	6	8	10			
37						S-11	35-37	S-11 Gray mf SAND, some Silt.
38								
39								
40								END OF TEST BORING @ 37.0'

VISUAL IDENTIFICATION TERMS USED

	Clayey Soils @ Ball Moist		Relative Density (Dr) Of Granular Soils		Consistency of Clayey Soils		Proportions Used	
Clayey SILT	slight PL	Thread 1/4"	Very Loose	0-15%	soft (S)	0.1-0.5 tsf	trace	1-10%
SILT & CLAY	low PL	Thread 1/8"	Loose	15-35%	firm (F)	0.5-1.0 tsf	little	10-20%
CLAY & SILT	med PL	Thread 1/16"	Medium	35-65%	med hard (MH)	1.0-2.0 tsf	some	20-35%
Silty CLAY	high PL	Thread 1/32"	Dense	65-85%	hard (H)	2.0-4.0 tsf	and	35-50%
CLAY	very high PL	Thread 1/64"	Very Dense	85-100%	very hard (VH)	over 4.0 tsf		





**ASSOCIATES, INC.**  
CONSULTING GEOTECHNICAL  
ENGINEERS AND  
GEOLOGISTS

**Project:** Chelsea Heights Pump  
Station, Atlantic City, NJ

Sampler: 2 inch split spoon

Sheet: 1 of 1

Hammer/Fall: 140 lbs/30 inch

Boring No.: B-4

Rig Type: Truck

Location Plan: See Plan

Drilling Method:

Drilling Company:

Hollow Stem Auger

M & R Soil Investigations

Project#: EG01049

Ground Elevation: +6.5'

Drilling Inspector: T. Antonetti

Start Date: 3/7/02

Depth To Water: -5.0'

Date/Time:

Soils Engineer: Paul Echaniz, P.E.

End Date: 3/7/02

Ground Water Elev: +1.5'

3/7/02 2:36pm

Depth Below Surface (ft)	Blows				Sample		Identification of Soils/Remarks	Stratigraphy	
	Casing per ft.	Sampler per 6 Inches			ID	Depth (ft)			
1		11	20	4	15				
2						S-1	0-2	S-1 Top: Brown Topsoil Bot: Decomposed wood piece.	F
3		20	20	19	7				
4						S-2	2-4	S-2 Brown cmf SAND, and Silt, little of Gravel, trace cinder (Fill)	
5		8	8	9	4				
6						S-3	4-6	S-3 Lt. Gray cmf SAND, trace Silt.	
7		3	3	2	1				7.0'
8						S-4	6-8	S-4 Top: Gray mf SAND, trace Silt. Bot: Gray Organic Clayey SILT, some fibers.	
9		2	2	1	2			(wet) Rec. = 20"	
10						S-5	8-10	S-5 Dk. Brown PEAT.	
11		1	1	1	1			(moist) Rec. = 24"	
12						S-6	10-12	S-6 Dk. Gray Organic SILT, w/trace fibers.	
13								(moist) Rec. = 17"	
14									
15									
16		1	1	1	1				OS
17						S-7	15-17	S-7 Dk. Gray Organic SILT, w/trace fibers.	
18								(moist) Rec. = 24"	
19									
20									
21		1	1	1	1				
22						S-8	20-22	S-8 Dk. Gray Organic SILT, w/trace fibers.	
23								(moist) Rec. = 24"	
24									
25									
26		5	5	5	5				26.0'
27						S-9	25-27	S-9 Top: Same as S-8. Bot: 12" Gray mf SAND, little Silt.	
28								(moist) Rec. = 20"	S
29									
30									
31		5	6	11	8				
32						S-10	30-32	S-10 Lt. Gray mf SAND, trace Silt.	
33								(moist) Rec. = 10"	32.0'
34									
35									
36									
37									
38									
39									
40									

END OF TEST BORING @ 32.0'

VISUAL IDENTIFICATION TERMS USED

	Clayey Soils	@ Ball Moist	Relative Density (Dr) Of Granular Soils	Consistency of Clayey Soils	Proportions Used
Clayey SILT	slight PL	Thread 1/4"	Very Loose 0-15%	soft (S)	trace 1-10%
SILT & CLAY	low PL	Thread 1/8"	Loose 15-35%	firm (F)	little 10-20%
CLAY & SILT	med PL	Thread 1/16"	Medium 35-65%	med hard (MH)	some 20-35%
Silty CLAY	high PL	Thread 1/32"	Dense 65-85%	hard (H)	and 35-50%
CLAY	very high PL	Thread 1/64"	Very Dense 85-100%	very hard (VH)	over 4.0 tsf



**ASSOCIATES, INC.**  
 CONSULTING ENGINEERS  
 250 JOHNS

**SUMMARY OF LABORATORY TEST RESULTS**

Project: ACSC Chelsea Heights Pump Station, Atlantic City, New Jersey EG01049 Date: 4/02

Boring & Sample No.	Depth	Classification	Natural Water Content %	Atterberg Limits		Unconfined Compression		Unit Dry Weight PCF	Specific Gravity	Permeability	Compaction	Grain Size	Consolidation	Triaxial	C.B.R.	pH	Organic Content %
				Liquid Limit	Plastic Limit	Stress TSF	Strain %										
B-1		Dk. Gray Organic SILT															
S-4	6-8'	w/trace fibers.	157.4														
B-1	15-	Dk. Gray Organic SILT.															
S-7	17'		60.5														
B-1	20-	Dk. Gray Organic SILT															
S-8	22'	w/fibers.	120.2	129.5	94.4												
B-1	30-	Dk. Gray Organic SILT															
S-10	32'	w/fibers.	25.7														
B-1	40-	Gray cm <sup>+</sup> SAND, trace <sup>+</sup> Silt,										X					
S-12	42'	trace f Gravel.															
B-2		Dk. Brown PEAT, little															
S-5	8-10'	Organic Silt.	146.3														
B-2	15-	Dk. Gray Organic SILT, trace															
S-7	17'	fibers.	50.6														
B-2	20-	Dk. Gray Organic SILT															
S-8	22'	w/fibers.	100.4														
B-3		Dk. Gray Organic SILT															
S-5	8-10'	w/fibers.	61.8														
B-3	10-	Dk. Gray Organic SILT.															
S-6	12'		75.1														
B-3	15-	Dk. Gray Organic SILT.															
S-7	17'		62.3	67.5	58.3												
B-3	20-	Dk. Gray Organic SILT, trace															
S-8	22'	f Sand.	35.5														

\* See Test Curves



**ASSOCIATES, INC.**  
 CONSULTING GEOTECHNICAL  
 ENGINEERS AND  
 SOILS CORP.

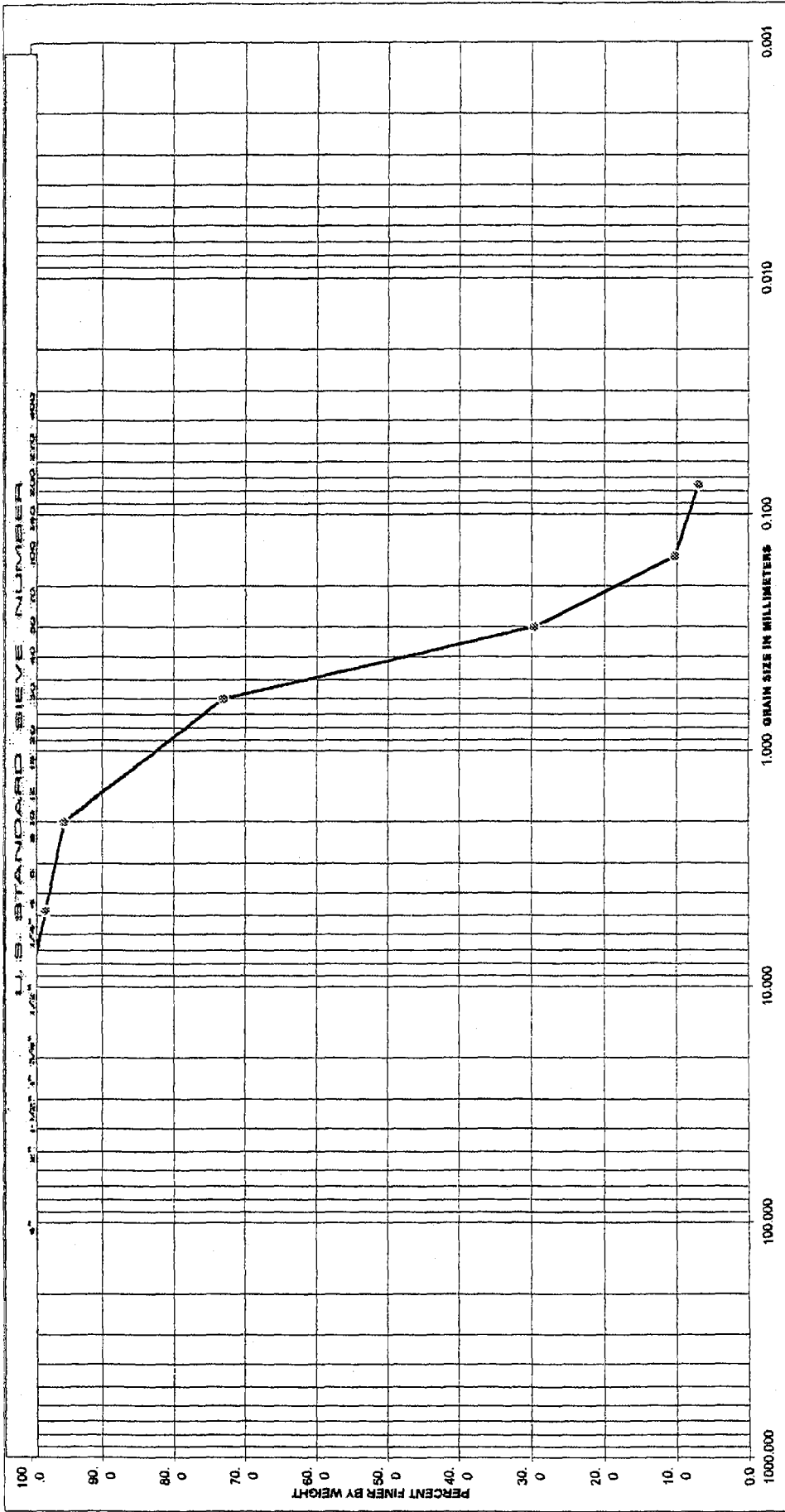
**SUMMARY OF LABORATORY TEST RESULTS**

Project: ACSC Chelsea Heights Pump Station, Atlantic City, New Jersey EG01049

Date: 4/02

Boring & Sample No.	Depth	Classification	Natural Water Content %	Atterberg Limits		Unconfined Compression		Unit Dry Weight PCF	Specific Gravity	Permeability	Compaction	Grain Size	Consolidation	Triaxial	C.B.R.	pH	Organic Content %
				Liquid Limit	Plastic Limit	Stress TSF	Strain %										
B-3	25-	Dk. Gray Organic SILT w/trace fibers.	24.9														
S-9	27'																
B-4	8-10'	Dk. Gray Organic SILT.	105.8														
S-5																	
B-4	10-	Dk. Gray Organic SILT w/fibers.	47.6														
S-6	12'																
B-4	15-	Dk. Gray Organic SILT w/fibers.	31.8														
S-7	17'																
B-4	20-	Dk. Brown PEAT, little Organic Silt.	33.1														
S-8	22'																

\* See Test Curves



<b>COBBLES</b>	<b>GRAVEL</b>	<b>SAND</b>	<b>SILT OR CLAY</b>
76.2 3 in.	25.4 1 in.	0.59 30	0.074 200
<b>BURNISHED CLASSIFICATION</b>	<b>NO.</b>	<b>NO.</b>	<b>Millimeters Sieves</b>
	2.0 No. 10	0.25 60	0.074 200

CHELSEA HEIGHTS PUMP STATION, ATLANTIC CITY, NEW JERSEY  
 B-1 S-12 40-42' EG01049  
 GRAY cm+f SAND, trace+ Silt, trace f Gravel.



**ASSOCIATES, INC.**  
 CONSULTING GEOTECHNICAL  
 ENGINEERS AND  
 GEOLOGISTS

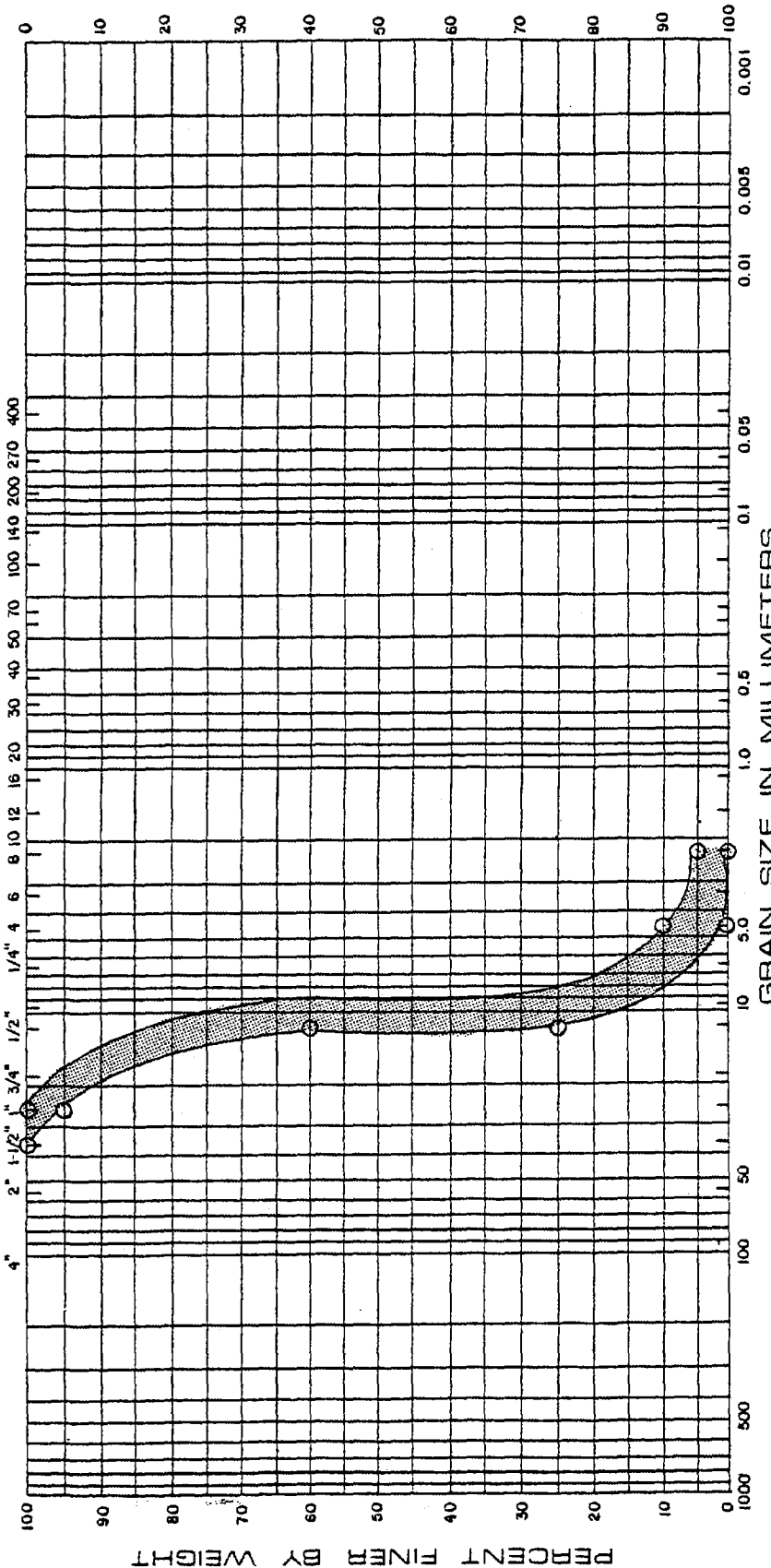
## GRADATION CURVE

Allowable Gradational Envelope  
NEW JERSEY DEPARTMENT OF TRANSPORTATION  
Coarse Aggregate Size No. 57

---

<u>U.S Standard Sieve Size</u>	<u>Percent Finer By Weight</u>
1-1/2"	100
1"	95-100
1/2"	25-60
No. 4	0-10
No. 8	0-5

U. S. STANDARD SIEVE NUMBER



BURMISTER CLASSIFICATION		GRAVEL		SAND		SILT OR CLAY	
COBBLES	c	m	f	m	f	m	f
76.2	25.4	9.52	2.0	0.59	0.25	0.074	Millimeters
3 in.	1 in.	3/8 in.	Nos. 10	30	60	200	Sieves

NEW JERSEY INTERAGENCY ENGINEERING COMMITTEE

COARSE AGGREGATE

SIZE NUMBER 57

GRADATION CURVES

**Allowable Gradational Envelope**

**Type "G" Fill**

**Granular Fill**

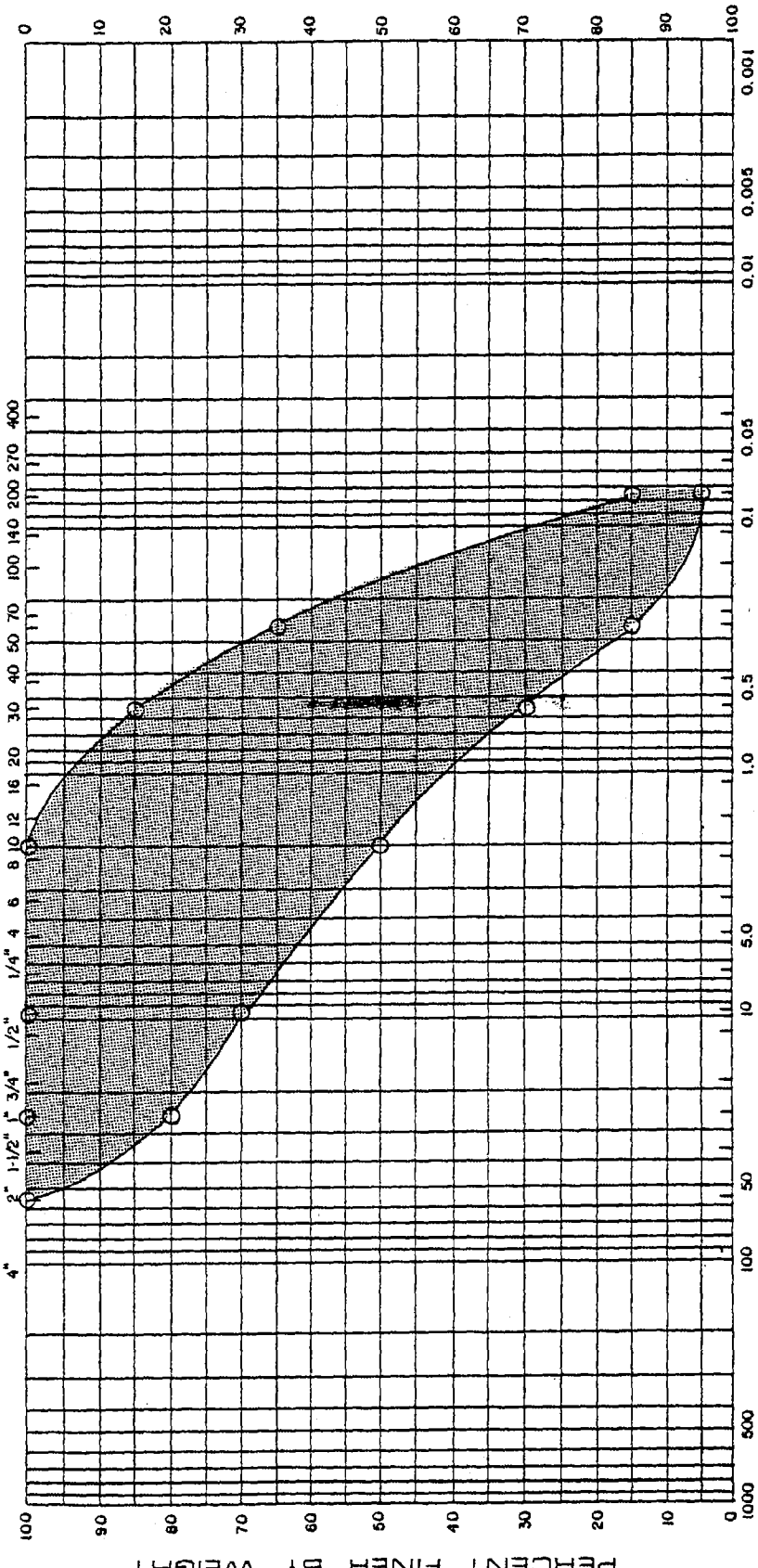
---

**U.S Standard Sieve Size**

**Percent Finer By Weight**

2"	100
1"	80-100
3/8"	70-100
No. 10	50-100
No. 30	30-85
No. 60	15-65
No. 200	5-15

U. S. STANDARD SIEVE NUMBER



BURMISTER CLASSIFICATION		GRAVEL		SAND		SILT OR CLAY	
COBBLES	GRAVEL	SAND	SAND	SILT OR CLAY	SILT OR CLAY	SILT OR CLAY	SILT OR CLAY
c	m	f	c	m	f	0.074	0.005
	in.	Nos.	mm	mm	Sieves		
76.2	25.4	2.0	0.59	0.25	0.074	0.005	
3 in.	3/8 in.	10	30	60	200		

GRANULAR FILL

TYPE "G" FILL

GRADATIONAL ENVELOPE

GRADATION CURVES

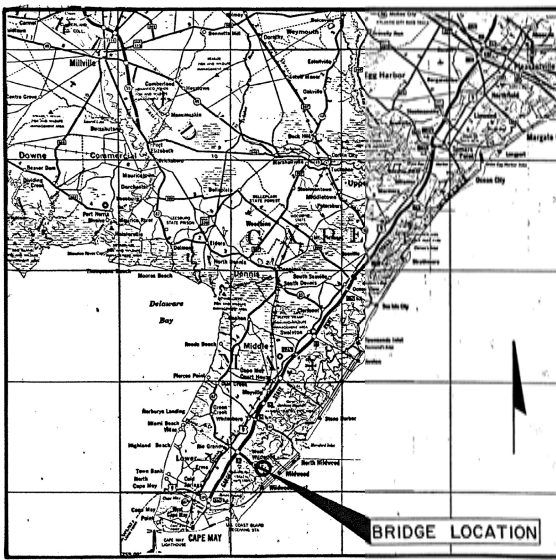
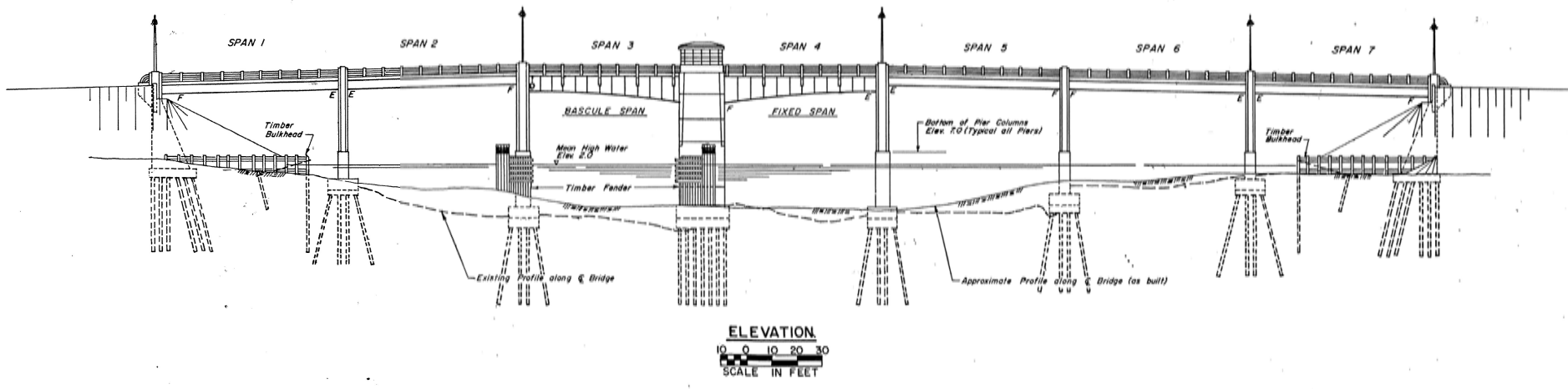
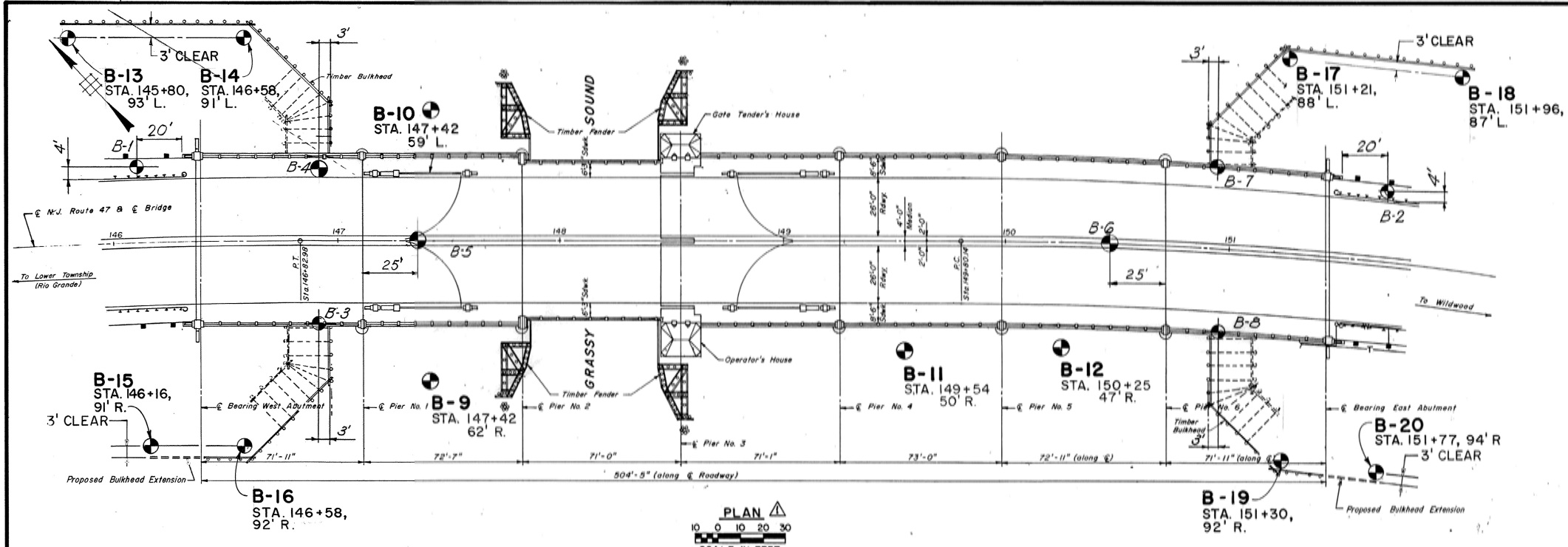
**E G S**

ASSOCIATES, INC.  
CONSULTING GEOTECHNICAL  
ENGINEERS AND  
GEOLOGISTS



Attachment 3:

New Jersey Department of Transportation Geotechnical Data Management System Boring  
Location Plans and Boring Logs



- LEGEND**
- BORING LOCATION (B-1 THRU B-8)  
BORING CONTRACT-A (1987)
  - BORING LOCATION (B-9 THRU B-20)  
BORING CONTRACT-B (1994)

**ROUTE 47 - SECTION 1F**  
 STRUCTURE NO. 0506-150  
 THE GEORGE A. REDDING BRIDGE  
 LOWER TOWNSHIP AND WILDWOOD CITY  
 CAPE MAY COUNTY, NEW JERSEY  
**AS-DRILLED LOCATION PLAN**  
 BORING CONTRACTS A & B

ROUTE: 47

LOCAL NAME: GEORGE REDDING BRIDGE

TEST HOLE NO. B-12

SECTION:

STATION: 150+25 OFFSET: 47' RT REFERENCE LINE: BRIDGE CL

GROUND LINE ELEVATION: -6.5

BORINGS MADE BY: W. GEORGE DATE STARTED: 8-15-94

ELEVATION G.W.T. Date: 8-15-94  
 0 Hr. +2 MHW (TIDE) Date:  
 24 Hr. ft. P.P. Installed Date:

INSPECTOR: POR H. CHHEU DATE COMPLETED: 8-16-94

CASING BLOWS	SAMPLE NO. DEPTH			Blows on Spoon			REC.	Sample ID and Profile Change
				0-6"	6-12"	12-18"		
0 MUD	S-1	0	1.5	WOH	WOH	WOH	18	Gray F SAND, some Organic Silt (organic odor)
DRLING								
5	S-2	5.0	6.5	WOH	WOH	3	12	Gray organic SILT and F Sand, trace Clay (strong organic odor)
10	S-3	10.0	11.5	WOR	WOR	WOR	11	Gray organic Clayey SILT, little F Sand (organic odor)
	V	12.0	13.5					
15	U-1	14.0	16.0				24	
	S-4	16.0	17.5	2	2	3	5	Gray M(+)-F SAND, some Silt
20	S-5	20.0	21.5	6	6	7	18	Gray SILT, little F Sand Penetration test: V=1.25; H=1.0
25	S-6	25.0	26.5	9	8	15	16	Gray SILT and CLAY, some M-F(+) Sand, trace M Gravel Penetration test: V=.75; H=1.0
30	S-7	30.0	31.5	13	13	18	5	Light Gray C(+)-M-F SAND, trace Silt

Nominal I. D. of Drive Pipe	4"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Split Barrel Sampler	140 lbs
Drop of hammer on Split Barrel Sampler	30"

The subsurface information shown hereon was obtained for state design and estimate purposes. It is made available to authorized users only that they may have access to the same information available to the State. It is presented in good faith, but is not intended as a substitute for investigations, interpretation or judgement of such authorized users.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 47

LOCAL NAME: GEORGE REDDING BRIDGE

TEST HOLE NO. B-12

SECTION:

STATION: 150+25 OFFSET: 47' RT REFERENCE LINE: BRIDGE CL GROUND LINE ELEVATION: -6.5

BORINGS MADE BY: W. GEORGE DATE STARTED: 8-15-94

0 Hr. +2 MHW (TIDE)  
24 Hr.

ELEVATION G.W.T.

Date: 8-15-94  
Date:  
Date:

INSPECTOR: FOR H. CHHEU DATE COMPLETED: 8-16-94

ft. P.P. Installed

CASING BLOWS	SAMPLE NO. DEPTH			Blows on Spoon			REC.	Sample ID and Profile Change
				0-6"	6-12"	12-18"		
MUD								
35 DRLING	S-8	35.0	36.5	21	23	29	8	SAME
40	S-9	40.0	41.5	21	26	17	8	SAME
45	S-10	45.0	46.5	1	3	5	18	Green Silty CLAY, trace F Sand Penetration test: V=1.0; H=.25
	V	47.0	48.5					
50	U-2	49.0	51.0				24	
55	S-11	51.0	52.5	9	11	14	18	Green SILT, trace F Sand Penetration tests: V=1.5; H=1.75
60	S-12	55.0	56.5	8	9	14	18	Gray Silty CLAY Penetration tests: V=1.5; H=1.75
65	S-13	60.0	61.5	7	13	15	18	Gray Clayey SILT, trace F Sand (fine sand and clayey silt are in alternate layers)

45.0

Nominal I. D. of Drive Pipe	4"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Split Barrel Sampler	140 lbs
Drop of hammer on Split Barrel Sampler	30"

The subsurface information shown hereon was obtained for State design and estimate purposes. It is made available to authorized users only that they may have access to the same information available to the State. It is presented in good faith but is not intended as a substitute for investigations, interpretation or judgement of such authorized users.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_ \_ \_ \_

ROUTE: 47

LOCAL NAME: GEORGE REDDING BRIDGE

TEST HOLE NO. B-12

SECTION:

STATION: 150+25 OFFSET: 47' RT REFERENCE LINE: BRIDGE CL

GROUND LINE ELEVATION: -6.5

BORINGS MADE BY: W. GEORGE DATE STARTED: 8-15-94

0 Hr. +2 MHW (TIDE)  
24 Hr.

ELEVATION G.W.T.

Date: 8-15-94

INSPECTOR: POR H. CHHEU DATE COMPLETED: 8-16-94

ft. P.P. Installed

Date:

CASING BLOWS	SAMPLE NO. DEPTH			Blows on Spoon			REC.	Sample ID and Profile Change	
				0-6"	6-12"	12-18"			
65	MUD	S-14	65.0	66.5	14	14	14	18	SAME Penetration test: V=1.25, H=0.5
	DRLING								
70		S-15	70.0	71.5	21	16	20	18	SAME Penetration test: V=1.25; H=.75
75		S-16	75.0	76.5	6	6	12	18	Gray CLAY and SILT, trace F Sand Penetration test: V=1.25; H=1.25
		V	77.0	78.5					79.0
80		S-17	79.0	80.5	23	31	32	5	Gray M-F(+) GRAVEL, C-M(+)-F SAND, some silt
									85.0
85		S-18	85.0	86.5	5	5	6	18	Green Silty CLAY Penetration test: V=1.75; H=1.25
		U-3	87.0	89.0				24	
90		V	89.0	90.5					
		S-19	90.5	92.0	5	7	12	18	SAME Penetration test: V=1.5; H=1.25
95		S-20	95.0	96.5	4	4	7	18	SAME Penetration test: V=1.25; H=1.25

Nominal I. D. of Drive Pipe	4"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Split Barrel Sampler	140 lbs
Drop of hammer on Split Barrel Sampler	30"

The subsurface information shown hereon was obtained for State design and estimate purposes. It is made available to authorized users only that they may have access to the same information available to the State. It is presented in good faith but is not intended as a substitute for investigations, interpretation or judgement of such authorized users.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 47

LOCAL NAME: GEORGE REDDING BRIDGE

TEST HOLE NO. B-12

SECTION:

STATION: 150+25 OFFSET: 47' RT REFERENCE LINE: BRIDGE CL

GROUND LINE ELEVATION: -6.5

BORINGS MADE BY: W. GEORGE DATE STARTED: 8-15-94

0 Hr. +2 MHW (TIDE)  
24 Hr.

ELEVATION G.W.T.

Date: 8-15-94

INSPECTOR: POR H. CHHEU DATE COMPLETED: 8-16-94

ft. P.P. Installed

Date:  
Date:

	CASING BLOWS	SAMPLE NO. DEPTH		Blows on Spoon			REC.	Sample ID and Profile Change	
				0-6"	6-12"	12-18"			
100	MUD	S-21	100	101.5	2	5	6	18	SAME Penetration test: V=1.0; H=.75
	DRLING								
105		S-22	105.0	106.5	3	7	8	18	SAME Penetration test: V=.5; H=.5
110		S-23	110.0	111.5	6	13	31	18	Gray Clayey SILT, some F Sand Penetration test: V=2.25; H=2.25
115		S-24	115.0	116.5	36	59	95	10	Gray M(+)-F SAND, little Silt
120		S-25	120.0	120.9	64	100		7	Light pink M(+)-F SAND, some M-F Gravel, little Silt End of boring at 120.9'
125									
130									

Nominal I. D. of Drive Pipe	4"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Split Barrel Sampler	140 lbs
Drop of hammer on Split Barrel Sampler	30"

The subsurface information shown hereon was obtained for State design and estimate purposes. It is made available to authorized users only that they may have access to the same information available to the State. It is presented in good faith but is not intended as a substitute for investigations, interpretation or judgement of such authorized users.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 47

LOCAL NAME: GEORGE REDDING BRIDGE

TEST HOLE NO. B-17

SECTION:

STATION: 151+21 OFFSET: 88' LT REFERENCE LINE: BRIDGE CL

GROUND LINE ELEVATION: 3.5

BORINGS MADE BY: W. GEORGE DATE STARTED: 8/10/94

0 Hr. 1.0  
24 Hr.

ELEVATION G.W.T.

Date: 8/11/94

INSPECTOR: POR H. CHHEU DATE COMPLETED: 8/11/94

ft. P.P. Installed

Date:

CASING BLOWS	SAMPLE NO. DEPTH			Blows on Spoon			REC.	Sample ID and Profile Change	
				0-6"	6-12"	12-18"			
0	DRIVEN	S-1	0	1.5	2	2	3	7	Brown C-M-F(+) SAND, some Silt
	CASING								
5		S-2	5.0	6.5	5	6	6	11	Gray F SAND, some Silt
10		S-3	10.0	11.5	2	2	2	12	Gray F SAND, little Silt
15		S-4	15.0	16.5	3	4	6	18	SAME
20		S-5	20.0	21.5	4	6	9	18	Gray F SAND and organic Clayey Silt
25		S-6	25.0	26.5	3	5	7	18	Gray F SAND, some Silt
30		S-7	30.0	31.5	12	14	18	18	Gray F SAND and Silt

20.0

Nominal I. D. of Drive Pipe	4"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Drive Pipe	300 lbs
Weight of hammer on Split Barrel Sampler	140 lbs
Drop of hammer on Drive Pipe	24"
Drop of hammer on Split Barrel Sampler	30"

The subsurface information shown hereon was obtained for state design and estimate purposes. It is made available to authorized users only that they may have access to the same information available to the State. It is presented in good faith, but is not intended as a substitute for investigations, interpretation or judgement of such authorized users.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 47

LOCAL NAME: GEORGE REDDING BRIDGE

TEST HOLE NO. B-17

SECTION:

STATION: 151+21 OFFSET: 88' LT REFERENCE LINE: BRIDGE CL

GROUND LINE ELEVATION: 3.5

BORINGS MADE BY: W. GEORGE DATE STARTED: 8/10/94

0 Hr. 1.0  
24 Hr.

ELEVATION G.W.T.

Date: 8/11/94  
Date:  
Date:

INSPECTOR: POR H. CHHEU DATE COMPLETED: 8/11/94

ft. P.P. installed

CASING BLOWS	SAMPLE NO. DEPTH			Blows on Spoon			REC.	Sample ID and Profile Change		
				0-6"	6-12"	12-18"				
35	DRIVEN	S-8	35.0	36.5	11	15	17	18	Gray Clayey SILT, trace F Sand	35.0
	CASING									
40		S-9	40.0	41.5	23	34	40	10	Gray C(+)-M-F SAND, trace Silt	40.0
45		S-10	45.0	46.5	20	22	26	12	Light Gray C-M(+)-F SAND, trace Silt	
50		S-11	50.0	51.5	18	24	29	10	Gray C(+)-M-F SAND, some Silt	
55		S-12	55.0	56.5	25	31	48	7	Light gray C-M(+)-F SAND, little Silt	
60		S-13	60.0	61.5	28	42	69	10	SAME	61.5
									End of Boring at 61.5'	
65										

Nominal I. D. of Drive Pipe	4"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Drive Pipe	300 lbs
Weight of hammer on Split Barrel Sampler	140 lbs
Drop of hammer on Drive Pipe	24"
Drop of hammer on Split Barrel Sampler	30"

The subsurface information shown hereon was obtained for State design and estimate purposes. It is made available to authorized users only that they may have access to the same information available to the State. It is presented in good faith, but is not intended as a substitute for investigations, interpretation or judgement of such authorized users.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_



ROUTE: 47

LOCAL NAME: GEORGE REDDING BRIDGE

TEST HOLE NO. B-18

SECTION:

STATION: 151+96 OFFSET: 87' LT REFERENCE LINE: BRIDGE CL

GROUND LINE ELEVATION: 3.9

BORINGS MADE BY: W. GEORGE

DATE STARTED: 8/9/94

0 Hr. -3.1  
24 Hr. 1.9

ELEVATION G.W.T.

Date: 8/9/94  
Date: 8/10/94  
Date:

INSPECTOR: POR H. CHHEU

DATE COMPLETED: 8/9/94

ft. P.P. Installed

0	CASING BLOWS	SAMPLE NO. DEPTH			Blows on Spoon			REC.	Sample ID and Profile Change
					0-6"	6-12"	12-18"		
0	25	S-1	0	1.5	3	3	4	5	Gray F SAND, some M Gravel, little Silt
5	40	S-2	5.0	6.5	2	2	4	18	Gray C-M(+)-F SAND, some Silt, little shells
10	60	S-3	10.0	11.5	5	5	5	7	Gray F SAND, little Silt
15	100	S-4	15.0	16.5	4	6	9	11	Gray F SAND and Silt
20	81	S-5	20.0	21.5	2	2	2	12	Gray F SAND and organic Silt (strong organic odor)
25	92	S-6	25.0	26.5	4	7	9	18	SAME
30	162	S-7	30.0	31.5	28	33	42	16	Gray M-F(+) SAND, some Silt (organic odor)

20.0

Nominal I.D. of Drive Pipe	4"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Drive Pipe	300 lbs
Weight of hammer on Split Barrel Sampler	140 lbs
Drop of hammer on Drive Pipe	24"
Drop of hammer on Split Barrel Sampler	30"

The subsurface information shown herein was obtained for State design and estimate purposes. It is made available to authorized users only that they may have access to the same information available to the State. It is presented in good faith, but is not intended as a substitute for investigations, interpretation or judgement of such authorized users.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 47

LOCAL NAME: GEORGE REDDING BRIDGE

TEST HOLE NO. B-18

SECTION:

STATION: 151+96 OFFSET: 87' LT REFERENCE LINE: BRIDGE CL

GROUND LINE ELEVATION: 3.9

BORINGS MADE BY: W. GEORGE

DATE STARTED: 8/9/94

0 Hr. -3.1  
24 Hr. 1.9

ELEVATION G.W.T.

Date: 8/9/94  
Date: 8/10/94  
Date:

INSPECTOR: POR H. CHHEU

DATE COMPLETED: 8/9/94

ft. P.P. Installed

CASING BLOWS	SAMPLE NO. DEPTH		Blows on Spoon			REC.	Sample ID and Profile Change			
			0-6"	6-12"	12-18"					
35	202	S-8	35.0	36.5	5	7	10	18	Gray organic SILT, some F Sand (organic odor) Penetration tests: V=1.25, H=1.0	
40	340	S-9	40.0	41.5	10	16	16	16	Gray C-M(+)-F SAND, some Silt	40.0
45	309	S-10	45.0	45.9	32	100		11	Light gray C-M(+)-F SAND, trace Silt .4'	
50	470	S-11	50.0	51.5	14	17	38	18	Light gray C(+)-M-F SAND, trace F Gravel, trace Silt	
55	520	S-12	55.0	56.5	27	46	52	10	Gray M(+)-F SAND, some Silt (strong organic odor)	
60		S-13	59.0	60.5	18	38	100	7	SAME	60.5
									End of boring at 60.5'	
65										

Nominal I.D. of Drive Pipe	4"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Drive Pipe	300 lbs
Weight of hammer on Split Barrel Sampler	140 lbs
Drop of hammer on Drive Pipe	24"
Drop of hammer on Split Barrel Sampler	30"

The subsurface information shown hereon was obtained for State design and estimate purposes. It is made available to authorized users only that they may have access to the same information available to the State. It is presented in good faith, but is not intended as a substitute for investigations, interpretation or judgement of such authorized users.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 47

LOCAL NAME: GEORGE REDDING BRIDGE

TEST HOLE NO. B-20

SECTION:

STATION: 151+77 OFFSET: 94' RT REFERENCE LINE: BRIDGE CL GROUND LINE ELEVATION: 6.3

BORINGS MADE BY: W. GEORGE DATE STARTED: 7/27/94

0 Hr. 2.3'  
24 Hr. \*

ELEVATION G.W.T.

Date: 7/28/94  
Date: 7/29/94  
Date:

INSPECTOR: POR H. CHHEU DATE COMPLETED: 7/28/94

ft. P.P. installed

CASING BLOWS	SAMPLE NO. DEPTH			Blows on Spoon			REC.	Sample ID and Profile Change
				0-6"	6-12"	12-18"		
98	S-1	0	1.5	6	7	7	11	Gray M-F(+) SAND, some silt, trace M-F Gravel
105	S-2	5.0	6.5	4	3	3	16	Black M-F(+) SAND and Silt (slightly organic odor)
DRIVEN CASING	S-3	10.0	11.5	8	7	4	10	Gray M-F(+) SAND, some Silt
	S-4	15.0	16.5	3	4	5	7	Gray F SAND, trace Silt
	S-5	20.0	21.5	8	9	7	18	Gray F SAND, little silt
	S-6	25.0	26.5	4	4	5	18	SAME
140	S-7	30.0	31.5	19	23	31	18	Dark gray F SAND and Silt

Nominal I.D. of Drive Pipe	4"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Drive Pipe	300 lbs
Weight of hammer on Split Barrel Sampler	140 lbs
Drop of hammer on Drive Pipe	24"
Drop of hammer on Split Barrel Sampler	30"

The subsurface information shown hereon was obtained for state design and estimate purposes. It is made available to authorized users only that they may have access to the same information available to the State. It is presented in good faith, but is not intended as a substitute for investigations, interpretation or judgement of such authorized users.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 47

LOCAL NAME: GEORGE REDDING BRIDGE

TEST HOLE NO. B-20

SECTION:

STATION: 151+77 OFFSET: 94' RT REFERENCE LINE: BRIDGE CL

GROUND LINE ELEVATION: 6.3

BORINGS MADE BY: W. GEORGE DATE STARTED: 7/27/94

0 Hr. 2.3'  
24 Hr. \*

ELEVATION G.W.T.

Date: 7/28/94  
Date: 7/29/94  
Date:

INSPECTOR: POR H. CHHEU DATE COMPLETED: 7/28/94

ft. P.P. installed

CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon			REC.	Sample ID and Profile Change		
			0-6"	6-12"	12-18"				
35	163	S-8	35.0	36.5	5	7	8	18	Gray F SAND, some Silt
40	180	S-9	40.0	41.5	16	18	20	18	Dark gray M-F(+) SAND and Silt
45	190	S-10	45.0	46.5	5	7	8	18	Gray M(+)-F SAND, little Silt
50	MUD	S-11	50.0	51.5	12	16	24	5	SAME
	DRLING								
55		S-12	55.0	56.5	12	12	17	16	Gray M(+)-F SAND, trace Silt
60		S-13	60.0	61.5	12	15	19	10	SAME
									61.5
									End of boring at 61.5'
65									

Nominal I.D. of Drive Pipe	4"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Drive Pipe	300 lbs
Weight of hammer on Split Barrel Sampler	140 lbs
Drop of hammer on Drive Pipe	24"
Drop of hammer on Split Barrel Sampler	30"

The subsurface information shown hereon was obtained for State design and estimate purposes. It is made available to authorized users only that they may have access to the same information available to the State. It is presented in good faith, but is not intended as a substitute for investigations, interpretation or judgement of such authorized users.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 147 LOCAL NAME: Structure Boring (Beach Creek) TEST HOLE NO. S-97

SECTION: Burleigh to N. Wildwood

STATION: 271+94 OFFSET: 360L REFERENCE LINE: Survey Baseline GROUND LINE ELEVATION: -7.0

BORINGS MADE BY: F. Sipple DATE STARTED: 9-25-84

Elevation G.W.T. \_\_\_\_\_  
 0 Hr. Depth of water varies \_\_\_\_\_ Dates 10-2-8  
 24 Hr. from 6.0' to 11.0' \_\_\_\_\_ Dates \_\_\_\_\_  
 \_\_\_\_\_ ft. P.P. Installed \_\_\_\_\_

INSPECTOR: P. Calise DATE COMPLETED: \_\_\_\_\_

CASING BLOWS	SAMPLE NO. DEPTH		Blows on Spoon			REC.	Sample ID and Profile Change	Notes
			0-6	6-12	12-18			
	S-1	0' - 1.5'	4	5	7	.4'	Dark gray f SAND, trace Silt w/shells	
5	S-2A	5.0' - 6.5'	1	1	2	1.5'	Dark gray f SAND, trace(+) Silt w/shells	6.0'
	S-2B						Gray SILT	
10	S-3	10.0' - 11.5'	8	10	5	1.4'	Gray mf SAND, little (-) Silt w/shells	9.0'
15	S-4	15.0' - 16.5'	1	1	1	1.5'	Gray cf SAND, some Silt w/roots	
20	S-5	20.0' - 21.5'	2	2	3	1.0'	Gray SILT, some cf Sand, w/shells	18.0'
25	S-6	25.0' - 26.5'	10	15	30	1.0'	Gray cf SAND, trace cf Gravel, trace Silt w shells	23.0'
30	S-7	30.0' - 31.5'	6	8	10	1.5'	Gray SILT & CLAY	
35	S-8	35.0' - 36.5'	6	5	9	1.5'	Gray SILT & CLAY, trace cf Sand	27.0'
40								

Nominal I.D. of Drive Pipe	" 3 1/2 "
Nominal I.D. of Split Barrel Sampler	1 1/2 "
Weight of hammer on Drive Pipe	300 lbs.
Weight of hammer on Split Barrel Sampler	140 lbs.
Drop of hammer on Drive Pipe	24 "
Drop of hammer on Split Barrel Sampler	30 "

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 147 LOCAL NAME: Structure Boring (Beach Creek) TEST HOLE NO. S-97  
 SECTION: Burleigh to N. Wildwood  
 STATION: 271+94 OFFSET: 3601 REFERENCE LINE: Survey Baseline GROUND LINE ELEVATION: -7.0'  
 BORINGS MADE BY: F. Sipple DATE STARTED: 9-25-84 Elevation G.W.T. 10-2-84  
 INSPECTOR: P. Calise DATE COMPLETED: 10-2-84 24 Hr. Depth of water varied from 6.0' to 11.0 ft. P.P. Installed

CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon			REC.	Sample ID and Profile Change
			0-6	6-12	12-18		
40	S-9	40.0' 41.5'	5	6	5	1.5'	Gray SILT & CLAY, little cf Sandw/shell & fibers
45	S-10	45.0' 46.5'	3	5	6	1.1'	Gray SILT & CLAY, little(-)cf Sandw/shell brown fibers
50	S-11	50.0' 51.5'	8	7	9	.5'	Gray cf SAND, little mf Gravel, trace (+) Silt
55	S-12	55.0' 56.5'	4	7	8	1.0'	Gray SILT & CLAY, trace cf Sand
60	S-13	60.0' 61.5'	8	10	14	1.5'	Gray CLAY & SILT
65	S-14	65.0' 66.5'	5	9	15	1.5'	Same
70	S-15	70.0' 71.5'	3	5	6	.8'	Same
75	S-16	75.0' 76.5'	5	6	8	.5'	Same
80							

Nominal I.D. of Drive Pipe	"3 1/2"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Drive Pipe	300 lbs.
Weight of hammer on Split Barrel Sampler	140 lbs.
Drop of hammer on Drive Pipe	24"
Drop of hammer on Split Barrel Sampler	30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata -----

ROUTE: 147 LOCAL NAME: Structure Boring (Beach Creek) TEST HOLE NO. S-97

SECTION: Burleigh to N. Wildwood

STATION: 271+94 OFFSET: 360L REFERENCE LINE: Survey Baseline GROUND LINE ELEVATION: -7.0

BORINGS MADE BY: F. Sipple DATE STARTED: 9-25-84

INSPECTOR: P. Calise DATE COMPLETED: 10-2-84

0 Hr. Depth of water varies  
 24 Hr. \_\_\_\_\_ ft. P.P. Installed  
 Elevation G.W.T. \_\_\_\_\_  
 Date 10-2-84

CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon			REC.	Sample ID and Profile Change	Date	
			0-6	6-12	12-18				
80	S-17	80.0'	81.5'	2	2	5	1.5'	Gray CLAY & SILT	
85	S-18	85.0'	86.5'	6	6	8	1.5'	Same	
90	S-19	90.0'	91.5'	27	70	100	1.0'	Gray cf SAND, little mf Gravel, little Silt	98.5
95	S-20	95.0'	96.5'	11	21	100	.5'	Gray & tan cf SAND, little (-) mf Gravel, trace (+) Silt	
100	S-21	100.0'	101.25'	38	87	100	1.1'	Same	
105	S-22	105.0'	106.3'	30	75	100	1.0'	Same	
110	S-23	110.0'	111.5'	16	46	88	1.4'	Grey/tan mf SAND, trace Silt	
115	S-24	115.0'	116.5'	11	13	35	1.5'	Tan mf SAND, trace Silt	
120	Bottom of hole								116.5'

Nominal I.D. of Drive Pipe	3 1/2"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Drive Pipe	300 lbs.
Weight of hammer on Split Barrel Sampler	140 lbs.
Drop of hammer on Drive Pipe	24"
Drop of hammer on Split Barrel Sampler	30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 147 LOCAL NAME: Structure Boring (Beach Creek Area) TEST HOLE NO. S-102  
 SECTION: Burleigh to N. Wildwood  
 STATION: 274+97 OFFSET: 210 LT REFERENCE LINE: Survey Baseline GROUND LINE ELEVATION: 5.61

BORINGS MADE BY: Carl Weller DATE STARTED: 9-7-84  
 INSPECTOR: P. Calise DATE COMPLETED: \_\_\_\_\_  
 0 Hr. Tidal Elevation G.W.T. Date: 9-7-84  
 24 Hr. Date: \_\_\_\_\_  
 \_\_\_\_\_ ft. P.P. Installed Date: \_\_\_\_\_

CASING BLOWS	SAMPLE NO. DEPTH		Blows on Spoon			REC.	Sample ID and Profile Change	
			0-6	6-12	12-18			
Auger 0.0' - 15.0'	S-1	0.0' - 1.5'	6	5	4	1.2'	Tan m(+)f SAND, trace (-) f Gravel, trace (-) Silt, w/roots	
Auger 15.0' - 20.0'	S-2	5.0' - 6.5'	W/H	W/H	W/H	1.5'	Dark grey organic SILT, w/roots	3.5'
Auger 20.0' - 25.0'	S-3	10.0' - 11.5'	6	12	20	1.2'	Grey mf SAND, little (-) Silt w/roots	9.5'
Auger 25.0' - 30.0'	S-4	15.0' - 16.5'	25	35	50	1.3'	Same	
Auger 30.0' - 35.0'	S-5	20.0' - 21.5'	19	29	35	1.2'	Same - no roots	
Auger 35.0' - 40.0'	S-6	25.0' - 26.5'	19	19	13	1.3'	Same	
Auger 40.0' - 45.0'	S-7	30.0' - 31.5'	2	4	13	1.3'	Grey mf SAND, and SILT	
Auger 45.0' - 50.0'	S-8	35.0' - 36.5'	6	9	14	1.2'	Grey CLAY & SILT, trace (+) f Sand	32.5'

Nominal I.D. of Drive Pipe	2 1/2"	4"
Nominal I.D. of Split Barrel Sampler	1 1/2"	
Weight of hammer on Drive Pipe	300 lbs.	
Weight of hammer on Split Barrel Sampler	140 lbs.	
Drop of hammer on Drive Pipe	24"	
Drop of hammer on Split Barrel Sampler	30"	

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_



ROUTE: 147 LOCAL NAME: Structure Boring (Beach creek area) TEST HOLE NO. S-102  
 SECTION: Burleigh to N. Wildwood  
 STATION: 274+97 OFFSET: 210 LT REFERENCE LINE: Survey Baseline GROUND LINE ELEVATION: 5.61

BORINGS MADE BY: Carl Weller DATE STARTED: 9-7-84  
 INSPECTOR: P. Calise DATE COMPLETED: 9-11-84  
 Elevation G.W.T. \_\_\_\_\_  
 0 Hr. Tidal Date: 9-7-84  
 24 Hr. \_\_\_\_\_ Date: \_\_\_\_\_  
 \_\_\_\_\_ ft. P.P. Installed Date: \_\_\_\_\_

CASING BLOWS	SAMPLE NO. DEPTH		Blows on Spoon				REC.	Sample ID and Profile Change	
			0-6	6-12	12-18	18-24			
40	S-9	40.0'	41.5'	10	17	22	1.2'	Grey SILT & CLAY, and (-) f Sand	
45	S-10	45.0'	46.5'	3	4	7	1.3'	Grey Clayey SILT, and cm(+)f Sand	
50	S-11	50.0'	51.5'	10	14	21	1.4'	Grey mf SAND, some Silt with shells	48.0'
55	S-12	55.0'	56.5'	5	6	10	1.4'	Grey Clayey SILT with shells	
60	S-13	60.0'	61.5'	10	13	14	1.5'	Grey Clayey Silt	
65	S-14	65.0'	66.5'	10	14	20	1.5'	Grey Clayey Silt, little cf Sand	
70	S-15	70.0'	71.5'	20	32	48	1.0'	Grey cf SAND, trace Silt, trace mf Gravel	68.0'
75	S-16	75.0'	76.5'	5	7	10	1.5'	Grey Clayey Silt	72.0'
80									

Nominal I.D. of Drive Pipe	3 3/8"	4"
Nominal I.D. of Split Barrel Sampler	1 1/2"	
Weight of hammer on Drive Pipe	300 lbs.	
Weight of hammer on Split Barrel Sampler	140 lbs.	
Drop of hammer on Drive Pipe	24"	
Drop of hammer on Split Barrel Sampler	30"	

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 147 LOCAL NAME: Structure Boring (Beach Creek Area) TEST HOLE NO. S-102

SECTION: Burleigh to N. Wildwood

STATION: 274+97 OFFSET: 210 LT REFERENCE LINE: Survey Baseline GROUND LINE ELEVATION: 5.61

BORINGS MADE BY: C. Weller DATE STARTED: 9-7-84  
 INSPECTOR: P. Calise DATE COMPLETED: 9-11-84  
 0 Hr. Tidal Elevation G.W.T. Date: 9-7-84  
 24 Hr. \_\_\_\_\_ ft. P.P. Installed Date: \_\_\_\_\_

CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon				REC.	Sample ID and Profile Change
			0-6	6-12	12-18	18-24		
80	S-17	80.0'	81.5'	6	8	13	1.5'	Gray SILT and CLAY
85	S-18	85.0'	86.5'	5	7	9	1.5'	Gray CLAY and SILT
90	S-19	90.0'	91.5'	3	5	7	1.5'	Same
95	S-20	95.0'	96.5'	4	4	6	1.5'	Same
100	S-21	100.0'	101.5'	10	14	28	1.4'	Gray cf SAND, little (+) Silt, trace f Gravel
105	S-22	105.0'	105.8'	38	100		0.6'	Gray & Tan cf SAND, little (-) Silt, trace mf Gravel
110	S-23	110.0'	111.0'	48	130		0.8'	Light gray mf GRAVEL, some cf Sand, trace (-) Silt
115	S-24	115.0'	116.0'	72	100		0.8'	Same
120								

Nominal I.D. of Drive Pipe	3 1/2"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Drive Pipe	300 lbs.
Weight of hammer on Split Barrel Sampler	140 lbs.
Drop of hammer on Drive Pipe	24"
Drop of hammer on Split Barrel Sampler	30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 147

LOCAL NAME: Structure Boring (Beach Creek)

TEST HOLE NO. S-102

SECTION: Burleigh to N. Wildwood

STATION: 274+97 OFFSET: 210 L REFERENCE LINE: Survey Baseline

GROUND LINE ELEVATION: 5.61

BORINGS MADE BY: C. Weller DATE STARTED: 9-7-84

Elevation G.W.T.  
 0 Hr. Tidal Date: 9-7-84  
 24 Hr. Date:  
 \_\_\_\_\_ ft. P.P. Installed Date:

INSPECTOR: P. Calise DATE COMPLETED: 9-11-84

CASING BLOWS	SAMPLE NO. DEPTH		Blows on Spoon			REC.	Sample ID and Profile Change		
			0-6	6-12	12-18				
120	S-25	120.0'	121.5'	38	55	50	1.4'	Light Grey mf GRAVEL, some cf Sand, trace (-) Silt	121.5'
								Bottom of Hole	
125									
130									

Nominal I.D. of Drive Pipe	3 1/2"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Drive Pipe	300 lbs.
Weight of hammer on Split Barrel Sampler	140 lbs.
Drop of hammer on Drive Pipe	24"
Drop of hammer on Split Barrel Sampler	30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 147 LOCAL NAME: Structure Boring (Beach Creek) TEST HOLE NO. S-151  
 SECTION: Burleigh to N. Wildwood  
 STATION: 270+85 OFFSET: 340L REFERENCE LINE: Survey Baseline GROUND LINE ELEVATION: -5.0'  
 BORINGS MADE BY: Frank Sipple DATE STARTED: 10-8-84  
 INSPECTOR: P. Calise DATE COMPLETED: 10-10-84  
 0 Hr. water Elevation G.W.T. Date: 10-10-84  
 24 Hr. depth varies from 4'-9' Date:  
 ft. P.P. Installed Date:

CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon				REC.	Sample ID and Profile Change
			0-6	6-12	12-18	18		
5	S-1	0.0'	1.5'	1	4	5	1.1'	Gray f SAND, trace (+) Silt w/shells
12								
18								
25								
20	S-2	5.0'	6.5'	3	4	5	7'	Gray mf SAND, little (-) Silt w/shells & fibers
13								
15								
16								
16								
10	S-3	10.0'	11.5'	8	6	3	.6'	Gray mf SAND, trace(+)Silt
43								
37								
27								
27								
15	S-4	15.0'	16.5'	1	1	2	1.5'	Gray SILT & CLAY w/roots
41								
34								
32								
25								
20	S-5	20.0'	21.5'	23	35	30	1.0'	Tan cf SAND, trace Silt
100								
25	S-6	25.0'	26.5'	7	9	7	.5'	Gray & tan cf SAND, trace f Gravel, trace Silt
P N M								
30	S-7	30.0'	31.5'	7	9	17	1.2'	Gray Clayey SILT, trace (+) f sand, trace f Gravel
35	S-8	35.0'	36.5'	5	10	9	1.3'	Gray CLAY & SILT
D I L L I D								
40								

Nominal I.D. of Drive Pipe	2 1/2"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Drive Pipe	300 lbs.
Weight of hammer on Split Barrel Sampler	140 lbs.
Drop of hammer on Drive Pipe	24"
Drop of hammer on Split Barrel Sampler	30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 147 LOCAL NAME: Structure Boring TEST HOLE NO. S-151

SECTION: Burleigh to N. Wildwood

STATION: 270+85 OFFSET: 340L REFERENCE LINE: Survey Baseline GROUND LINE ELEVATION: -5.0'

BORINGS MADE BY: Frank Sipple DATE STARTED: 10-8-84

Elevation G.W.T.  
0 Hr. water depth Varies from 4'-9' Date:  
24 Hr. Date:  
ft. P.P. Installed Date:

INSPECTOR: P. Calise DATE COMPLETED: 10-10-84

CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon			REC.	Sample ID and Profile Change	Date:	
			0-6	6-12	12-18				
40	S-9	40.0'	41.5'	3	6	15	1.5'	Gray cf SAND, some (-) Silt	42.0'
45	S-10	45.0'	46.5'	6	8	10	1.5'	Gray clayey SILT	
50	S-11	50.0'	51.5'	4	6	12	1.5'	Same	
55	S-12	55.0'	56.5'	4	5	7	1.5'	Gray CLAY & SILT	
60	T-1	60.0'	62.0'	Press			1.8'	Same	
	S-13	62.0'	63.5'	4	5	9	1.5'		
65									
70	S-14	70.0'	71.5'	7	8	11	1.5'	Same	
75		75.0'	77.0'	Press					
	S-15	77.0'	78.5'	4	6	7	1.5'	Gray CLAY & SILT	

Nominal I.D. of Drive Pipe	2 1/2"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Drive Pipe	300 lbs.
Weight of hammer on Split Barrel Sampler	140 lbs.
Drop of hammer on Drive Pipe	24"
Drop of hammer on Split Barrel Sampler	30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata -----

ROUTE: 147 LOCAL NAME: Structure Boring (Beach Creek) TEST HOLE NO. S-151  
 SECTION: Burleigh to N. Wildwood  
 STATION: 270+85 OFFSET: 340L REFERENCE LINE: Survey Baseline GROUND LINE ELEVATION: -5.0  
 BORINGS MADE BY: F. Sipple DATE STARTED: 10-8-84  
 INSPECTOR: P. Calise DATE COMPLETED: 10-10-84  
 0 Hr. water Elevation G.W.T. 10-8-84  
 24 Hr. depth varies from 4'-9" Dates  
 ft. P.P. Installed Dates

CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon				REC.	Sample ID and Profile Change	Description	Elevation
			0-6	6-12	12-18	18-24				
		80.0'					Press WPiston		80.0'	
	S-16	81.5'	7	9	12	1.5'		Gray CLAY & SILT, trace cf Sand		
		85.0'							85.0'	
	S-17	90.0'	9	19	29	1.5'		Gray c (+) mf SAND, some (-) Silt, trace f Gravel		
	S-18	95.0'	29	57	100	1.4'		Tan & gray cf SAND, trace (+) Silt, trace (-) f Gravel		
	S-19	100.0'	43	55	78	1.4'		Light gray c (+) f SAND, some mf Gravel trace (+) Silt		
	S-20	105.0'	16	19	37	1.0'		Light gray mf (+) SAND, little Silt		
	S-21	110.0'	21	33	66	1.3'		Same		
		115.0'						Bottom of hole	111.5'	

Nominal I.D. of Drive Pipe	2 1/2"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Drive Pipe	300 lbs.
Weight of hammer on Split Barrel Sampler	140 lbs.
Drop of hammer on Drive Pipe	24"
Drop of hammer on Split Barrel Sampler	30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 147 LOCAL NAME: Structure Boring (Beach Creek) TEST HOLE NO. S-155  
 SECTION: Burleigh to N. Wildwood  
 STATION: 276+80 OFFSET: 180L REFERENCE LINE: Survey Baseline GROUND LINE ELEVATION: 5.17  
 BORINGS MADE BY: C. Weller DATE STARTED: 8-29-84 Elevation G.W.T. 2.17 (Tidal) Date: 8-31-84  
 INSPECTOR: P. Calise DATE COMPLETED: 8/31/84 24 Hr. \_\_\_\_\_ ft. P.P. Installed Date:

CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon			REC.	Sample ID and Profile Change	Date
			0-6	6-12	12-18			
	S-1	0.0'	1.5'	3	5	9	1.4'	Gray & Brown cf SAND, trace mf Gravel, trace Silt (Fill)
5								----- 4.0'
	S-2	5.0'	6.5'	W	O	H	1.5'	Gray organic Silt with Roots (meadow mat)
10								----- 9.0'
	S-3	10.0'	11.5'	10	16	21	1.5'	Gray mf SAND, little organic Silt
15								
	S-4	15.0'	16.5'	10	17	26	1.4'	Same
20								
	S-5	20.0'	21.5'	30	46	72	1.1'	Gray mf SAND, trace Silt
25								
	S-6	25.0'	26.5'	21	39	37	1.4'	Same
30								
	S-7	30.0'	31.5'	18	22	29	1.4'	Same
35								
	S-8	35.0'	36.5'	19	24	32	1.5'	Same
40								

Nominal I.D. of Drive Pipe	3 3/8"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Drive Pipe	300 lbs.
Weight of hammer on Split Barrel Sampler	140 lbs.
Drop of hammer on Drive Pipe	24"
Drop of hammer on Split Barrel Sampler	30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata -----

ROUTE: 147 LOCAL NAME: Structure Boring (Beach Creek) TEST HOLE NO. S-155  
 SECTION: Burleigh to N. Wildwood  
 STATION: 276+80 OFFSET: 180 L REFERENCE LINE: Survey baseline GROUND LINE ELEVATION: 5.17

BORINGS MADE BY: C. Weller DATE STARTED: 8-29-84 Elevation G.W.T. 2.17 (Tidal) Date: 8-31-84  
 INSPECTOR: P. Calise DATE COMPLETED: 8-31-84 24 Hr. \_\_\_\_\_ ft. P.P. Installed Date: \_\_\_\_\_

CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon				REC.	Sample ID and Profile Change
			0-6	6-12	12-18	18-24		
40	S-9	40.0' 41.5'	5	6	9	1.4'	Dark Gray f SAND, and organic Silt	
45	S-10	45.0' 46.5'	3	4	9	1.5'	Gray cf SAND, same Silt	
50	S-11	50.0' 51.5'	3	5	9	1.5'	Gray cf SAND, some Silt, trace shells	
55	S-12	55.0' 56.5'	3	4	7	1.5'	Gray CLAY and SILT	
60	S-13	60.0' 61.5'	5	7	10	1.5'	Same	
65	S-14	65.0' 66.5'	5	8	13	1.5'	Same	
70	S-15	70.0' 71.5'	7	9	12	1.5'	Same	
75	S-16	75.0' 76.5'	6	10	13	1.5'	Same	
80								

53.0'

Nominal I.D. of Drive Pipe	3 1/2"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Drive Pipe	300 lbs.
Weight of hammer on Split Barrel Sampler	140 lbs.
Drop of hammer on Drive Pipe	24"
Drop of hammer on Split Barrel Sampler	30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_



ROUTE: 147 LOCAL NAME: Structure boring (Beach Creek) TEST HOLE NO. S-155

SECTION: Burleigh to N. Wildwood

STATION: 276+80 OFFSET: 180 L REFERENCE LINE: Survey Baseline GROUND LINE ELEVATION: 5.17

BORINGS MADE BY: C. Weller DATE STARTED: 8-29-84 Elevation G.W.T. 2.17 (Tidal) Date: 8-31-84  
 INSPECTOR: P. Calise DATE COMPLETED: 8-31-84 24 Hr. \_\_\_\_\_ ft. P.P. Installed Date: \_\_\_\_\_

CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon			REC.	Sample ID and Profile Change	
			0-6	6-12	12-18			
80	S-17	80.0'	81.5'	4	5	9	1.4'	Gray CLAY & SILT
85	S-18	85.0'	86.5'	4	5	7	1.5'	Same
90	S-19	90.0'	91.5'	4	6	8	1.5'	Same
95	S-20	95.0'	96.5'	3	4	6	1.5'	Same
100	S-21	100.0'	101.5'	3	4	7	1.5'	Gray cf SAND, some Silt
105	S-22	105.0'	106.5'	22	34	45	1.3'	Gray cf SAND, little mf Gravel, trace (+) Silt
110	S-23	110.0'	110.5'	<del>130</del> 6			0.5'	Light gray cf SAND, little (+) mf Gravel, trace Silt
115	S-24	115.0'	116.0'	58	120		1.0'	Light gray mf SAND, trace (+) Silt
120								

Nominal I.D. of Drive Pipe	3 1/2"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Drive Pipe	300 lbs.
Weight of hammer on Split Barrel Sampler	140 lbs.
Drop of hammer on Drive Pipe	24"
Drop of hammer on Split Barrel Sampler	30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata -----

ROUTE: 147 LOCAL NAME: Structure Boring (Beach Creek) TEST HOLE NO. S-155  
 SECTION: Burleigh to N. Wildwood  
 STATION: 276+80 OFFSET: 180 L REFERENCE LINE: Survey Baseline GROUND LINE ELEVATION: 5.17  
 BORINGS MADE BY: C. Weller DATE STARTED: 8-29-84  
 INSPECTOR: P. Calise DATE COMPLETED: 8-31-84

Elevation G.W.T.  
 0 Hr. 2.17 (tidal) Date: 8-31-84  
 24 Hr. Date:  
 \_\_\_\_\_ ft. P.P. Installed Date:

CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon			REC.	Sample ID and Profile Change	Elevation	
			0-6	6-12	12-18				
120	S-25	120.0'	121.5'	58	70	90	1.5'	Light gray mf SAND, trace (+) Silt	
125	S-26	125'	126.5'	58	110		1.0'	Light gray f SAND, little Silt	126.0
					6"			Bottom of hole 126.0'	
130									
135									
140									

Nominal I.D. of Drive Pipe	3 1/2"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Drive Pipe	300 lbs.
Weight of hammer on Split Barrel Sampler	140 lbs.
Drop of hammer on Drive Pipe	24"
Drop of hammer on Split Barrel Sampler	30"

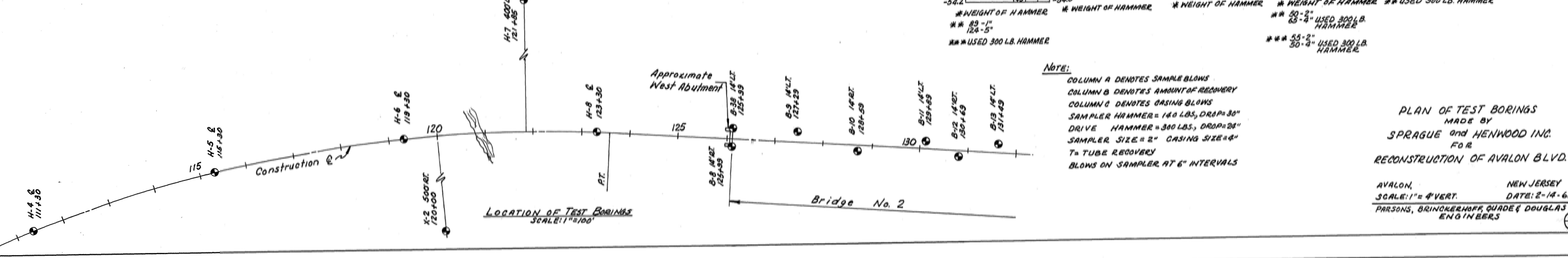
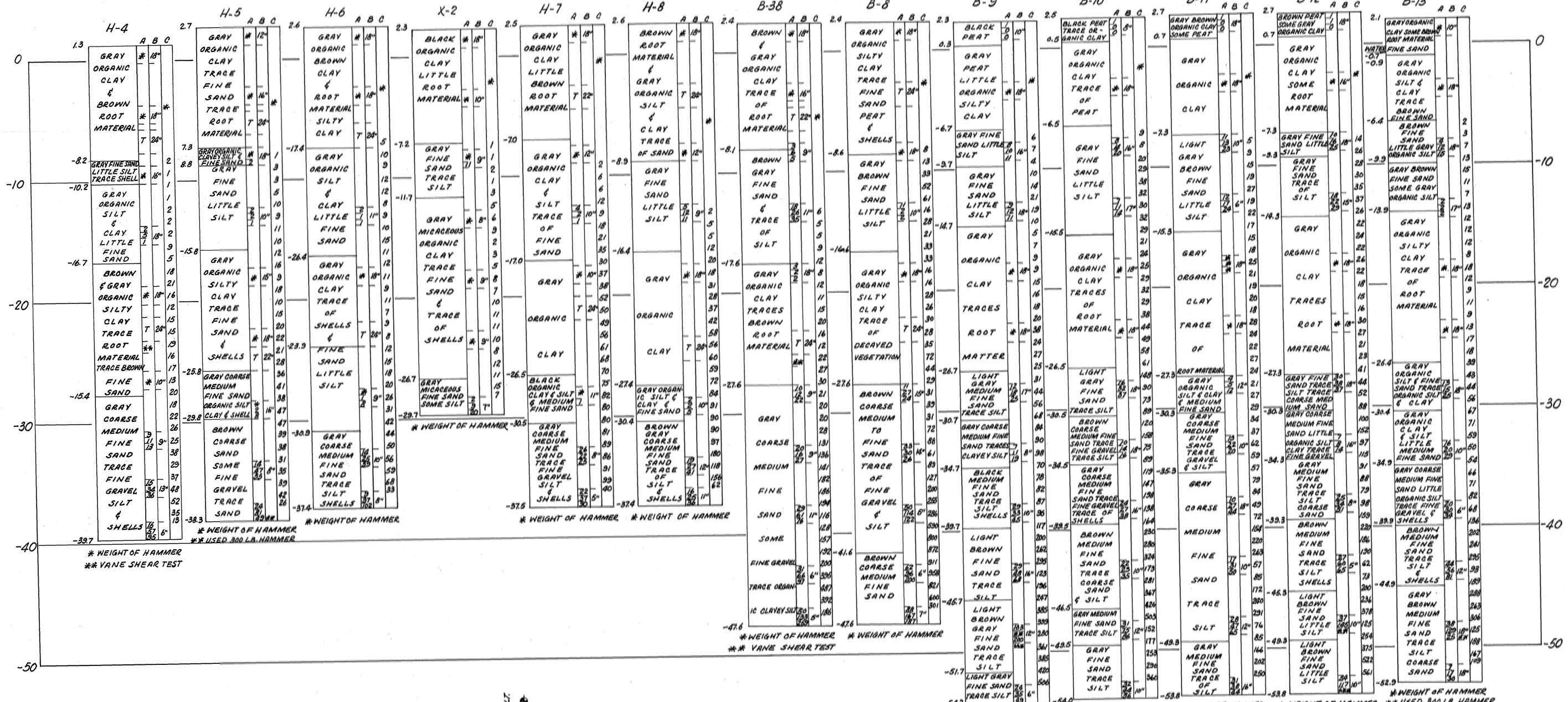
The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

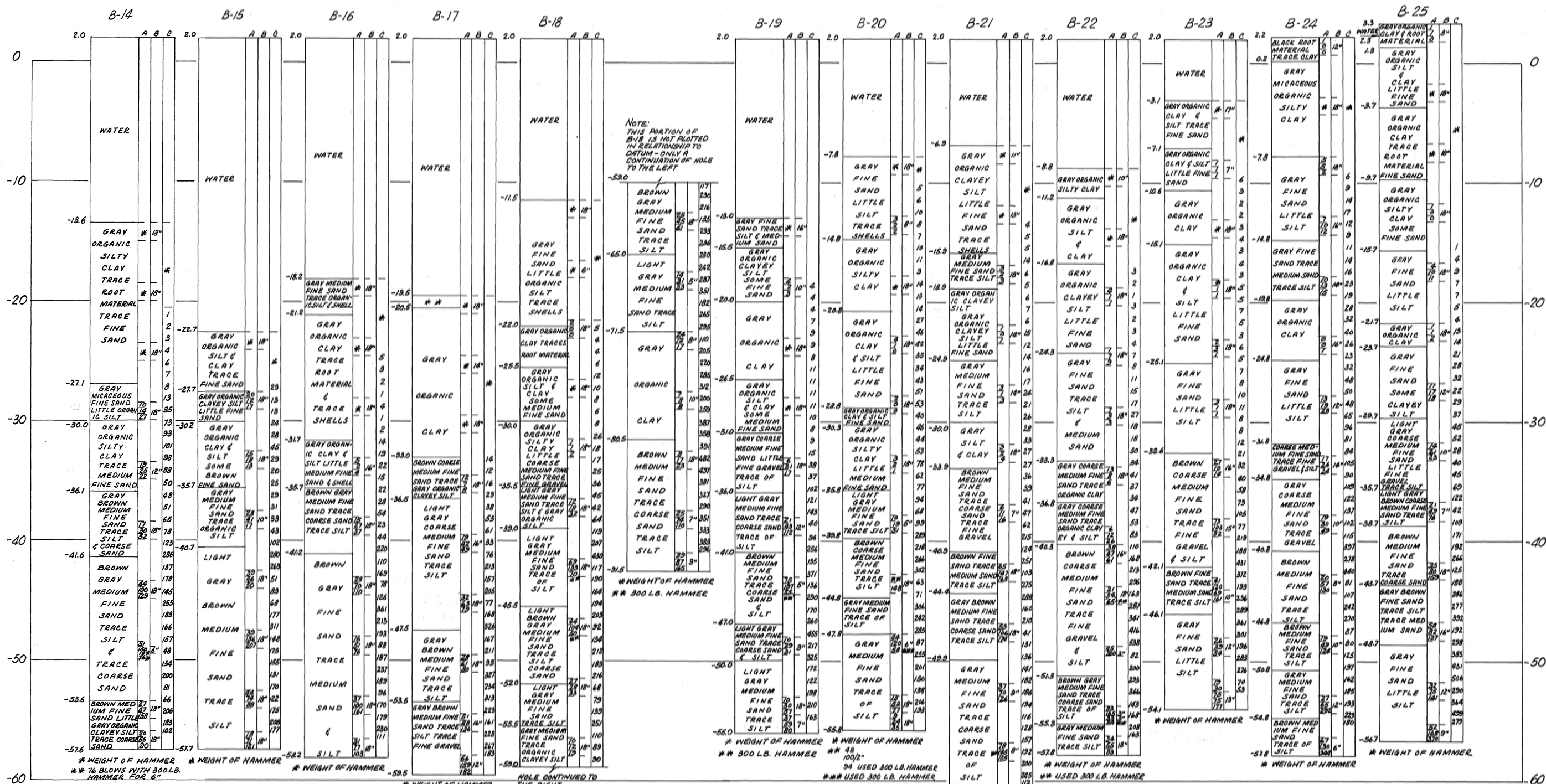
Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_



**NOTE:**  
 COLUMN A DENOTES SAMPLE BLOWS  
 COLUMN B DENOTES AMOUNT OF RECOVERY  
 COLUMN C DENOTES CASING BLOWS  
 SAMPLER HAMMER = 140 LBS, DROP = 30"  
 DRIVE HAMMER = 300 LBS, DROP = 24"  
 SAMPLER SIZE = 2" CASING SIZE = 4"  
 T = TUBE RECOVERY  
 BLOWS ON SAMPLER AT 6" INTERVALS

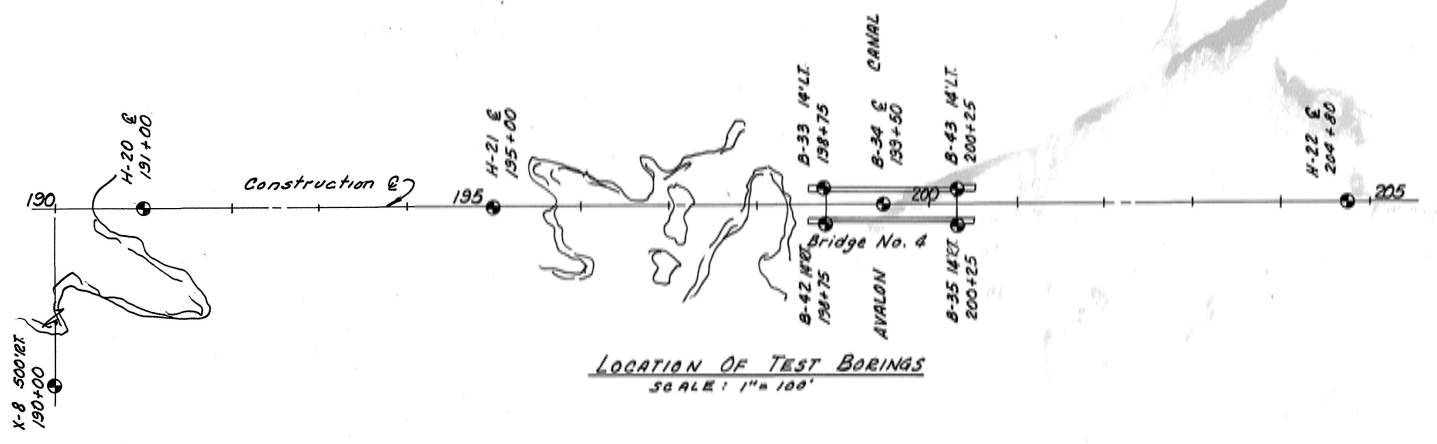
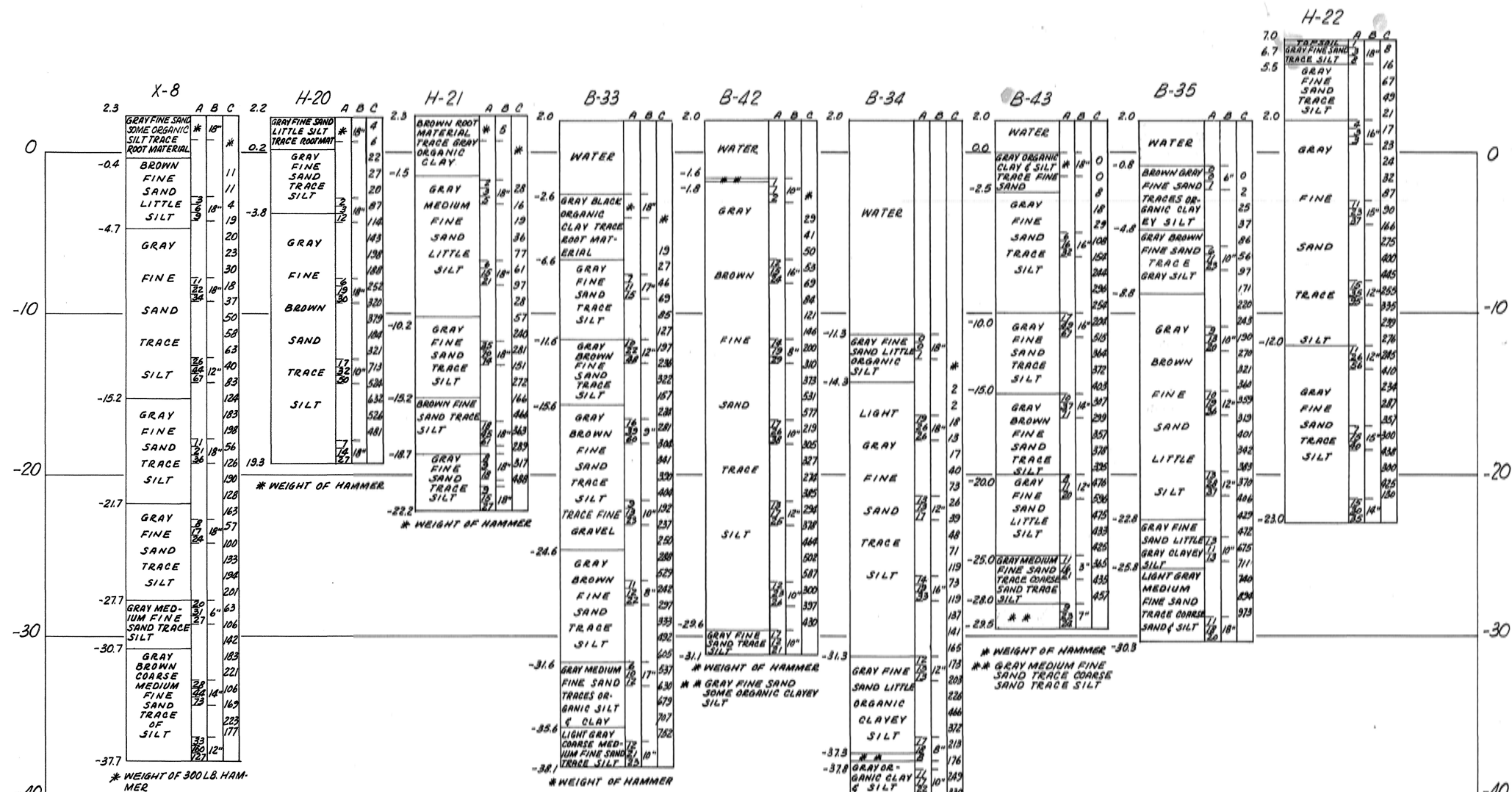
**PLAN OF TEST BORINGS**  
 MADE BY  
**SPRAGUE and HENWOOD INC.**  
 FOR  
**RECONSTRUCTION OF AVALON BLVD.**  
 AVALON, NEW JERSEY  
 SCALE: 1" = 4' VERT. DATE: 2-14-66  
 PARSONS, BRINCKERHOFF QUADE & DOUGLAS ENGINEERS



NOTE:  
THIS PORTION OF  
B-19 IS NOT PLOTTED  
IN RELATIONSHIP TO  
DATUM - ONLY A  
CONTINUATION OF HOLE  
TO THE LEFT

NOTE:  
COLUMN A DENOTES SAMPLE BLOWS  
COLUMN B DENOTES AMOUNT OF RECOVERY  
COLUMN C DENOTES CASING BLOWS  
SAMPLER HAMMER = 140 LBS, DROP = 30"  
DRIVE HAMMER = 300 LBS, DROP = 24"  
SAMPLER SIZE = 2" CASING SIZE = BK  
BLOWS ON SAMPLER AT 6" INTERVALS

PLAN OF TEST BORINGS  
MADE BY  
SPRAGUE and HENWOOD INC.  
FOR  
RECONSTRUCTION OF AVALON BLVD.  
AYALON, NEW JERSEY  
SCALE: 1" = 4' VERT. DATE: 7-15-66  
PARSONS, BRINCKERHOFF, QUADE & DOUGLAS  
ENGINEERS



NOTE:  
 COLUMN A DENOTES SAMPLE BLOWS  
 COLUMN B DENOTES AMOUNT OF RECOVERY  
 COLUMN C DENOTES CASING BLOWS  
 SAMPLER HAMMER = 140 LBS., DROP = 30"  
 DRIVE HAMMER = 300 LBS., DROP = 24"  
 SAMPLER SIZE = 2" CASING SIZE = BK  
 BLOWS ON SAMPLER AT 6" INTERVALS

PLAN OF TEST BORINGS  
 MADE BY  
 SPRAGUE and HENWOOD INC.  
 FOR  
 RECONSTRUCTION OF AVALON BLVD.  
 AVALON, NEW JERSEY  
 SCALE: 1" = 4' VERT. DATE: 2-19-66  
 PARSONS, BRINCKERHOFF, QUADE & DOUGLAS  
 ENGINEERS

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS

BORING LOG

PROJECT & LOCATION AVALON BLVD RELOC., AVALON, N.J.  
 STATION & OFFSET 132+89 20 FT. HOLE No. B-17  
 CONTRACTOR SPRAGUE & HENNINGSON INC. GROUND ELEV. -19.5  
 FOREMAN & RIG L. D. DUNN, J. B. DUNN DATE: FR 10/6/60

Weight of Hammer On Casing 300# On Sampler 140# Hammer Fall On Casing 24" On Sampler 30"  
 Casing: O.D. 1.31 I.D. 1.25  
 Sampler: O.D. 2" I.D. 1.5"  
 Inside Lg. \_\_\_\_\_ Type SS

Type of Sample: D=Dry U=Undisturbed W=Washed C=Cored P=Pit A=Auger

Depth below ground surface	Blows on casing	Sample No.	Blows on sampler				Type of sample	Moisture	Color	Field identification of soil and remarks
			0	6	12	18				
			6	12	18	24				
									ELEV. +2.0	
0										
19.5	0-1.5	1	W.O.H. REC. 18"				D	W	GRAY	RIVER BOTTOM ELEV -19.5 F/C SAND & ORG. SILT, SOME SHELLS
									ORGANIC SILT, TR. ROOTS	
									CH. 1' EL -20.5	
									CH. 2' 5" EL -23.0	
5	5-6.5	2	W.O.H. REC. 14"				D	M	GRAY	ORGANIC SILT
10	10-11.5	3	W O H REC. 18"				D	M	GRAY	ORGANIC SILT
									CH. 13.5' EL -23.0	
15	15-16.5	4	12 7 8 REC. 18"				D	W	GRAY	F/M GRAVEL & F/C SAND, LITTLE SILT, TR. SHELLS
									CH. 17' EL -36.5	
20	20-21.5	5	19 42 49 REC. 16"				D	W	GRAY	F/C SAND, TR. F/GRAVEL, TR. SILT, TR. SHELLS
									CH. 21' EL -43.5	
25	25-26.5	6	32 63 79 REC. 18"				D	W	GRAY	F/C SAND, SOME F/M GRAVEL, TR. SILT, TR. SHELLS
									CH. 29' EL -47.5	
30	30-31.5	7	26 61 80 REC. 18"				D	W	GRAY	F/M SAND, TR. SHELLS, TR. SILT
									CH. 34' EL -53.5	

Water level is \_\_\_\_\_ ft. below ground surface \_\_\_\_\_ hrs. after completion  
 Water level is \_\_\_\_\_ ft. below ground surface \_\_\_\_\_ hrs. after completion  
 Inspector W. J. W.

REMARKS

ITEM # 5 59.5 L.F.

Sheet No. 1  
 Hole No. B-17

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS

BORING LOG

PROJECT & LOCATION AVALON BLVD. ST. LOUIS, MO.  
 STATION & OFFSET 138472, 20' SW  
 CONTRACTOR ST. LOUIS DISTRICT  
 FOREMAN & RIG W. B. ...

HOLE No. B-17  
 GROUND ELEV. -19.5  
 DATE: FR 10/3/55 TO 10/3/55

Weight of Hammer On Casing 200 On Sampler 145

Hammer Fall On Casing 30 On Sampler 30

Casing: O.D. 2 1/2 I.D. 2 1/8  
 Sampler: O.D. 2 I.D. 1 7/8  
 Inside Lg. 18 Type 50

Type of Sample: D=Dry U=Undisturbed W=Washed C=Cored P=Pit A=Auger

Depth below ground surface	Blows on casing	Sample No.	Blows on sampler				Type of sample	Moisture	Color	Field identification of soil and remarks
			0	6	12	18				
			6	12	18	24				
35.8										
- 59.5	265	161	8	51	28	186	D	W	gray f/m. SAND, fr.-silt	
		228							Rec.=15"	
		287								
- 58.0	285.4	163/6"	9	66	159	182	D	W	gray ditto.	
									Rec.=12"	
									Bottom Hole EL.-59.5	
10										
15										
20										
25										
30										
35										
40										

Water level is \_\_\_ ft. below ground surface \_\_\_ hrs. after completion  
 Water level is \_\_\_ ft. below ground surface \_\_\_ hrs. after completion  
 Inspector Walter Dodge

REMARKS

Sheet No. 2  
 Hole No. B-17

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS

BORING LOG

PROJECT & LOCATION Reconstruction of Avalon Blvd. Avalon 11, I  
 STATION & OFFSET 157+80 14' 2 1/2"  
 CONTRACTOR Sprague & Herwood Inc  
 FOREMAN & RIG J. Dowdy  
 HOLE No. B-29  
 GROUND ELEV. 4.6 AUGER  
 DATE: FR 8-30-62 TO 9-1-62

Weight of Hammer On Casing 200 On Sampler 140  
 Hammer Fall On Casing 24" On Sampler 30"  
 Casing: O.D. 2 1/2" I.D. 2 1/8"  
 Sampler: O.D. 2 1/4" I.D. 1 3/4"  
 Inside Lg. 24" Type SP-17

Type of Sample: D=Dry U=Undisturbed W=Washed C=Cored P=Pit A=Auger

Depth below ground surface	Blows on casing	Sample No.	Blows on sampler				Type of sample	Moisture	Color	Field identification of soil and remarks
			0	6	12	18				
0			6	12	18	24			Water	
0'-16"	1	1	wt of rod				D	W	River Bottom - 4.6 ORGANIC SILT & SOME VEGETATION 18" REC	
5	2	2	6	8	14					
5'-66"	2	2	6	8	14	56"	-10.1	CH.	GRAY FINE SILTY SAND " " " " 10" REC	
10	29									
10	53									
10'-116"	43	3	9	18	32	D	W		" " " " 18" REC	
15	51									
15	39									
15'-166"	39	4	15	10	11	D	W		" " " " 16" REC	
20	41									
20	53									
20	71									
20'-216"	68	5	9	16	25	D	W		" " " " 15" REC	
25	75									
25	87									
25	130									
25	137									
25'-256"	79	6	10	17	21	D	W		" " " " 16" REC	
30	108									
30	151									
30	164									
30	177									
30'-316"	143	7	18	32	44	D	W		" " " " 12" REC	
35	170									
35	191									
35	205									
35	229									
35'-366"	98	8A	25	52	67	D	W		NO REC	
40	78									
40	107	8B	7	10	19	D	W		" " " " 6" REC	
40	139									

Water level is \_\_\_ ft. below ground surface \_\_\_ hrs. after completion *Water hole*  
 Water level is \_\_\_ ft. below ground surface \_\_\_ hrs. after completion  
 Inspector *Rayne Carter*

REMARKS  
*Ident # 50.1 LF*



PARSONS, BRINCKERHOFF, QUADE & DOUGLAS

BORING LOG

PROJECT & LOCATION \_\_\_\_\_  
 STATION & OFFSET \_\_\_\_\_  
 CONTRACTOR \_\_\_\_\_  
 FOREMAN & RIG \_\_\_\_\_

HOLE No. B-29  
 GROUND ELEV. 1.6 REDUCER  
 DATE: FR \_\_\_\_\_ TO \_\_\_\_\_

Weight of Hammer On Casing \_\_\_\_\_ On Sampler \_\_\_\_\_  
 Hammer Fall On Casing \_\_\_\_\_ On Sampler \_\_\_\_\_  
 Casing: O.D. \_\_\_\_\_ I.D. \_\_\_\_\_  
 Sampler: O.D. \_\_\_\_\_ I.D. \_\_\_\_\_  
 Inside Lg. \_\_\_\_\_ Type \_\_\_\_\_

Type of Sample: D=Dry U=Undisturbed W=Washed C=Cored P=Pit A=Auger

0	Depth below ground surface	Blows on casing	Sample No.	Blows on sampler				Type of sample	Moisture	Color	Field identification of soil and remarks
				0	6	12	18				
		156									
		170									
		231									
5	42-43'		9	15	23	32	D	W		GRAY FINE SAND 4" RCC	
10										Bottom of hole - 48.1'	
15											
20											
25											
30											
35											
40											

REMARKS

Water level is \_\_\_\_\_ ft. below ground surface \_\_\_\_\_ hrs. after completion  
 Water level is \_\_\_\_\_ ft. below ground surface \_\_\_\_\_ hrs. after completion  
 Inspector *Dayton Carter*

Sheet No. 2  
 Hole No. B-29

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS

BORING LOG

PROJECT & LOCATION AVALON BLVD RECONST.  
 STATION & OFFSET Sta. 199+20  
 CONTRACTOR SERGEANT & COMPANY  
 FOREMAN & RIG JERRY DOWDY  
 HOLE No. B-34  
 GROUND ELEV. (-11.3)  
 DATE: FR \_\_\_\_\_ TO \_\_\_\_\_

Weight of Hammer On Casing <u>300 lb</u> On Sampler <u>140 lb</u>	Hammer Fall On Casing <u>24-30"</u> On Sampler <u>24-30"</u>	Casing: O.D. <u>2</u> I.D. <u>1.5</u>
		Sampler: O.D. <u>2</u> I.D. <u>1.5</u>
		Inside Lg. <u>20</u> Type <u>SS</u>

Type of Sample: D=Dry U=Undisturbed W=Washed C=Cored P=Pit A=Auger

Depth below ground surface	Blows on casing	Sample No.	Blows on sampler				Type of sample	Moisture	Color	Field identification of soil and remarks
			0	6	12	18				
0			6	12	18	24			Top +2.0 WATER Bottom Canal -11.4	
-11.4	0'-16"	1		0	0	1	D	W	GRAY FINE Silty SAND 18" Rec.	
	2						CH. 3'	-14.4	GRAY FINE SAND; TRACE OF SILT	
-16.4	5'-66"	2		9	26	26	D	W	" " " " " " 18" Rec.	
	13									
	17									
	40									
10	73									
-21.4	10'-116"	3		13	13	17	D	W	" " " " " " 12" Rec	
	39									
	48									
	71									
15	119									
-26.4	15'-166"	4		14	19	33	D	W	" " " " " " 16" Rec.	
	119									
	137									
	141									
20	165						CH. 20'	-31.4	GRAY FINE SAND; TRACE OF Clayey silt	
-31.4	20'-216"	5		12	13	13	D	W	" " " " " " 12" Rec	
	203									
	226									
	466									
25	372									
-	25'-266"	6		17	18	8	D	W	CHANGE IN SPOON AT 26' 8" Rec 6" of CLAYEY SANDY SILT.	
	176									
	27'-286"	7		11	17	22	D	W	FINE TO COURSE SAND LITTLE CLAYEY SILT; TRACE OF FINE TO Med. GRAVEL.	
	330									
30	410						CH. 30'	-41.4	FINE TO COURSE GRAY SAND; TRACE OF GRAVEL	
	631									
	716									
	32'-336"	8		16	37	65	D	W	" " " " " " " "	
35									BOTTOM OF HOLE -45.0	
									-44.8 (F)	
40										

Water level is \_\_\_ ft. below ground surface \_\_\_ hrs. after completion  
 Water level is \_\_\_ ft. below ground surface \_\_\_ hrs. after completion  
 Inspector Rayne Carter

REMARKS

ITEM #3 46.9 L.F.

PARSONS, BRINCKERHOFF, QUADE & DOUGLAS

BORING LOG

PROJECT & LOCATION AVALON BLVD RECONST. AVALON, N.J.  
 STATION & OFFSET Sta - 200+00 20' FT.  
 CONTRACTOR SPLAGUE & HEINIGSON  
 FOREMAN & RIG JERRY DAWDY  
 HOLE No. B-35  
 GROUND ELEV. (-0.8)  
 DATE: FR 8/13 TO 8/15

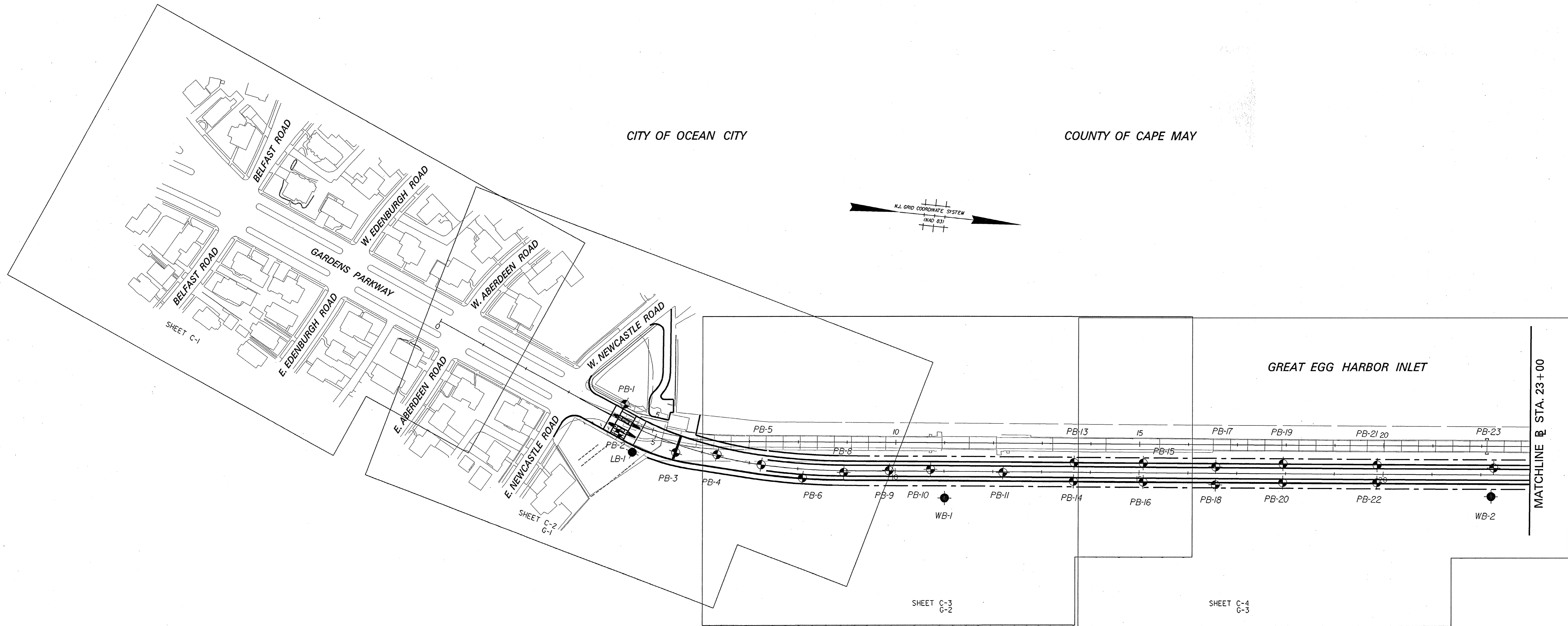
Weight of Hammer On Casing 300 On Sampler 190 lbs  
 Hammer Fall On Casing 24-30" On Sampler 24:30"  
 Casing: O.D. 4" I.D. 3 1/2"  
 Sampler: O.D. 2" I.D. 1 3/4"  
 Inside Lg. 20" Type S.S.

Type of Sample: D=Dry U=Undisturbed W=Washed C=Cored P=Pit A=Auger

0	Depth below ground surface	Blows on casing	Sample No.	Blows on sampler				Type of sample	Moisture	Color	Field identification of soil and remarks
				0	6	12	18				
				6	12	18	24				
				0	0	0	0	D	W		
					REC 6"						
-0.9	0'-1 1/2"	0	1								
		2			REC 6"						GRAY ORGANIC SILT, SOME FINE SAND AND VEG.
		25									
		37									
		86						CH.	4'	-4.9	
										FINE GRAY SAND, SOME SILT.	
-5.9	5'-6"	56	2	6	12	23		D	W		
		97			REC 18"						
		171									
		220						CH.	8'	-8.9	
		293								FINE GRAY SAND, TRACE OF SILT.	
-10.9	10'-11 1/2"	190	3	9	13	20		D	W		
		270			REC. 10"						" " " " " "
		321									
		360									
15	14'-15 1/2"	359	4	10	19	36		D	W		
-14.9		319			REC. 12"						" " " " " "
		401									
		342									
-17.9		383									
20	19'-20 1/2"	370	5	13	28	37		D	W		
		406			REC 12"						" " " " " "
		429									
		472						CH.	22'	-22.9	
										FINE GRAY SAND, TRACE OF CLAYEY SILT.	
-23.9	23'-24 1/2"	675	6	13	11	13		D	W		
25		711			REC 10"						" " " " " "
		746									
		894						CH.	25'	-25.9	
		923								Med-COURSE GRAY SAND + TRACE OF SMALL GRAVEL	
-28.9	28'-29 1/2"		7	11	18	20		D	W		
30					REC 18"						" " " " " "
35										BOTTOM OF HOLE - 30.4	
40											

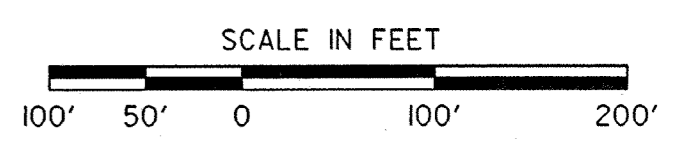
Water level is \_\_\_ ft. below ground surface \_\_\_ hrs. after completion  
 Water level is \_\_\_ ft. below ground surface \_\_\_ hrs. after completion  
 Inspector Wayne Carter

REMARKS  
 ITEM 3 32.4 L.F



PARSONS BRINCKERHOFF CADD DATA  
 OPERATOR Schridde  
 PLOT DATE 08-MAR-1999 14:52  
 PENTABLE efx.tbi  
 DESIGN FILE F:\2004\3\h01.dgn

- LEGEND**
- SHEET C - CONSTRUCTION PLANS
- G - GRADING AND DRAINAGE
  - ⊕ - EXISTING BORING (DRILLED IN 1994)
  - - EXISTING BORING (DRILLED IN 1992)



NEW JERSEY DEPARTMENT OF TRANSPORTATION

**PLAN SHEET INDEX AND BORING LOCATION PLANS**

OCEAN CITY - LONGPORT BRIDGE REPLACEMENT AND UPGRADE OF OCEAN DRIVE (C.R. 656)

PARSONS BRINCKERHOFF-FG, INC.

THEODORE J. FISCHER

N.J. P.E. LIC. NO. 13927

PSI-1  
PSI-3

7

BORING LOG

PROJECT: Ocean City - Longport Bridge  
 LOCATION: Ocean City, NJ  
 CONTRACTOR: Warren George, Inc.  
 DRILLER: Rob Danielson  
 TYPE RIG: ATV - CME - 550  
 INSPECTOR: A. Reed

GROUND ELEVATION: +5.70 ft      BASELINE: Proposed Bridge Baseline  
 STATION: 7+25                      OFFSET: 0 ft  
 DRILLING START TIME: 3:30 PM      DATE: 10 / 26 / 94  
 DRILLING FINISH TIME: 1:50 PM      DATE: 10 / 28 / 94

DEPTHS		METHOD(S) OF DRILLING		BOREHOLE WATER LEVEL DATA			
0 - 95.2 ft		Rotary Drilling		DEPTH	HOUR	DATE	REMARKS
TYPE OF SAMPLE							
SS SPLIT SPOON O.D.: 2 in I.D.: 1-3/8 in LENGTH: 24 in HAMMER WEIGHT: 140 lbs HAMMER FALL: 30 in		UNDISTURBED		<b>Notes:</b> 1. The subsurface information shown hereon was obtained for the design and estimate purposes for our Client. It is made available to authorized users only that they may have access to the same information available to our Client. It is presented in good faith, but is not intended as a substitute for investigations, interpretations or judgment of such authorized users. 2. Field identification of soil samples is based on Burmister Soil Identification System. 3. pp = Unconfined compression strength from Pocket Penetrometer (tsf) 4. WOH = Weight of Hammer; WOR = Weight of Rod			
		U SHELBY TUBE	D DENISON				
O.D.:	O.D.:						
I.D.:	I.D.:						
C CORE BARREL TYPE: O.D.: I.D.:		P PISTON					
		O.D.:	I.D.:				
O.D.: 4 in I.D.: 3-1/4 in WEIGHT OF HAMMER: 300 lbs HAMMER FALL: 24 in		CASING					
		O.D.:	I.D.:				

DEPTH BELOW GROUND SURFACE (ft)	BLOWS ON CASING	SAMPLE			ROCK CORING INFORMATION					FIELD IDENTIFICATION OF SOIL / ROCK	
		TYPE	NUMBER	DEPTH (ft)	RUN (in)	REC. (in)	REC. (%)	L > 4" (in)	RQD (%)		
					SOIL SAMPLING (Blows per 6 inches)						
					0-6	6-12	12-18	18-24	REC. (in)		
5	7	SS	1	0-2	1	1	2	2	12	Brown f SAND, trace (-) Silt	
	7										
	19										
	30										
	29										
10	65	SS	2	5-7	3	4	4	7	10	Same as SS-1	
	70										
	125										
	68										
	77										
15	91	SS	3	10-12	16	7	8	11	12	Gray f SAND, trace (+) Silt	

BORING LOG (continued)

PROJECT: Ocean City - Longport Bridge

LOCATION: Ocean City, NJ

INSPECTOR: A. Reed

DEPTH BELOW GROUND SURFACE (ft)	BLOWS ON CASING	SAMPLE			ROCK CORING INFORMATION					FIELD IDENTIFICATION OF SOIL / ROCK
		T Y P E	N U M B E R	DEPTH (ft)	RUN (in)	REC. (in)	REC. (%)	L > 4" (in)	RQD (%)	
					SOIL SAMPLING (Blows per 6 inches)					
					0-6	6-12	12-18	18-24	REC. (in)	
20		SS	4	15-17	6	18	21	29	12	Gray f SAND, trace (+) Silt
25		SS	5	20-22	8	10	12	14	12	Same as SS-4
30		SS	6	25-27	13	17	20	19	10	Same as SS-4
35		SS	7	30-32	9	13	15	15	14	Same as SS-4
40		SS	8	35-37	12	12	21	28	16	Same as SS-4
45		SS	9	40-42	14	15	18	20	18	Same as SS-4

BORING LOG (continued)

PROJECT: Ocean City - Longport Bridge  
 LOCATION: Ocean City, NJ  
 INSPECTOR: A. Reed

DEPTH BELOW GROUND SURFACE (ft)	BLOWS ON CASING	SAMPLE			ROCK CORING INFORMATION					FIELD IDENTIFICATION OF SOIL / ROCK
		TYPE	NUMBER	DEPTH (ft)	RUN (in)	REC. (in)	REC. (%)	L > 4" (in)	RQD (%)	
					SOIL SAMPLING (Blows per 6 inches)					
					0-6	6-12	12-18	18-24	REC. (in)	
50		SS	10	45-47	13	16	17	19	10	Gray f SAND, trace (+) Silt
55		SS	11	50-52	13	19	20	14	7	Same as SS-10
60		SS	12	55-57	12	12	19	23	12	Gray mf SAND, little (-) Silt, trace (-) mf Gravel
65		SS	13	60-62	1	1	1	1	19	Gray Clayey SILT, some (+) f Sand, trace mf Gravel (pp = 0.25)
70		SS	14	65-67	4	3	3	5	20	Gray Clayey SILT, some (+) f Sand (pp = 0.5)
75		SS	15	70-70.3	100/4"				3	Gray of SAND, little (+) mf Gravel, trace Silt

BORING LOG (continued)

PROJECT: Ocean City - Longport Bridge

LOCATION: Ocean City, NJ

INSPECTOR: A. Reed

DEPTH BELOW GROUND SURFACE (ft)	BLOWS ON CASING	SAMPLE			ROCK CORING INFORMATION					FIELD IDENTIFICATION OF SOIL / ROCK	
		TYPE	NUMBER	DEPTH (ft)	RUN (in)	REC. (in)	REC. (%)	L > 4" (in)	RQD (%)		
					SOIL SAMPLING (Blows per 6 inches)						
					0-6	6-12	12-18	18-24	REC. (in)		
80		SS	16	75-75.4	100/5"					3	Gray of SAND, little Silt, trace (-) Gravel
85		SS	17	80-80.2	100/3"					3	Same as SS-16
90		SS	18	85-85.5	100/6"					2	Same as SS-16
95		SS	19	90-90.5	100/6"					2	Same as SS-16
100		SS	20	95-95.2	100/3"					2	Same as SS-16 End of Boring @ 95.2 ft
105											



BORING LOG

PROJECT: Ocean City - Longport Bridge  
 LOCATION: Ocean City, NJ  
 CONTRACTOR: Warren George, Inc.  
 DRILLER: Rob Danielson  
 TYPE RIG: ATV - CME - 550  
 INSPECTOR: A. Reed & K. Ro

GROUND ELEVATION: +3.0 ft      BASELINE: Proposed Bridge Baseline  
 STATION: 8+12                      OFFSET: 18 ft RT  
 DRILLING START TIME: 3:00 PM      DATE: 10 / 28 / 94  
 DRILLING FINISH TIME: 1:40 PM      DATE: 10 / 31 / 94

DEPTHS		METHOD(S) OF DRILLING		BOREHOLE WATER LEVEL DATA			
0 - 95.5 ft		Rotary Drilling		DEPTH	HOUR	DATE	REMARKS
TYPE OF SAMPLE							
		UNDISTURBED					
SS	SPLIT SPOON O.D.: 2 in I.D.: 1-3/8 in LENGTH: 24 in HAMMER WEIGHT: 140 lbs HAMMER FALL: 30 in	U	SHELBY TUBE  O.D.: I.D.: I.L.:	D	DENISON  O.D.: I.D.: I.L.:	<b>Notes:</b> 1. The subsurface information shown hereon was obtained for the design and estimate purposes for our Client. It is made available to authorized users only that they may have access to the same information available to our Client. It is presented in good faith, but is not intended as a substitute for investigations, interpretations or judgment of such authorized users. 2. Field identification of soil samples is based on Burmister Soil Identification System. 3. pp = Unconfined compression strength from Pocket Penetrometer (tsf) 4. WOH = Weight of Hammer; WOR = Weight of Rod	
		P	PISTON O.D.: I.D.: I.L.:				
C	CORE BARREL TYPE: O.D.: I.D.:						
CASING							
O.D.: 4 in      I.D.: 3-1/4 in		WEIGHT OF HAMMER: 300 lbs      HAMMER FALL: 24 in					

DEPTH BELOW GROUND SURFACE (ft)	BLOWS ON CASING	SAMPLE			ROCK CORING INFORMATION					FIELD IDENTIFICATION OF SOIL / ROCK	
		TYPE	NUMBER	DEPTH (ft)	RUN (in)	REC. (in)	REC. (%)	L > 4" (in)	RQD (%)		
					SOIL SAMPLING (Blows per 6 inches)						
					0-6	6-12	12-18	18-24	REC. (in)		
	Casing	SS	1	0-2	3	2	5	11	12	Gray f SAND, little (-) Silt	
5											
		SS	2	5-7	13	30	29	34	10	Same as SS-1	
10											
		SS	3	10-12	4	4	10	11	15	Gray f SAND, little (+) Silt	
15											

BORING LOG (continued)

PROJECT: Ocean City - Longport Bridge  
 LOCATION: Ocean City, NJ  
 INSPECTOR: A. Reed & K. Ro

DEPTH BELOW GROUND SURFACE (ft)	BLOWS ON CASING	SAMPLE			ROCK CORING INFORMATION					FIELD IDENTIFICATION OF SOIL / ROCK
		T Y P E	N U M B E R	DEPTH (ft)	RUN (in)	REC. (in)	REC. (%)	L > 4" (in)	RQD (%)	
					SOIL SAMPLING (Blows per 6 inches)					
					0-6	6-12	12-18	18-24	REC. (in)	
20		SS	4	15-17	9	9	9	13	15	Gray f SAND, little (+) Silt, trace (-) f Gravel
25		SS	5	20-22	4	4	5	6	10	Same as SS-4
30		SS	6	25-27	6	8	13	14	12	Same as SS-4
35		SS	7	30-32	7	8	10	11	14	Same as SS-4
40		SS	8	35-37	8	9	11	10	14	Same as SS-4
45		SS	9	40-42	9	12	12	15	11	Same as SS-4

BORING LOG (continued)

PROJECT: Ocean City - Longport Bridge

LOCATION: Ocean City, NJ

INSPECTOR: K. Ro

DEPTH BELOW GROUND SURFACE (ft)	BLOWS ON CASING	SAMPLE			ROCK CORING INFORMATION					FIELD IDENTIFICATION OF SOIL / ROCK
		T Y P E	N U M B E R	DEPTH (ft)	RUN	REC.	REC.	L > 4"	RQD	
					(in)	(in)	(%)	(in)	(%)	
					SOIL SAMPLING (Blows per 6 inches)					
0-6	6-12	12-18	18-24	REC. (in)						
50		SS	10	45-47	10	13	18	19	13	Gray f SAND, little (+) Silt, trace (-) f Gravel
55		SS	11	50-52	13	15	15	25	12	Same as SS-10
60		SS	12	55-57	3	4	3	5	13	Gray Clayey SILT, little f Sand, trace (-) f Gravel
65		SS	13	60-62	4	6	6	15	14	Gray f SAND, some (-) Clayey Silt
70		SS	14	65-67	3	5	5	30	16	Same as SS-13 Gray mf SAND, little Silt
75		SS	15	70-70.2	100/3"				2	Brown cf SAND, little (-) Silt, trace f Gravel

BORING LOG (continued)

PROJECT: Ocean City - Longport Bridge

LOCATION: Ocean City, NJ

INSPECTOR: K. Ro

DEPTH BELOW GROUND SURFACE (ft)	BLOWS ON CASING	SAMPLE			ROCK CORING INFORMATION					FIELD IDENTIFICATION OF SOIL / ROCK	
		T Y P E	N U M B E R	DEPTH (ft)	RUN	REC.	REC.	L > 4"	RQD		
					(in)	(in)	(%)	(in)	(%)		
					SOIL SAMPLING (Blows per 6 inches)						
0-6	6-12	12-18	18-24	REC. (in)							
80		SS	16	75-75.3	100/4"					3	Brown of SAND, little (-) Silt, trace (-) f Gravel
85		SS	17	80-80.4	100/5"					4	Same as SS-16
90		SS	18	85-85.5	100/6"					4	Same as SS-16
95		SS	19	90-90.2	100/3"					3	Same as SS-16
100		SS	20	95-95.5	100/6"					6	Yellow/Brown of SAND, little Silt, trace (+) f Gravel  End of Boring @ 95.5 ft
105											

BORING LOG

PROJECT: Ocean City - Longport Bridge

LOCATION: Ocean City, NJ

CONTRACTOR: Warren George, Inc.

DRILLER: Gus Suri

TYPE RIG: Truck - Mounted (Mayhew 220)

INSPECTOR: K. Ro

GROUND ELEVATION: - 51 ft

STATION: 15+09

DRILLING START TIME: 10:45 AM

DRILLING FINISH TIME: 12:10 PM

BASELINE: Proposed Bridge Baseline

OFFSET: 19 ft RT

DATE: 11 / 3 / 94

DATE: 11 / 4 / 94

DEPTHS		METHOD(S) OF DRILLING		BOREHOLE WATER LEVEL DATA			
0 - 95.9 ft		Rotary Drilling		DEPTH	HOUR	DATE	REMARKS
TYPE OF SAMPLE							
		UNDISTURBED					
SS	SPLIT SPOON	U	SHELBY TUBE	D	DENISON	<b>Notes:</b> 1. The subsurface information shown hereon was obtained for the design and estimate purposes for our Client. It is made available to authorized users only that they may have access to the same information available to our Client. It is presented in good faith, but is not intended as a substitute for investigations, interpretations or judgment of such authorized users. 2. Field identification of soil samples is based on Burmister Soil Identification System. 3. pp = Unconfined compression strength from Pocket Penetrometer (tsf) 4. WOH = Weight of Hammer; WOR = Weight of Rod	
	O.D.: 2 in						
	I.D.: 1-3/8 in						
	LENGTH: 24 in						
	HAMMER WEIGHT: 140 lbs		O.D.:		O.D.:		
	HAMMER FALL: 30 in		I.D.:		I.D.:		
			I.L.:		I.L.:		
C	CORE	P	PISTON				
	BARREL TYPE:		O.D.: 3-3/8 in.				
	O.D.:		I.D.: 3 in.				
	I.D.:		I.L.: 24 in.				
CASING							
O.D.: 5-1/2 in		I.D.: 4-3/4 in					
WEIGHT OF HAMMER: 300 lbs		HAMMER FALL: 24 in					

DEPTH BELOW GROUND SURFACE (ft)	BLOWS ON CASING	SAMPLE			ROCK CORING INFORMATION					FIELD IDENTIFICATION OF SOIL / ROCK	
		TYPE	NUMBER	DEPTH (ft)	RUN (in)	REC. (in)	REC. (%)	L > 4" (in)	RQD (%)		
					SOIL SAMPLING (Blows per 6 inches)						
					0-6	6-12	12-18	18-24	REC. (in)		
5	9	SS	1	0-2	WOR / 24 in					3	Gray f SAND, some (+) Shells, trace Silt
	10										
	7										
	10										
	13										
10	12	SS	2	5-7	22	22	12	14	18	Dark Gray cf SAND, little (-) f Gravel, trace Shells	
	11										
	15										
	23										
15	48									Gray SILT & CLAY, trace (-) f Gravel (pp=0.1)	
	Mud used	SS	3	10-12	2	2	3	2	10		

BORING LOG (continued)

PROJECT: Ocean City - Longport Bridge  
 LOCATION: Ocean City, NJ  
 INSPECTOR: K. Ro

DEPTH BELOW GROUND SURFACE (ft)	BLOWS ON CASING	SAMPLE			ROCK CORING INFORMATION					FIELD IDENTIFICATION OF SOIL / ROCK
		TYPE	NUMBER	DEPTH (ft)	RUN (in)	REC. (in)	REC. (%)	L > 4" (in)	RQD (%)	
					SOIL SAMPLING (Blows per 6 inches)					
			0-6	6-12	12-18	18-24	REC. (in)			
20		SS	4	15-15.5	100/6"				3	Gray of SAND, little (+) mf Gravel, trace Clayey Silt
25		SS	5	20-20.8	60	100/4"			5	Gray of SAND, little (-) Silt, trace (-) f Gravel
30		SS	6	25-25.3	100/4"				4	Same as SS-5
35		SS	7	30-30.5	100/6"				5	Same as SS-5
40		SS	8	35-35.4	100/5"				4	Yellow / Gray of SAND, little Silt
45		SS	9	40-40.5	100/6"				6	Same as SS-8

BORING LOG (continued)

PROJECT: Ocean City - Longport Bridge  
 LOCATION: Ocean City, NJ  
 INSPECTOR: K. Ro

DEPTH BELOW GROUND SURFACE (ft)	BLOWS ON CASING	SAMPLE			ROCK CORING INFORMATION					FIELD IDENTIFICATION OF SOIL / ROCK	
		T Y P E	N U M B E R	DEPTH (ft)	RUN (in)	REC. (in)	REC. (%)	L > 4" (in)	RQD (%)		
					SOIL SAMPLING (Blows per 6 inches)						
					0-6	6-12	12-18	18-24	REC. (in)		
50		SS	10	45-46	74	100/6"			4	Yellow / Gray cf SAND, little Silt	
55		SS	11	50-50.3	100/4"				2	Same as SS-10	
60		SS	12	55-56	48	100/6"			10	Same as SS-10	
65		SS	13	60-61.3	49	62	100/4"		12	Grey f SAND, some (-) Silt	
70		SS	14	65-66	72	100/6"			10	Same as SS-13	
75		SS	15	70-71.5	40	72	100/6"		10	Same as SS-13	
		P	1	73-75					19		Dark brown SILT & CLAY, trace f Sand (pp = 0.4)
											Yellow / Brown cf SAND, little Silt

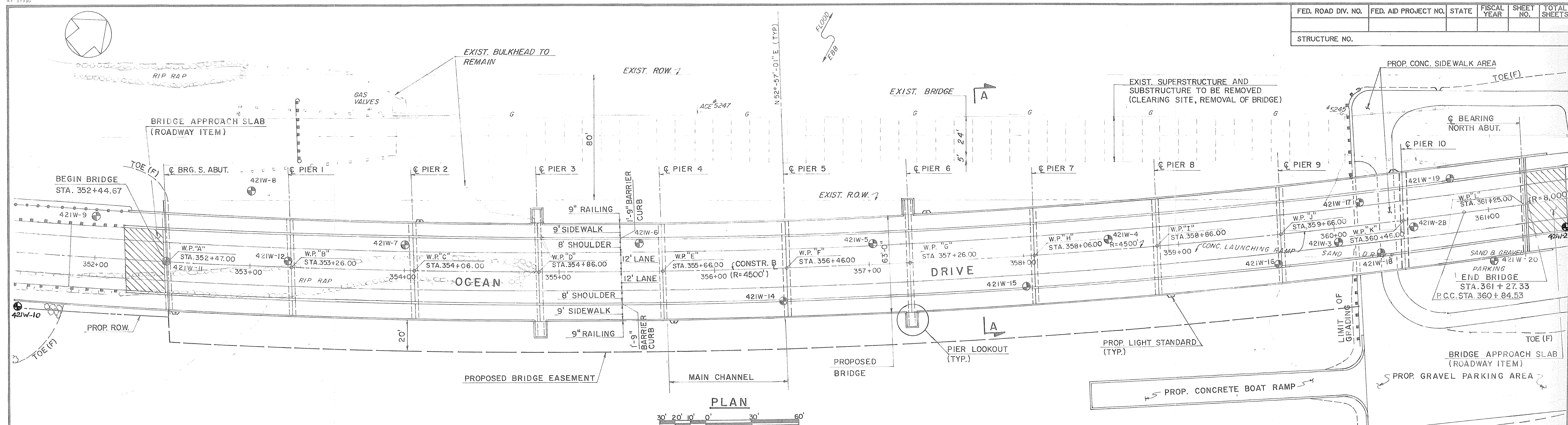
BORING LOG (continued)

PROJECT: Ocean City - Longport Bridge  
 LOCATION: Ocean City, NJ  
 INSPECTOR: K. Ro

DEPTH BELOW GROUND SURFACE (ft)	BLOWS ON CASING	SAMPLE			ROCK CORING INFORMATION					FIELD IDENTIFICATION OF SOIL / ROCK
		TYPE	NUMBER	DEPTH (ft)	RUN (in)	REC. (in)	REC. (%)	L > 4" (in)	RQD (%)	
					SOIL SAMPLING (Blows per 6 inches)					
					0-6	6-12	12-18	18-24	REC. (in)	
80		SS	16	75-76.5	75	77	100/6"		6	Yellow / Brown of SAND, little Silt
85		SS	17	80-80.9	56	100/5"			10	Grey of SAND, little Silt
90		SS	18	85-85.4	100/5"				5	Same as SS-17
95		SS	19	90-90.5	100/6"				6	Same as SS-17
100		SS	20	95-95.9	72	100/5"			10	Same as SS-17
105										End of Boring @ 95.9 ft



STRUCTURE NO.



**PLAN**  
30' 20' 10' 0' 30' 60'

**ELEVATION**  
30' 20' 10' 0' 30' 60'

SUMMARY OF QUANTITIES													
ITEM				UNIT	CONTRACT QUANTITY	AS-BUILT QUANTITY	ITEM						
BORING	STATION	OFFSET	GRND. EL.				BORING	STATION	OFFSET	GRND. EL.			
421W-1	363+0.5	31' RT.	+ 6.6'				421W-10	351+5.0	35' RT.	+ 2.3'			
421W-2A	361+5.4	22' RT.	+ 8.6'				421W-11	352+4.5	00	+ 9.7'			
421W-2B	360+5.1	5' RT.	+ 8.1'				421W-12	353+2.5	5' LT.	+ 7.9'			
421W-3	360+0.2	9' RT.	+ 4.8'				421W-14	356+4.5	20' RT.	- 21.9'			
421W-4	358+5.5	7' LT.	+ 5.1'				421W-15	358+0.0	20' RT.	- 13.4'			
421W-5	357+0.2	9' LT.	+ 17.8'				421W-16	359+6.5	20' RT.	+ 2.1'			
421W-6	355+5.1	19' LT.	+ 17.5'				421W-17	360+1.8	15' LT.	+ 6.8'			
421W-7	354+0.0	17' LT.	+ 7.8'				421W-18	360+3.0	17' RT.	+ 6.3'			
421W-8	352+9.9	48' LT.	+ 8.1'				421W-19	360+7.8	22' LT.	+ 9.1'			
421W-9	352+0.0	27' LT.	+ 9.0'				421W-20	361+0.0	35' RT.	+ 8.4'			

INDEX OF DRAWINGS			
DWG. NO.	TITLE	DWG. NO.	TITLE
B-1	GENERAL PLAN AND ELEVATION		
B-2	SECTION AND PROFILE		

STATE OF NEW JERSEY  
DEPARTMENT OF TRANSPORTATION  
MIDDLE THOROFARE BRIDGE & APPROACHES  
ON OCEAN DRIVE  
OVER MIDDLE THOROFARE

OCEAN CITY  
UPPER TOWNSHIP  
NEIL O. CLARKE, P.E.  
CAPE MAY COUNTY  
COUNTY ENGINEER

**GENERAL PLAN AND ELEVATION**

A.G. LICHTENSTEIN AND ASSOCIATES  
CONSULTING ENGINEERS  
NEW YORK, N.Y. FAIR LAWN, N.J. LANGHORNE, PA.

SCALE AS SHOWN DATE DWG. NO. 35 OF B-1

421W-1 TO 20

DESIGNED BY: JZ  
DRAWN BY: JLV  
CHECKED BY: JLV  
IN CHARGE OF: JLV  
JOB NO. 851  
© 2004 DRAFTING MEDIA

ROUTE: LOCAL NAME: Structure Boring TEST HOLE NO. 421W-16

SECTION: Middle Thorofare Bridge FAUS M-5305(001)

STATION: 359+65 OFFSET: 20' Rt. REFERENCE LINE: Constr. BL GROUND LINE ELEVATION: +2.1'

BORINGS MADE BY: Bronston DATE STARTED: 9-23-85 Elevation G.W.T.

INSPECTOR: Lord DATE COMPLETED: 10-9-85

0 Hr. Tidal Date:  
24 Hr. Tidal Date:  
ft. P.P. Installed Date:

CASING BLOWS	SAMPLE NO. DEPTH		Blows on Spoon			REC.	Sample ID and Profile Change	
			0-6	6-12	12-18			
29	S-1	0.0'	1.5'	5	7	7	0.5'	Light Brown CF(+)SAND, trace(-)Silt.
27								
20								
16								
18								
17	S-2	5.0'	6.5'	3	2	2	1.0'	Light Gray F SAND, trace(-)Silt.
19	S-3	6.5'	8.0'	2	5	8	0.2'	Light Gray F SAND, trace Silt, trace F Gravel.
20								
21	S-4	8.0'	9.5'	4	4	6	1.0'	Gray F SAND, trace Silt.
23	S-5	9.5'	11.0'	1	3	3	0.4'	Gray F SAND, trace Silt, trace(-)F Gravel.
23								
28	S-6	11.0'	12.5'	4	11	13	0.5'	Gray F SAND, trace Silt.
34	S-7	12.5'	14.0'	7	13	15	0.3'	SAME.
44								
50	S-8	14.0'	15.5'	13	15	14	0.2'	Gray F SAND, trace(+)Silt, trace(-)Fibers.
42	S-9	15.5'	17.0'	11	16	19	0.7'	Gray F SAND, trace(-)Silt.
37								
40	S-10	17.0'	18.5'	7	11	9	0.3'	Gray F SAND, trace Silt, trace(-)F Gravel.
40	S-11	18.5'	20.0'	15	16	18	1.1'	Gray CF(+)SAND, trace Silt, trace F Gravel.
42								
45	S-12	20.0'	21.5'	6	2	2	0.2'	Gray CF(+)SAND, trace Silt, little(-)Shell
48	S-13	21.5'	23.0'	1	1	1	1.5'	Fragments. 21.5'
44								Dark Gray Organic CLAY and SILT, trace(-)Fibers.
50	S-14	23.0'	24.5'	1	1	2	1.5'	SAME.
39	S-15	24.5'	26.0'	1	1	1	1.5'	Dark Gray Organic CLAY and SILT, trace F Sand, trace Fibers. (Slightly Micaceous).
36								
37	S-16	26.0'	27.5'	1	1	1	1.5'	Dark Gray Organic CLAY and SILT, trace(-)Fibers. (Slightly Micaceous)
42	S-17	27.5'	29.0'	1	1	1	1.5'	SAME.
39								
60	S-18	29.0'	30.5'	1	2	1	1.5'	SAME.
47	S-19	30.5'	32.0'	2	2	3	1.5'	Dark Gray Organic CLAY and SILT, little(-)Shell Fragments, trace CF Sand, trace(-)Fibers.
49								
57	S-20	32.0'	33.5'	1	1	2	1.5'	Dark Gray Organic CLAY and SILT, trace(-)Fibers. (Micaceous).
69	S-21	33.5'	35.0'	2	2	21	1.5'	Gray CLAY and SILT, some MF(+)Gravel, trace CF Sand. 35.0'
65								
45								
86	S-22	35.0'	36.5'	58	46	42	0.3'	Gray CF GRAVEL, trace(-)Silt, trace(+)CF Sand.
113								
185								
202								

Nominal I.D. of Drive Pipe	2 1/2"	XXX
Nominal I.D. of Split Barrel Sampler	1 1/2"	
Weight of hammer on Drive Pipe	300 lbs.	
Weight of hammer on Split Barrel Sampler	140 lbs.	
Drop of hammer on Drive Pipe	24"	
Drop of hammer on Split Barrel Sampler	30"	

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation  
Bureau of Geotechnical Engineering

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: LOCAL NAME: Structure Boring TEST HOLE NO. 421W-16

SECTION: Middle Thorofare Bridge FAUS M-5305(001)

STATION: 359+65 OFFSET: 20' Rt. REFERENCE LINE: Constr. BL GROUND LINE ELEVATION: +2.1'

BORINGS MADE BY: Bronston DATE STARTED: 9-23-85

Elevation G.W.T.

INSPECTOR: Lord DATE COMPLETED: 10-9-85

0 Hr. Tidal Date:

24 Hr. Tidal Date:

ft. P.P. Installed Date:

CASING BLOWS	SAMPLE NO. DEPTH		Blows on Spoon			REC.	Sample ID and Profile Change	
			0-6	6-12	12-18			
101	S-23	40.0'	40.8'	66	120	.3'	0.3'	Light Gray F GRAVEL, trace(-)Silt, some CF Sand.
179								
197								
282								
349								
140	S-24	45.0'	46.0'	52	122	-	0.5'	SAME.
254								
535								
384								
286								
330	S-25	50.0'	51.0'	76	121	-	0.4'	Tan CF SAND, trace(-)Silt, some(-)F Gravel.
422								
561								
236								
115								
227	S-26	55.0'	56.5'	36	48	74	0.3'	Tan CF SAND, trace(-)Silt, little(-)F Gravel.
382								
370								
391								
418								
320	S-27	60.0'	61.3'	30	84	120	0.3'	Tan and Gray MF(+)GRAVEL, trace(-)Silt, little (+)CF Sand.
401						.3'		
	S-28	62.0'	62.7'	69	120	.2'	0.4'	Tan CF SAND, trace(-)Silt, trace(+)F Gravel.
								62.7'
								Bottom of Hole

Nominal I.D. of Drive Pipe	2 1/2"	XXX
Nominal I.D. of Split Barrel Sampler	1 1/2"	
Weight of hammer on Drive Pipe	300 lbs.	
Weight of hammer on Split Barrel Sampler	140 lbs.	
Drop of hammer on Drive Pipe	24"	
Drop of hammer on Split Barrel Sampler	30"	

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The Information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation

Bureau of Geotechnical Engineering

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: LOCAL NAME: Structure Boring TEST HOLE NO. 421W-17

SECTION: Middle Thorofare Bridge FAUS #BR-M-5305(001)

STATION: 360+18 OFFSET: 15' Lt. REFERENCE LINE: Constr. BL GROUND LINE ELEVATION: +6.8'

BORINGS MADE BY: Augustine DATE STARTED: 8-30-85  
 INSPECTOR: Lord DATE COMPLETED: 9-13-85

Elevation G.W.T.  
 0 Hr.+2.9' Filled In Dry Date: 9-13-85  
 24 Hr.SAME Date: 9-16-85  
 \_\_\_\_\_ ft. P.P. Installed Date:

CASING BLOWS	SAMPLE NO. DEPTH			Blows on Spoon			REC.	Sample ID and Profile Change	
				0-6	6-12	12-18			
14	S-1	0.0'	1.5'	6	9	12	0.2'	Light Brown F SAND, trace(-)Silt.	
44									
31									
39									
33									
49	S-2	5.0'	6.5'	9	13	11	0.2'	Light Brown F SAND, trace Silt, trace F Gravel.	
53								Light Gray CF SAND, trace(-)Silt, little (+) MF Gravel.	
37	S-3	6.5'	8.0'	15	17	21	1.0'		
16	S-4	8.0'	9.5'	3	1	1	0.2'	Brown CF SAND, trace(-)Silt, little F Gravel, trace(-)Shell Fragments.	10.0'
19									
33	S-5	10.0'	11.5'	2	1	2	0.8'	Gray Fibrous Organic CLAY & SILT, trace (+) F Sand.	
41									
37	U-1	11.5'	13.0'	PRESSED			1.5'		
22	S-6	13.0'	14.5'	2	2	2	0.2'	Gray CLAY & SILT, trace F Sand, trace(-) Fibers.	14.5'
25									
40	U-2	15.0'	16.5'	PRESSED			1.3'		
55									
62	S-7	16.5'	18.0'	1	1	2	0.8'	Gray F SAND, little Silt.	
67									
53									
73	U-3	20.0'	21.5'	TRAPPED			0.5'	SampeI Placed In Jar.	
82									
110	S-8	21.5'	23.0'	4	15	19	0.5'	Gray F SAND, trace Silt.	23.5'
89									
86									
96	U-4	25.0'	26.5'	PRESSED			1.5'	Dark Gray Orgainic CLAY and SILT, trace F Sand, trace Fibers,	
93									
83	S-9	26.5'	28.0'	1	0	1	1.5'	Dark Gey Organic CLAY & SILT, trace (-) Sand, trace(-)Dibers.	
65									
53									
82	U-5	30.0'	31.5'	PRESSED			1.5'		
95									
83	S-10	31.5'	33.0'	1	1	3	1.5'	SAME.	
73									
81									
92	U-6	35.0'	36.5'	PRESSED			1.5'		
105									
97	S-11	36.5'	38.0'	1	0	1	0.3'	SAME.	
161									
197									40.0'

Nominal I.D. of Drive Pipe	3 3/4"	4"
Nominal I.D. of Split Barrel Sampler	1 1/2"	
Weight of hammer on Drive Pipe	300 lbs.	
Weight of hammer on Split Barrel Sampler	140 lbs.	
Drop of hammer on Drive Pipe	24"	
Drop of hammer on Split Barrel Sampler	30"	

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The Information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation  
 Bureau of Geotechnical Engineering

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: LOCAL NAME: Structure Boring TEST HOLE NO. 421W-17

SECTION: Middle Thorofare Bridge FAUS #BR-M-5305(001)

STATION: 360+18 OFFSET: 15' Lt. REFERENCE LINE: Constr. BL GROUND LINE ELEVATION: +6.8'

BORINGS MADE BY: Augustine DATE STARTED: 8-30-85

Elevation G.W.T.  
 0 Hr. +2.9' Filled In Dry Date: 9-13-85  
 24 Hr. SAME Date: 9-16-85

INSPECTOR: Lord DATE COMPLETED: 9-13-85

\_\_\_\_\_ ft. P.P. Installed Date:

CASING BLOWS	SAMPLE NO. DEPTH		Blows on Spoon			REC.	Sample ID and Profile Change	
			0-6	6-12	12-18			
97	S-12	40.0'	41.5'	3	9	13	0.2'	Gray CF SAND, trace(-)Silt.
174								
712								
1230								
1563								
298	S-13	45.0'	46.5'	17	38	72	0.2'	Tan MF(+)SAND, trace(-)Silt.
535								
1220								
977								
1135								
	S-14	50.0'	50.5'	185	-	-	0.2'	SAME.
								Bottom of Hole

Nominal I.D. of Drive Pipe	<del>2 3/4</del> 4"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Drive Pipe	300 lbs.
Weight of hammer on Split Barrel Sampler	140 lbs.
Drop of hammer on Drive Pipe	24"
Drop of hammer on Split Barrel Sampler	30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The Information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation  
 Bureau of Geotechnical Engineering

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: LOCAL NAME: Structure Boring TEST HOLE NO. 421W-18

SECTION: Middle Thorofare Bridge FAUS #BR-M-5305(001)

STATION: 360+30 OFFSET: 17' Rt. REFERENCE LINE: Constr. BL GROUND LINE ELEVATION: +6.3'

BORINGS MADE BY: Augustine DATE STARTED: 9-17-85

INSPECTOR: Lord DATE COMPLETED: 10-11-85

Elevation G.W.T.  
 0 Hr. +2.1' Date: 10-11-85  
 24 Hr. +1.9' Date: 10-15-85  
 \_\_\_\_\_ ft. P.P. Installed Date:

CASING BLOWS	SAMPLE NO. DEPTH			Blows on Spoon			REC.	Sample ID and Profile Change	
				0-6	6-12	12-18			
13	S-1	0.0'	1.5'	11	16	19	1.0'	FILL-Brown and Yellow CF GRAVEL, trace(-)Silt, little(+)CF Sand.	
18									
51	S-2	1.5'	3.0'	8	13	7	1.2'	Black MF GRAVEL, trace(-)Silt, some(-)CF Sand.	
37	S-3	3.0'	4.5'	5	7	7	0.8'	SAME. (Coal & Cinders)	
43									
60	S-4	4.5'	6.0'	8	12	13	1.5'	SAME.	
85	S-5	6.0'	7.5'	17	27	29	1.5'	Top 1' SAME. Bottom of Fill	7.0'
90									
65	S-6	7.5'	9.0'	15	15	9	1.2'	Bottom 0.5' - Gray F SAND, trace Silt.	
52								Gray F SAND, trace Silt.	9.5'
37	S-7	10.0'	11.5'	6	3	3	1.2'	Dark Gray Fibrous Organic SILT, M.P.I.	
43									
61	U-1	11.5'	13.0'	PRESSED			0.8'		
59	S-8	13.0'	14.5'	1	2	1	0.5'	Gray Fibrous Organic SILT, L.P.I.	
68									
47	U-2	15.0'	16.5'	PRESSED			0.5'		15.5'
51									
60	S-9	16.5'	18.0'	12	14	14	1.5'	Gray F SAND, little Silt, trace(-)Fibers.	
108									
104									
61	S-10	20.0'	21.5'	11	18	26	1.0'	Gray F SAND, trace(+)Silt.	
76									
84									
158									23.5'
110									
91	S-11	25.0'	26.5'	2	2	2	1.5'	Dark Gray Fibrous Organic SILT, M.P.I.	
100									
117	U-3	26.5'	28.0'	PRESSED			1.5'		
121	S-12	28.0'	29.5'	2	2	3	1.5'	SAME.	
137									
92	U-4	30.0'	31.5'	PRESSED			0.1'	In Jar.	
84									
102	S-13	31.5'	33.0'	1	2	2	1.5'	SAME.	
97									
98									
109	S-14	35.0'	36.5'	9	12	17	1.5'	Gray MF(+)SAND, little Silt.	35.0'
116									
141									
113									
116									

Nominal I.D. of Drive Pipe	<del>2 1/2</del> 4"
Nominal I.D. of Split Barrel Sampler	1 1/2"
Weight of hammer on Drive Pipe	300 lbs.
Weight of hammer on Split Barrel Sampler	140 lbs.
Drop of hammer on Drive Pipe	24"
Drop of hammer on Split Barrel Sampler	30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation

Core Dia. \_\_\_\_\_

Bureau of Geotechnical Engineering

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata -----

ROUTE: LOCAL NAME: Structure Boring TEST HOLE NO. 421W-18

SECTION: Middle Thorofare Bridge FAUS #BR-M-5305(001)

STATION: 360+30 OFFSET: 17' Rt. REFERENCE LINE: Constr. BL GROUND LINE ELEVATION: +6.3'

BORINGS MADE BY: Augustine DATE STARTED: 9-17-85

Elevation G.W.T.  
 0 Hr. +2.1' Date: 10-11-85  
 24 Hr. +1.9' Date: 10-15-85

INSPECTOR: Lord DATE COMPLETED: 10-11-85

\_\_\_\_\_ ft. P.P. Installed Date:

CASING BLOWS	SAMPLE NO. DEPTH		Blows on Spoon			REC.	Sample ID and Profile Change	
			0-6	6-12	12-18			
121	S-15	40.0'	41.5'	16	26	33	0.2'	Gray CF SAND, little Silt, little Shell Fragments.
164								
500								
860								
1312								
319	S-16	45.0'	46.0'	56	113	-	0.3'	Gray F SAND, trace(+)Silt.
1402								
1671								
2091								
916	S-17	50.0'	51.0'	81	150	-	0.5'	Gray F SAND, little Silt.
1363								
1571								
2114								
2396	S-18	55.0'	56.5'	59	96	112	0.5'	Gray CF SAND, trace Silt, trace(+)F Gravel.
Bottom of Hole								56.5'

Nominal I.D. of Drive Pipe	<del>2 1/2"</del>	4"
Nominal I.D. of Split Barrel Sampler		1 1/2"
Weight of hammer on Drive Pipe	300 lbs.	
Weight of hammer on Split Barrel Sampler	140 lbs.	
Drop of hammer on Drive Pipe	24"	
Drop of hammer on Split Barrel Sampler	30"	

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The Information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation

Bureau of Geotechnical Engineering

Care Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: LOCAL NAME: Structure Boring TEST HOLE NO. 421W-19

SECTION: Middle Thorofare Bridge FAUS #BR-M-5305(001)

STATION: 360+78 OFFSET: 22' Lt. REFERENCE LINE: Constr. BL GROUND LINE ELEVATION: +9.1'

BORINGS MADE BY: Augustine DATE STARTED: 8-9-85  
 INSPECTOR: Lord DATE COMPLETED: 8-29-85  
 Elevation G.W.T.  
 0 Hr. +1.3' Filled In Dry Date: 8-29-85  
 24 Hr. SAME Date: 9-3-85  
 \_\_\_\_\_ ft. P.P. Installed Date:

CASING BLOWS	SAMPLE NO. DEPTH		Blows on Spoon			REC.	Sample ID and Profile Change		
			0-6	6-12	12-18				
4	S-1	0.0'	1.5'	7	6	10	1.5'	Brown CF SAND, trace(-)Silt, trace(+)F Gravel.	
7									
11	S-2	1.5'	3.0'	8	11	11	1.5'	Light Brown F SAND, trace(-)Silt.	
12	S-3	3.0'	4.5'	11	10	9	1.2'	SAME.	
10									
14	S-4	4.5'	6.0'	5	7	7	1.5'	SAME.	
11	S-5	6.0'	7.5'	7	8	8	1.5'	SAME.	
13								Gray CF SAND, trace (-) Silt, some (+) F Gravel.	
10	S-6	7.5'	9.0'	5	7	6	1.2'	Gray & Black F SAND, trace(+)Silt.	
6	S-7	9.0'	10.5'	5	4	4	1.5'		
20									
32	S-8	10.5'	12.0'	2	1	2	1.0'	Gray & Brown CF(+)SAND, trace Silt.	
33	S-9	12.0'	13.5'	2	2	2	0.8'	Top - 2" - Gray F SAND, trace(+)Silt.	12.5'
32								Bottom - 6" - Gray Fibrous Organic CLAY & SILT, some(-)F Sand.	
15	S-10	13.5'	15.0'	1	1	2	1.2'	SAME.	
39	U-1	15.0'	16.5'			PRESS	0		
35									
68	S-11	16.5'	18.0'	2	1	2	1.0'	Dark Gray Organic CLAY & SILT, little(+)F Sand, trace Shell Fragments, trace(-)Fibers.	
51									
20									20.0'
61	U-2	20.0'	21.5'			PRESS	1.5'		
62								Gray F SAND, trace Silt, little (+) Shell Fragments.	
68	S-12	21.5'	23.0'	7	11	11	1.2'		23.0'
84									
89									
25									
67	S-13	25.0'	26.5'	2	2	1	1.5'	Gray Fibrous Organic CLAY & SILT, trace(+)F Sand, trace Shell Fragments.	
71									
80	U-3	26.5'	28.0'			PRESS	1.5'		
82									
30									
76	S-14	28.0'	29.5'	1	1	2	1.2'	Gray Fibrous Organic CLAY & SILT in jar.	
80	U-4	30.0'	31.5'			PRESS	0.5'*		31.5'
80									
99	S-15	31.5'	33.0'	2	3	10	1.5'	Gray MF SAND, trace(+)Silt, trace Shell Fragments.	
149									
35									
164									
94	S-16	35.0'	36.5'	13	11	10	0.8'	Gray CF SAND, trace Silt, some(+)Shell Fragments.	
154									
158									
150									38.5'
40									
146									

Nominal I.D. of Drive Pipe	2 1/2"	4"
Nominal I.D. of Split Barrel Sampler	1 1/2"	
Weight of hammer on Drive Pipe	300 lbs.	
Weight of hammer on Split Barrel Sampler	140 lbs.	
Drop of hammer on Drive Pipe	24"	
Drop of hammer on Split Barrel Sampler	30"	

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation

Bureau of Geotechnical Engineering

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_



ROUTE: LOCAL NAME: Structure Boring TEST HOLE NO. 421W-19

SECTION: Middle Thorofare Bridge FAUS #BR-M-5305(001)

STATION: 360+78 OFFSET: 22' Lt. REFERENCE LINE: Constr. BL GROUND LINE ELEVATION: +9.1'

BORINGS MADE BY: Augustine DATE STARTED: 8-9-85 0 Hr. +1.3' Filled in Dry Date: 8-29-85
INSPECTOR: Lord DATE COMPLETED: 8-29-85 24 Hr. SAME Date: 9-3-85

Table with columns: CASING BLOWS, SAMPLE NO., DEPTH, Blows on Spoon (0-6, 6-12, 12-18), REC., Sample ID and Profile Change, and a right-side column for depth markers (42.5', 55.5'). Rows include soil descriptions like 'Gray Silty CLAY, some(-)C(+ )F SAND, trace(+ )F Gravel.' and 'Light Gray MF(+ )SAND, trace(-)Silt.'

Table with 2 columns: Description and Value. Rows include: Nominal I.D. of Drive Pipe (4"), Nominal I.D. of Split Barrel Sampler (1 1/2"), Weight of hammer on Drive Pipe (300 lbs.), Weight of hammer on Split Barrel Sampler (140 lbs.), Drop of hammer on Drive Pipe (24"), Drop of hammer on Split Barrel Sampler (30").

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The Information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation

Bureau of Geotechnical Engineering

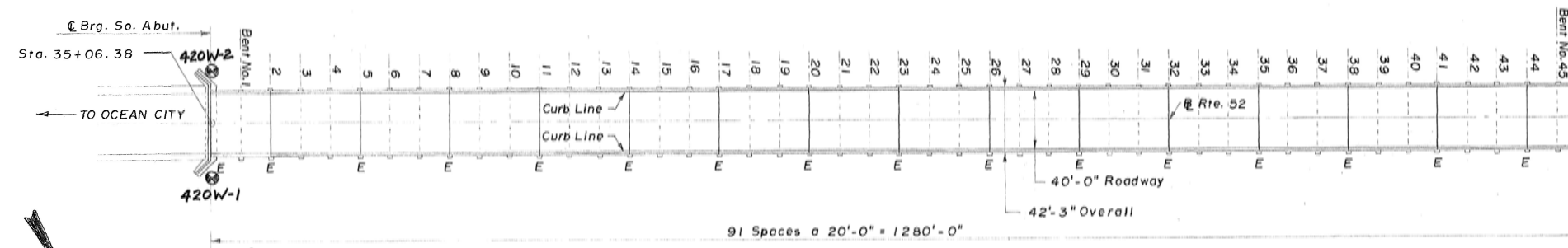
Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification offer D.M. Burmister unless otherwise noted.

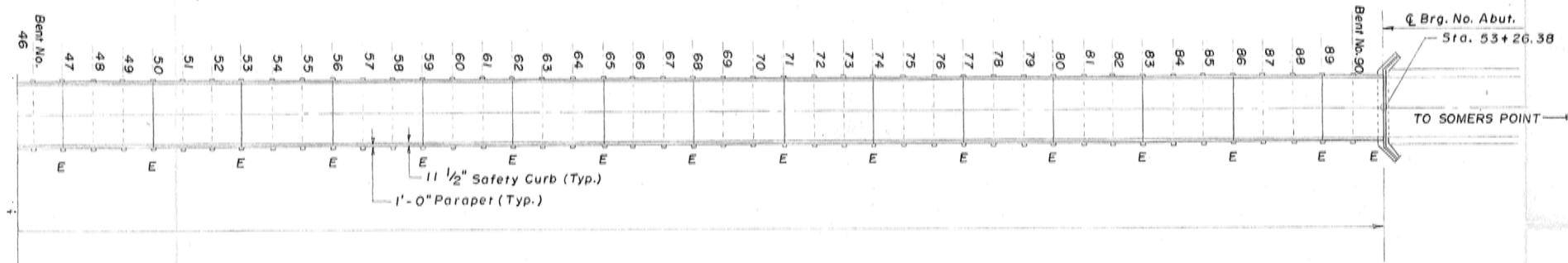
Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

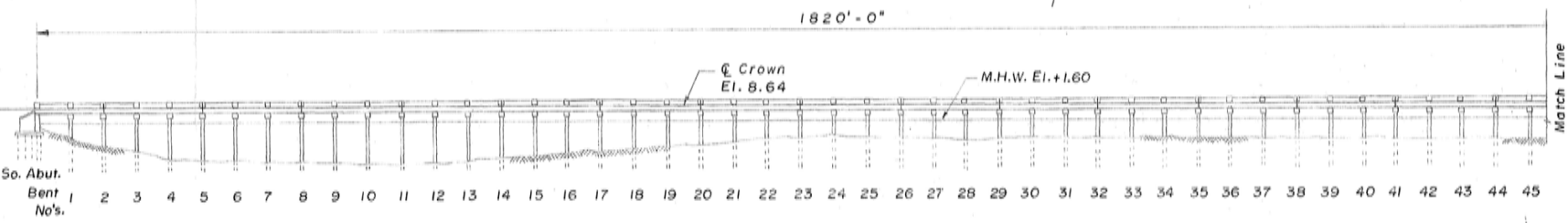
STRUCTURE NO. 0511-151



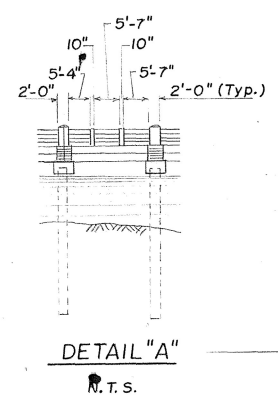
Rainbow Thorofare



PLAN  
Scale: 1" = 50'



ELEVATION  
Scale: 1" = 50'



BORING REQUEST  
AS-DRILLED

Boring No.	420W-1	420W-2
Sta.	34+92	34+93
Offset	25.27	27.17

**PRELIMINARY** OCT 11 1984

NEW JERSEY DEPARTMENT OF TRANSPORTATION  
BUREAU OF STRUCTURAL DESIGN

RAINBOW THOROFARE  
(Rehabilitation)  
ROUTE 52 (1953) SEC. 26 STA. 35 + 06.38  
MUNICIPALITY OCEAN CITY COUNTY CAPE MAY

GENERAL PLAN & ELEVATION

Recommended \_\_\_\_\_ Date \_\_\_\_\_ Scale 1" = 50'  
Approved \_\_\_\_\_ Structure Sheet No. \_\_\_\_\_ of \_\_\_\_\_  
Chief, Bureau of Structural Design

CONTROL SECTION	9811	JOB NO.	005
DES.		CHK.	
DWN.		CHK.	
EST.		CHK.	
SPECS.		CHK.	
IN CHARGE	_____		
SUBMITTED	_____		

REVISION	BY	C.K'D.	DATE

420W-1 AND 2

ROUTE: 52 LOCAL NAME: South Abutment, Rainbow Thorofare Bridge TEST HOLE NO. 420W-1

SECTION: Ocean City to Route 9

STATION: 34+92 OFFSET: 25' Rt. REFERENCE LINE: Rt. 52 BL GROUND LINE ELEVATION: +7.0'+

BORINGS MADE BY: Servillo DATE STARTED: 5-7-85 Elevation G.W.T. \_\_\_\_\_  
 INSPECTOR: Lord DATE COMPLETED: 5-17-85  
 0 Hr. +0.0' Date: 5-17-85  
 24 Hr. SAME Date: 5-20-85  
 \_\_\_\_\_ ft. P.P. Installed Date: \_\_\_\_\_

CASING BLOWS	SAMPLE NO. DEPTH		Blows on Spoon				REC.	Sample ID and Profile Change
			0-6	6-12	12-18	18		
3	S-1	0.0'	1.5'	2	3	5	0.2'	FILL - Yellow and Brown CF Sand, trace (-) Silt, some (+) Wood Fibers, trace F Gravel.
4								
7								
8								
8								
10	S-2	5.0'	6.5'	7	9	12	0.3'	Yellow and Brown CF SAND, trace Silt, little (+) MF Gravel.  ----- Bottom of Fill ----- 8.0'
10								
13								
21								
29								
10	S-3	10.0'	11.5'	7	13	19	0.7'	Grey F SAND, trace Silt.
30								
31								
32								
29								
15	S-4	15.0'	16.5'	6	11	16	0.5'	Grey F SAND, trace (-) Silt.
34								
29								
27								
26								
20	S-5	20.0'	21.5'	6	8	12	0.5'	SAME.
50								
52								
44								
43								
25	S-6	25.0'	26.5'	3	8	9	0.6'	SAME.
61								
51								
50								
44								
30	S-7	30.0'	31.5'	7	10	12	0.6'	SAME.
95								
113								
128								
117								
35	S-8	35.0'	36.5'	10	13	19	0.5'	Grey CF SAND, trace (-) Silt, some (+) F Gravel, trace (-) Shell Fragments.
60								
70								
78								
87								
40	70							

Nominal I.D. of Drive Pipe	2 1/2"	<del>4 1/2"</del>
Nominal I.D. of Split Barrel Sampler	1 1/2"	
Weight of hammer on Drive Pipe	300 lbs.	
Weight of hammer on Split Barrel Sampler	140 lbs.	
Drop of hammer on Drive Pipe	24"	
Drop of hammer on Split Barrel Sampler	30"	

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation  
 Bureau of Geotechnical Engineering

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 52 LOCAL NAME: South Abutment, Rainbow Thorofare Bridge TEST HOLE NO. 420W-1

SECTION: Ocean City to Route 9

STATION: 34+92 OFFSET: 25' Rt. REFERENCE LINE: Rt. 52 BL GROUND LINE ELEVATION: +7.0'+

BORINGS MADE BY: Servillo DATE STARTED: 5-7-85

Elevation G.W.T. 0 Hr. +0.0' Date: 5-17-85

INSPECTOR: Lord DATE COMPLETED: 5-17-85

24 Hr. SAME Date: 5-20-85

ft. P.P. Installed Date:

Table with columns: CASING BLOWS, SAMPLE NO., DEPTH, Blows on Spoon (0-6, 6-12, 12-18), REC., Sample ID and Profile Change, and depth markers (43.0', 52.0', 64.0', 66.0', 70.5'). Rows include soil descriptions like 'Grey CF SAND, trace (-) Silt, some (+) F Gravel' and 'Grey ORGANIC SILT'.

Table with equipment specifications: Nominal I.D. of Drive Pipe 2 1/2", Nominal I.D. of Split Barrel Sampler 1 1/2", Weight of hammer on Drive Pipe 300 lbs., Weight of hammer on Split Barrel Sampler 140 lbs., Drop of hammer on Drive Pipe 24", Drop of hammer on Split Barrel Sampler 30".

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation

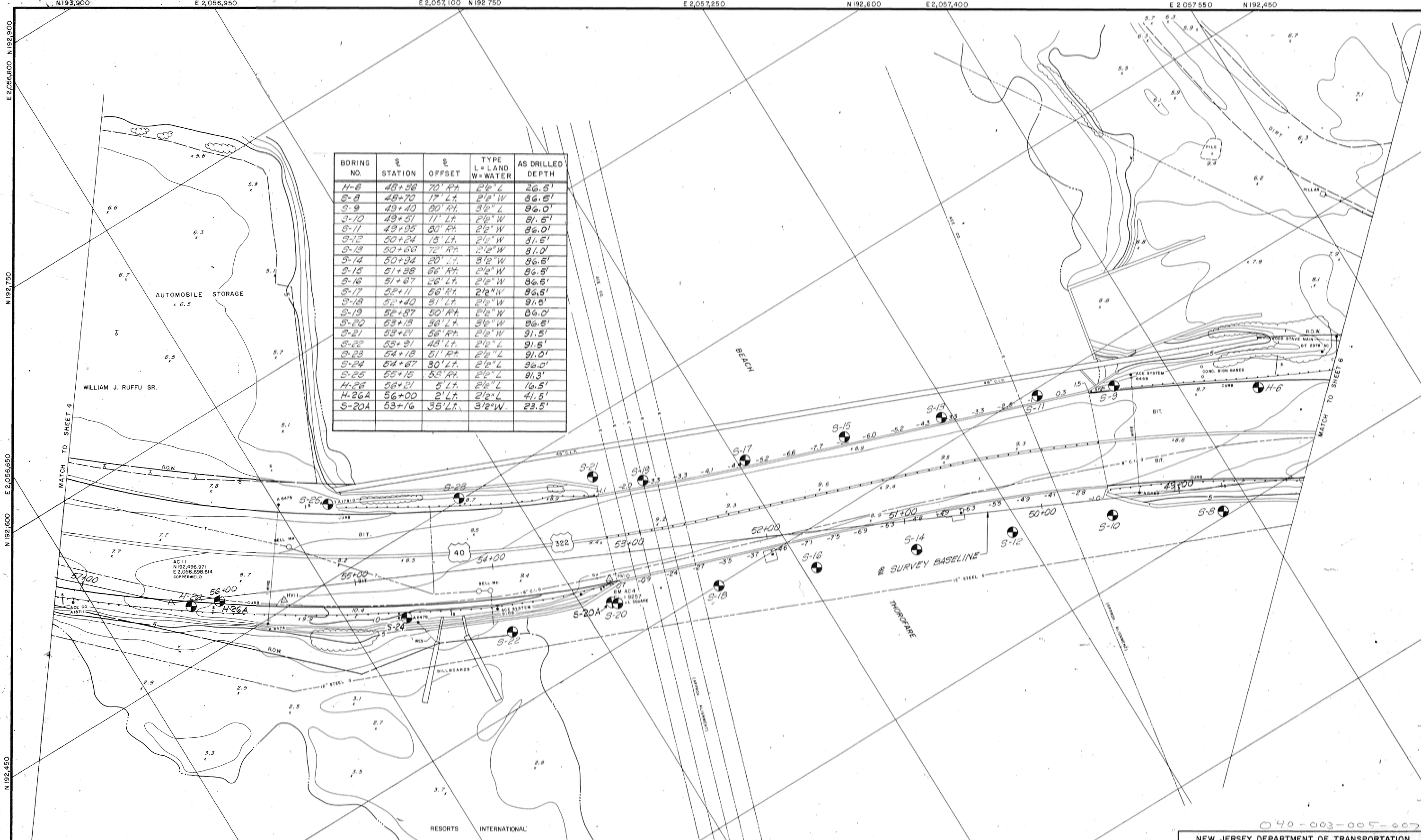
Bureau of Geotechnical Engineering

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_



BORING NO.	STATION	OFFSET	TYPE L = LAND W = WATER	AS DRILLED DEPTH
H-6	48+56	70' RT.	2 1/2" L	26.5'
S-8	48+70	17' LT.	2 1/2" W	86.5'
S-9	49+40	80' RT.	3 1/2" L	96.0'
S-10	49+51	11' LT.	2 1/2" W	81.5'
S-11	49+95	80' RT.	2 1/2" W	86.0'
S-12	50+24	15' LT.	2 1/2" W	81.5'
S-13	50+66	72' RT.	2 1/2" W	81.0'
S-14	50+94	20' LT.	3 1/2" W	86.5'
S-15	51+38	66' RT.	2 1/2" W	86.5'
S-16	51+67	26' LT.	2 1/2" W	86.5'
S-17	52+11	56' RT.	2 1/2" W	86.5'
S-18	52+40	81' LT.	2 1/2" W	91.5'
S-19	52+87	50' RT.	2 1/2" W	86.0'
S-20	53+13	56' LT.	3 1/2" W	96.5'
S-21	53+21	56' RT.	2 1/2" W	91.5'
S-22	53+31	45' LT.	2 1/2" L	91.5'
S-23	54+18	51' RT.	2 1/2" L	91.0'
S-24	54+67	30' LT.	2 1/2" L	96.0'
S-25	55+15	53' RT.	2 1/2" L	91.3'
H-26	56+21	5' LT.	2 1/2" L	16.5'
H-26A	56+00	2' LT.	2 1/2" L	41.5'
S-20A	53+16	35' LT.	3 1/2" W	23.5'

NOTES:  
 UNDERGROUND UTILITY LINES SHOWN ON THIS MAP WERE POSITIONED FROM SURFACE EVIDENCE, VERBAL DESCRIPTIONS AND RECORDS PROVIDED BY THE RESPECTIVE UTILITY COMPANIES AND AGENCIES AND ARE NOT GUARANTEED ACCURATE VERIFICATION IS THE RESPONSIBILITY OF THE USER.  
 PROPERTY LINES SHOWN ON THIS MAP WERE POSITIONED ON A BEST FIT BASIS FROM CITY OF ATLANTIC CITY TAX MAPS. OWNERSHIP WAS DETERMINED FROM RECORDS IN THE OFFICE OF THE CITY ENGINEER.

MAP SYMBOLS

UTILITY POLE	CATCH BASIN	SEWER
LIGHT POLE	HYDRANTS	WATER
SIGN	PARKING METER	GAS
MANHOLES	FIRE ALARM BOX	ELECTRIC
METAL COVER	TRAFFIC SIGNAL	TELEPHONE
WATER METER	MAIL BOX	
VALVES		

SCALE 1" = 30'  
 DATE OF PHOTOGRAPHY - 11/17/82 CONTOUR INTERVAL - 1 FT  
 150 FOOT GRID BASED ON THE NEW JERSEY STATE PLANE COORDINATE SYSTEM.  
 VERTICAL DATUM IS NATIONAL GEODETIC VERTICAL DATUM OF 1929



040-003-005-007

**NEW JERSEY DEPARTMENT OF TRANSPORTATION**  
**BRIDGES AND STRUCTURES DESIGN**

**BRIDGES OVER INSIDE, BEACH AND GREAT THORFARES**

ROUTE: U.S. 40 & 322      SEC. 3J      STA.  
 MUNICIPALITY: ATLANTIC CITY      COUNTY: ATLANTIC

**AS-DRILLED BORING PLAN**

HARDESTY & HANOVER CONSULTING ENGINEERS NEW YORK, NEW YORK	Date: AUG. 1985      Scale: 1" = 30' Sheet No. <b>5</b> of <b>7</b>
--	--

ROUTE: 40 & 322 LOCAL NAME: Inside, Beach & Great Thorofare Bridges TEST HOLE NO. S-7  
 SECTION: 3J  
 STATION: 47+75 OFFSET: 18 Lt. REFERENCE LINE: Survey Baseline GROUND LINE ELEVATION: 4.9'  
 BORINGS MADE BY: B. Levering DATE STARTED: 9/20/85  
 INSPECTOR: R. Fields DATE COMPLETED: 9/24/85

Elevation G.W.T.  
 0 Hr. +1.9' Date: 9/24/85  
 24 Hr. +1.9' Date: 9/25/85  
 \_\_\_\_\_ ft. P.P. Installed Date:

CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon				REC.	Sample ID and Profile Change
			0-6	6-12	12-18	18		
	S-1	0.0'	1.5'	14	21	33	1.3'	Brown cf SAND, little (+) Silt, trace (+) mf Gravel
R								
E								
5	S-2	5.0'	6.5'	6	14	19	0.9'	Gray mf SAND, some (+) Silt w/decomposed roots & fibers
G								
U								
10	S-3	10.0'	11.5'	WH	WH	WH	1.5'	Organic SILT w/decomposed roots & fibers
A								
15	S-4	15.0'	16.5'	WH	WH	1	1.5'	Same
M								
E								
20	S-5	20.0'	21.5'	WH	WH	WH	1.5'	Gray Clayey SILT w/decomposed fibers
S								
25	S-6	25.0'	26.5'	3	10	10	1.5'	Gray f SAND, trace Silt
W								
30	S-7	30.0'	31.5'	8	10	9	1.5'	Same
L								
35	S-8	35.0'	36.5'	12	15	15	0.5'	Same
H								
40	DRILLING MUD							

Nominal I.D. of Drive Pipe	2 1/2"	XX
Nominal I.D. of Split Barrel Sampler	1 1/2"	
Weight of hammer on Drive Pipe	300 lbs.	
Weight of hammer on Split Barrel Sampler	140 lbs.	
Drop of hammer on Drive Pipe	24"	
Drop of hammer on Split Barrel Sampler	30"	

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 40 & 322 LOCAL NAME: Inside, Beach & Great Thorofare Bridges TEST HOLE NO. S-7

SECTION: 3J

STATION: 47+75 OFFSET: 18 Lt. REFERENCE LINE: Survey Baseline GROUND LINE ELEVATION: 4.9'

BORINGS MADE BY: B. Levering DATE STARTED: 9/20/85 Elevation G.W.T. 0 Hr. +1.9' Date: 9/24/85  
 INSPECTOR: R. Fields DATE COMPLETED: 9/24/85 24 Hr. +1.9' Date: 9/25/85  
 \_\_\_\_\_ ft. P.P. Installed Date: \_\_\_\_\_

CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon			REC.	Sample ID and Profile Change	Elevation G.W.T.	
			6	12	18				
	S-9	40.0'	41.5'	11	21	22	1.0'	Gray f SAND, trace (-) Silt	44.0'
	S-10	45.0'	46.5'	4	3	3	0.5'	Gray Clayey SILT, some cf Sand	48.0'
D	S-11	50.0'	51.5'	16	38	62	0.9'	Gray cf SAND, trace Silt, trace (-) f Gravel	
	S-12	55.0'	56.5'	14	35	43	1.0'	Gray cf SAND, trace (+) Silt	57.0'
	S-13	60.0'	61.5'	21	33	45	1.5'	Gray Silty CLAY, w/decomposed wood	
	S-14	65.0'	66.5'	8	13	18	1.5'	Lt. Gray CLAY, w/decomposed wood	68.0'
	S-15	70.0'	71.5'	9	14	19	0.8'	Gray & Brown f SAND, little Silt	
	S-16	75.0'	76.0'	71	123		0.8'	Lt. Gray cf SAND, little (-) Silt	

Nominal I.D. of Drive Pipe	2 1/2"	XXX
Nominal I.D. of Split Barrel Sampler	1 1/2"	
Weight of hammer on Drive Pipe	300 lbs.	
Weight of hammer on Split Barrel Sampler	140 lbs.	
Drop of hammer on Drive Pipe	24"	
Drop of hammer on Split Barrel Sampler	30"	

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata -----

ROUTE: 40 & 322 LOCAL NAME: Inside, Beach & Great Thorofare Bridges TEST HOLE NO. S-7

SECTION: 3J

STATION: 47+75 OFFSET: 18 Lt. REFERENCE LINE: Survey Baseline GROUND LINE ELEVATION: 4.9'

BORINGS MADE BY: B. Levering DATE STARTED: 9/20/85

Elevation G.W.T.  
 0 Hr. +1.9' Date: 9/24/85  
 24 Hr. +1.9' Date: 9/25/85  
 \_\_\_\_\_ ft. P.P. Installed Date:

INSPECTOR: R. Fields DATE COMPLETED: 9/24/85

CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon				REC.	Sample ID and Profile Change	Elevation
			0-6	6-12	12-18	18-24			
MUD	S-17	80.0'	80.5'	107			0.5'	Gray cf SAND, little (-) f Gravel, trace (+) Silt	
	S-18	85.0'	85.5'	101			0.4'	Same	
DRILLING	S-19	90.0'	91.0'	58	122		0.4'	Gray cf SAND, little (-) Silt	
	S-20	95.0'	96.5'	86	89	89	0.9'	Gray cf SAND, trace (+) Silt	96.5'
BOTTOM OF HOLE									

Nominal I.D. of Drive Pipe	2 1/2"	XX
Nominal I.D. of Split Barrel Sampler	1 1/2"	
Weight of hammer on Drive Pipe	300 lbs.	
Weight of hammer on Split Barrel Sampler	140 lbs.	
Drop of hammer on Drive Pipe	24"	
Drop of hammer on Split Barrel Sampler	30"	

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata -----



ROUTE: 40 & 322 LOCAL NAME: Inside, Beach & Great Thorofare Bridges TEST HOLE NO. S-8

SECTION: 3J

STATION: 48+70 OFFSET: 17' Lt. REFERENCE LINE: Survey Baseline GROUND LINE ELEVATION: -2.5'

BORINGS MADE BY: F. Sipple DATE STARTED: 9/17/85

Elevation G.W.T.
0 Hr. Water hole Date:
24 Hr. Date:
\_\_\_\_\_ ft. P.P. Installed Date:

INSPECTOR: R. Fields DATE COMPLETED: 9/19/85

Main data table with columns: CASING BLOWS, SAMPLE NO. DEPTH, Blows on Spoon (0, 6, 12, 18), REC., Sample ID and Profile Change, and soil descriptions like 'Gray cf SAND, some (-)Silt, little f Gravel'.

Technical specifications table: Nominal I.D. of Drive Pipe 2 1/2", Nominal I.D. of Split Barrel Sampler 1 1/2", Weight of hammer on Drive Pipe 300 lbs., etc.

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained in this log is not warranted to show the actual subsurface conditions...

Note: 4.0' water with tide gage at +1.5'

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 40 & 322 LOCAL NAME: Inside, Beach & Great Thorofare Bridges TEST HOLE NO. S-8

SECTION: 3J

STATION: 48+70 OFFSET: 17' Lt. REFERENCE LINE: Survey Baseline GROUND LINE ELEVATION: -2.5'

BORINGS MADE BY: F. Sipple DATE STARTED: 9/17/85

Elevation G.W.T.

0 Hr. Water hole Date:  
24 Hr. Date:  
ft. P.P. Installed Date:

INSPECTOR: R. Fields DATE COMPLETED: 9/19/85

CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon				REC.	Sample ID and Profile Change	
			0-6	6-12	12-18	18-24			
	S-8	40.0'	41.5'	10	24	32	1.1'	Gray cf SAND, some cf Gravel, trace (+)Silt	
5									
	S-9	45.0'	46.5'	11	16	24	1.0'	Gray cf SAND, some (-)f Gravel, trace (+)Silt	
10									49.0
USED	S-10	50.0'	51.5'	6	11	10	1.1'	Gray CLAY & SILT, trace (-)f Sand	
15									
MUD	S-11	55.0'	56.5'	10	12	19	1.0'	Gray CLAY	
20									
	S-12	60.0'	61.5'	6	10	12	1.0'	Same	62.0
25									
DRILLING	S-13	65.0'	66.5'	20	28	47	1.5'	Gray & Brown cf SAND, little Silt, trace (+)f Gravel	
30									
DRILLING	S-14	70.0'	70.5'	100			0.5'	Gray cf SAND, some (-)f Gravel, trace Silt	
35									
	S-15	75.0'	76.5'	24	44	80	0.9'	Gray mf SAND, trace (+)Silt	
40									

Nominal I.D. of Drive Pipe	2 1/2"	XX
Nominal I.D. of Split Barrel Sampler	1 1/2"	
Weight of hammer on Drive Pipe	300 lbs.	
Weight of hammer on Split Barrel Sampler	140 lbs.	
Drop of hammer on Drive Pipe	24"	
Drop of hammer on Split Barrel Sampler	30"	

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata -----

ROUTE: 40 & 322 LOCAL NAME: Inside, Beach & Gr&eac Thorofare Bridges TEST HOLE NO. S-8

SECTION: 3J

STATION: 48+70 OFFSET: 17' Lt. REFERENCE LINE: Survey Baseline GROUND LINE ELEVATION: -2.5'

BORINGS MADE BY: F. Sipple DATE STARTED: 9/17/85

Elevation G.W.T. 0 Hr. Water hole Dates

INSPECTOR: R. Fields DATE COMPLETED: 9/19/85

24 Hr. Dates

\_\_\_\_\_ ft. P.P. Installed Dates

CASING BLOWS	SAMPLE NO. DEPTH		Blows on Spoon				REC.	Sample ID and Profile Change
			0-6	6-12	12-18	18-24		
DRILL LING MUD	S-16	80.0' 81.5'	32	50	86	0.7'	Gray cf SAND, trace (+) Silt	
	S-17	85.0' 86.5'	44	48	52	0.9'	Gray cf SAND, trace (+) f Gravel, trace Silt	
BOTTOM OF HOLE								
Note: Probed ahead 0'-4' to check for possible interference with gas line.								

Nominal I.D. of Drive Pipe	2 1/2"	30X
Nominal I.D. of Split Barrel Sampler	1 1/2"	
Weight of hammer on Drive Pipe	300 lbs.	
Weight of hammer on Split Barrel Sampler	140 lbs.	
Drop of hammer on Drive Pipe	24"	
Drop of hammer on Split Barrel Sampler	30"	

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Die. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 40 + 322

LOCAL NAME: Inside, Beach & Great Thorofare Bridges

TEST HOLE NO. S-17

SECTION: 3J

STATION: 52+11

OFFSET: 56 Rt.

REFERENCE LINE: Survey Baseline

GROUND LINE ELEVATION: -6.0'

BORINGS MADE BY: F. Sipple

DATE STARTED: 10/28/85

Elevation G.W.T.

INSPECTOR: R. Fields

DATE COMPLETED: 10/30/85

0 Hr. Water Hole  
24 Hr.

Date:  
Date:  
Date:

ft. P.P. Installed

CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon			REC.	Sample ID and Profile Change	Elevation		
			0-6	6-12	12-18					
WH	S-1	0.0'	1.5'	WH	WH	WH	0.6'	Gray cf SAND, some (+) Silt, w/shell fragments	3.0'	
WH										
WH										
WH										
5	WH	S-2	5.0'	6.5'	WH	WH	WH	1.5'	Gray organic SILT, trace f Sand, w/shell fragments	
	WH									
	WH									
	WH									
10	4	S-3	10.0'	11.5'	WH	WH	WH	1.5'	Same	13.0'
	6									
	17									
	17									
15	30	S-4	15.0'	16.0'	2	2	4	1.0'	Gray f SAND, little (+) Silt, w/shell fragments	
	33									
	35									
	56									
20		S-5	20.0'	21.5'	4	11	14	0.8'	Gray f SAND, little Silt, w/shell fragments	
25	MUD									
	M	S-6	25.0'	26.5'	6	2	1	0.7'	Gray f SAND, trace Silt	
30	G	S-7	30.0'	31.5'	1	1	2	1.5'	Gray cf SAND, some Silt, trace f Gravel, w/shell fragments	
35	L									
	I	S-8	35.0'	36.5'	4	15	30	1.2'	Gray mf SAND, trace Silt	
40	D									

Nominal I.D. of Drive Pipe	2 1/2"	XH
Nominal I.D. of Split Barrel Sampler	1 1/2"	
Weight of hammer on Drive Pipe	300 lbs.	
Weight of hammer on Split Barrel Sampler	140 lbs.	
Drop of hammer on Drive Pipe	24"	
Drop of hammer on Split Barrel Sampler	30"	

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Note: 6.0' water at 0.0' tide gage.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 40 + 322 LOCAL NAME: Inside, Beach & Great Thorofare Bridges TEST HOLE NO. S-17

SECTION: 3J

STATION: 52+11 OFFSET: 56 Rt. REFERENCE LINE: Survey Baseline GROUND LINE ELEVATION: -6.0'

BORINGS MADE BY: F. Sipple DATE STARTED: 10/28/85

INSPECTOR: R. Fields DATE COMPLETED: 10/30/85

Elevation G.W.T.  
 0 Hr. Water Hole Date:  
 24 Hr. Date:  
 \_\_\_\_\_ ft. P.P. Installed Date:

CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon				REC.	Sample ID and Profile Change	Elevation
			0-6	6-12	12-18	18-24			
	S-9	40.0'	41.5'	15	37	35	0.6'	Gray mf SAND, little (-) Silt	
5									
	S-10	45.0'	46.5'	11	15	7	0.5'	Gray cf SAND, little Silt, trace f Gravel	
	D								49.0'
10									
	S-11	50.0'	51.5'	5	7	9	1.5'	Gray Clayey SILT, trace (+) f Sand, w/wood	
	M								
15									
	S-12	55.0'	56.5'	4	5	6	1.1'	Gray SILT & CLAY	
	G								58.0'
20									
	S-13	60.0'	61.5'	8	16	21	0.6'	Brown cf SAND, little (-) Silt	
	I								
	L								
25									
	S-14	65.0'	66.5'	12	31	36	0.7'	Gray cf SAND, trace (+) Silt	
	I								
	R								
30									
	S-15	70.0'	71.5'	14	26	30	0.7'	Gray mf SAND, trace (+) Silt	
	D								
35									
	S-16	75.0'	76.5'	26	50	84	1.0'	Gray cf SAND, little (-) Silt	
40									

Nominal I.D. of Drive Pipe	2 1/2"	XX
Nominal I.D. of Split Barrel Sampler	1 1/2"	
Weight of hammer on Drive Pipe	300 lbs.	
Weight of hammer on Split Barrel Sampler	140 lbs.	
Drop of hammer on Drive Pipe	24"	
Drop of hammer on Split Barrel Sampler	30"	

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Bumister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 40 + 322

LOCAL NAME: Inside, Beach & Great Thorofare Bridges

TEST HOLE NO. S-17

SECTION: 3J

STATION: 52+11

OFFSET: 62 Rt.

REFERENCE LINE: Survey Baseline

GROUND LINE ELEVATION: -6.0'

BORINGS MADE BY: F. Sipple

DATE STARTED: 10/28/85

Elevation G.W.T.

INSPECTOR: R. Fields

DATE COMPLETED: 10/30/85

0 Hr. Water Hole

Date:

24 Hr.

Date:

ft. P.P. Installed

Date:

CASING BLOWS	SAMPLE NO. DEPTH		Blows on Spoon				REC.	Sample ID and Profile Change		
			0-6	6-12	12-18	18-24				
	S-17	80.0'	81.2'	30	70	100	2	0.8'	Gray of SAND, trace Silt	
MUD										
	S-18	85.0'	86.5'	25	30	40		0.7'	Gray of SAND, little (+) Silt	86.5'

BOTTOM OF HOLE

Nominal I.D. of Drive Pipe	2½"	XX
Nominal I.D. of Split Barrel Sampler	1½"	
Weight of hammer on Drive Pipe	300 lbs.	
Weight of hammer on Split Barrel Sampler	140 lbs.	
Drop of hammer on Drive Pipe	24"	
Drop of hammer on Split Barrel Sampler	30"	

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

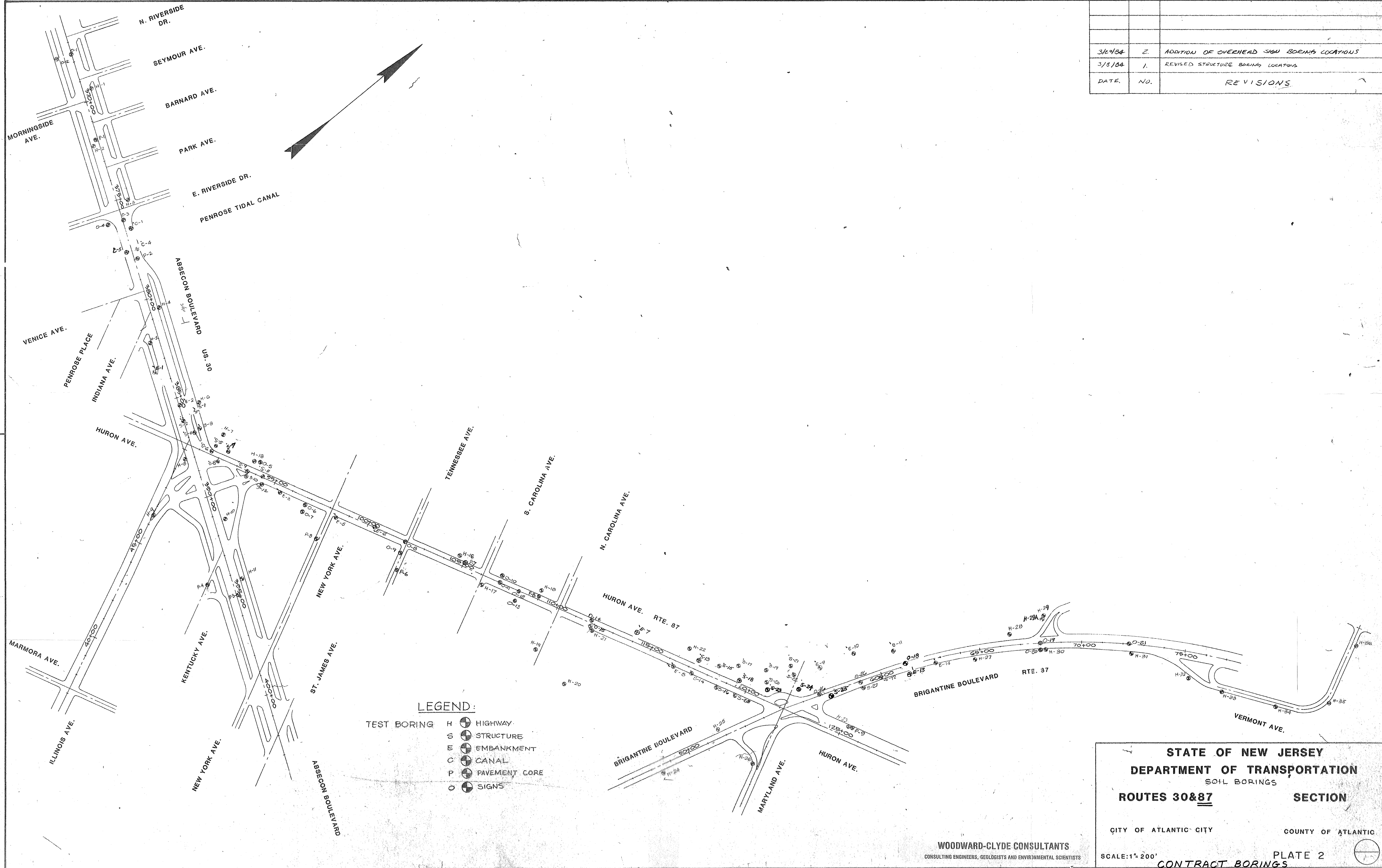
Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata - - - - -

DATE	NO.	REVISIONS
3/2/84	2.	ADDITION OF OVERHEAD SIGN BORING LOCATIONS
3/8/84	1.	REVISED STRUCTURE BORING LOCATIONS



**LEGEND:**

TEST BORING

- H ⊕ HIGHWAY
- S ⊕ STRUCTURE
- E ⊕ EMBANKMENT
- C ⊕ CANAL
- P ⊕ PAVEMENT CORE
- O ⊕ SIGNS

**STATE OF NEW JERSEY**  
**DEPARTMENT OF TRANSPORTATION**  
 SOIL BORINGS

**ROUTES 30&87 SECTION**

CITY OF ATLANTIC CITY COUNTY OF ATLANTIC

SCALE: 1" = 200'

WOODWARD-CLYDE CONSULTANTS  
 CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

PLATE 2  
**CONTRACT BORINGS**

# LOG of BORING No. 0-1

DATE 4/17/84 SURFACE ELEVATION 7.3 LOCATION \_\_\_\_\_

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER TESTS
0			Bituminous Pavement (4") Concrete (8")	6.1				
19			Very dense brown and black medium to fine sand, trace gravel	4.3				
4			Very dense, becoming loose gray silty fine sand, slight sulfur odor	-0.7				
10			Very soft dark brown silty clay with plant matter; sulfur odor	-3.7				
33			Very dense gray silty fine sand	-10.7				
27								
20		WOH	Very soft dark gray fine sandy silty clay	-23.2				
		WOH						
30		13	Medium dense dark gray silty fine sand, becoming loose dark gray medium to fine sand	-31.7				
		6						
40		105	Very dense light gray medium to fine sand, trace coarse sand	-38.7				
		8						
50		100	Firm dark gray silty clay, trace fine sand	-39.7				
		6"						
60		93	Very dense gray medium to fine sand, trace coarse sand and gravel	-64.2				
		113						
		102						
70		161						
80								

Completion Depth 71.5 Feet      Water Depth N/A Feet      Date 4/17/84  
 Project Name Marina District Highway Improvements      Project Number 84C2056

WCC - RP 1



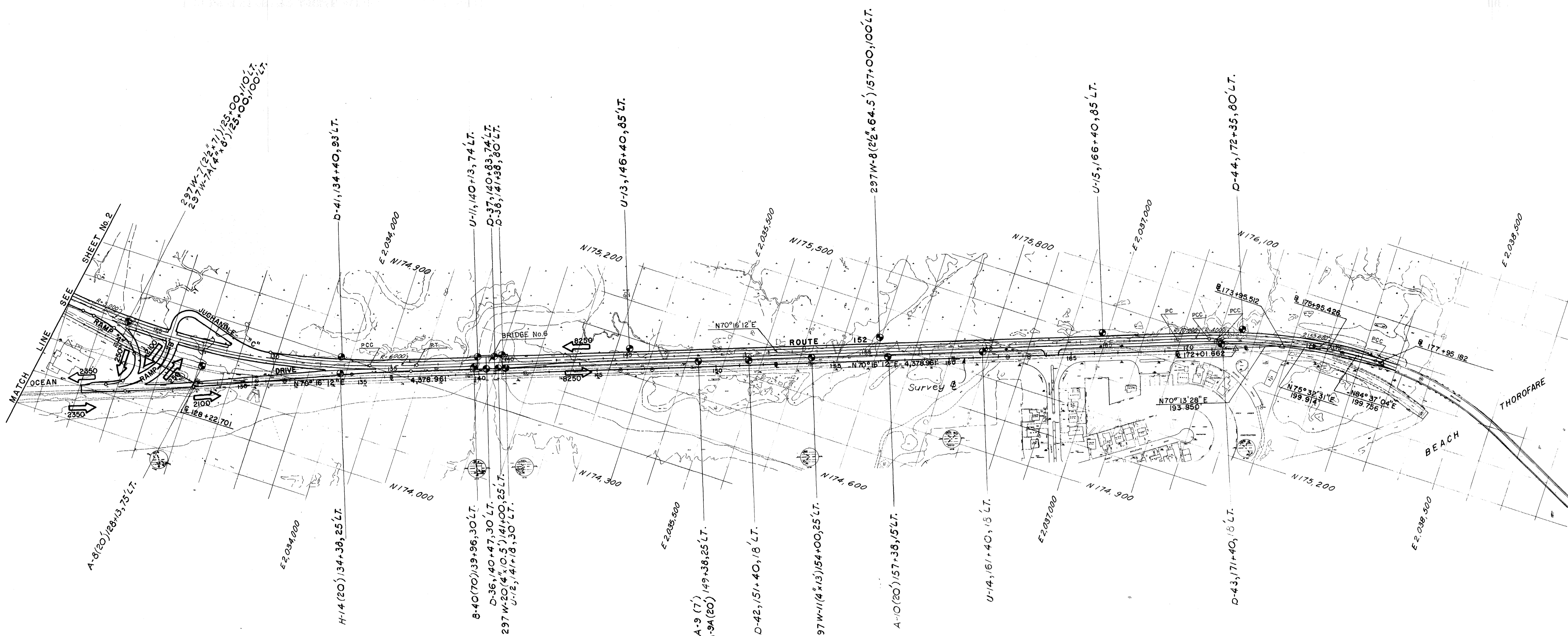
# LOG of BORING No. 0-15

DATE 4/19/84 SURFACE ELEVATION 9.1 LOCATION \_\_\_\_\_

DEPTH, ft.	SAMPLES	SAMPLING RESISTANCE	DESCRIPTION	ELEVATION	WATER CONTENT, %	LIQUID LIMIT, %	PLASTIC LIMIT, %	OTHER TESTS
0			Bituminous Pavement (1")	9.0				
5			Dense, becoming very loose, brown and black fine sand with topsoil, cinders, wood, glass, concrete, etc. (FILL)	-4.9				
10								
20			Very soft dark gray silty clay with seams of fine sandy silty clay and silty clayey fine sand	-43.9				
30								
40								
50								
60								
65			Very dense brown medium to fine sand, trace coarse sand	-50.9				
70			Medium dense dark gray clayey medium to fine sand, becoming very stiff dark gray silty clay	-58.9				
80			Very dense brown coarse to fine sand, trace gravel	-81.8				
90								

Completion Depth 90.9 Feet      Water Depth N.R. Feet      Date 4/20/84  
 Project Name Marina District Highway Improvements      Project Number 84C2056

WCC - RP 1



For Boring Notes See Sh. No. 1

AS BUILT		SHEET NO. 4
NEW JERSEY DEPARTMENT OF TRANSPORTATION		
ROUTE 152		
SOMERS POINT TO LONGPORT		
ATLANTIC COUNTY		
CONTRACT A		
BORING LAYOUT		
DATE: JUN 15, 1978	SCALE: 1" = 200'	
E. LIONEL PAVLO ENGINEERING COMPANY		
NEW YORK	NEW YORK	

ROUTE: 152 LOCAL NAME: Somers Point to Longport Blvd. TEST HOLE NO. D-36 (Water)

SECTION: JFK Bridge to Shore Road Contractor: Raymond International Inc.

STATION: 140+47 OFFSET: 30 Lt. REFERENCE LINE Survey BL Rte 152 GROUND LINE ELEVATION: - 1.5

BORINGS MADE BY: L. Anthony DATE STARTED: 9/17/73

Elevation G.W.T.

INSPECTOR: J. R. Dowdy DATE COMPLETED: 9/21/73

0 Hr. TIDAL Date:  
 24 Hr. +2.6 to - 1.5 Date:  
 ft. P.P. Installed Date:

	CASING BLOWS	SAMPLE NO. DEPTH			Blows on Spoon			REC.	SAMPLE IDENTIFICATION AND PROFILE CHANGE	0.0
					0-6	6-12	12-18			
5	3	S-1	0	2'	P	P	P	7"	Brownish Gray mf SAND, trace(-) Silt, trace Shell fragments	
	2									
	0									
	4									
	2									
10	5	S-2	5	6'-6"	5	6	6	16"	Dark Gray f SAND, little(+) Silt trace Shell fragments, 1-1/2" layer organic Silt, tr. Fibers	
	5									
	20									
	31									
	49									
15	23	S-3	10	11'-6"	62	62	100/5"	5"	Gray f SAND, trace Silt, trace Fibers See Note #1	
	39									
	40									
	41									
	40									
20	35	S-4	15	16'-6"	6	9	6	4"	Gray f SAND, little(+) Silt	
	52									
	62									
	63									
	80									
25	7	S-5	20	21'-6"	12	24	24	10"	Gray f SAND, trace(-) Silt	
	10									
	11									
	43									
	68									
30	105	S-6	25	26'-6"	13	40	90	14"	Gray f SAND, trace(+) Silt	
	100									
	99									
	101									
	98									
35	65	S-7	30	31'-6"	7	9	18	2"	Gray f SAND, trace(-) Silt	
	70									
	95									
	83									
	90									
40	55	S-8	35	36'-6"	6	10	10	8"	Gray mf SAND, trace(-) Silt	
	67									
	67									
	71									
	96									

Nominal I.D. of Casing	4"	2 1/2"
Nominal I.D. of Spoon		1 3/8"
Weight of hammer on Casing	500 lbs	300 lbs.
Weight of hammer on Spoon		140 lbs.
Drop of hammer on Casing		24"
Drop of hammer on Spoon		30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

E. Lionel Pavlo Engineering Co.

Core Dia. ....

Soil descriptions represent a field identification after D.M. Burnister unless otherwise noted.

Approximate Change in Strata .....

Inferred Change in Strata .....

ROUTE: 152 LOCAL NAME: Somers Point to Longport Blvd. TEST HOLE NO. D-36 (Water)

SECTION: JFK Bridge to Shore Road Contractor: Raymond International Inc.

STATION: 140+47 OFFSET: 30' Lt. REFERENCE LINE Survey BL Rte 152 GROUND LINE ELEVATION: -1.5

BORINGS MADE BY: L. Anthony DATE STARTED: 9/17/73

Elevation G.W.T.

INSPECTOR: J. R. Dowdy DATE COMPLETED: 9/21/73

0 Hr. TIDAL

Date:

24 Hr. +2.6 to - 1.5

Date:

ft. P.P. Installed

Date:

CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon				REC.	SAMPLE IDENTIFICATION AND PROFILE CHANGE	
			0-6	6-12	12-18	18-24			
40	101	S-9	40	41'-6"	4	5	9	0"	See Note # 1
	105								" " "
	50	S-10	42	44'	13	8	10	0"	
	57								
45	72	S-11	44	46'	5	5	6	0"	Gray c-f SAND, trace(-) Shells See Note # 2
	60								
	53								
	80								
	131	A							A. Gray c-m-f SAND, trace(+) mf Gravel, trace organic Silt 1-1/2" seam organic Clayey Silt
50	100	S-12	49	50'-6"	14	7	6	7"	B. Gray organic SILT, trace c-f Sand
	127	B							
	130								
	146								
9/19	92								
55	81	S-13	54	55'-6"	8	9	16	9"	Gray c-f SAND, little organic Silt, trace m-f Gravel
	84								
	76								
	85								
	83								
60	77	S-14	59	60'-6"	21	17	27	17"	Gray c-f SAND, little(-) Silt, trace m-f Gravel, 3" ALTERNATING 1/4" to 1/2" layers of Gray Silt, Tr. c-f SAND & c-f Sand, little(-) Silt
	61								
	86								
	101								
	113								
65	130	S-15	64	65'-6"	26	49	97	4"	Gray c-f SAND, trace(+) Silt, trace f Gravel, several 1/4" layers of Gray Silt, trace m-f Gravel
	146								
	179								
	230								
	200								
70	175	S-16	69	70'-6"	11	28	41	7"	Gray organic SILT & CLAY, several 1/2" layers, Gray m-f Sand, little Silt
	186								69'
	185								72'
	190								
	204								
75	125	S-17	74	75'-6"	59	87	95	6"	Brown and Gray m-f SAND, trace Silt, trace Silt, tr. c Sand
	183								
	204								
	285								
	197								
80	185	S-18	79	80'-6"	71	79	89	4"	Gray c-f SAND, trace Silt, trace(-) f Gravel

Nominal I.D. of Casing	1 1/2"	2 1/2"
Nominal I.D. of Spoon		1 3/8"
Weight of hammer on Casing	100 lbs	300 lbs.
Weight of hammer on Spoon		140 lbs.
Drop of hammer on Casing		24"
Drop of hammer on Spoon		30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

E. Lionel Pavlo Engineering Co.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burnister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 152 LOCAL NAME: Somers Point to Longport Blvd. TEST HOLE NO. D-36 (Water)

SECTION: JFK Bridge to Shore Road Contractor: Raymond International Inc.

STATION: 140+47 OFFSET: 30' Lt. REFERENCE LINE Survey BL Rte 152 GROUND LINE ELEVATION: - 1.5

BORINGS MADE BY: L. Anthony DATE STARTED: 9/17/73

INSPECTOR: J. R. Dowdy DATE COMPLETED: 9/19/73

Elevation G.W.T.  
 0 Hr. TIDAL Date:  
 24 Hr. +2.6 to - 1.5 Date:  
 ft. P.P. Installed Date:

80	CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon			REC.	SAMPLE IDENTIFICATION AND PROFILE CHANGE
				0-6	6-12	12-18		
	240							
See Note # 3	745							
9/20	90							
	93							
9/21	117	S-19	84	85'-8"	53	72	83	6"
	145							
	190							
	205							
	403							
90		S-20	89	90'	53	125		12"
				Bottom of Hole @				90.0 El. - 91.5
								Completed @ 3:00 9/21/73
95								Note # 1 & 2 - Made 3 attempts 0" Rec. @ 40'-41'-6" Made 7 attempts 0" Rec. @ 42'- 44' Made 3 attempts
100								0" Rec. @ 44'- 46'. Recovered wash sample @ 44'-46' for classification minus silt content.
105								Note # 3 - Washed ahead of casing @ 82'
110								
115								
120								

Nominal I.D. of Casing	4"	2 1/2"
Nominal I.D. of Spoon		1 3/8"
Weight of hammer on Casing	500 lbs	300 lbs.
Weight of hammer on Spoon		140 lbs.
Drop of hammer on Casing		24"
Drop of hammer on Spoon		30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

E. Lionel Pavlo Engineering Co.

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: 152 LOCAL NAME: Somers Point to Longport Blvd. TEST HOLE NO. D-37 (Land)

SECTION: JFK Bridge to Shore Road Contractor: Raymond International, Inc.

STATION: 140+83 OFFSET: 74' Lt. REFERENCE LINE Survey BL Rte 152 GROUND LINE ELEVATION: +3.3

BORINGS MADE BY: L. Anthony DATE STARTED: 9/24/73 Elevation G.W.T.

INSPECTOR: J. R. Dowdy DATE COMPLETED: 10/1/73

0 Hr. TIDAL Date:  
24 Hr. Date:  
..... ft. P.P. Installed Date:

CASING BLOWS	SAMPLE NO. DEPTH		Blows on Spoon			REC.	SAMPLE IDENTIFICATION AND PROFILE CHANGE	0.0
			0-6	6-12	12-18			
1	S-1	0	1'-6"	1	1	2	17"	Light brown f SAND, trace (-) Silt
3								
7								
7								
9								
5	S-2	5'	6'-6"	2	2	3	13"	Same
12								
8								
16								
10	S-3	10'	11'-6"	9	11	7	9"	Brown f SAND, trace (-) Silt
16								
33								
49								
40								
15	S-4	15'	16'-6"	10	14	11	8"	Grey f SAND, trace (-) Silt
9/24 9/25								
51								
71								
74								
20	S-5	20'	21'-6"	28	20	20	10"	Same
3" Casing								
50								
65								
83								
58								
25	S-6	25'	26'-6"	24	20	25	16"	Same
62								
67								
82								
30	S-7	30'	31'-6"	4	9	19	9"	Same
58								
63								
60								
53								
64								
35	S-8	35'	36'-6"	13	7	11	10"	Same
50								
75								
57								
57								
53								
40								
51								

Nominal I.D. of Casing	3"	4"	2 1/2"
Nominal I.D. of Spoon		1 3/8"	
Weight of hammer on Casing		300 lbs.	
Weight of hammer on Spoon		140 lbs.	
Drop of hammer on Casing		24"	
Drop of hammer on Spoon		30"	

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

E. Lionel Pavlo Engineering Co.

Core Dia. ....

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata .....

Inferred Change in Strata .....

ROUTE: 152

LOCAL NAME: Somers Point to Longport Blvd.

TEST HOLE NO. D-37 (Land)

SECTION: JFK Bridge to Shore Road

Contractor: Raymond International, Inc.

STATION: 140+83

OFFSET: 74' Lt.

REFERENCE LINE Survey BL Rte 152 GROUND LINE ELEVATION: +3.3

BORINGS MADE BY: L. Anthony

DATE STARTED: 9/24/73

Elevation G.W.T.

INSPECTOR: J. R. Dowdy

DATE COMPLETED: 10/1/73

0 Hr. TIDAL

Date:

24 Hr.

Date:

ft. P.P. Installed

Date:

CASING BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon				REC.	SAMPLE IDENTIFICATION AND PROFILE CHANGE
			0-6	6-12	12-18	18-24		
40	S-9	40'	41'-6"	22	14	14	7"	Same
60								
67								
69								
45	S-10	45'	46'-6"	24	14	14	7"	Grey f SAND, trace (-) Silt, little f Gravel, trace (-) Shells
61								
58								
50	S-11	50'	51'-6"	12	7	7	11"	Grey m-f GRAVEL, some c-f Sand, trace Silt, (slight organic odor) (Loose)
78								
100								
86								
55	S-12	55'	56'-6"	27	31	29	7"	Same
51								
55								
58								
61								
60	S-13	60'	61'-6"	39	49	53	15"	Light and dark brown c-f SAND, trace Silt, trace f Gravel
71								
97								
85								
82								
79								
65	S-14	65'	66'-6"	50	48	39	18"	Grey c-f SAND, trace (+) Silt, trace f Gravel
90								
112								
180								
70	S-15	70'	71'-6"	78	86	113	7"	Light brown c-f SAND and (-) m-f (+) Gravel, trace Silt
235								
101								
92								
75	S-16	75'	76'-6"	36	47	52	14"	Grey cmf SAND, trace Silt, trace (-) f Gravel, occ. 1/4" pockets of Grey Silt (slight organic odor)
89								
96								
92								
121								
80	140							

Nominal I.D. of Casing	3"	2 1/2"	2 1/2"
Nominal I.D. of Spoon		1 3/8"	
Weight of hammer on Casing		300 lbs.	300 lbs.
Weight of hammer on Spoon		140 lbs.	
Drop of hammer on Casing		24"	
Drop of hammer on Spoon		30"	

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

E. Lionel Pavlo Engineering Co.

Core Dio. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Dumister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

ROUTE: 152 LOCAL NAME: Somers Point to Longport Blvd. TEST HOLE NO. D-37 (Land) Sheet 3 of 3

SECTION: JFK Bridge to Shore Road Contractor: Raymond International, Inc.

STATION: 140+83 OFFSET: 74' Lt. REFERENCE LINE: Survey BL Rte 152 GROUND LINE ELEVATION: +3.3

BORINGS MADE BY: L. Anthony DATE STARTED: 9/24/73 Elevation G.W.T.

INSPECTOR: J. R. Dowdy DATE COMPLETED: 10/1/73

0 Hr. TIDAL Date:  
24 Hr. +2.3 to -1.6 Date:  
ft. P.P. Installed Date:

Casing	BLOWS	SAMPLE NO.	DEPTH	Blows on Spoon			REC.	DESCRIPTION	
				0-6"	6-12"	12-18"			
80	141	S-17	80'	81'-6"	41	53	66	4"	Grey c-f SAND, trace Silt, trace m-f Gravel
	163								
	294								
	410								
85	450								
	72	S-18	85'	86'-6"	35	89	113	13"	Grey and brown c-f SAND, trace Silt, some (+) m-f Gravel
	120								
	271								
	308								
90	240								
		S-19	90'	91'-6"	24	190	156	11"	Grey cmf SAND, trace Silt, little m-f Gravel, slight organic odor
95									Completed hole 10:30 AM 10/1/73 Depth 91'-6" El. - -88.2
100									
105									
110									
115									
120									

Nominal I.D. of Casing	3"	4"	20"
Nominal I.D. of Spoon		1 3/8"	
Weight of hammer on Casing		300 lbs.	300 lbs.
Weight of hammer on Spoon		140 lbs.	
Drop of hammer on Casing		24"	
Drop of hammer on Spoon		30"	

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

E. Lionel Pavlo Engineering Co.

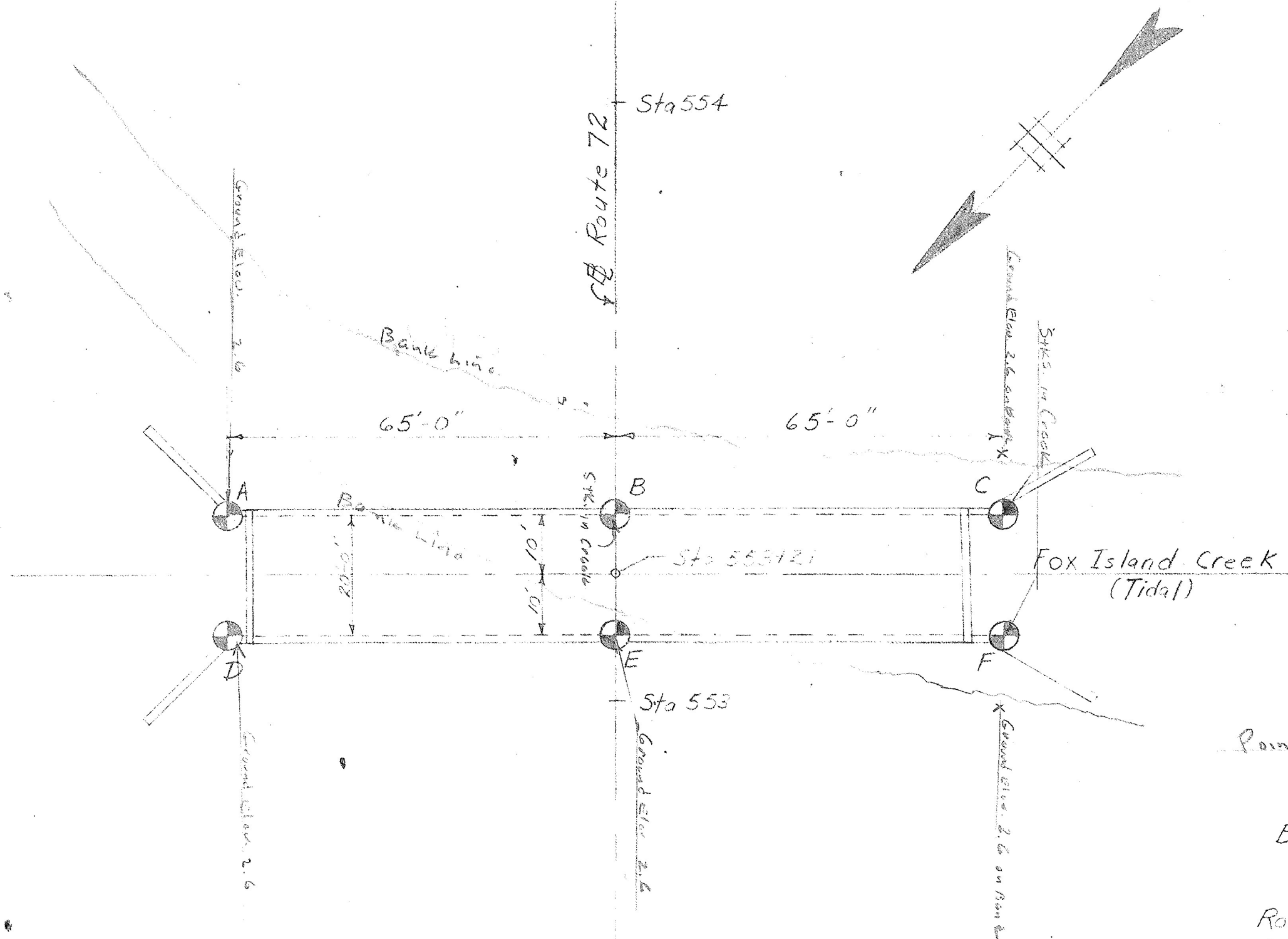
Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_





Points located as shown. 5-3-63  
Book # 305

Borings Location Plan  
Fox Island Creek  
Route 72 (1953) Section 7  
Stafford twp. Ocean Co.  
Scale 1"=20' March 7, 1963  
**FILE 813**

TEST BORING DATA

TEST HOLE NO. 63-813-A

Bridge Rt. 72 Sec. 7 Sta. 553+31 Offset 65' Lt. ~~BL~~ BL Rt. 72

Borings made by: A. Colangelo Inspector J. Mahaney Date Started 5-6-63 Completed 5-9-63

MHW El. MLW El. El. of Ground Water +2.0' Length of Casing Driven 63'

Depth in Feet	Ground Line Elevation	Blows on Spoon	Blows on Spoon		
			0-6	6-12	12-18
2	+2.6'				
1					
BH					
BH					
5					
BH	Blackish grey muck with organic material				
BH					
BH					
BH		1	BH	BH	
BH					
BH					
10					
BH					
BH					
10	-8.4'				
9					
8					
15					
2	Grey fine moist sand with traces of organic material	2	3	9	
4					12
15					
19					
16	Grey fine moist sand				
20					
37					
20	-17.9'				
10		3	10	44	
17					33
33					
25					
35	Grey coarse moist sand				
39					
34					
43					
29		4	10	21	
30	-26.4'				21
40					
51					
45					
43					
35					
40	Grey moist fine silty sand with slight traces of clay	5	13	53	
40					27
38					
67					
40					
72					
50					
41					
45					
71		6	14	19	
61					21
45	Grey moist clay with traces of fine sand				
70					
74					
75					
90					
50		7	8	10	

Inside Dia. of Casing	2 1/2"
" " " Spoon	1 1/2"
Weight of Hammer on Casing	300 lbs.
" " " " Spoon	140 lbs.
Drop of Hammer on Casing	24"
" " " " Spoon	30"

DRY SAMPLE DATA			
Sample No.	Elevation bottom of Spoon	Total Penetration	Length of Sample
1	-5.9'	18"	18"
2	-12.9'	18"	4"
3	-19.9'	18"	18"
4	-26.9'	18"	18"
5	-33.9'	18"	18"
6	-40.9'	18"	18"
7	-47.9'	18"	18"

CORE DATA				
Sample No.	Elevation		Core Recovered	Boring Feet Per Hour
	Top	Bot.		

Type of Core Drill \_\_\_\_\_  
 Core Diameter \_\_\_\_\_

The information contained on this log is not warranted to show the actual subsurface condition. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey State Highway Dept.  
 Soils Bureau

DO NOT WRITE ON BACK OF SHEET

Fill in with Black Drawing Ink

TEST BORING DATA

TEST HOLE NO. 63-813-A

Bridge Rt. 72 Sec. 7 Sta. 553+31 Offset 65' Lt. ~~BL~~ BL Rt. 72

Borings made by: A. Colangelo Inspector J. Mahaney Date Started 5-6-63 Completed 5-9-63

MHW El. MLW El. El. of Ground Water +2.0' Length of Casing Driven 63'

Depth in Feet	Ground Line Elevation	Sample Number	Blows on Spoon		
			0-6"	6-12"	12-18"
58	Grey moist clay with traces of fine sand				10
58	-49.9'				
66					
69					
5 69	Grey moist sand with some gravel & clay				
61					
66			8	48	73
72	-54.8'				91
86	Brown fine moist sand				
60 109	-57.4'				
128					
148	Light grey fine moist sand				
218	-61.3'		9	43	100
45	Bottom of Hole				

Blows Per Foot of Casing Penetration

Note: BH means casing or spoon was pushed down by hand.

Fill in with Black Drawing Ink

Inside Dia. of Casing	2 1/2"
" " " Spoon	1 1/2"
Weight of Hammer on Casing	300 lbs.
" " " " Spoon	140 lbs.
Drop of Hammer on Casing	24"
" " " " Spoon	30"

DRY SAMPLE DATA			
Sample No.	Elevation bottom of Spoon	Total Penetration	Length of Sample
8	-54.9'	18"	18"
9	-61.3'	9"	9"

CORE DATA				
Sample No.	Elevation		Core Recovered	Boring Feet Per Hour
	Top	Bot.		

Type of Core Drill \_\_\_\_\_

Core Diameter \_\_\_\_\_

The information contained on this log is not warranted to show the actual subsurface condition. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey State Highway Dept.  
Soils Bureau

DO NOT WRITE ON BACK OF SHEET

TEST BORING DATA

TEST HOLE NO. 63-813-B

Bridge Rt. 72 Sec. 7 Sta. 553+40 Offset BL ~~XX~~  
 Borings made by: A. Colangelo Inspector J. Mahaney Date Started 5-27-63 Completed 5-28-63  
 MHW El. MLW El. El. of Ground Water +1.6' Length of Casing Driven 63'

Depth in Feet	Ground Line Elevation	Blows on Spoon	Blows on Spoon		
			0-6	6-12	12-18
	+2.6'				
BH					
BH					
BH	Blackish grey silty organic material				
BH					
5					
BH					
BH					
BH					
BH					
BH		1	BH	BH	
BH					
BH					
10					
BH					
3					
4	Blackish grey muck & sand				
11					
19					
7					
15		2	8	6	
11	Grey moist fine sand				7
20					
30					
17					
20					
17					
16					
22		3	11	24	
42					49
45					
42	Grey moist coarse sand with some gravel				
45					
45					
29		4	8	9	
30					12
24					
20					
12					
19					
35					
34					
15		5	14	24	
35	Dark grey fine silty fine sand				19
81					
81					
40					
61					
67					
71		6	8	9	
71					19
45	Grey moist clay with some sand				
107					
97					
81					
90					
81					
50		7	6	7	

Inside Dia. of Casing	2 1/2"
" " " Spoon	1 1/2"
Weight of Hammer on Casing	300 lbs.
" " " " Spoon	140 lbs.
Drop of Hammer on Casing	24"
" " " " Spoon	30"

DRY SAMPLE DATA			
Sample No.	Elevation bottom of Spoon	Total Penetration	Length of Sample
1	-5.9'	18"	3"
2	-12.9'	18"	3"
3	-19.9'	18"	2 1/2"
4	-26.9'	18"	8"
5	-33.9'	18"	12"
6	-40.9'	18"	18"
7	-47.9'	18"	18"

CORE DATA				
Sample No.	Elevation		Core Recovered	Boring Feet Per Hour
	Top	Bot.		

Type of Core Drill \_\_\_\_\_  
 Core Diameter \_\_\_\_\_

The information contained on this log is not warranted to show the actual subsurface condition. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey State Highway Dept.  
 Soils Bureau

DO NOT WRITE ON BACK OF SHEET

Fill in with Black Drawing Ink

TEST BORING DATA

TEST HOLE NO. 63-813-B

Bridge Rt. 72 Sec. 7 Sta. 553+40 Offset BL ~~XXX~~  
 Borings made by: A. Colangelo Inspector J. Mahaney Date Started 5-27-63 Completed 5-28-63  
 MHW El. MLW El. El. of Ground Water +1.6' Length of Casing Driven 63'

50 Ground Line Elevation

Blows on Spoon			
0	6	12	18
6	12	18	24

61					9
56					
57	Grey moist clay with some sand				
68					
60					
91					
78					
96		-54.8'	8	19	47
108	Greyish brown sand with gravel				81
101		-56.9'			
160	Brownish grey fine to medium sand				
159		-58.9'			
293	Light grey fine to medium moist sand				
		-60.4'	9	125	
	Bottom of Hole				

Inside Dia. of Casing	2 1/2"
" " " Spoon	1 1/2"
Weight of Hammer on Casing	300 lbs.
" " " " Spoon	140 lbs.
Drop of Hammer on Casing	24"
" " " " Spoon	30"

DRY SAMPLE DATA			
Sample No.	Elevation bottom of Spoon	Total Penetration	Length of Sample
8	-54.9'	18"	18"
9	-60.5'	3"	3"

CORE DATA				
Sample No.	Elevation		Core Recovered	Boring Feet Per Hour
	Top	Bot.		

Blows Per Foot of Casing Penetration

Sample Number

Note  
 Sta. was changed from 553+31 to 553+40 due to location of boring.  
 BH means casing or sample spoon was pushed down by hand.

Type of Core Drill \_\_\_\_\_  
 Core Diameter \_\_\_\_\_

The information contained on this log is not warranted to show the actual subsurface condition. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey State Highway Dept.  
 Soils Bureau

DO NOT WRITE ON BACK OF SHEET

Fill in with Black Drawing Ink



BORING REQUEST		
BORING NO.	STATION	OFFSET
234 W4	151+04.00	20' RIGHT
234 W5	151+04.00	20' LEFT

Approx. bottom Flg. El. -4.0

ROUT 71 SECTION 3C  
 BRIELLE MANASQUAN BOUNDARY  
 CONTROL SECTION 1320  
 BORING PLAN LOC.  
 SCALE 1" = 10'  
 WIDENING & RESURFACING FROM  
 UNIC LANE TO THE BOUNDARY OF  
 BRIELLE MANASQUAN BOROUGH  
 BRIELLE, MONMOUTH COUNTY  
 BRIDGE CULVERT DESIGN



Route: 71 Local Name: Culvert TEST HOLE NO. 234W-5  
 Section: Rt. #35 Brielle to Rt. 35 So. Belmar.  
 Station: 151+04 Offset: 20'Lt. Reference Line: CL Proposed Rt. 71. Ground Line Elevation: +8.0'  
 Borings made by: Patykula Date Started: 1-2-69 El. G.W.T. +5.0' (UNCASED) Date: 1-8-69  
 Inspector: Mahaney-Winkler Date Completed: 1-7-69 El. G.W.T. (Auger): Date:

Depth in Feet	Casing Blows	Sample No. Depth		Blows on Spoon			Rec.	Sample Identification and Profile Change	
				0-6	6-12	12-18			
20	S-1	0.0	1.5	9	7	5	18"	Brown CF SAND, and MF Gravel, little Silt, trace (-) Fibers.	
10									
6									
2									
5									
5									
6									
25	S-2	7.0	8.5	1	1	1	18"	Brown CF SAND, little Silt, little (+) MF Gravel.	
10									
40									
55									
91									
94	S-3	12.0	13.5	6	21	15	18"	Orange Brown CM + F SAND, trace Silt.	
21									
66	S-4	13.5	15.0	18	34	56	18"	Orange Brown MF SAND, trace Silt.	
15									
97									
135									
187									
165									
140									
20									
103									
69									21.0
101	S-5	21.0	22.5	24	40	76	12"	Dark Gray SILT & CLAY.	
25									
92									
81									
90									
73									
82									
66									
161	S-6	28.0	29.5	28	13	15	18"	Dark Gray Silty CLAY.	
30									
100									30.0
321									
264									
219									
178									
35									
93									
152	S-7	35.0	36.5	19	24	26	18"	Gray F SAND, trace (+) Silt. (Few 1/4" layers Gray Silty CLAY.)	
40									
128									
178									
156									
148									

Inside Dia. of Casing	2 1/2"
" " " Spoon	1 1/2"
Weight of Hammer on Casing	300 LB.
" " " " Spoon	140 LB.
Drop of Hammer on Casing	24"
" " " " Spoon	30"

The information contained on this log is not warranted to show the actual subsurface condition. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Type of Core Drill \_\_\_\_\_  
Core Diameter \_\_\_\_\_



Route: 71 Local Name: Culvert TEST HOLE NO. 234W-5  
 Section: Rt. 35 Brielle to Rt. 35 So. Belmar.  
 Station: 151+04 Offset: 20' Lt. Reference Line: CL Proposed Rt. 71 Ground Line Elevation: +8.0'  
 Borings made by: Patykula Date Started: 1-2-69 El. G.W.T. +5.0' (UNCASED) Date: 1-8-69  
 Inspector: Mahaney-Winkler Date Completed: 1-7-69 El. G.W.T. (Auger): Date:

Casing Blows	Sample No. Depth		Blows on Spoon			Rec.	Sample Identification and Profile Change
			0-6	6-12	12-18		
115							
104							
84	S-8	42.0 43.5	19	31	41	15"	Gray F SAND, little Silt.
78							
45 115							
141							
103							
109							
50 110 136	S-9	49.0 50.5	26	52	101	16"	Dark Gray & Brown F SAND, some (+) Silt.
							BOTTOM OF HOLE
15							
20							
25							
30							
35							
40							

Inside Dia. of Casing	2 1/2"
" " " Spoon	1 1/2"
Weight of Hammer on Casing	300#
" " " " Spoon	140#
Drop of Hammer on Casing	24"
" " " " Spoon	30"

The information contained on this log is not warranted to show the actual subsurface condition. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

NEW JERSEY DEPT. OF TRANS.  
Soils Bureau

Type of Core Drill \_\_\_\_\_  
Core Diameter \_\_\_\_\_