

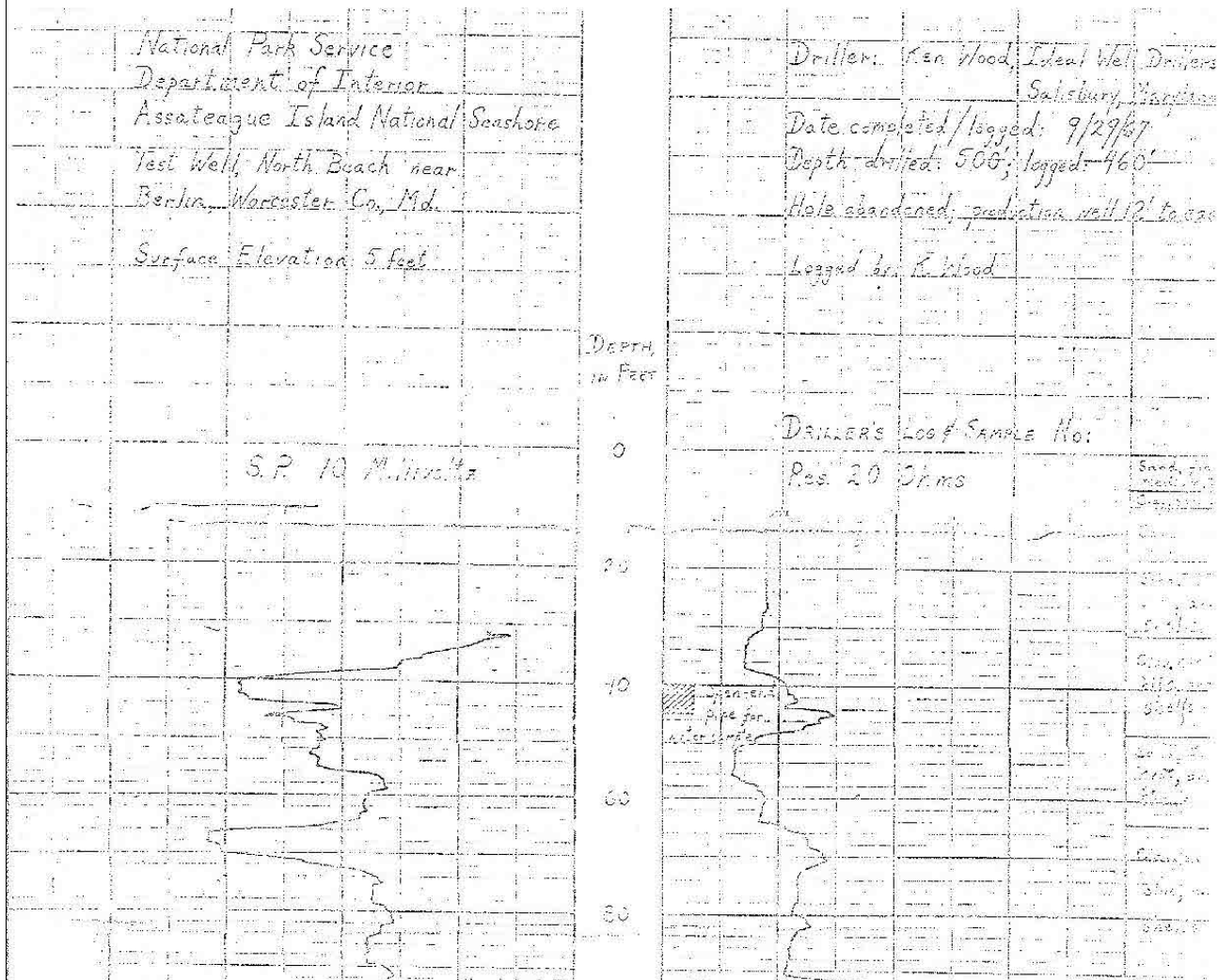


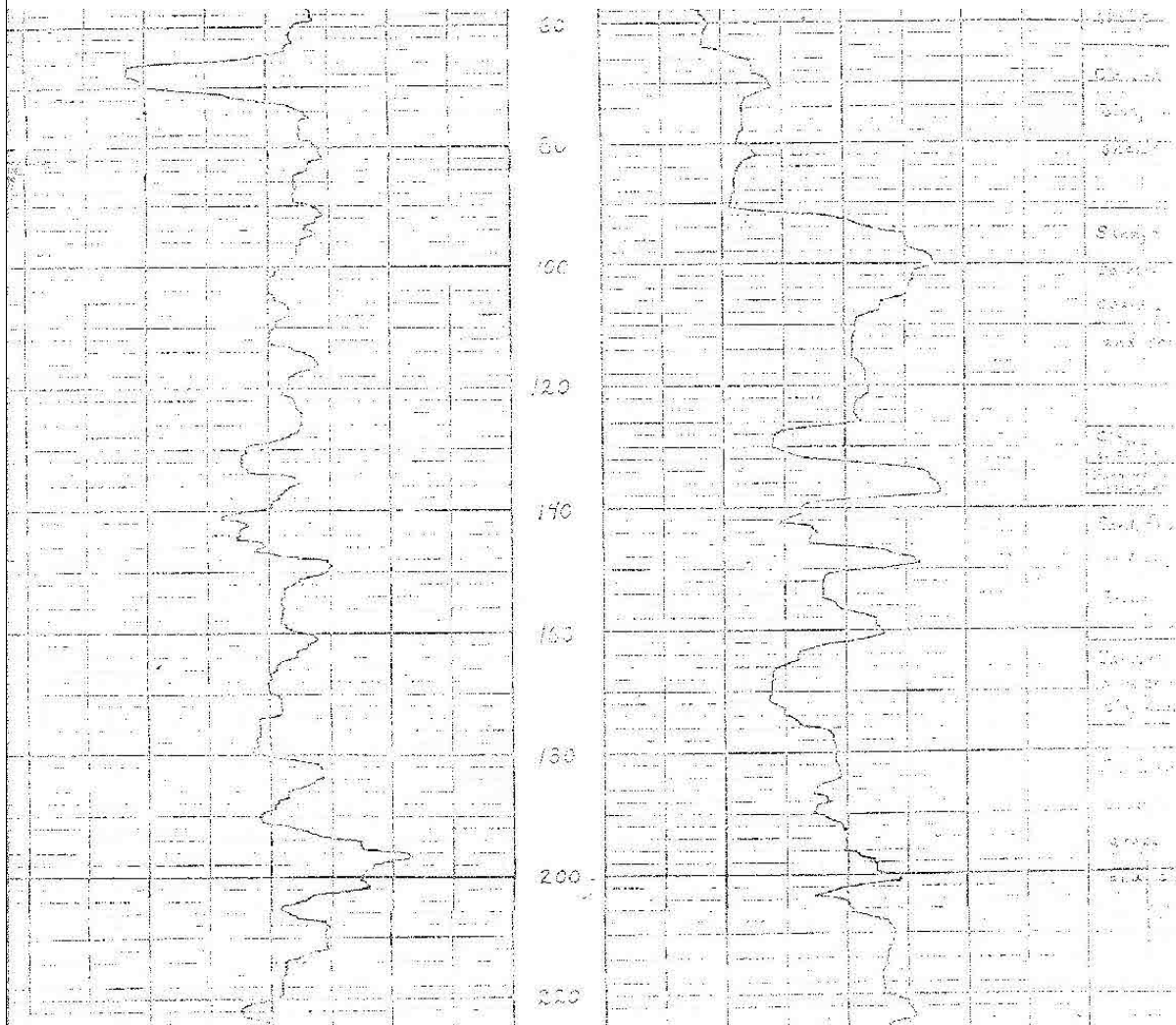
Docket No: 2

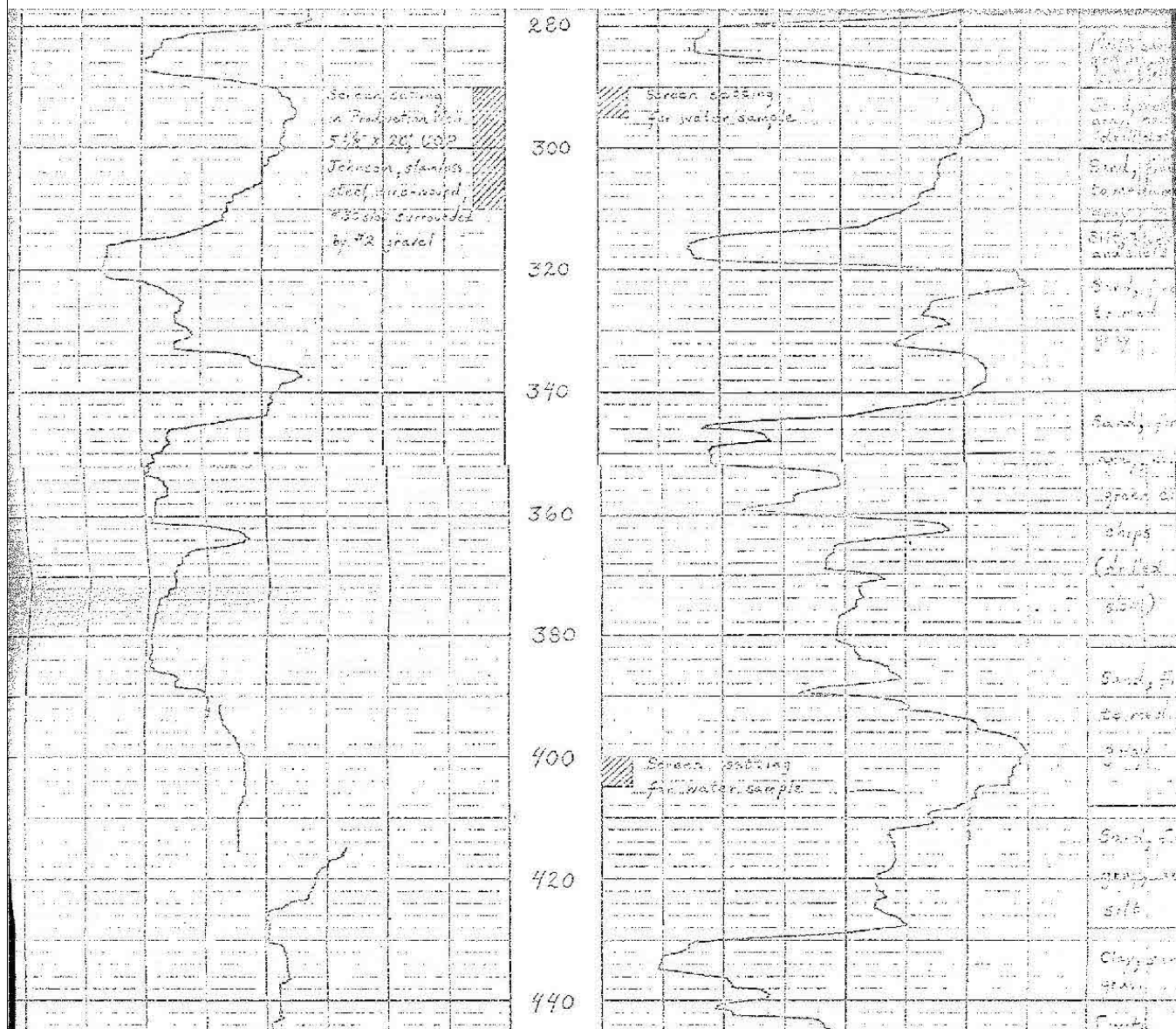
NORTH BEACH WELL

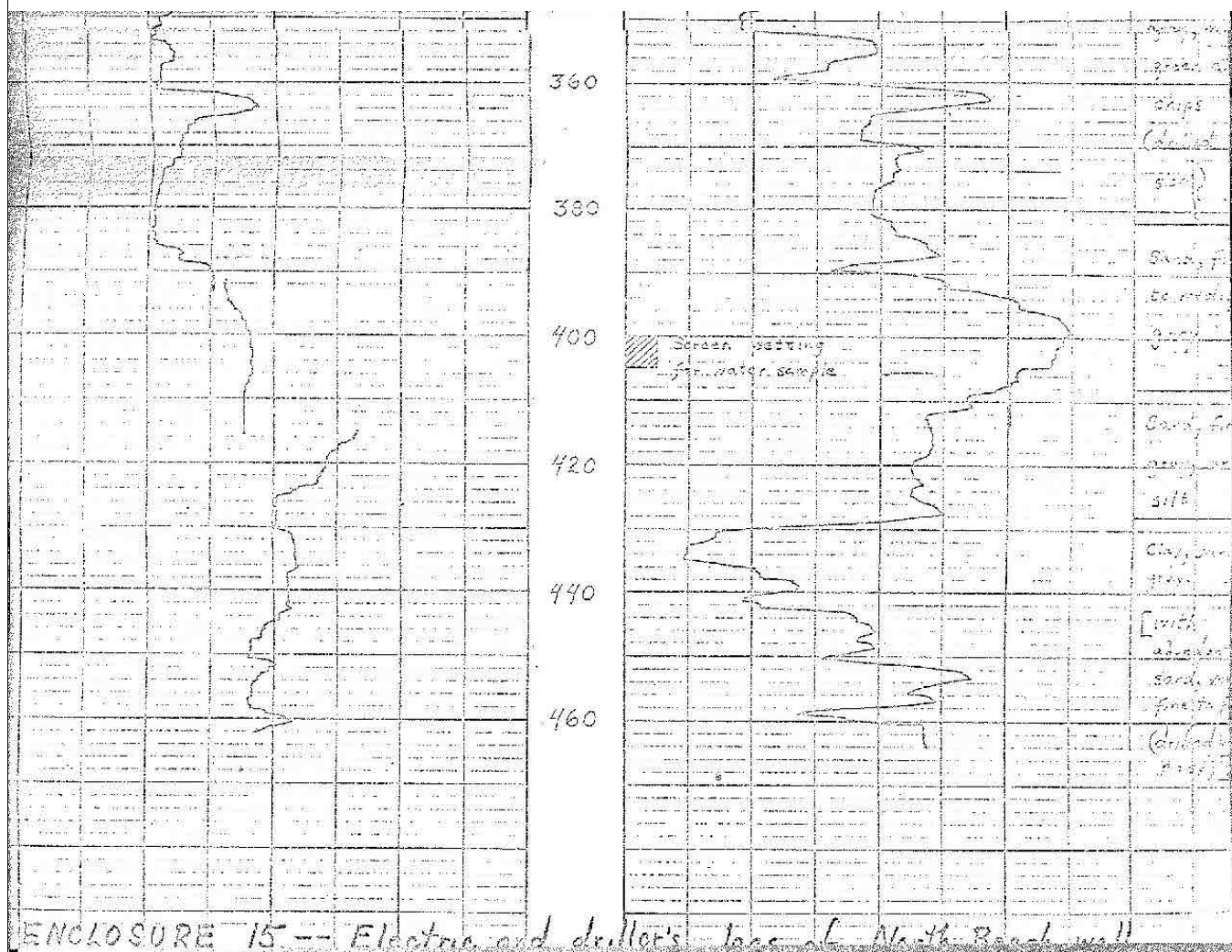
Supporting Hydro Data

09-29-1967: Test Well, Driller's Log & Sample









An 8-inch diameter test well was drilled to 500 feet by hydraulic-rotary method and electrically logged to 460 feet. Examination of the electric log revealed at least five water sands, all but the uppermost sand containing water having acceptable dissolved-solids contents. A driller's log and electric log are shown in enclosure 15.

Sands were selected for water-quality sampling on the basis of an examination of ditch samples and the electric log. Water from the sand between 390 feet and 412 feet contained 70 mg/l of chloride and 12 mg/l of iron (enclosure 19). Water from the sand between 285 feet and 315 feet contained 28 mg/l of chloride and 1.8 mg/l of iron (enclosure 20). The 2-inch plastic test pipe broke at 40 feet below land surface when attempts were made to withdraw the pipe from a depth of 294 feet. Nevertheless, field measurement of the specific conductance of a small sample of muddy water from 40 feet at the bottom of the broken pipe indicated a chloride content of about 250 mg/l. The sand between 240 feet and 279 feet was not tested. The electric log, however, indicated a water having a dissolved-solids content similar to the water in the sand between 285 feet and 315 feet. The sand between 285 feet and 315 feet, bounded above and below by prominent clay layers, was selected for screening the production well.

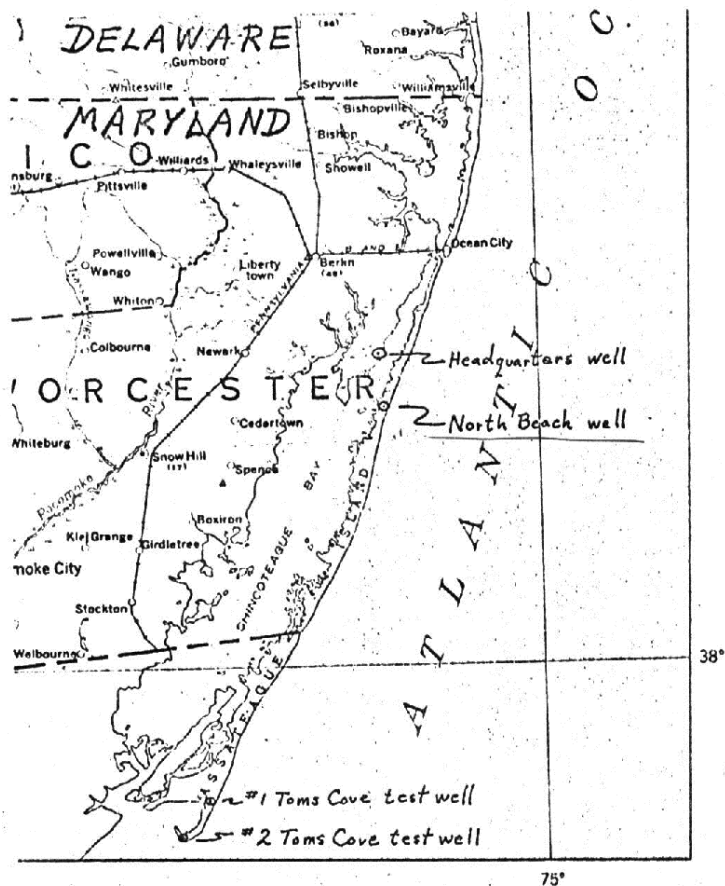
Suitable sizes of gravel-pack material and screen slots were selected on the basis of mechanical analysis of the ditch samples (enclosure 16). The production well was completed in a new 11-inch hole; 20 feet of wire-wound screen was set between 290 and 310 feet below land surface in a #2 gravel pack (enclosure 17).

The well was developed for 4 hours with air lift at about 140 gpm. Little or no sand was removed from around the screen.

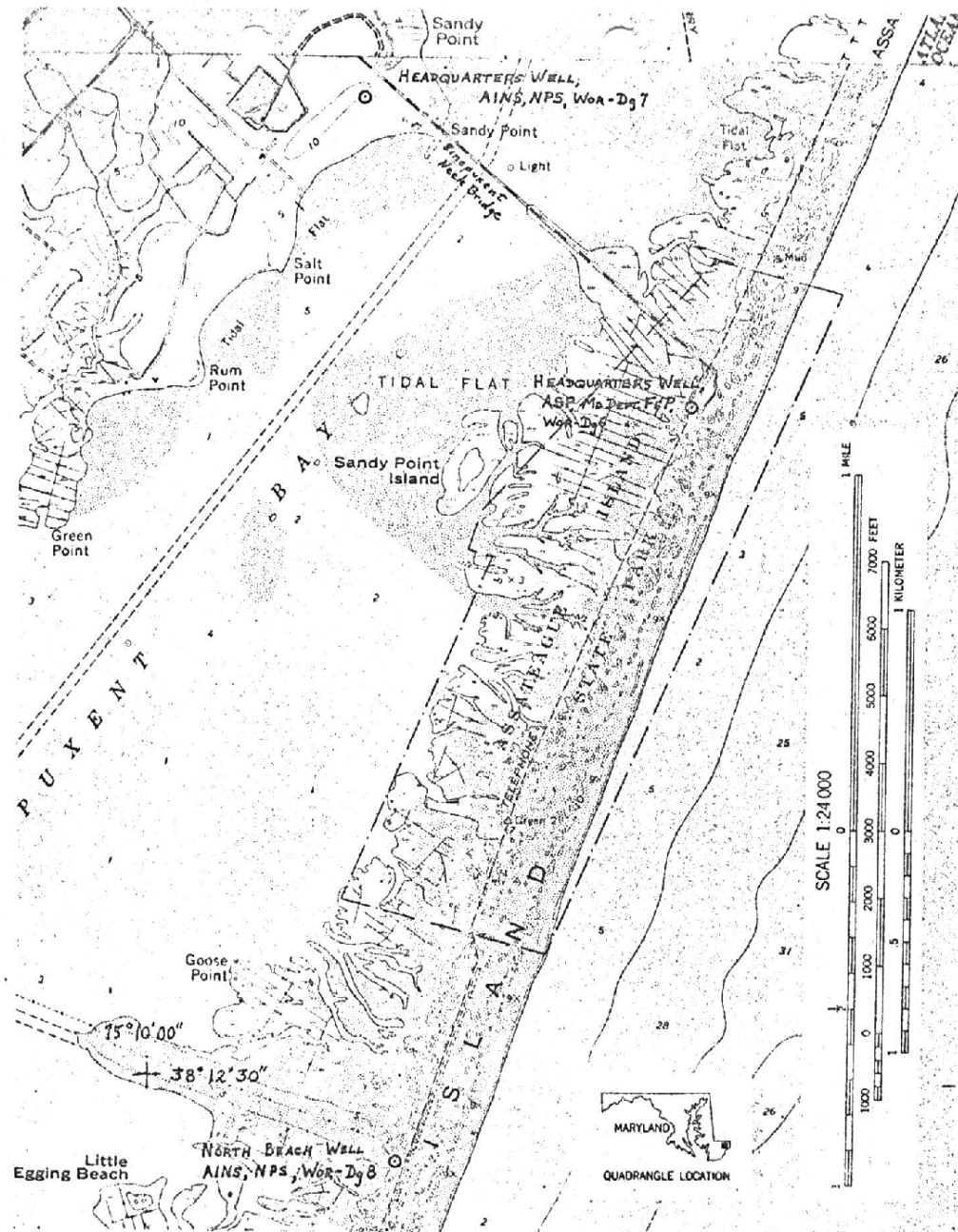
During the pumping test, the well was pumped at about 105 gpm continuously for 4 hours and intermittently for about 7 hours (enclosure 18). Extension of the data indicated that the well would produce 105 gpm continuously for 8 hours and have 115 feet of drawdown. The resulting specific capacity would be 0.9 gpm per foot of drawdown. Based upon an analysis of the data using the Theis recovery formula, the transmissibility of the sand was estimated to be about 2000 gallons per day per foot.

Chemical analysis of the water collected at the end of the pumping test is given in enclosure 21.

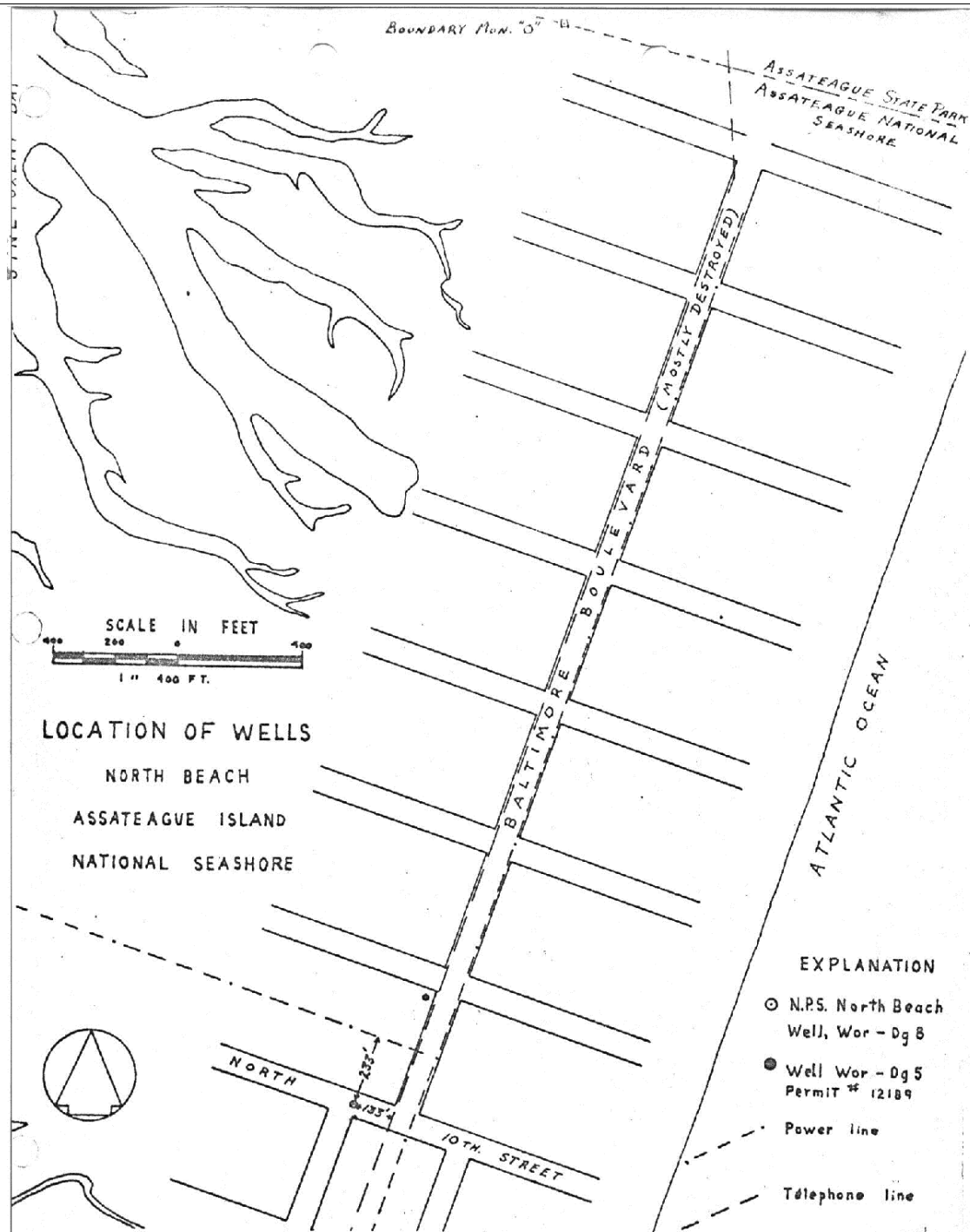
The North Beach well, when equipped with an adequate pump, should be capable of producing up to about 200 gpm. The water is suitable for public supply.



ENCLOSURE 1.-- Location of
Assateague Island and test-
well sites.

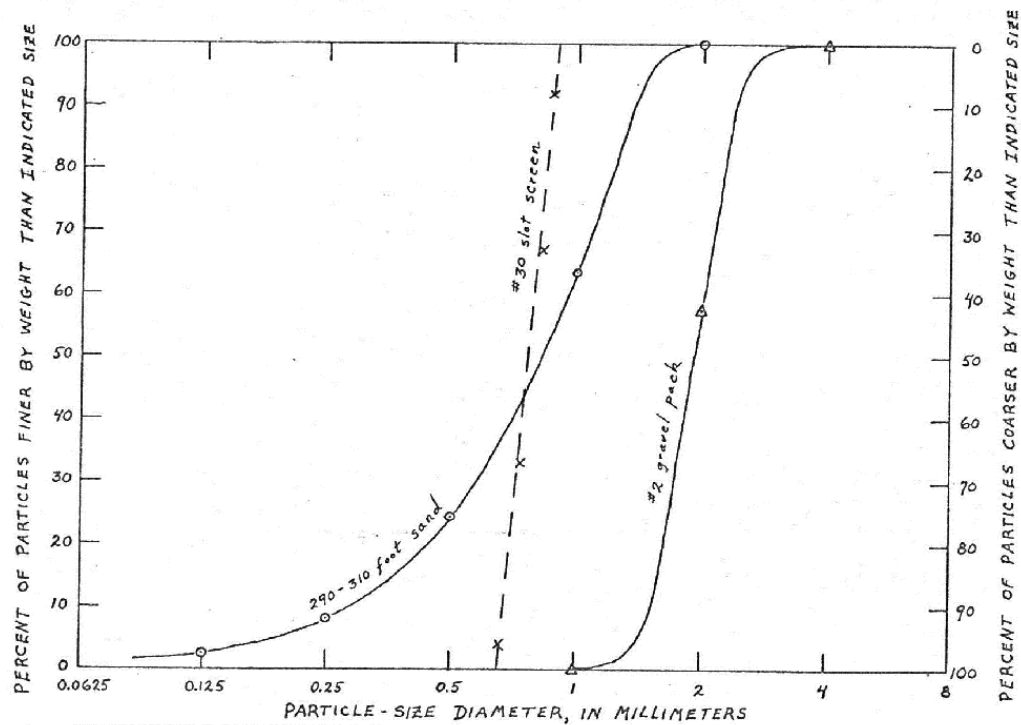


ENCLOSURE 2.-- Topographic location of Headquarters well and North Beach well.



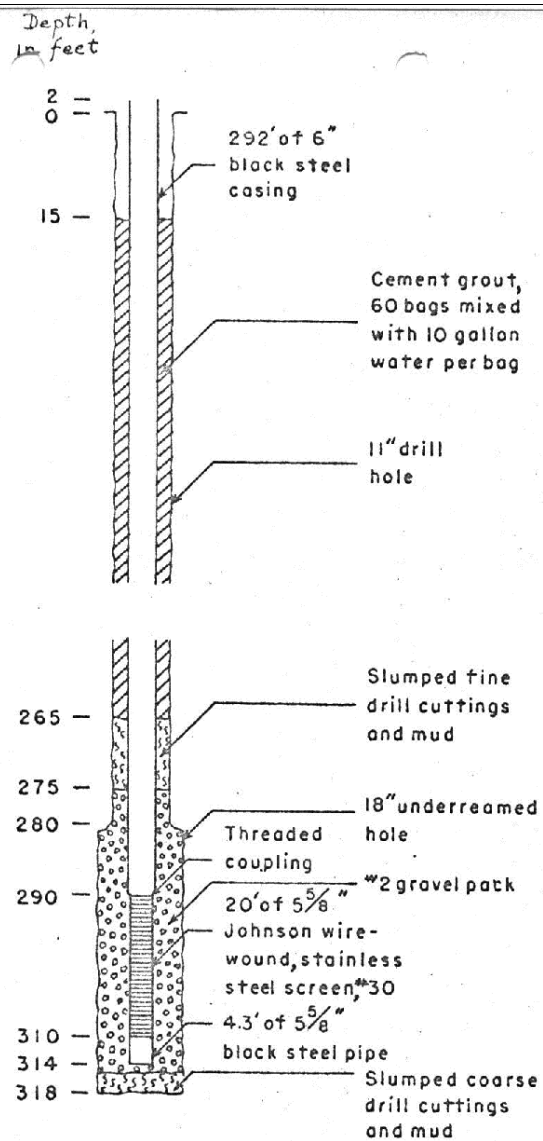
ENCLOSURE 14. Location of North Beach well within Ocean Beach development.

28



SAND					GRAVEL	
Very fine	Fine	Medium	Coarse	Very coarse	Very fine	Fine
0.0625-0.125	0.125-0.25	0.25-0.5	0.5-1	1-2	2-4	4-8

ENCLOSURE 16.-- Particle-size distribution of sand between 290 and 310 feet and of a #2 gravel pack showing relation to screen-slot size in North Beach well.



ENCLOSURE 17. -- Construction diagram of North Beach well.

Drawdown Data

<u>Time (EST)</u>	<u>Time since pumping started, in minutes, t</u>	<u>Water level, in feet below top of measuring pipe^{1/}</u>	<u>Discharge into 55- gallon barrel, in gallons per minute</u>	<u>Specific conductance, in micromhos per centimeter</u>	<u>Temper- ature in degrees F.</u>
9:40:00 a.m.	0.00	3.15			
9:40:35	0.58	54.09			
9:41:15	1.25	80.00			
9:42:05	2.08	91.62			
9:43	3.0	95.88			
9:46	6.0	99.54			
9:50	10		100		
9:52	12	102.13			
10:02	22			512	61
10:10	30	105.02			
10:24	44	107.96 ^{2/}			
10:30	50	108.62			
10:36	56		107		
10:44	64	110.15			
11:00	80	111.16			
11:05	85			525	62
11:20	100	111.93			
11:45	125	112.86			
11:50	130			525	61
12:15 p.m.	155	113.57			
12:40	180	114.43			
1:00	200	114.78			
1:20	220	115.07			

^{1/}Top of measuring pipe was 3.7 feet above land surface.

^{2/}Slight increase in discharge; contractor reset rpm of generator motor.

ENCLOSURE 18.--Pumping-test data for North Beach well, November 3, 1967. (Page 1 of 4 pages.)

Drawdown Data (Continued)

<u>Time (EST)</u>	<u>Time since pumping started, in minutes, t</u>	<u>Water level, in feet below top of measuring pipe^{1/}</u>	<u>Discharge into 55- gallon barrel, in gallons per minute</u>	<u>Specific conductance, in micromhos per centimeter</u>	<u>Temper- ature in degrees F.</u>
1:23	223	Generator supplying power to the pump motor suddenly started making violent noise and vibrating.			
1:24	224	Generator motor blew a gasket.			
1:40	240	Generator motor off; made repairs on governor.			
SEE RECOVERY DATA.					
2:35:00 p.m.	0.00	-	Resume pumping with discharge valve @ 1 1/4 turns		
2:35:20	0.33	40.00			
2:36:00	1.00	67.26			
2:37	2	80.00			
2:38	3	85.66			
2:40	5	88.57			
2:45	10	91.48			
2:55	20	93.32			
3:00	25		81		
3:05	30	94.55			
3:10 p.m.	0		Increase discharge: valve @ 10 turns, wide open.		
3:11	1	107.09			
3:13	3	113.00			
3:15	5	113.92			
3:17	7	114.31			
3:20	10	114.67			
3:23	13	116.82			
3:26	16	117.25			

^{1/}Top of measuring pipe was 3.7 feet above land surface.

ENCLOSURE 18.--Pumping-test data for North Beach well, November 3, 1967. (Page 2 of 4 pages.)

Drawdown Data (Continued)

<u>Time (EST)</u>	<u>Time since pumping started, in minutes, t</u>	<u>Water level, in feet below top of measuring pipe^{1/}</u>	<u>Discharge into 55- gallon barrel, in gallons per minute</u>	<u>Specific conductance, in micromhos per centimeter</u>	<u>Temper- ature in degrees F.</u>
3:30	20	117.20	E-tape voltmeter flickering.		
3:33	23	117.31			
3:40	30	117.88			
3:43	33		100		
3:50	40	118.59			
3:53	43		103		
4:00	50	118.86			
4:15	65	119.75			
4:30	80	120.34			
4:34	84	Generator motor off; fan chewing up radiator.			

END OF DRAWDOWN TEST

^{1/}Top of measuring pipe was 3.7 feet above land surface.

ENCLOSURE 18.--Pumping-test data for North Beach well, November 3, 1967. (Page 3 of 4 pages.)

Recovery Data

<u>Time</u> <u>(EST)</u>	<u>Time since</u> <u>pumping started,</u> <u>in minutes, t</u>	<u>Time since</u> <u>pumping stopped,</u> <u>in minutes, t'</u>	<u>Water level,</u> <u>in feet below</u> <u>top of measuring pipe</u>
1:40 p.m.	240	0	
1:43	243	3	33.77
1:45	245	5	27.52
1:49	249	9	22.14
1:50	250	10	21.50
1:52	252	12	20.33
1:55	252	15	18.81
1:57	257	17	18.28
2:00	260	20	17.26
2:05	265	25	16.08
2:11	271	31	14.92
2:26	286	46	12.86
2:35:00		Resume pumping	

END OF RECOVERY TEST

ENCLOSURE 18.--Pumping-test data for North Beach well, November 3, 1967. (Page 4 of 4 pages.)

USGS-WD
Form 01

ANALYTICAL STATEMENT

COUNTY Worcester

LAB NO. DC-4210

Towson WED

Location Assateague Island

Date of collection October 2, 1967

National Seashore, Md.

Ignition Loss Color 10

Cond 660 μ mhos; Cl 68

Dissolved Solids

Source (type of well) North Beach Well

Residue at 180°C 380

Owner NPS Wor-Dg 8

Calculated (Sum) 376

Tons per Acre Foot

Date of test Cased to

Hardness as CaCO₃ 122

Depth 400-405'

Non-carbonate Hardness 0

VSP

T. H. Sal. pH 8.5

Water level

Specific Conductance

Sampled after pumping hrs with air lift

Alk as CaCO₃ 621

Yield GPM (area of exit)

CO₂ Calc. 1.4

Fe of soil air line discharge

P as PO₄ .40

Appearance cloudy

Fe 1/ .11

Temp (°F) 17 Use

Collector E. F. Hollyday; 1600

Chemist G. Watterson

1/In solution

Date completed Dec. 27, 1967

Checked by Crump

Date transmitted

	meq/l	mg/l
SiO ₂		24
Fe Total		12
Mn Total		.54
Ca	1.45	29
Mg	.99	12
Na	3.87	89
K	.19	7.4
	6.50	
Na + K		
HCO ₃	4.25	259
CO ₃	.23	7
SO ₄	.12	5.8
Cl	1.97	70
F	.01	.2
NO ₃	.06	3.9
	6.64	

ENCLOSURE 19.-- Chemical analysis of water
from North Beach well; temporary screen
setting: 400 to 405 feet below land
surface.

UNCS-WND Form 64		ANALYTICAL STATEMENT		COUNTY Worcester	
Towson WRD				LAB NO. DC-4209	
Location Assateague Island		Date of collection October 4, 1967			
National Seashore, Md.		Ignition Loss Color 4		meq/l mg/l	
Cond 640 μ mhos; Cl 26		Dissolved Solids		SiO ₂ 16	
Source (type of well) North Beach Well		Residue at 180°C. 333		Fe Total 1.8	
Owner NPS Wor-Dg 8		Calculated (Sum) 331		Mn Total .02	
		Tons per Acre Foot		Ca 0.70 14	
Date drid _____ Cased to _____ ft		Hardness as CaCO ₃ 68		Mg .66 8.0	
Depth 290-294' Diam _____		Non-carbonate Hardness 0		Na 4.26 93	
VSP _____		pH 8.6		K .24 9.5	
Water level _____ ft		Specific Conductance		5.86	
Sampled after pumping hrs With air lift		Alk as CaCO ₃ 534		Na+K	
Yield _____ GPM (max or est)		CO ₂ Calc. 1.3		HCO ₃ 4.82 294	
Pt of coll air line discharge		P as PO ₄ .46		CO ₃ .33 10	
Appearance slightly milky				SO ₄ .03 1.6	
Temp (°F) 61.8 Use _____				Cl .79 28	
Collector E. F. Hollyday:1035				F .01 .3	
Chemist C. Watterson				NO ₃ .01 .6	
Date completed Dec. 27, 1967				5.99	
Checked by Crump					
Date transmitted _____					

ENCLOSURE 20.-- Chemical analysis of water
from North Beach well; temporary screen
setting: 290 to 294 feet below land surface.

8200-773
 Form CI

ANALYTICAL STATEMENT

COUNTY Worcester

Towson WRD

LAB NO. DC-4355

Location Assateague Island		Date of collection November 3, 1967		
National Seashore, Md.		Ignition Loss	Color 5	
Cond. 525; Cl 16		Residue at 180°C 323	meq/l	mg/l
Source (Type of well) Well Wor-Dg 8		Calculated (Sum) 320	Fe Total	.26
Comment		Tons per Acre Foot	Mn Total	.01
Date dtd		Hardness as CaCO ₃ Ca/Mg 54	CO	0.60 12
Depth 310' Diam		Non-carbonate Hardness 0	Mg	.48 5.8
WV Manokin fr 290-310'		1 Pa SAZ pH 8.4	NO	4.44 102
Water level		Specific Conductance	K	.22 8.6
Sampled after pumping 5 hrs at 25 gpm (micromhos at 25°C) 516		Alk as CaCO ₃ 250	Na+K	5.74
Wield CPM (mass or vol) with Turbidity		CO ₂ Calc. 2	HCO ₃	5.00 305
Pt of well pump discharge		Appearance clear	CO ₃	.27 8
Temp (°F) 17 Use		Collector E. F. Hollyday; 1507	SO ₄	.01 .6
Chemist P. Young		Date completed March 21, 1968	Cl	.56 20
Checked by C. Nelson			F	.01 .2
Date transmitted			NO ₃	.01 .7
				5.86

ENCLOSURE 21.-- Chemical analysis of water
 from North Beach well; permanent screen
 setting: 290 to 310 feet below land surface.

8-67

COMPLETION REPORT

#14-10-5: 622-338

Drilling Test Well, North Beach

COMPLETION REPORT

Contract #14-10-5: 622-338

Drilling a test water well at North Beach Area, Assateague Island National Seashore.

Bid opened: 8/24/67 3:00 p.m.

Contract Awarded:

Contract Amount: \$6669.00

Contract Winner: Ideal Well Drillers
Salisbury, Maryland

Notice to Proceed:

Preconstruction Conference: 9/13/67 2:00 p.m.

Started work: 9/25/67

Finished work: 11/6/67

COMPLETION REPORT

Narrative

Test drilling was necessary to determine if a potable ground-water supply was available in sufficient quantity at North Beach, Worcester Co., Md., (see location maps enclosed). In the event that a potable water supply was available, the test well should be completed to a production well in order to expedite plans for development of the North Beach Area.

Information gained from test drilling under contract #14-10-5: 622-002 indicated that water-bearing sands were present at headquarters and Tom's Cove, and that the quality of water deteriorated in the direction of Tom's Cove.

A test well at North Beach was drilled to 500 feet and electrically logged to 460 feet. The log indicated at least five water sands, all but the uppermost containing suitable-quality water. Water with chloride concentrations of about 300 parts per million exists in sands to a depth of 75 feet.

A sand between 285 feet and 315 feet depth, bounded above and below by prominent clay ledges, was selected for screening the production well.

Three water sands were sampled for quality of water. The contractor chose plastic pipe for collecting the samples. Although samples were collected successfully, the plastic pipe broke each time attempts were made to withdraw the pipe following sampling. The contractor chose to drill new test holes for succeeding samples rather than attempt to retrieve his plastic pipe.

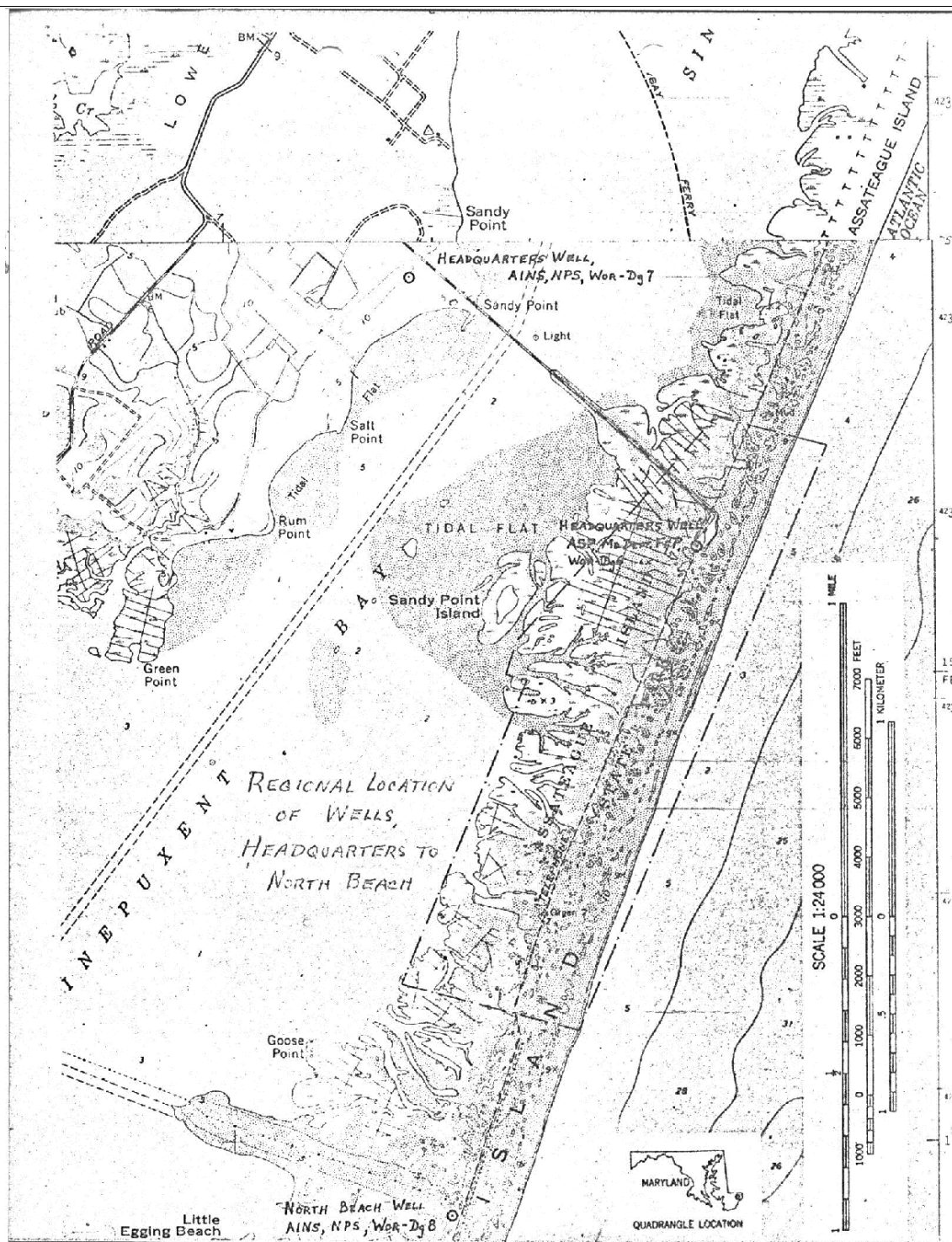
As in previous test wells, some difficulty was encountered in keeping the holes open. The hole for the production well had to be reamed and flushed repeatedly while attempting to set screen and casing.

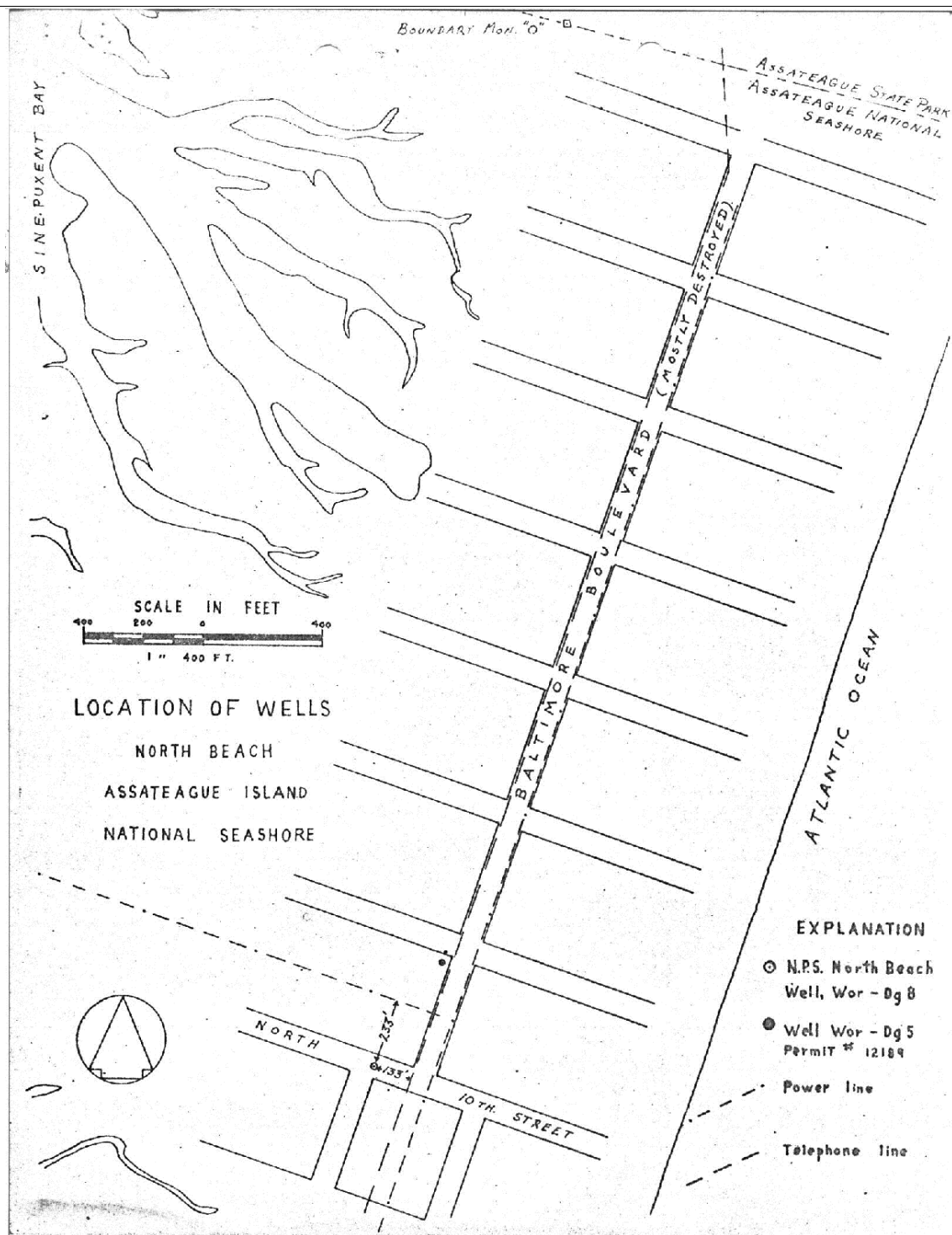
Twenty feet of continuous-slott, wire-wound screen was installed in the production well and surrounded with a coarse-sand pack (see diagram enclosed). The well produced about 140 gallons per minute for four hours during development with little or no sand production. During the pumping test, the well discharged 100 gallons per minute continuously for 4 hours and intermittently for 6 hours. Calculations indicate that the well would produce 105 gallons per minute continuously for 8 hours with 115 feet of drawdown for a specific capacity of 0.91 gallons per minute per foot of drawdown.

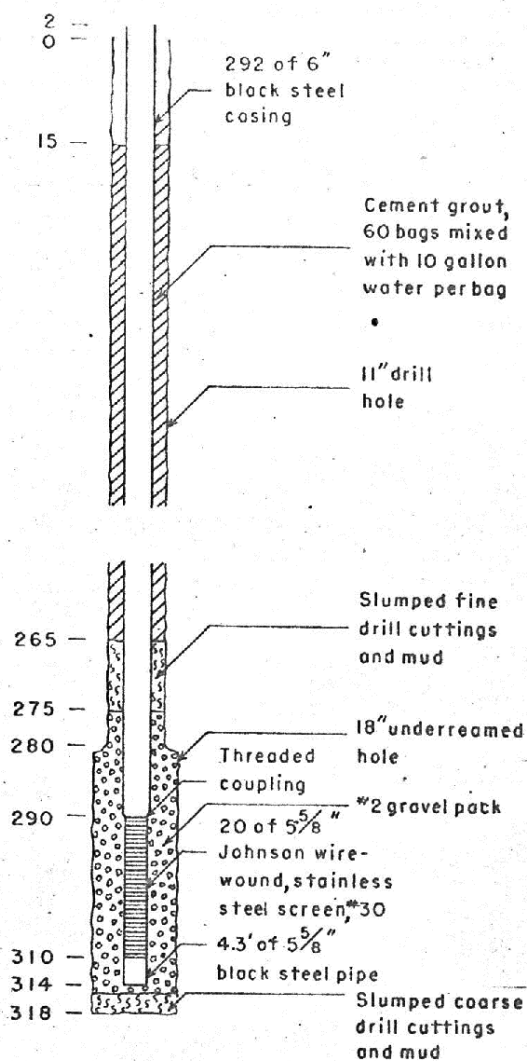
Although some delay resulted from the caving-sand conditions at the drilling site, the contract was ably executed with little delay caused by malfunctioning equipment (see Contract Work Log, enclosed).

The completed production well is of excellent construction and should give many years of trouble-free service.

Este F. Hollyday
Este F. Hollyday
Geologist







Construction Diagram of North Beach Well,
Assateague Island National Seashore, M.P.S.
Well No. - Dg 8

CONTRACT WORK LOG

MONTH

SEPTEMBER

YEAR

1967

14-10-5: C22-33R
Test well, North Beach

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	25 Move equipment onto drilling site	26 Set 35' of 24" surface casing; prepare for drilling to depth	27 On job site @ 8:00 AM; drill from 35' to 360'. Collect formation samples.	28 Crew on job site @ 8:00 AM; lost circulation, made round-trip; stems clogged & bit badly worn; repair bit in Ocean City; broke slipping in rain. Drill out for day.	29 Crew on site @ 7:15 AM, cleaning hole back to 360'; only 40' caved; drilling from 360' to 500'. 7:15 PM: finish electric logging well 0' to 760'. hole caved 460' to 500'. install 405 ft material pipe	30 No drilling activities

MONTH OCTOBER YEAR 1967

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
1 No drilling activities	2 On job site @ 8:00 AM. insert 100' of air hose in 2" plastic pipe. unable to start well, return Salisbury for misc. air line, collect sample in afternoon. Test pipe & hose & withdraw sample in late afternoon.	3 On site late in morning; drill, chaser, to abandon well. drilling new well to test water in 250'-300' zone. develop 300' zone for sample in late afternoon.	4 Pump clear sample from 300' zone; pipe broke once again on withdrawal. water @ 40%. Decide to complete well in 300' zone.	5 Procuring all necessary equipment prior to starting production well.	6 Procuring equipment.	7 Purchase screen and gravel in New Jersey.
8 No activities	9 Deliver casing, screen, gravel, drilling clay and revert to job site. Set 12" surface casing and commence drilling to depth.	10 Drilling 11" hole to depth. Lost 20' of drill stem in new hole. (3rd drilled) while adding stem. Fishing for drill stem; return Salisbury for fishing equipment.	11 Successfully fished drill stem; drilling to depth; stem sand-fished while adding stem @ 150'; make round trip; clean stem; continue drilling to depth.	12 Continuing 11" hole to 340'.	13 11" hole @ 340' @ 3:00 AM. circulate heavy mud; pull stems after dawn. Hole bridged @ 59'; add more surface casing; flush out bridge; add more mud and revert for weekend.	14 No drilling activities.
15 No drilling activities	16 Re-enter hole to circulate clean, and prevent casing. Start running screen & casing about 11:30 AM. Hit ledge @ 130'; make round trip; return 130' zone.	17 Reaming and flushing.	18 Run screen & casing; screen hung up once again; make round trip; ream tight zones.	19 Run screen, casing, and gravel line. Screen about 8' shy of final setting. Wash screen to final setting (290'-310') with gravel line.	20 Screen in place; add gravel. Develop well from 11:30 PM to 5:30 PM with two air compressors (100 cfm @ 35 bcfm). Pumping about 140 gpm.	21 No activities.
22 No activities	23 No drilling activities.	24 On job site @ 10:00 AM awaiting cement truck. Grout well from 0' to 250' in 25 minutes. Pull 25' of 12" surface casing and grout pipe. Move Davy rig.	25 No activities; let grout set 72 hrs.	26 No activities; let grout set 72 hrs.	27 Let grout set for complete 72 hrs. Install test pump; pump would not operate.	28 No activities.
29 No activities	30 Remove and repair test pump.	31 Overhauling test pump.				

MONTH <u>NOVEMBER</u> YEAR <u>1967</u>						
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
			1 Overhauling test pump	2 Install overhauled pump with falling rig. Install gate valve on discharge. Test generator and prime movers	3 Conduct 6 hrs. intermittent pumping test. 4 hrs - longest continuous pumping log.	4 No activities
5 No activities	6 Remove equipment and clean-up job site	7 Prepare bill for work performed	8	9 North Beach well contract deadline. Contract # 14-10-5:622-338		

Other Supporting Information

North Beach Well, Wor-Dg 8

North Beach well, State of Maryland well number Wor-Dg 8, is about 0.7 mile south of the southern boundary of Assateague Island State Park (enclosure 2), 133 feet west of Baltimore Boulevard, and 233 feet south of the power line from Lower Sinepuxent Neck (enclosure 14).

Contract work was performed by Ideal Well Drillers, Salisbury, Md., under National Park Service Contract No. 14-10-5:622-338. The test hole was begun September 26, 1967, and final work on the production well was completed November 6, 1967 (Hollyday, 1967b).



UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
NORTHEAST REGION
143 SOUTH THIRD STREET
PHILADELPHIA, PA. 19106

RECEIVED

JUL 2 1 06 PM '70

IN REPLY REFER TO:

D3423-APB

D3623

ESC

JUL 1 1970

Memorandum

To: Director, National Park Service
From: Acting Director, Northeast Region
Subject: Completion Report - Assateague Island NS

We are enclosing the original of Completion Report, Forms 10-174 and 10-174A, covering the following completed construction project at Assateague Island National Seashore:

Account Number

622-211707

Project Title

North Beach Water and Sewerage Systems


George A. Palmer

Enclosure

cc:
Director, ESC, w/copy encl.
Supt., Assateague, w/copy encl.

Rec'd with memo from ESC 8/13/70

Form 10-174
(June 1962)UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

FACE SHEET FOR COMPLETION REPORT

Park Assateague Island National Seashore	Region Northeast	Work Order No. 622-211707
Location in Park North Beach Area	State(s) Maryland	Fund Symbol 14X1035
☒ Contract and/or ☐ Day Labor	County or Counties Worcester	Year Programmed 1969
Work Order Title North Beach Water and Sewerage Systems		PCP No. U-5
		Master Plan No.
		Master Plan Corrected By
		As Built Drawings By WSC-DC
		Date Started July 23, 1969
		Date Completed November 21, 1969 <i>WSC</i>

DESCRIPTION OF FIXED ASSETS (For completion by employee in charge of project)	TOTAL COSTS (For completion by FFO)
Construction of Utility Building, complete hydropneumatic system, 1500 gal. hydropneumatic tank and installation of submersible pump and underground discharge in existing well and controls.....\$39,677.50	
Construction of a complete sewerage system including 17,000 gal. septic tank, manhole piping and 10,000 sq. ft. of seepage beds and beach grass plantings..\$29,812.00	
<u>220 General Buildings</u>	13,485.00
8. Service	
<u>230 UTILITY SYSTEMS</u>	64,802.82
1. Water Systems (\$32,540.90)	
2. Sewer Systems (\$32,261.92)	
<u>240 GROUNDS AND OTHER IMPROVEMENTS</u>	2,320.00
1. Grounds, general	
TOTAL	80,607.82
	\$ ~~XXXXXXX~~

DISTRIBUTION	THE FIXED ASSET DESCRIBED ABOVE HAS BEEN COMPLETED IN ACCORDANCE WITH APPROVED DRAWINGS, SPECIFICATIONS, AND AUTHORIZED CHANGES		
No.	To	Submitted By: Benjamin T. Cannavo (H.P.)	Title: Project Supervisor Date: 2/23/70
		Approved By: B. C. Roberts	Title: Superintendent Date: 4/9/70
		COSTS VERIFIED BY: Ralph E. Motter	Title: Regional Budget Officer Date: 6/26/70

Form 10-174A
(June 1962)UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

COMPOSITION OF COST FOR COMPLETION REPORT

Work Order Number

622-211707

Fund Symbol

14X1035

Park

Assateague Island National Seashore

Region

NE

Year Programmed

1969

Location in Park

North Beach Area

Work Order Title

North Beach Water and Sewerage Systems

COMPOSITION OF COST

COSTS CHARGED TO FUNDS ALLOTTED TO FIELD FINANCE OFFICE

(1) Personal Services.....	\$	
(2) Travel.....		
(3) Contract Work	69,489.50	
(4) Supplies and Materials.....		
(5) Other Direct Expenses.....		
(6) Operation of Equipment.....		
(7) Depreciation of Equipment.....		
(8) Purchase of Construction Equipment.....		
(9) Purchase of Other Accountable Equipment		
(10) Other Costs:		
(11) TOTAL COST CHARGED TO FFO FUNDS	xxxxxxxxxx	\$ 69,489.50

OTHER COSTS:

(12) PS&S, AP, and/or Facilitating Services @ 16 %.....	\$ 11,118.32	
(13) Inventory and Other Non-Fund Costs		11,118.32
(14) GROSS WORK ORDER COSTS	xxxxxxxxxx	\$ 80,607.82
LESS:		
(15) Residual Value of Construction Equipment on Line 8	\$	
(16) Other Credits		
(17) NET COST OF FIXED ASSETS	xxxxxxxxxx	\$ 80,607.82

Identify other costs and other credits by line item entry, on an attached schedule, or explain in narrative.

NARRATIVE REPORTWater and Sewerage Systems - North Beach
Assateague Island National Seashore

Contract No. 14-10-7-981-131

Date of Bid Invitation (IFB No. D&C-30-E-69)	April 22, 1969
Date of Bid Opening	May 13, 1969
Number of Bids Received	Three (3)
Low Bid	\$70,460.00
Date Contract Awarded	June 20, 1969
Amount of Original Contract	\$70,460.00
Final Contract Amount	\$69,489.50

Prime Contractor:

C. W. Stack Company
4421 Kling Drive
Alexandria, Virginia 22312

Sub Contractor:

Commercial Industrial Construction Co.
820 Harriman Street
Great Falls, Virginia 22066

Earl S. Taylor, Electrical Contractor
Salisbury, Maryland 21801

Preconstruction Conference Date

July 9, 1969

In Attendance:

Mr. Jack Stack - Prime Contractor
Mr. Dough A. Cobb - Sub Contractor
Mr. Samuel W. Brecheisen, Administrative Officer.
Assateague Island National Seashore
Mr. Arnold Tolson, Chief of Maintenance,
Assateague Island National Seashore
Mr. Benjamin T. Cannavo, Project Supervisor, PSC-DC

Date of Notice to Proceed	July 14, 1969
Beginning Date	July 23, 1969
Actual Beginning Date	July 23, 1969
Contract Completion Date	October 20, 1969
Extended Contract Completion Date	November 21, 1969
Actual Completion Date	December 16, 1969
Date of Final Inspection	November 21, 1969

In Attendance:

Mr. Bertum C. Roberts, Supt., Assateague Island N. S.
Mr. Arnold Tolson, Chief of Maintenance, Assateague Island N. S.
Mr. Jim Garwood, Supt., C. W. Stack Company
Mr. Elmer, Rep., Earl S. Tylor, Electrical Subcontractor
Mr. Benjamin T. Cannavo, Project Supervisor

Date of Acceptance
 Date of Release of Claims
 Date of Final Estimate
Change Orders:

November 21, 1969
 December 12, 1969
 December 16, 1969

Change Order No. 1: Dated December 2, 1969. Added 32 additional days to the contract time due to a delay in fabrication and shipment of electrical control, heaters, fans, and panels. Completion date changed from October 20, 1969, to November 21, 1969.

Items and Explanation of Major Overruns and Underruns:

Bid Schedule:

- Item No. 1: Underrun of this item was due to the actual compared to the estimated field measurement.
- Item No. 2: Overrun on this item was due to the same reason as Item No. 1.
- Item No. 3: Underrun of this item appears to be due to an error in the estimated quantity compared to the actual measured quantity
- Item No. 16: Underrun on this item was because of change in location of manhole, septic tank, and dosing tank.

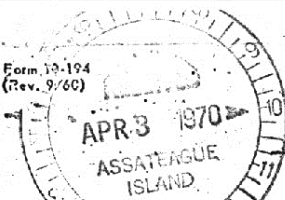
Monthly Estimates:

1. September 3, 1969	\$13,239.67
2. October 3, 1969	29,360.48
3. October 30, 1969	11,522.25
4. December 16, 1969	15,367.10
Total Contract Amount	\$69,489.50

Scope of Work: This contract provided for a complete hydropneumatic water system including utility building, all electrical work, controls and installation of 2", 4", 6", waterlines with concrete markers, drywell and pipe sumps for drainage. Also provided for a complete sewerage disposal system including 17,000 gallon septic tank, piping manhole, 750 gallon dosing tank, with alternating siphons, 10,000 S. F. of seepage beds and beach grass planting of disturbed construction areas.

During the construction of this project a delay was encountered because of suppliers' delay in delivery of several electrical items which were classified as obsolescent by Nema Standards. The above situation was resolved by an extension of time of the contract.

Benjamin T. Cannavo
 Benjamin T. Cannavo (H)
 Project Supervisor

Form 19-194
(Rev. 9/66)UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICEASSATEAGUE ISLAND NATIONAL SEASHORE
(Park)

Supervisor	
Admin. Officer	
Ch. Ranger	
S.D.P.	
Inspector	
Trainer	
Land Office	
C.P.R.	

Check One:
☐ Monthly Estimate
☒ Final Estimate

Release of Claims
Executed 12/12/69 - attached

UNIT PRICE CONTRACT

ESTIMATE NO. 4	FOR (Period) November 1 to November 21, 1969	DATE December 16, 1969
CONTRACT NO. 14-10-7-981-131	COMPLETION DATE October 20, 1969	EXTENDED DATE November 21, 1969
CONTRACTOR C. W. Stack Company, 4421 Kling Drive, Alexandria, Va. 22312		ORIGINAL CONTRACT \$ 70,460.00
PROJECT Water and Sewerage System, North Beach		CHANGE ORDERS* \$
LOCATION Assateague Island National Seashore		TOTAL CONTRACT \$ 69,489.50

ITEM NO.	CONTRACT QUANTITY	DESCRIPTION	QUANTITY TO DATE	UNIT PRICE	AMOUNT TO DATE
1	750 LF	6" Asbestos cement, class 150 or rigid plastic 160 psi (PVC) water line	727	5.00	\$ 3,635.00
2	700 LF	4" Asbestos cement, class 150 or rigid plastic (PVC) 160 psi water line	775	4.25	3,293.75
3	120 LF	2" Rigid plastic (PVC), schedule 40 water line	35	5.25	183.75
4	2 Ea.	6" Gate valve and box	2	200.00	400.00
5	1 Ea.	4" Gate valve and box	1	175.00	175.00
6	4 Ea.	2" Gate valve and box	4	115.00	460.00
7	100 LF	12" Bituminous coated galvanized steel corrugated pipe sleeve	100	8.00	800.00
8	4 Ea.	Pipe sump for water line drains as shown on Sketch #23	4	600.00	2,400.00
9	1 Ea.	Dry well as shown on Sketch #24	1	75.00	75.00
10	10 Ea.	Utility line markers	6	20.00	120.00
11	LS	Utility building structure only	100%	9,550.00	9,550.00
12	LS	Submersible pump, underground discharge and concrete slab	100%	3,200.00	3,200.00
13	LS	Utility building equipment, piping, valves, fixtures and furnishings	100%	5,625.00	5,625.00
14	LS	1500 Gal. hydropneumatic tank with appurtenances, concrete support, fill and fence	100%	3,760.00	3,760.00
15	LS	Electrical and control system installed complete with service entrance, electrical wiring, etc.	100%	6,000.00	6,000.00

RECOMMENDED (Property Supervisor)

Judson S. Ball
 Judson S. Ball

APPROVED (Contracting Officer)

Ralph R. Ross
 Ralph R. Ross, Acting Regional Chief, Div. of Property Management & General Services

DATE

12/15/69

SUMMARY

TOTAL TO DATE	\$ 69,489.50
LESS RETAINED AMOUNT	0
NET	69,489.50
LESS PREVIOUS PAYMENTS	54,122.40
LESS LIQUIDATED DAMAGES	0
DUPLICATE THIS ESTIMATE	15,367.10
% COMPLETED TO DATE:	

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

(12/61)

UNIT PRICE CONTRACT CONTINUATION SHEET

Contract No. 14-10-7-981-131	Contractor C. W. Stack Company, 4421 Kling Drive, Alexandria, Virginia 223
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ITEM NO.	CONTRACT QUANTITY	DESCRIPTION	QUANTITY TO DATE	UNIT PRICE	AMOUNT TO DATE
16	360 LF	6" Asbestos cement or cast iron, class 150 sewer line	252	6.00	\$ 1,512.00
17	1 Ea.	Type "B" manhole	1	600.00	600.00
18	1 Ea.	17,000 Gal. reinforced concrete septic tank	1	10,000.00	10,000.00
19	1 Ea.	750 Gal. dosing tank with equipment	1	1,700.00	1,700.00
20	2 Ea.	96' x 53' Seepage beds	2	7,000.00	14,000.00
21	LS	Planting beach grass and single fertilizer application	100%	2,000.00	2,000.00
Time extended by CO #1 to Nov. 21, 1969. No liquidated damages apply.					

Form 10-411 (July 1965)		UNITED STATES DEPARTMENT OF THE INTERIOR NATIONAL PARK SERVICE		DISTRIBUTION OF COPIES	
PROJECT: CONSTRUCTION PROPOSAL		10-N6.		TO	
208 101VF (100)		208 101VF (100)		WASO Regional Director, NCR PSC-DC ASTS	
1. STATEMENT OF MANAGEMENT'S REQUIREMENTS, PROPOSED WORK, AND ITS RELATIONSHIP TO OTHER FACETS OF THE PARK (PROGRAM. (Provide detail data for "Management Information" on Form 10-411a, Supplemental Sheet and attach.)					
Existing water supply is inadequate. In North Beach the only water supply has been via hand pumps which without question is primitive and impossible to keep sanitary for visitor use. If we are to meet the needs of programed facilities and increased visitor use, a construction project furnishing a complete packaged water system (pumping equipment, storage tank, fire hydrants, and distribution lines) is needed. As for a water source, a 6-inch well drilled by the U.S. Geological Survey during 1969 fiscal year, which has an excellent and potable water supply capable of furnishing 300 gallons per minute, can be utilized. Also, the design of the water system should be such as to allow for extension to meet future programed expansion of facilities.					
2. ADVANCE REQUIREMENTS DATA					
LAND STATUS Department of the Interior		MASTER PLAN NO.		APPROVAL DATE	
PCP NUMBERS OF PREVIOUSLY COMPLETE PORTIONS		INTERRELATED & DEPENDENT PROJECT PCP NUMBERS U-4, U-5, B-7, M-1			
INTERPRETIVE PROSPECTUS APPROVAL DATA				DATE	
WATER RIGHT NEEDS & STATUS None needed					
RESEARCH NEEDS & STATUS None needed					
OTHER					
100' x 100' x 100' (300'000 Gallon) S. 100' x 100' (300) Q. 100' x 100' (300) Q. 100' x 100' (300) 3'000' x 100' (300'000 Gallon)		100' x 100' (300) 100' x 100' (300) 100' x 100' (300) 100' x 100' (300) Assistant		100'000 3'000 3'000 30'000 3'000	
3. RECOMMENDED BY SUPERINTENDENT (Signature & Date) <i>[Signature]</i> 4/30/68			4. APPROVED BY REGIONAL DIRECTOR (Signature & Date) <i>[Signature]</i> 5/29/68		
5. LOCATION WITHIN AREA OR TERMINI North Beach area			6. BLDG. OR RT. # AND SEC.		
7. REGION NCR	8. PARK Assateague Island National Seashore				
9. PROJECT Water treatment, storage, pumping, and lines (North Beach)			10. PCP INDEX NO. U-5		
Worcester (County)			Maryland (State)		

612-9-17-68
J.R. copy.

aw
9/17

L54 WSC-CLW

September 13, 1968

Memorandum

To: Chief, Design and Construction, PSC

From: Chief, Office of Land and Water Rights, WSC

Subject: Location of North Beach Well, Assateague Island National Seashore

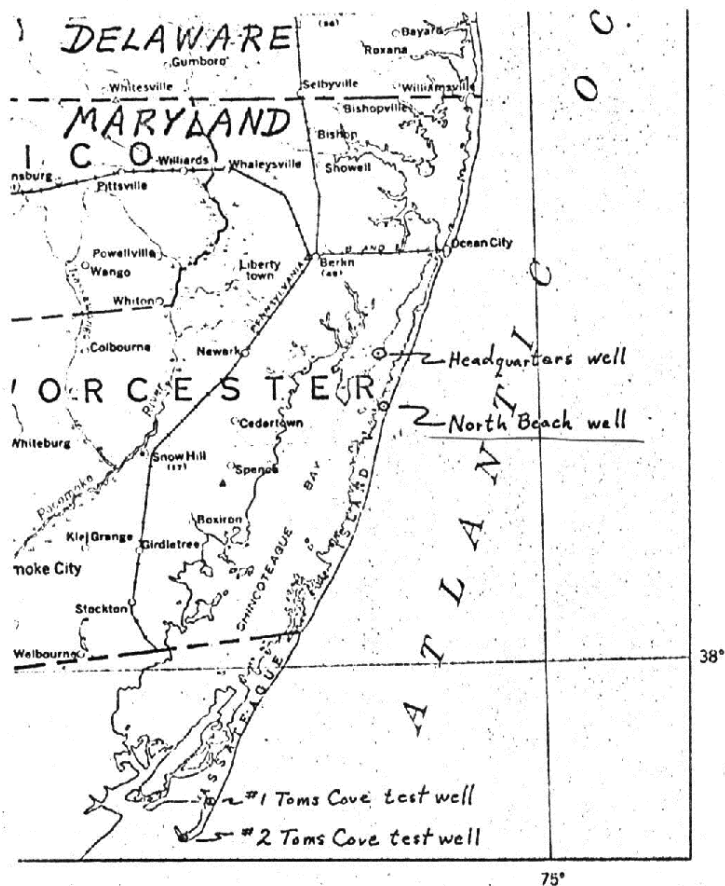
As a followup to Mr. Gordon Cummings telephone request for the exact location of subject, Mr. Garland Moore of this office has verified that the location of the well to be at Station 38 + 00 of the base line surveyed as shown in Drawing No. 622-41004, titled Topography North Beach - Proposed Parking Areas 1 and 2, at Assateague Island National Seashore.

Should you have any additional questions on this matter please do not hesitate to call on us.

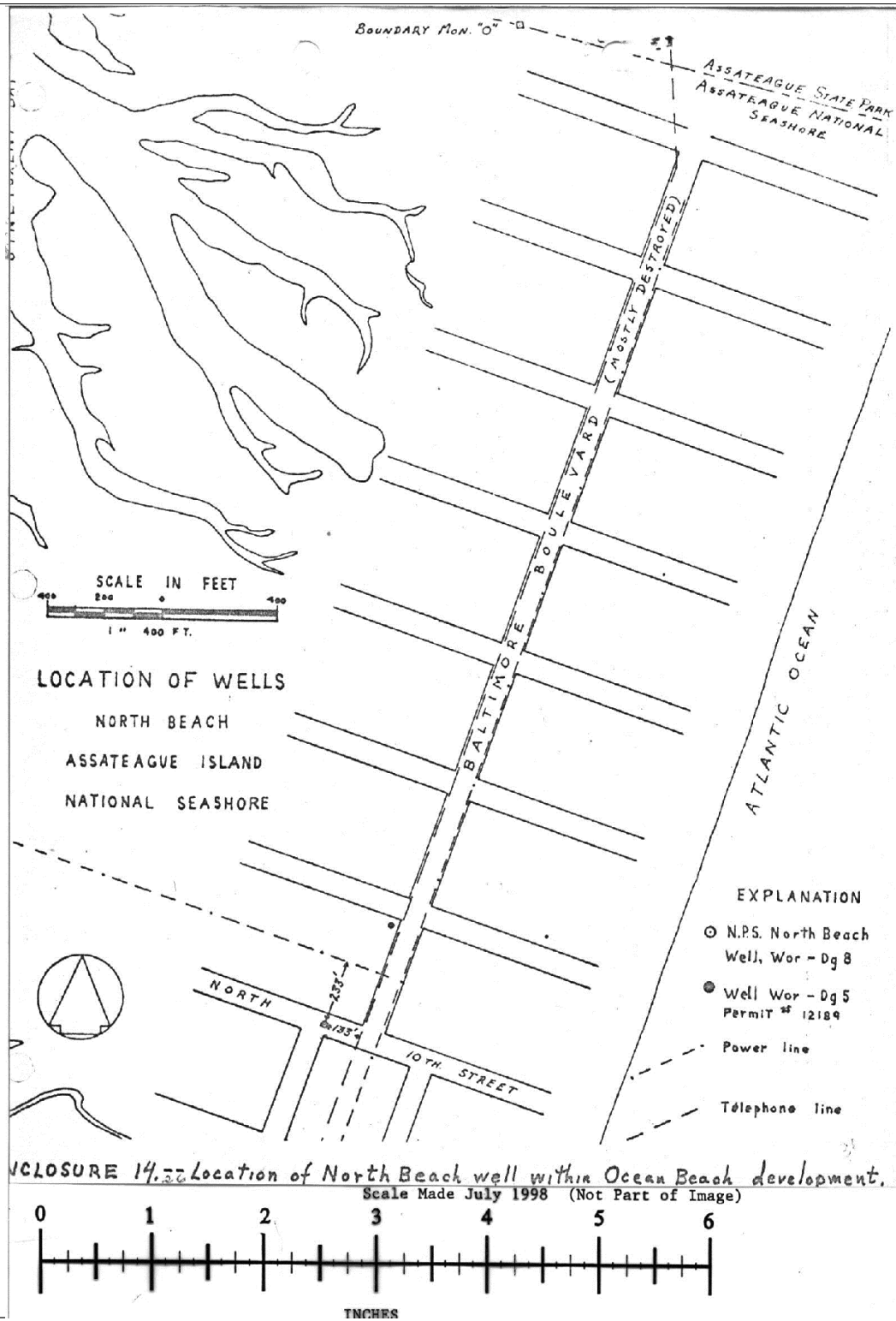
Richard L. Stanton

Richard L. Stanton

cc:
Regional Director, Northeast
Superintendent, Assateague
Chief, Branch of Water Resources, WASO



ENCLOSURE 1.-- Location of
Assateague Island and test-
well sites.



Docket Information

Number of Documents in Docket 42

Documents Dated from 8/15/1967 to 7/1/1970

Docket Compiled: 6/26/2012