



WATER-RIGHT DOCKET

Shiloh National Military Park

Docket No: 2

SOWELL FIELD PICNIC AREA WATER SYSTEM

Supporting Hydro Data

00-00-0000: water analysis of well no. hd: k-3

UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY

2GW

WATER ANALYSIS

Location Shiloh National Park, Tenn. (picnic area west of State Hwy. 22) / County Hardin
Source Well No. Hd: K-3 Depth (ft) Diam (in.)
Cased to (ft) Date drilled Point of coll. At pump
Owner National Park Service
Treatment Use
WBF Probably Eutaw Sand WL 67' below LSD Yield
Temp (°F) Appor. when coll. Clear
Collected January 21, 1964, 1030 hours. By J. H. Criner & R. H. Bingham
Remarks Collected after 19 hrs. for pumping test---hardness 51 ppm (Continued on back)

	ppm	epm		ppm	epm
Silica (SiO ₂)	12		Bicarbonate (HCO ₃)	13	.21
Aluminum (Al)			Carbonate (CO ₃)	0	.00
Iron (Fe)	.64				
Manganese (Mn)	.00		Sulfate (SO ₄)	7.6	.16
			Chloride (Cl)	4.0	.11
			Fluoride (F)	.0	.00
Calcium (Ca)	3.6	0.18			
Magnesium (Mg)	1.8	.15	Nitrate (NO ₃)	.2	.00
Sodium (Na)	2.2	.10			
Potassium (K)	1.0	.02			
Total		.45	Total		.48

	ppm		
Dissolved solids:		Specific conductance (micromhos at 25° C)	54
Calculated	39	pH	5.8
Residue on evaporation at 180° C	40	Color	1
Hardness as CaCO ₃	16		
Noncarbonate	6		

Lab. No. 32146

Field No.

Project

Tennessee GW

REMARKS (Continued):

(Hatch field kit):

Iron (Fe) 0.8 ppm

pH 6.2

**Water-Supply Investigation at Shiloh National Military Park
No. 2 (Picnic Area)**

By J. H. Criner

Introduction

This report summarizes the results of a study by the U. S. Geological Survey leading to the development of a water-supply well in the picnic area at Shiloh Military Park, Tennessee. The investigation began in November 1963 using data collected during a previous study at Park Headquarters to select the site of the well to be drilled in the picnic area. It was estimated that the sand screened at Headquarters would be thicker and about 20 feet deeper in the picnic area and that a well in this sand (Eutaw(?) Formation) would supply more than the needed amount of water (20 gpm). A contract was entered into with the Robert E. Ratliff Company of Grenada, Mississippi to drill a test hole at the selected site and, if geophysical logs and drill samples indicated a favorable sand, to develop a water-supply well. Drilling began in early January 1964 and a test well was completed January 12, 1964. The total depth of the test hole was 200 feet.

Electric and gamma ray logs were made of the test hole, rock samples were analyzed, and drill action was observed. Based on a study of the logs and analyses of all data, the zone between 93 and 113 feet below land surface was determined to be the most favorable as a source of water. Accordingly, the hole was back filled to 113 feet; 91 feet of 8-inch casing was set and cemented below land surface and the sand from 93 to 113 feet was reamed to 24 inches in diameter. Development of the sand zone by the addition of fresh water during the reaming process further indicated the favorability of the sand as a source of water. It was then recommended that the 20-foot screen be set opposite the sand, gravel packed, and developed as a supply well. Development consisted of adding fresh water, surging, and pumping to remove drilling mud, which action partially rearranged the gravel (packing) in a gradational arrangement. A pumping test conducted by the driller (about 70 gpm for 2 hours and 43 gpm for 4 hours) continued the developing process in the well as indicated by less drawdown for equal pumping rates consecutively measured for several periods.

Pumping test

The U. S. Geological Survey conducted a pumping test on January 20-21, 1964 the results of which indicated that well development was continuing (see pumping test graph). Maximum drawdown (89 feet below land surface) occurred while pumping 70 gpm. Static water level was measured on January 18 and 20, 1964 to be 56.78 feet below land surface. Drawdown was 10.22 feet after pumping 19 hours at 12 gpm. Transmissibility was computed to be 2,000 gpd per foot but the true value may be as much as 4,100 gpd per foot of drawdown and the latter value may be attained as the well continues self-development during use, and specific capacity was 1.2 gpm per foot of drawdown. Water for drilling and developing, tools, gravel packing, casing, and pumping equipment were sanitized by chlorine which was used routinely throughout the contract.

All data and tests indicate that the well (Hd:K-3) will supply more water than the stated requirement of 20 gpm continuously. The water level should be no deeper than 74 feet after 8 hours of pumping.

Quality of water

Field tests of samples of water were analyzed on January 21, 1964 which indicated that the water would be satisfactory for most uses. Analyses also indicate that the new well (Hd:K-3) is screened in the same sand as is the well (Hd:K-2) at Park Headquarters. The following table shows the results of analyses in parts per million of samples of water from the two above-mentioned wells.

Chemical Constituents	Well Hd:K-2		Well Hd:K-3 (Picnic area)	
	Field analysis	Complete USGS Analysis	Field analysis	Complete USGS Analysis
	Aug. 8, 1963	Aug. 8, 1963	Jan. 21, 1964	Jan. 21, 1964
Silica (SiO ₂)		14		12
Iron (Fe)	0.6	*	0.8	0.64
Calcium (Ca)		40		3.6
Magnesium (Mg)		7.4		1.8
Sodium (Na)		20		2.2
Potassium (K)		3.6		1.0
Bicarbonate (HCO ₃)		182.0		13
Carbonate (CO ₃)		0		0
Sulfate (SO ₄)		24		7.6
Chloride (Cl)		2.8		4.0
Nitrate (NO ₃)		0.5		0.2
Temperature		63°F		65
Dissolved solids		202		40
Hardness as CaCO ₃	136	131	51	16
pH (a ratio)	6.5	7.7	6.2	5.8

* not analyzed for iron

It should be noted that the analyses of samples from well Hd:K-2 at Park Headquarters show the pH to increase toward neutrality (neither acid nor base) with increasing use of the well. Furthermore, hardness dropped considerably after the first samples were analyzed and iron appeared to increase. It is probable that a similar change will occur in well Hd:K-3, although not as great a change.

Iron appears to be the only troublesome constituent (and will probably remain so) found in the water from well Hd:K-3. Iron in excess of 0.3 ppm may cause staining of toilet fixtures, fountains and clothes washed in the heated water. Reservoirs and water lines may also become coated with the rust colored iron precipitate. There is no apparent danger to health - in fact, ^{it} tends to add a pleasant taste to the water. Some of the hardness noted may be caused by a minor amount of drillers mud still in the formation which will be removed with use.

Recommendations

It is relatively certain that a sufficient quantity of water of suitable chemical quality can be obtained from well Hd:K-3 in the picnic area at Shiloh National Military Park, Tennessee. It appears that iron is the only chemical element in the water in a sufficient quantity to warrant treatment although this treatment is not an absolute requirement. It is probable that the iron will remain in solution if the water remains acid (pH of 6.5), in which instance iron staining will not occur. Treatment for iron removal can be added at a later date if time and use prove the fallacy of the above theory.

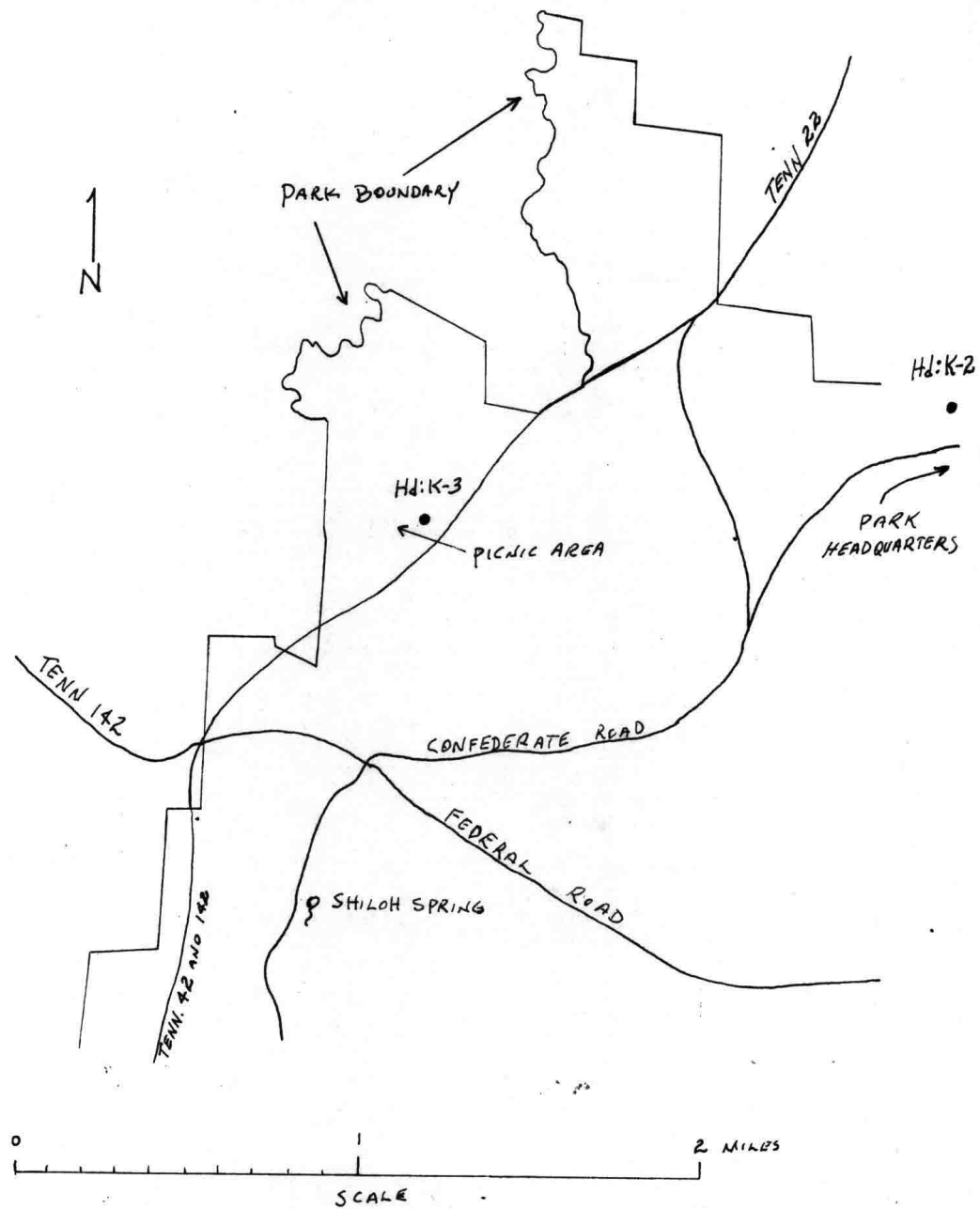
It is recommended that a pump capable of producing 20 to 25 gpm against a head of 65 feet, open discharge (or net including the work of delivering water against pressure). If a submersible type pump is used, it should be set about 85 feet below land surface or just above the 4-inch screen overlap pipe. If a surface driven turbine or jet pump is used, the water-intake pipe should extend into the 4-inch screen or about 95 feet below land surface. Water should be pumped directly to a pressure storage tank or overhead reservoir unless a pump suitable for pumping directly to the main water lines is used.

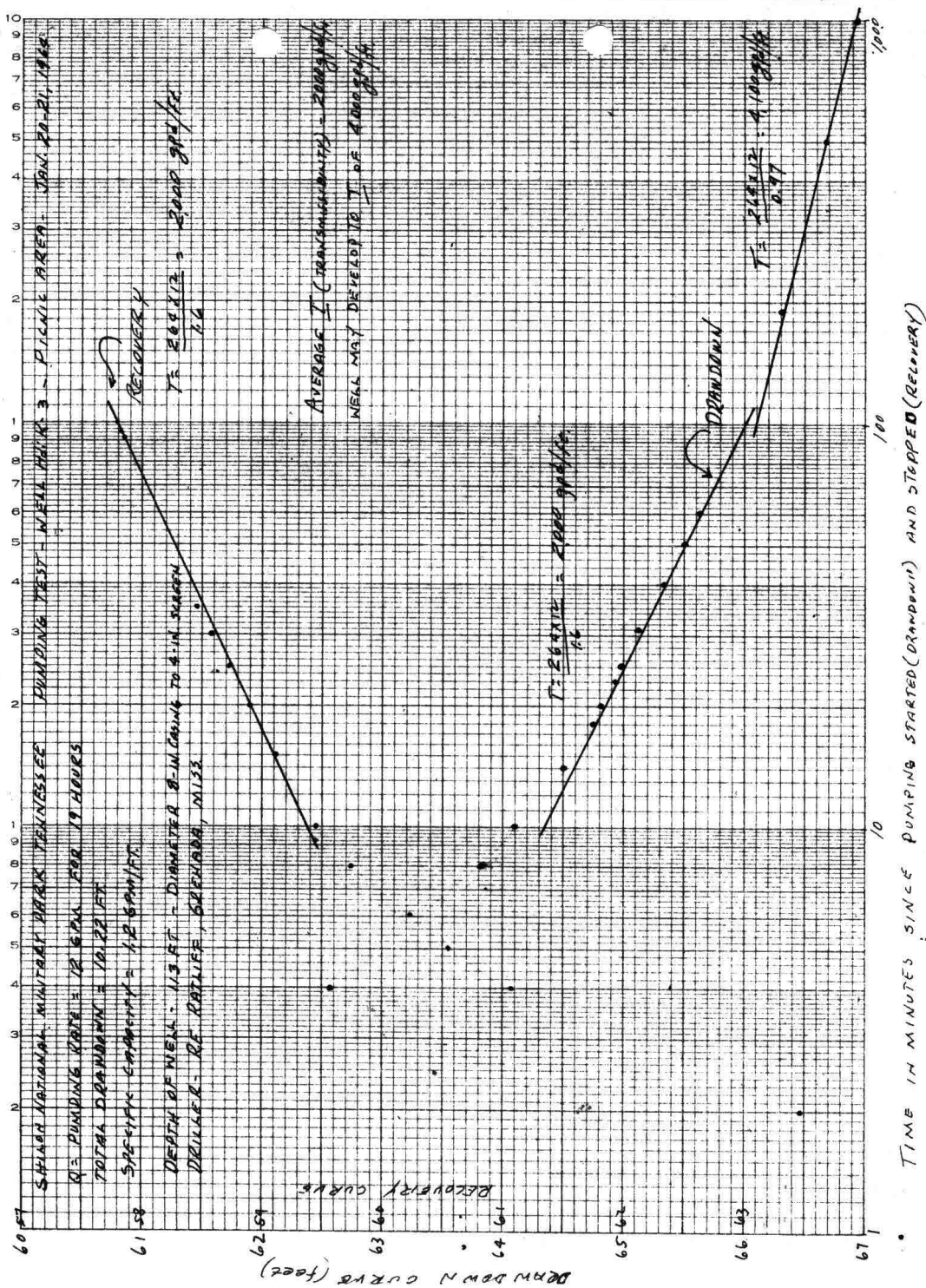
It is suggested that a three-eighths-to one-half-inch tapped and plugged hole be made in the well cap or other arrangement by which periodic measurements of the water level in the well can be made. The U. S. Geological Survey would like the opportunity to return on occasion to measure the water level as a part of our state-wide program of basic records collection and to determine whether or not there are rising or declining trends in water levels.

It is finally recommended that samples of the water be analyzed about monthly for a few months after the well begins production to note any change in quality. This recommendation also applies to well Hd:K-2 at Park Headquarters. The U.S.G.S. will analyze samples during field trips to and in the vicinity of Shiloh Park and will inform Superintendent Ellsworth of the results if this is agreeable.

Appended to this report are electric and gamma ray logs, pumping test curve with computations, and a map of the area.

SHILOH NATIONAL MILITARY PARK, TENNESSEE





Other Supporting Information

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

Work Order No.

APW-64-3-SHI (2nd Rev.)

Fund Symbol

14-113/4008(10)

Year Programmed

1964

PCP No.

None

Master Plan No.

NMP-SHI 3015

Master Plan Corrected By

SERO

As Built Drawings By

EODC

Date Started

Sept. 23, 1963

Date Completed

June 3, 1964

FACE SHEET FOR COMPLETION REPORT

Park Shiloh National Military Park	Region Southeast
Location in Park Sowell Field Picnic Area	State(s) Tennessee
☒ Contract and/or ☒ Day Labor	County or Counties Hardin
Work Order Title Construct picnic area comfort station and utilities	

DESCRIPTION OF FIXED ASSETS
(For completion by employee in charge of project)TOTAL COSTS
(For completion by FFO)

- a. Comfort Station and Sewage Disposal System
- (1) Comfort Station \$9,570.00
- (2) Sewage Disposal System 3,710.00
- b. Water well 5,101.00
- c. 800 lin. ft. 1½" water line, and 3 drinking fountains 2,177.28
- d. Pump, pumphouse, filter tanks, pressure tank, underground electric service and controls, water line connections 5,600.00
- 100.6 - Buildings - 9,570.00
- 100.8 - Utilities - 16,588.28

30,343.60

TOTAL

\$ 30,343.60

DISTRIBUTION		THE FIXED ASSET DESCRIBED ABOVE HAS BEEN COMPLETED IN ACCORDANCE WITH APPROVED DRAWINGS, SPECIFICATIONS, AND AUTHORIZED CHANGES			
No.	To	Submitted	(SIGNED)	Title:	Date:
1	EODC	By:		Project Supervisor	7/30/64
1	SERO	By:			
1	DEC	Approved: Thomas E. Barton		Title:	Date:
1	EEO	By:		Superintendent	7/30/64
1	SUPT	By:			
		COSTS VERIFIED: T. J. Baer		Title:	Date:
		BY: Regional Accountant		Regional Accountant	9/21/64

T. J. Baer

Rec'd w/ Reg. memo 4/22/65 11360

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

Work Order Number

COMPOSITION OF COST FOR COMPLETION REPORT

APN-64-3-SHI

Fund Symbol

14-113140090 (10)

Year Programmed

Park

Region

1954

Shiloh National Military Park

Southeast

Location in Park

Sowell Field Area

Work Order Title

Construct Picnic Area Comfort Stations and Utilities

COMPOSITION OF COST

COSTS CHARGED TO FUNDS ALLOTTED TO FIELD FINANCE OFFICE

(1) Personal Services.....	\$ 1,566.91	
(2) Travel.....		
(3) Contract Work	23,981.00	
(4) Supplies and Materials.....	607.69	
(5) Other Direct Expenses.....	2.68	
(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	\$ 26,158.28

OTHER COSTS:

(12) PS&S, AP, and/or Facilitating Services @ 16 %.....	\$ 4,185.32	
(13) Inventory and Other Non-Fund Costs		4,185.32
(14) GROSS WORK ORDER COSTS	xxxxxxxxxx	\$ 30,343.60
LESS:		
(15) Residual Value of Construction Equipment on Line 8	\$	
(16) Other Credits		
(17) NET COST OF FIXED ASSETS	xxxxxxxxxx	\$ 30,343.60

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

25543

APW # 3 Construct Picnic Area Comfort Station and Utilities

This project consisted of comfort station and sewage disposal system; water well, pump, water filtering system, and pump house; water line, valves and drinking fountains.

- a. Comfort Station and Sewage Disposal System: Bids were opened on November 26, 1963 with Pettigrew and Finney Contracting Company, Adamsville, Tennessee submitting low bid of \$13,280. Work began on December 2, 1963 and was completed March 10, 1964. The work was slowed due to heavy rains and snow. The following materials were used on the project.

Concrete	Savannah Ready Mix Crump, Tennessee
Concrete blocks (masonry)	Tupelo Concrete Products Tupelo, Mississippi
Concrete Agriculture Tile	Savannah Ready Mix Crump, Tennessee
Gravel for Disposal field	Davis Brothers, Inc. Crump, Tennessee
Cedar Shake Shingles	Cedar Crest Shake Mill Sedro-Wooley, Washington
Water Closets	Eljer "Elvortex" E-6130 Duren Supply Company, Inc. Adamsville, Tennessee
Lavatories	Eljer "Cornell E-1564-C" Duren Supply Company, Inc. Adamsville, Tennessee
Urinals (women's)	Eljer "Toilette E-8210-V" Duren Supply Company, Inc. Adamsville, Tennessee
Urinal (men's)	Eljer "Correcto E-8100-V" Duren Supply Company, Inc. Adamsville, Tennessee
Paint Exterior (concrete block, sill and copings)	Lowe Brothers, Co., "Lexon" Exterior Masonry paint Color - Sand Dune Jerrols Hardware Store Savannah, Tennessee

Paint Exterior (all outside wood)
Except plywood roof soffits

Pittsburgh Sun Proof Primer 1-201
Pittsburgh Flat House Paint
Color No. 32-P-35
B&R Lumber Company
Savannah, Tennessee

Paint Exterior Plywood Roof
soffits

Pittsburgh Sun Proof Primer 1-201
Pittsburgh Flat House Paint
Color No. 23-P-31
B&R Lumber Company
Savannah, Tennessee

Paint Interior T&G Siding;
doors & windows; wood louvers;
4"x10" beams & 4"x4" posts
door and window frames, trim
and stops

Pittsburgh Interior wood primer
Pittsburg Wallhide semi-gloss
enamel, color No. 32-P-35
B&R Lumber Company
Savannah, Tennessee

Paint Interior (Exposed roof
sheathing, rafters, beams
(except 4"x10") outlookers,
plates studs

Pittsburgh Interior wood primer
Pittsburg Flat House Paint
Color No. 23-P-31
B&R Lumber Company
Savannah, Tennessee

Paint Interior (Glazed
Masonry Coating)

Evershield Products Co., Inc.
Jopka, Maryland
"Liquid Tile", color light &
dark yellow spotted on white
background

Paint Interior (metal
toilet partitions)

Global Steel Products Corp.
80. Smith Street
Farmingdale, New York
Color No. 1025 "Terra Cotta"

Door Closers (wood doors)

Sargent HWY1.B.
Townsend Hardware Company
112 Johnson Street
Jackson, Tennessee

Door closers (screen doors)

Sargent 2000
Townsend Hardware Company
112 Johnson Street
Jackson, Tennessee

Locksets (all doors) Keyed
to Visitor Center Master Key
System

Sargent G304DS US10
Townsend Hardware Company
112 Johnson Street
Jackson, Tennessee

Cast Iron Sewer Pipe &
Fittings

Duren Supply Company, Inc.
Adamsville, Tennessee

Flush Valves

Flushboy No. 451 & Nos. 402VB
Coyne-Delany Company
Brooklyn, New York

a. Continued

Sewage Disposal System

This system serves the comfort station described above in section (a) of this report. It is served from and connected to the comfort station by five feet of six inch cast iron inlet. It was built by Pettigrew and Finney Contracting Company, Adamsville, Tennessee under the same contract as for the comfort station. Suppliers of materials are listed under (a) Comfort Station and Sewage Disposal System, above.

The system consists of a 3,000 gallon reinforced concrete septic tank 16'x3'x8'8" varying in height from 6'2" to 5' by sloping bottom slab with six inch cast iron, inlet and four inch outlet so placed as to secure a 3" differential between inlet and outlet, and maintain a liquid level of four feet two inches above the bottom of the tank at inlet and an air space of 10" between the liquid level and the reinforced concrete top slab. The top slab has a 25½ inch cast iron manhole covers in a cast iron frame located at finished grade above the inlet and another identical manhole at finished grade above the outlet. Both inlet and outlet are protected by full width reinforced concrete baffles one foot ten inches in height. Top and sides of tank are of six inch reinforced concrete. Bottom slab is 8" reinforced concrete.

The seepage bed is fed through four inch cast iron pipe from the septic tank outlet. Effluent is distributed on a one quarter of one percent gradient through forty eight feet of four inch concrete header pipe with closed joints to 459 linear feet of four inch, open joint, concrete sewer pipe in one foot sections laid in a gravel seepage bed 3080 square feet in area. Laterals are six feet apart and slope on a one quarter of one percent gradient. They are joined at the lower or outer limits by another four inch closed joint header pipe of precast concrete.

- b. **Water Well** - This project consisted of drilling testhole to a depth of 200 feet below ground surface, placing with 2 inch cement grout, 90 lin. feet 8" casing, underreaming and gravel packing 20 lin. feet to a diameter of 24 inches, placing 20 lin. feet of 4" stainless slotted well screen, developing and testing well for drawdown.

The test hole was drilled to a depth of 200 feet below ground surface in an effort to develop a well in the Devonian chert, however this formation was not found at this depth, hence it became necessary to fill test hole back to a depth of 112 feet below ground surface and develop the well in a sand formation which had been encountered at this depth.

Bids were opened on December 12, 1963, with Robert E. Ratliff Company, Grenada, Mississippi submitting the low bid. Work began on January 7, 1964 and was completed January 17, 1964. Materials used on the job were as listed below:

Cement (for grout ring)	Lone Star Savannah Ready Mix Company Cump, Tennessee
8" casing	Contractor's own supply
4" screen (20 thousand gauge stainless steel No. 304)	Howard Smith Company Houston, Texas

- c. **Water lines, valves, and drinking fountains:** This portion consists of 800 lin. ft. of 1½" water line, 5 valves, and 3 drinking fountains. All work on this portion was accomplished by APW forces on day labor basis. Materials used on the job were as follows:

Plastic Water Line	Rigid Plastic Type Duren Supply Company, Inc. Adamsville, Tennessee
Water valves	Duren Supply Company, Inc. Adamsville, Tennessee
Drinking fountain (assembly) National Park Fountain & Valve Assembly, #18 or 1800 N.P., with 20 gauge stainless steel bowl.	Haws Drinking Faucet Company 4th and Page Streets Berkeley 10, California

The project was completed insofar as funds were available on December 13, 1963.

d. Pump, Pumphouse, Filter Tanks, Pressure Tank, Underground Electric Service and Controls, Water Line Connections

Bids were opened on this portion of the project January 28, 1964. Carroll and George, Michie, Tennessee submitted the low bid of \$5,600.00. The amount is, Part "B" of the Contract No. 14-10-0131-1223. The project started February 4, 1964. The progress was slow during the entire contract due to weather conditions and the fact that the contractor proceeded at his own leisure. The following was accomplished under this portion of the contract:

1. Well pump - Sowell Field. A Myers Submersible pump, Model SE20A21, 2 H. P., 230 volts, single phase, Serial No. 134583A, Motor No. 2-230601264 was installed using 90 feet of 1½ inch plastic drop pipe, and supported by a 3/16 inch stainless steel support cable.
2. Water Meter. A 1-inch Calmet cold water meter was installed. The meter may be disassembled for inspection without removing it from the pipe line. The meter has a straight reading register in U. S. gallons with a range between 10 and 999,990 gallons and a circular dial indicating fractions of each ten gallons.
3. Neutralizing Filters. 2 Neutralizing Filters, each capable of handling a maximum intermittent flow of 15 gpm were installed. The Filters are Permutit neutralizing filters Model NF-28. The neutralizing agent was installed in accordance with manufacturer's recommendations. The neutralizing agent is Q-890 neutralite. Galvanized steel piping was used in the installation.
4. Altitude Gauge and Drop Tube. An Altitude Gauge and 90 lin. ft. of 1/4 inch copper drop tube was installed in the well in accordance with Specifications.
5. Pressure Tank. A Myers No V 120B pressure tank was installed. The tank is equipped with automatic air control Jacuzzi No. 225B, and a pressure gauge.
6. Well Head Box. The well head box consists of a concrete pad with box constructed of carbon steel plate complete with hinges and hasps for padlocking.
7. Underground Electric Service. 3 No. 6 direct burial wire were laid underground from existing power pole to pump house, a distance of about 290 feet. Wires were buried to a minimum depth of 2 feet.

8. Pump Controls. The pump controls that were installed are the "Durotrol Planpack" manufactured by the Automatic Control Company. The controls automatically start the pump at low pressure in the pressure tank by means of a pressure switch and stop the pump at high water level in the pressure tank by means of an electrical probe.

The air/water ratio is maintained by an electrical blow-off Solenoid valve which releases excess air any time the pressure rises above the predetermined point.

The pump is automatically stopped by a low water cut off electrical probe installed in the well about 3 ft. above pump intake. The pump is reset by an electrical probe installed in the well about 5 feet above the low water cut off probe.

9. Water Line Connection. The system was connected to the 1 1/2 inch water lines installed by day labor of the project. All water piping and connections were in accordance with Specifications.

10. Disinfection. A chlorine solution was introduced into the system and lines flushed until a strong chlorine odor was noticeable in the water from the outlets. The tops were then closed and allow to stand for 24 hours after which the system was thoroughly flushed. Water samples were taken and the water was found to be free of coliform organism.

11. Pump House. The pump house was constructed substantially according to plans and Specifications. The construction began the same time as the remainder of the Carroll and George contract.

12. Water Rights Application. Since the State of Tennessee does not require a permit or license, no application was made.

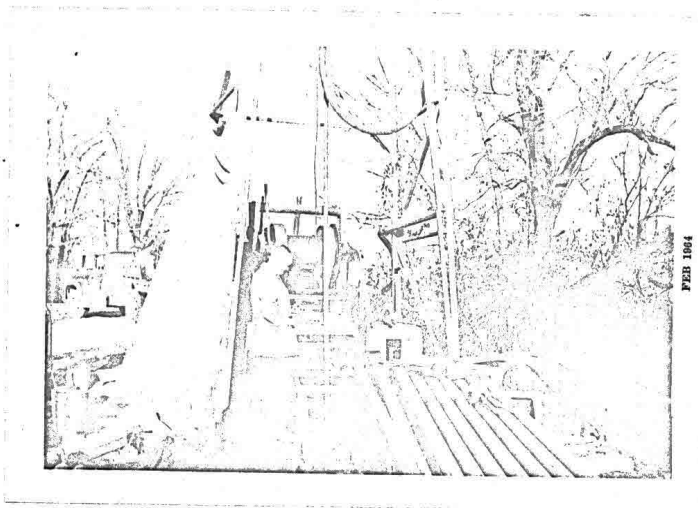
The following materials were used on this contract:

Concrete	Ready Mix Concrete, Inc. Corinth, Mississippi
Concrete blocks	Tupelo Concrete Block Company Tupelo, Mississippi
Cedar Shake Shingles	Cedar Crest Shake Mill Sedro-Woolley, Washington

Water Meter	Meter Service & Supply Company 1496 Humber Street Memphis 6, Tennessee
Neutralizing Filters	The Permutit Company E. 49 Midland Avenue Paramus, New Jersey
Altitude Gauge	Carloss Well Supply Company 115 Concord Street Memphis 3, Tennessee
Well pump	Southern Supply Company Jackson, Tennessee
Pump controls	Autocon Industries, Inc. St. Paul 4, Minnesota
Pump discharge coupling	Martinson Manufacturing Co. P. O. Box 256 Ramsey, New Jersey
Sanitary Well Seal	Southern Supply Company Jackson, Tennessee

This project was completed June 3, 1964.

Thomas E. Barton
Project Supervisor



Well Drilling Operation
Sowell Field



Assembling Pump, Sowell Field



Finished Pump Installation with cover off

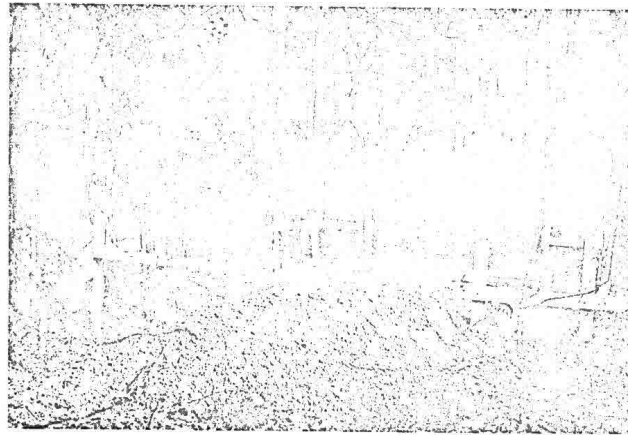
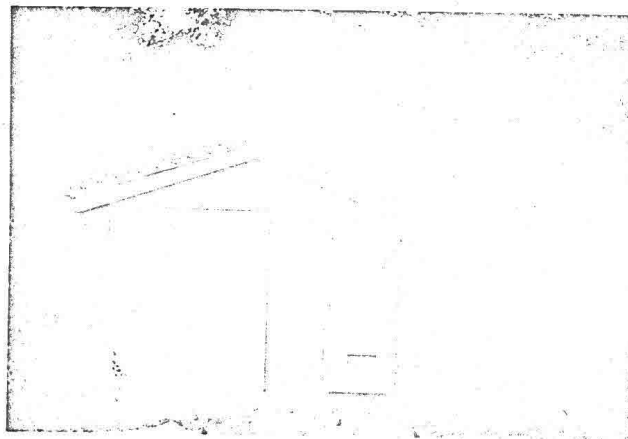


Photo out of parking lot



Finished parking lot

Shiloh National Military Park Water Supply

Analyses by Geological Survey, United States Department of the Interior
(Parts per million)

Well no. <u>1/</u> Treatment Lab. no.	Hd:K-2 Raw 32576	Hd:K-2 Treated 32733	Hd:K-3 Raw 32739	Hd:K-3 Treated 32749	Hd:K-4 Raw 32577
Date of collection.....	7-27-64	10-2-64	10-2-64	10-2-64	7-27-64
Silica (SiO ₂).....	24	22	16	15	19
Iron (Fe).....	1.1	.13	2.2	.4	.35
Manganese (Mn).....	.02	.01	.1	.1	.02
Calcium (Ca).....	3.8	41	2.4	50	3.0
Magnesium (Mg).....	1.0	2.7	2.0	4.4	2.5
Sodium (Na).....	2.4	2.3	1.3	2.0	2.0
Potassium (K).....	1.2	1.2	.7	.7	.7
Bicarbonate (HCO ₃).....	14	135	15	164	16
Sulfate (SO ₄).....	4.0	7.0	7.6	7.6	4.4
Chloride (Cl).....	2.0	1.0	3.0	3.0	3.0
Fluoride (F).....	.0	.2	.0	.0	.0
Nitrate (NO ₃).....	.2	.0	.1	.0	.2
Dissolved solids.....	47	144	43	164	44
Total hardness as CaCO ₃	16	115	16	151	22
Specific conductance (Kx10 ⁵ at 25°C.).....	43	236	54	237	41
pH (at time of analysis).....	5.3	7.0	5.9	7.4	6.0
Temperature (°F) field.....	63	-	-	-	67
Color.....	5	3	25	3	5

1/ Hd:K-2 - Park headquarters well

Hd:K-3 - Picnic grounds well

Hd:K-4 - Benny property well

2/ In solution when collected

22769

Docket Information

Number of Documents in Docket 24

Documents Dated from 7/30/1964 to 7/30/1964

Docket Compiled: 6/17/2011