



WATER-RIGHT DOCKET

Blue Ridge Parkway

Docket No: 35

JAMES RIVER VISITORS CENTER.

Supporting Hydro Data

07-07-1961: memorandum: installation of well pump at james river interpretive shelter; july 07, 1961

OPTIONAL FORM NO. 10

UNITED STATES GOVERNMENT

Memorandum

TO : Parkway Engineer Batten

DATE: July 7, 1961

FROM : Engineer Farmer

SUBJECT: Installation of Well Pump at James River Interpretive Shelter

The following information was obtained previously by well driller:

Yield before blasting	- 1/2 gpm
Depth of well before blasting	- 275 feet
Depth of well after blasting and cleaning	- 205 feet
Static head below well casing	- 60 feet
Approximate yield of well	- 9 gals./min.
Minimum yield	- 8.5 gals./min.
Recovery time	- 20 min.
Storage in well estimated	- 180 - 186 gals.

The following was done June 28, 1961 by Glen Richie, Tom Kanode, Collin Farmer, Wilson Grant and his crew: 3 feet of well casing removed. After removing 3 feet of casing, Grant measured a static head of 52 feet below the top of casing and 229 feet to the bottom of the well with a line and weight. 170 feet of 1" galvanized pipe was installed. Pump inlet was approximately 2 feet below pipe, giving a depth of approximately 172 feet to pump inlet from top of casing. Maximum drawdown point estimated 184 feet or less below the top of the casing.

A (754L) 3/4 H.P., 21 stage, 4" diameter, submersible pump was installed which will discharge at a depth of 170 feet to water level. The pump will discharge 520 gals./hr. against a 40 psi pressure. At a depth of 60 feet to water level (about static water level) the pump will deliver 640 gals./hr. against a 40 psi pressure. The minimum yield of the well is estimated to be 510 gals./hr.

Collin E. Farmer
Civil Engineer

OPTIONAL FORM NO. 10

UNITED STATES GOVERNMENT

Memorandum

TO : Parkway Engineer, Blue Ridge Parkway

FROM : Engineer Everhardt, Blue Ridge Parkway

SUBJECT: Completion Report of James River Well

DATE: June 9, 1960

Well location is 1,200 feet north of Virginia Rt. 501 and 100 feet east of Blue Ridge Parkway at the proposed James River Interpretative Shelter in Amherst County. Drilling was started April 11, 1960 and pump tests were completed June 3, 1960 by the Falwell Well Company of Lynchburg, Virginia. Casing size is 6 inches and the well is 205 feet deep. Static water level of the well is at a depth of 60 feet.

A 6½ hour pumping test was made of the well, but, due to improper equipment, a drawdown and recovery curve could not be obtained. Yield of the well, as determined by pumping, is approximately 9 gallons per minute. This yield is not in accordance with the 25 gallons per minute specified in the General Specifications.

Soil samples were taken at regular intervals and are being forwarded to the U. S. Geological Survey.

Gary E. Everhardt

Gary E. Everhardt
Engineer

Blue Ridge Parkway
P. O. Box 1710
Roanoke, Virginia

June 8, 1960

Virginia Division of Mineral Resources
Natural Resources Building
McCormick Road
Charlottesville, Virginia

Attention: Mr. Cory Yost, Geologist

Gentlemen:

In compliance with a request from U. S. Public Health Service Sanitary Engineer Consultant Paul C. Henderson, we have today made shipment to you, express collect, of material samples from the deep well drilled at the proposed James River Interpretative Shelter, Section 1-G of the Blue Ridge Parkway. Enclosed is a diagram showing our determination of the soil samples. After verification, we shall appreciate notification of material types that differ from those shown by our determination.

The well was initially drilled to a depth of 270 feet and the yield was less than one gallon per minute. After blasting, the well was cleaned to a total depth of 205 feet; and, after test pumping the well for 6½ hours the yield was 9 gallons per minute with a static head of 145 feet. No drawdown or recovery curve data are available.

Your interest and cooperation in this water development is greatly appreciated.

Sincerely,

(Signature)
Earl W. Datten
Parkway Engineer

Enclosures

Copy to: Mr. Paul C. Henderson, U. S. Public Health Service

rpc

LOG OF SAMPLES

JAMES RIVER 1ST TERRACE AT MOUNTAIN VIEW

<u>From (ft.)</u>	<u>To (ft.)</u>	<u>From (ft.)</u>	
0	1	Topsoil	
1	7	Clay	Sample #1 1 ft.
7	10	Sand & Boulders	Sample #2 10 ft.
10	20	Sand & Boulders	Sample #3 20 ft.
25	30	Blue Limestone	Sample #4 30 ft.
30	40	Blue Limestone	Sample #5 40 ft.
40	50	Blue Limestone	Sample #6 50 ft.
50	60	Blue Limestone	Sample #7 60 ft.
60	70	Blue Limestone	Sample #8 70 ft.
70	80	Blue Limestone	Sample #9 80 ft.
80	90	Blue Limestone	Sample #10 90 ft.
90	100	Blue Limestone	Sample #11 100 ft.
100	110	Blue Limestone	Sample #12 110 ft.
110	120	Blue Limestone	Sample #13 120 ft.
120	130	Blue Limestone	Sample #14 130 ft.
130	140	Blue Limestone	Sample #15 140 ft.
140	150	Blue Limestone	Sample #16 150 ft.
150	160	Blue Limestone	Sample #17 160 ft.
160	170	Blue Limestone	Sample #18 170 ft.
170	180	Blue Limestone	Sample #19 180 ft.
180	190	Blue Limestone	Sample #20 190 ft.
190	200	Blue Limestone	Sample #21 200 ft.
200	210	Blue Limestone	Sample #22 210 ft.
210	220	Blue Limestone	Sample #23 220 ft.
220	230	Blue Limestone	Sample #24 230 ft.
230	240	Blue Limestone	Sample #25 240 ft.
240	250	Blue Limestone	Sample #26 250 ft.
250	260	Blue Limestone	Sample #27 260 ft.
260	270	Blue Limestone	Sample #28 270 ft.

OPTIONAL FORM NO. 10

UNITED STATES GOVERNMENT

Memorandum

File - *RTC*
RPC
Int. to 1000

TO : Parkway Engineer

DATE: June 6, 1960

FROM : Engineer Farmer

SUBJECT: Well Data for the James River Well

The Falwell well drillers arrived at the James River well site at 10:30 A.M. on June 2, 1960, to test the well. The depth of the well was measured at 205 feet after blasting and cleaning the well. The well was 270 feet deep before blasting. The static head was 60 feet below the top of the casing.

200 feet of $3\frac{1}{2}$ inch pipe was installed in the well with $1\frac{1}{4}$ inch plastic tubing taped to the side of the pipe and the end of the tubing three feet from the bottom of the pipe for an air line. A single action piston pump was installed in the bottom of the pipe which was attached to the cable of the well machine. After the pipe was installed the gauge indicated that the plastic tubing had been pinched. The gauge should have read 59# pressure. After turning the pipe in the well the gauge read a maximum pressure of 13# which was read the next morning on June 3.

June 3, the well driller finished installing the test equipment. The well driller in charge said he had not been successful in installing an air line in a well with this size pipe. The rough walls of the well caused by blasting lessened the possibility of successfully installing an air line. The well driller in charge stated that he could only make a test giving the maximum flow into the well and would not be able to give data for draw-down. Mr. Clarke advised me to let him go ahead with this test.

Pumping of the well was started at 10:30 A.M. on June 3. The well was pumped for $2\frac{3}{4}$ hours and, after 5 minutes, the yield fell to approximately 9 gallons per minute remaining at this yield until pumping was stopped. The well was then allowed to recover for $\frac{3}{4}$ hour. Pumping was again started and the yield was 58 gallons per minute and fell to approximately 9 gallons per minute after about 5 minutes and was pumped at this yield for 30 minutes. It took 20 minutes for the well to recover. The well pump was operated at maximum speed for one hour during which the yield started at 55 gallons per minute and fell to approximately 9 gallons per minute in 3 minutes, thereafter yielding approximately 9 gallons per minute until pumping was stopped. It took 20 minutes for the well to recover. The well was pumped for a total of 4 hours and 20 minutes.

The yield was measured in a 5½ gallon bucket. Time to fill bucket was measured by a watch with a sweep second hand. The pump did not pump a steady stream which accounts for the inconsistency of the attached field notes.

Conclusion:

At a yield of 9 gallons per minute and 20 minute recovery time, the storage in the well would be about 180 gallons between the depths of 60 and 200 feet. The well has a continuous yield of approximately 9 gallons per minute. The water was milky each time when pumping started after recovery but cleared up and stayed clear during continuous pumping.

Collin E. Farmer
Collin E. Farmer
Engineer

Attachment

Microscopic Examination of well cuttings

270 foot well at proposed James
River Interpretative Shelter, Section
1-G of the Blue Ridge Parkway.

0 - 7 feet	Red-brown sandy clay, some gravel
7 - 10 "	Sand and gravel
10 - 20 "	Shale
25 - 30 "	Dolomite (light gray)
30 - 40 "	Fine sand and dolomite
40 - 50 "	Dolomite (light gray)
50 - 60 "	" "
60 - 70 "	" some fine sand
70 - 80 "	" some fine sand
80 - 90 "	" some fine sand
90 - 100 "	"
100 - 110 "	Black shale (acid produces H ₂ S)
110 - 120 "	"
120 - 130 "	"
130 - 140 "	Black shale and dolomite
140 - 150 "	" "
150 - 160 "	" "
160 - 170 "	" "
170 - 180 "	Dolomite and shale
180 - 190 "	" "
190 - 200 "	Dolomite, shale (acid produces H ₂ S)
200 - 210 "	Dolomite and shale
210 - 220 "	" "
220 - 230 "	" "
230 - 240 "	" "
240 - 250 "	" "
250 - 260 "	" "
260 - 270 "	" "

Examined by: Wayne Anderson

Other Supporting Information

BLUE RIDGE PARKWAY

WATER SYSTEM DATA

- AREA Blue Ridge Parkway DATE COLLECTED _____ COLLECTED BY _____)
1. Name of System: James River Visitor Center
2. Location: State Virginia County Amherst General Area M.P. 63.6
- Reference to permanent landmark _____
3. Source of Supply: Well Capacity 9 GPM
(Well, spring, stream, impoundment, etc.)
4. Type of System: Pumped, pneumatic
(Pumped, gravity, etc.)
5. Treatment: None
(Filtration, Chlorination, Aeration, etc.)
6. Distribution Mains: Size 1 1/2" Length 48'; Size _____ Length _____
Size _____ Length _____; Size _____ Length _____
Size _____ Length _____; Size _____ Length _____
7. Pump Unit: Make Jacuzzi Type Submersible Model No. 754L
Serial No. _____; Outlet 1" in.; Inlet 1 1/2" in.
(Size) (Size)
8. Power Source: Electric Motor: Make Jacuzzi HP 3/4;
(Elec., gas, generator)
- Serial No. _____; Voltage 115; Amps 9.05;
~~1722~~ 3450 RPM _____; Type _____; Phase Single;
60 Cycles _____; Others _____; Stages 21
9. Control: Automatic Pressure; Manual _____;
(Float, Electrode, Pressure, Time)
- Other _____
(Explain)

No w

10. Pump Design: Capacity _____ gpm. _____ 47 (Design) gpm.
(Actual) (Design)
Head _____ ft. _____ ft.
(Actual) (Design)

11. Pump Housing: Type Const. Concrete; _____; Size 30"
(Walls) (Roof)

12. Storage: Pneumatic; Type Const. Steel
(Pneumatic, elevated, underground, etc.) (concrete, wood, steel)
Size _____; Capacity 300 gal.; Inlet _____ ft. _____ in.
(Elev.) (Size)
Outlet _____ ft. _____ in.; Pressure Setting 40 lb.
(Elev.) (Size) (if pneumatic)

13. Distribution: Water Closets 2; Lavatory 2; Urinal 2;
Drinking Fountain 1; Hose Bibs 2; Residences _____;
Other _____;

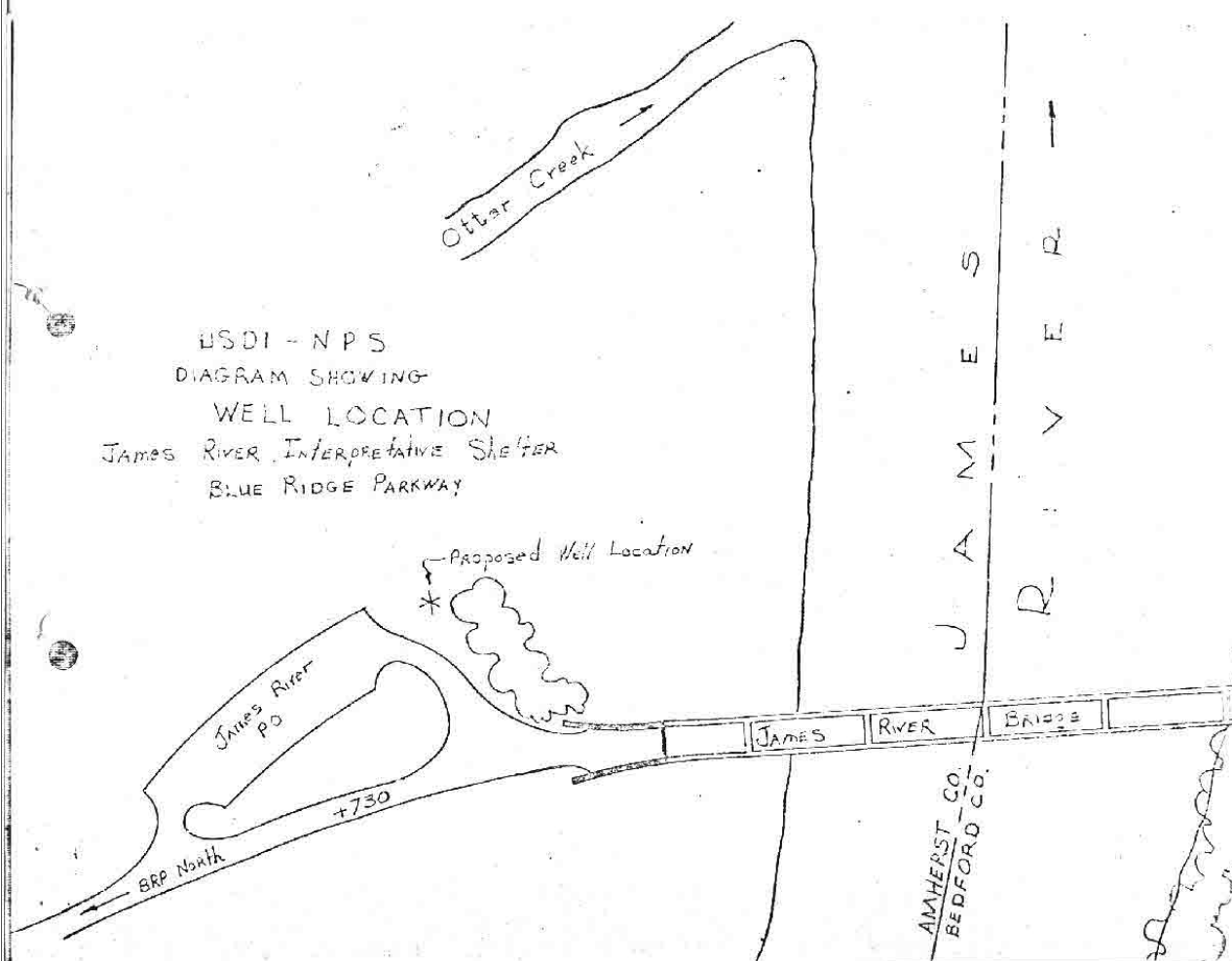
14. Metered or nonmetered: Nonmetered; No. _____; Size _____
No. _____; Size _____
No. _____; Size _____

15. Fire Protection: Fire Hydrants _____; Yard Hydrants _____

16. Water Analysis: _____

17. Condition of System: Good
(Repairs needed itemize)

Maps and Miscellaneous Information



Docket Information

Number of Documents in Docket 10

Documents Dated from 6/9/1960 to 7/7/1961

Docket Compiled: 2/8/2011