



WATER-RIGHT DOCKET

Shenandoah National Park

Docket No: 18

HUGHES RIVER GAP WATER SYSTEM

Preliminary Docket Information

00-00-0000: docket #18: hughes river water system index

SHENANDOAH NATIONAL PARK

Docket #18

Hughes River Water System

I N D E X

PART I - INVESTIGATION

1. Job Application and Completion Record, Hemlock Spring Parking Overlook, Water Fountain (August 1936).
2. Job Application and Completion Record, Hemlock Spring, Pipeline (Sept. 1936).
3. Job Application and Completion Record, Hughes River Parking Overlook, Water Pipeline (October 1937).
4. Drawing No. NP-SHE 2768, "Layout of Water System" 1967 by SNP.

PART II - WATER RIGHTS

Form 10
(Nov. 1956)

PARKS AND RECREATION SERVICE

FIXED PROPERTY RECORD

DESCRIPTION OF PROPERTY (Include reference to the location within the Park, how the asset was acquired, name of contractor, etc.)
 Locations Hughes River and Hemlock Springs Parking Overlooks - Central District

One Spring
 One 200 Gallon Concrete Spring Box
 One 10,000 Gallon Concrete Reservoir
 6,720 Linear Feet of Pipe
 Three Stone Masonry Drinking Fountains

Gravity System

Constructed by CCC in 1939, Force Acct.

LINE	DATE	REFERENCE		QUANTITY			COST		
		Journal Voucher	Other	Unit	No. of Units	Accumulated Total	Direct Costs	Indirect Costs	Accumulated Cost
1	8/27/59	17-10		System	1				6,300.00
2									
3									
4									
5									
G.L. Acct. No. 100.8		General Classification Utility			Sub-Classification Water System		Region One	State Va.	Park or Office SNP

Other Supporting Information

1942?

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HUGHES RIVER GAP WATER SUPPLY PROJECT

STONY MAN WEIRS No. 1 and No. 2, and HEMLOCK SPRING

Location.- The springs or sources of supply are located about 1,600 feet east of Stony Man, 4,200 feet northwest of Skyland, and 1.2 miles southwest of Hughes River Gap. There are three supplies all located on the west side of the Skyline Drive and between 50 and 200 feet from the Drive. They are about 500 feet apart and about 8.4 miles from the intersection of route No. 211 with Skyline Drive at Thornton Gap.

Installation.- The various units of the installation are as follows; one receptacle; 2 reservoirs, one 500 gallons, and the other 10,000 gallons capacity; 82 feet of 4-inch open tile; 10 feet of 2-inch galvanized pipe; one weir box; one combination weir box and receptacle; 5 collecting galleries; about 520 feet of three-fourth inch galvanized pipe; about 2,770 feet of 1½-inch galvanized pipe; about 2,780 feet of 1½-inch galvanized pipe; and about 60 feet of one inch galvanized pipe.

The plans for the completed survey of this project are shown on sheets Nos. 27, 28, 29, and 30 and the field notes for this survey are shown on pages 55, 56, and 57.

Monuments.- Seventeen concrete monuments, marked by the letters "A, B, J, L, M, R, S, T, AA, DD, FF, HH, NN, OO, PP, RR, and SS", were used in the survey to locate the underground units. Twelve of these monuments, marked by the letters "A, B, J, M, L, S, T, FF, SS, RR, PP, and OO", were used as bench marks for the survey and were tied into mean sea level elevations.

Elevation.- The elevations of the following monuments were determined by an unchecked line of levels from Federal Bureau of Public Roads Bench Mark No. 48 AB described as bolt in root of 20-inch birch tree 25 feet $\frac{1}{2}$ west of Drive at station 442 + 65. M. S. L. elevation 3,397.95 feet.

Monument A, elevation 3,405.84 feet, is located 50 feet south of west end of cul-

HUGHES RIVER GAP WATER SUPPLY PROJECT

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STONY MAN WEIRS No. 1 and No. 2, and HEMLOCK SPRING

vert nearest Hemlock Spring and about 20 feet from the western side of Skyline Drive.

Monument B, elevation 3,398.57 feet, is located 96.2 feet north of monument "A" and about 20 feet from the western side of the Skyline Drive.

Monument J, elevation 3,365.09 feet, is located 310 feet $\pm$ north of fountain at Hemlock Springs Parking Overlook and is 15 feet from the eastern edge of pavement.

Monument M, elevation 3,398.86 feet, is located 38 feet southeast of Stony Man weir box No. 1.

The elevations of the following monuments were determined by an unchecked line of levels from Federal Bureau of Public Roads Bench Mark No. 47 AB described as bolt in root of 28-inch spruce tree 25 feet $\pm$ west of the Drive at station 434 + 40. M. S. L. elevation 3,358.13 feet.

Monument L, elevation 3,357.29 feet, is located 417 feet north of monument "J" and about 28 feet from the western edge of pavement and is about 700 feet north along Drive from Hemlock Spring Parking Overlook.

Monument S, elevation 3,386.13 feet, is located 80 feet west of monument "L" and 110 feet northeast of Stony Man weir No. 2.

Monument T, elevation 3,405.65 feet, is located 32 feet southeast of Stony Man weir No. 2.

The elevations of the following monument and unit were determined by a checked line of levels from Federal Bureau of Public Roads Bench Mark No. 45 AB described as bolt in root of 24-inch oak tree 20 feet $\pm$ west of Drive at station 413 + 40. M. L. S. elevation 3,243.47 feet.

Monument FF, elevation 3,237.32 feet, is located about 280 feet north of reservoir and about 10 feet from the western edge of pavement.

Manhole cover on reservoir, elevation 3,245.47 feet.

The elevations of the following monuments and fountains were determined by an un-

HUGHES RIVER GAP WATER SUPPLY PROJECT

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STONY MAN WEIRS No. 1 and No. 2, and HEMLOCK SPRING

checked line of levels from Federal Bureau of Public Roads Bench Mark No. 42 AB described as spike in root of 10-inch oak tree 60 feet $\pm$ west of Drive at station 385 + 10. M. S. L. elevation 3,116.21 feet.

Monument SS, elevation 3,119.06 feet, is located 50 feet southeast of the comfort station at Hughes River Gap Parking Overlook.

Monument RR, elevation 3,116.57 feet, is located 75 feet southwest of monument "SS" and 90 feet southwest of comfort station.

Monument PP, elevation 3,116.57 feet, is located 113 feet southwest of monument "RR"

Monument OO, elevation 3,117.02 feet, is located 126 feet southwest of monument "PP" and 45 feet from western edge of pavement on Skyline Drive.

Fountain at south end of Hughes River Gap Parking Overlook, elevation 3,105.48 feet.

Fountain near information booth at Hughes River Gap Parking Overlook, elevation 3,094.69 feet.

Description of System.- The flow at Hemlock Spring is collected through about 200 feet of trench with open tile about 3 or 4 feet in the ground. The flow for Stony Man weirs No. 1 and No. 2 is also collected through trenches with open tile about 3 or 4 feet in the ground.

Remarks.- These three developments were installed principally to determine the flow and its variation and before rebuilding were not intended as a part of a supply project. The trenches are shallow; the collecting areas are not protected from surface waters; and no provisions are made in the installation for excess flow. These sources should be developed properly and should be connected into one system for supplies to the two parking areas. Only the flow from Hemlock Spring is now being used. At first this supply was connected to a small fountain about 150 feet away and last year it was connected with the system for the large Hughes River Parking Area.

HUGHES RIVER GAP WATER SUPPLY PROJECT

Note: Magnetic North at Monument A is zero azimuth of survey.

Instrument located on	Station	Azimuth		Distance in feet	Bearing		Remarks
		Back	Forward		Magnetic	Calculated	
Mon. A	Mon. B		351°35'	96.2	N 8½°W	N 8°25'W	Station 0+00 for pipe line on Mon. B
	C		332°37'	31.8	N27°W	N27°23'W	S.E. corner of large receptacle (Hemlock Spring)
	D		335°33'	37.5	N26½°W	N26°27'W	N.E. corner of large receptacle (Hemlock Spring)
	E		348°49'	34.6	N11½°W	N11°11'W	Tee in 1½" galvanized iron pipe line
	F		3°18'	39.3	N 3°E	N 3°18'E	El1 on ¾" line to parking overlook
	G		13°04'	50.9	N13½°E	N13°04'E	Center of end of culvert
Mon. B	Mon. A	171°35'			S 7½°E	S 8°25'E	backsight
	H		8°13'	62.0	N 9½°E	N 8°13'E	¾" pipes turns to parking overlook
	I		31°18'	77.0	N32½°E	N31°18'E	¾" pipes turns to parking overlook
	Mon. J		1°05'	504.7	N 2½°E	N 1°05'E	Monument at station 5+04.7
	K		21°11'	-----	N22°E	N21°11'E	Fountain on top of wall
Mon. J	Mon. B	181°05'			S 2½°W	S 1°05'W	Backsight
	Mon. L		325°37'	417.3	N33°W	N34°23'W	Monument at station 9+22
	Mon. M		238°52'	149.0	S60½°W	S58°52'W	Monument line to Stony Man weir No. 1
Mon. M	Mon. J	58°52'			N59½°E	N58°52'E	Backsight
	N		307°10'	35.0	N51½°W	N 52°50'W	Corner of front edge wall on outlet end of weir box
	O		302°16'	39.0	N56½°W	N57°44'W	Corner of back edge of wall on intake end of weir box
	F		315°23'	47.8	N45°W	N46°37'W	End of collecting ditch
	Q		285°50'	39.8	N72½°W	N74°10'W	End of collecting ditch
Mon. L	Mon. J	145°37'			S35°E	S34°23'E	Backsight
	Mon. R		355°49'	492.7	N 4½°W	N 4°11'W	Monument at station 14+14.7
	Mon. S		261°52'	79.8	S80½°W	S 81°52'W	Monument line to Stony Man weir No. 2

HUGHES RIVER GAP WATER SUPPLY PROJECT (Continued)

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Instrument located on	Station	Azimuth		Distance in feet	Bearing		Remarks
		Back	Forward		Magnetic	Calculated	
Mon. S	Mon. L	81°52'			N82°E	N81°52'E	Backsight.
	Mon. T		221°50'	115.0	S42°W	S41°50'W	Monument line at Stony Man weir No. 2.
Mon. T	Mon. S	41°50'			N42½°E	N41°50'E	Backsight.
	U		328°41'	28.1	N30½°W	N31°19'W	S.E. corner of cover on Stony Man weir No. 2.
	V		320°07'	28.2	N39°W	N39°53'W	S.W. corner of cover on Stony Man weir No. 2.
	W		304°31'	30.1	N54½°W	N55°29'W	Point on curve of col- lecting ditch.
	X		294°44'	34.9	N64°W	N65°16'W	Intersection of col- lecting ditches.
	Z		294°01'	38.0	N64 3/4°W	N65°59'W	End of ditch.
	Y		256°12'	38.0	S77½°W	S76°12'W	End of ditch.
Mon. R	Mon. L	175°49'			S 2 3/4°E	S 4°11'E	Backsight.
	Mon. AA		30°25'	174.8	N31 3/4°E	N30°25'E	Monument station 15+89.5.
Mon. AA	Mon. R	210°25'			S32½°W	S30°25'W	Backsight.
	Mon. DD		340°28'	---	N17 3/4°W	N19°32'W	Monument at station 24+82.2.
	Stake BB		338°24'	347.6	N19 3/4°W	N21°36'W	Stake for set up at station 19+37.1.
Stake BB	Mon. AA	158°24'			S20½°E	S21°36'E	Backsight.
	Stake CC		328°52'	229.9	N29½°W	N31°08'W	Stake for setup at station 21+87.
Stake CC	Stake BB	148°52'			S30 3/4°E	S31°08'E	Backsight.
	Mon. DD		351°12'	315.2	N 9½°W	N 8°48'W	Mon. DD at station 24+82.2.
Mon. DD	Stake CC	171°12'			S 6½°E	S 8°48'E	Backsight.
	Stake EE		356°41'	330.8	N ½°W	N 3°19'W	Stake for set up at station 28+13.
	FF		356°41'	586.6	N ½°W	N 3°19'W	Monument at station 30+68.8.
Stake EE	Mon. DD	176°41'			S 2 3/4°E	S 3°19'E	Backsight.
	GG		216°01'	49.4	S39½°W	S38°01'W	S.W. corner concrete reservoir.

HUGHES RIVER GAP WATER SUPPLY PROJECT (Continued)

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Instrument located on	Station	Azimuth		Distance in feet	Bearing		Remarks
		Back	Forward		Magnetic	Calculated	
	HH		229°13'	42.0	S48 3/4°W	S49°13'W	Point measured off on reservoir edge.
	II		222°10'	42.6	S41 1/2°W	S42°10'W	S.E. outer edge of concrete manhole.
	JJ		224°46'	41.0	S43 3/4°W	S44°46'W	N.E. outer edge of concrete manhole.
	KK		322°35'	45.3	N38°W	N37°25'W	1 1/4" drain valve in riser pipe (Reservoir drain).
	LL		326°53'	51.2	N32 1/2°W	N33°07'W	1 1/2" valve on main line
Mon. FF	Mon. DD	176°41'			S 1°E	S 3°19'E	Backsight.
	Mon. MM		336°12'	784.9	N19 1/2°W	N21°48'W	Monument at station 38+53.7.
Mon. MM	Mon. FF	158°12'			S23 1/2°E	S21°48'E	Backsight.
	Mon. NN		12°41'	720.7	N10 3/4°E	N12°41'E	Monument at station 45+74.4.
Mon. NN	Mon. MM	192°41'			S13°W	S12°41'W	Backsight.
	Mon. OO		43°44'	626.6	N43 3/4°E	N43°44'E	Monument at station 52+01.
Mon. OO	Mon. NN	223°44'			S44°W	S43°44'W	Backsight.
	Mon. PP		27°28'	125.6	N28 3/4°E	N27°28'E	Monument at station 53+26.6.
	QQ		152°40'	44.0	S27 1/2°E	S27°20'E	1 1/2" pipe (galvanized wrought iron) turns.
Mon. PP	Mon. OO	207°28'			S28°W	S27°28'W	Backsight.
	Mon. RR		28°06'	113.0	N29°E	N28°06'E	Monument at station 54+39.6.
Mon. RR	Mon. PP	208°06'			S28°W	S28°06'W	Backsight.
	Mon. SS		54°16'	75.2	N54 3/4°E	N54°16'W	Monument at station 55+14.8.
Mon. SS	Mon. RR	234°16'			S55°W	S54°16'W	Backsight.
	TT		314°14'	51.3	N45 1/2°W	N45°46'W	S.E. corner of comfort house.
	UU		342°09'	51.3	N18 1/2°W	N17°51'W	N.E. corner of comfort house.
	VV		44°30'	guess of 500'	N44 3/4°E	N44°30'E	Fountain location for parking overlook.
	WW		78°10'	guess of 110'	N78°E	N78°10'E	Fountain location for parking overlook.

Justification:

The purpose of this job was to supply water by gravity from a spring located about 150 feet higher than the comfort station which it serves. About midway of the line a 10,000-gallon storage reservoir was constructed, thereby insuring a sufficient quantity of water even at low spring flows. Pipe was laid 3-1/2 feet deep because of an excessive quantity of rock and the fact that the comfort station is not used during the winter months, and the line can therefore be drained.

Form No. 10-588
(May 1957)UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
EMERGENCY ACTIVITIESSymbol No. ED-1

JOB APPLICATION AND COMPLETION RECORD

Region One State Virginia Area Shenandoah National Park
 Name of job Water Pipe Line, Form 7 No. 143 Job No. 103
 Location of job Hughes River Parking Overlook Master plan No. 5004-1-1
5004-1-3

BLOCK A—PROPOSED WORK

NUMBER OF PERIODS REQUIRED TO COMPLETE JOB ()	WORK CONTEMPLATED			ESTIMATED COSTS		
	UNIT	NUMBER UNITS	MAN-DAYS	LABOR	MATERIALS	EQUIPMENT
Previously approved						
Original or additional request						
TOTAL						

BLOCK B—LABOR SUMMARY

TYPE OF LABOR	UNSKILLED	INTERMEDIATE	SKILLED	PROFESSIONAL AND TECHNICAL	TOTAL
Number of man-hours					
Cost of labor					

Submitted by Theodore F. Smith Title Acting Superintendent Date NOV 23 1938

BLOCK C—CLEARANCE

PARK AUTHORITY	DATE	PROCUREMENT OFFICER	DATE	INSPECTOR	DATE

BLOCK D—COMPLETION RECORD

WORK ACCOMPLISHED				TOTAL ENCUMBRANCES COMPLETED JOB			
DATE OF COMPLETION	UNIT	NUMBER UNITS	MAN-DAYS	LABOR	MATERIALS	EQUIPMENT	BALANCE
October, 1937	Lin.-ft	6,300	1,300		1,750.00		
						1,750.00	41.00

Approved by J. H. Sadler Title Chief of Regional Division Date 2/9/39 Release date _____
 (JUSTIFICATION ON BACK OF SHEET)

Justification:

In order to supply the Hemlock Spring Parking Overlook with drinking water it was necessary to lay 290 feet of G.W.I. pipe from the Spring to the fountain. This is a gravity supply and is laid in the walk which makes it most accessible for repairs. The spring is about fifteen feet higher than the fountain and is of such size that it supplies the Comfort Station and the Drinking Fountains in the Hughes River Parking Overlook as well as the fountain in Hemlock Spring Parking Overlook.

U. S. GOVERNMENT PRINTING OFFICE: 1962 O-522111

Justification:

The fountain is of stone masonry and is built into the guardwall at Humlek Spring parking area. The water is piped from a spring about two hundred feet distant. The area has proven very popular as the parking area was erected particularly for watering accommodations.

The fountain was built by Camp NP-10 and in accordance with approved plan SHS-1188-A.

Form No. 10-332
(May 1967)UNITED STATES
DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
EMERGENCY ACTIVITIESSymbol No. 15-10

JOB APPLICATION AND COMPLETION RECORD

Region One State Virginia Area Shenandoah National Park
 Name of job Water Fountain Form 7 No. 147 Job No. 99
 Location of job Hemlock Spring Parking Overlook Master plan No. SEE-1185-7 Working plan No. SEE-1185-7

BLOCK A—PROPOSED WORK

NUMBER OF PERIODS REQUIRED TO COMPLETE JOB	WORK CONTEMPLATED			ESTIMATED COSTS			TOTAL
	UNIT	NUMBER UNITS	MAN-DAYS	LABOR	MATERIALS	EQUIPMENT	
Previously approved	No.	1	60	15.00	30.00		45.00
Original or additional request	x x x	1	60	15.00	30.00		45.00
TOTAL							

BLOCK B—LABOR SUMMARY

TYPE OF LABOR	UNSKILLED	INTERMEDIATE	SKILLED	PROFESSIONAL AND TECHNICAL	TOTAL
Number of man-hours					
Cost of labor					

Submitted by Theodore F. SmithTitle Acting Superintendent Date _____

BLOCK C—CLEARANCE

PARK AUTHORITY	DATE	PROCUREMENT OFFICER	DATE	INSPECTOR	DATE

BLOCK D—COMPLETION RECORD

WORK ACCOMPLISHED				TOTAL ENCUMBRANCES COMPLETED JOB		
DATE OF COMPLETION	UNIT	NUMBER UNITS	MAN-DAYS	LABOR	MATERIALS	EQUIPMENT
August, 1968	No.	1	60	15.75	16.50	25.25
						9.75

Approved by _____

Title _____

Date _____

Release date _____

(JUSTIFICATION ON BACK OF SHEET)

U. S. GOVERNMENT PRINTING OFFICE 9-5821

