Form 10-300
(July 1969)

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

NATIONAL REGISTER OF HISTORIC PLACES INVENTORY – NOMINATION FORM

(Type all entries – complete applicable sections)

STATE: District of Columbia
COUNTY:
FOR NPS USE ONLY
ENTRY NUMBER | DATE

SEE INSTRUCTIONS

1. NAME

COMMON: Washington Aqueduct
AND/OR HISTORIC: Washington Aqueduct

2. LOCATION

STREET AND NUMBER: 5900 MacArthur Boulevard, N.W.
CITY OR TOWN: Washington
STATE: District of Columbia | CODE | COUNTY: | CODE

3. CLASSIFICATION

CATEGORY (Check One)	OWNERSHIP		STATUS	ACCESSIBLE TO THE PUBLIC
☐ District ☐ Building ☐ Site ☒ Structure ☐ Object	☒ Public ☐ Private ☐ Both	Public Acquisition: ☐ In Process ☐ Being Considered	☒ Occupied ☐ Unoccupied ☐ Preservation work in progress	Yes: XX Restricted ☐ Unrestricted ☐ No

PRESENT USE (Check One or More as Appropriate)

☐ Agricultural	☐ Government	☐ Park	☐ Transportation	☐ Comments
☐ Commercial	☐ Industrial	☐ Private Residence	☒ Other (Specify)	
☐ Educational	XX Military	☐ Religious	Water system for general population	
☐ Entertainment	☐ Museum	☐ Scientific		

4. OWNER OF PROPERTY

OWNER'S NAME: U.S. Army Corps of Engineers
STREET AND NUMBER: 5900 MacArthur Boulevard
CITY OR TOWN: Washington | STATE: District of Columbia | CODE

5. LOCATION OF LEGAL DESCRIPTION

COURTHOUSE, REGISTRY OF DEEDS, ETC: Montgomery County Courthouse and District of Columbia Courthouse
STREET AND NUMBER:
CITY OR TOWN: District of Columbia Rockville | STATE: -- Maryland | CODE

6. REPRESENTATION IN EXISTING SURVEYS

TITLE OF SURVEY: Historic American Engineering Record
DATE OF SURVEY: 1972-1973 XX ☐ Federal ☐ State ☐ County ☐ Local
DEPOSITORY FOR SURVEY RECORDS: National Park Service
STREET AND NUMBER: 1100 L Street, N.W.
CITY OR TOWN: Washington, | STATE: District of Columbia | CODE

STATE | COUNTY | FOR NPS USE ONLY: ENTRY NUMBER | DATE

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7 DESCRIPTION

CONDITION	(Check One)					
	☐ Excellent	XX Good	☐ Fair	☐ Deteriorated	☐ Ruins	☐ Unexposed
	(Check One)		(Check One)			
	XX Altered	☐ Unaltered	☐ Moved	☒ Original Site		

DESCRIBE THE PRESENT AND ORIGINAL (If known) PHYSICAL APPEARANCE

The Washington Aqueduct, built principally between the years 1853-1863 to supply the water needs of the District's citizens, is still intact today, still the main source of water, and is in overall good condition.

Montgomery Meigs, chief engineer for the Aqueduct during most of its construction, borrowed ideas from other aqueducts in the country but considered the Washington system to be designed more nearly upon that of the Cochituate Aqueduct in Boston.

Beginning at Great Falls, Maryland near Lock 20 on the C&O canal, the Aqueduct stretches for 12 miles downriver to the Georgetown Reservoir. Since the 19th century the Aqueduct has been lengthened and expanded to provide for the increased needs of a growing population. Though the Aqueduct has changed somewhat in outward appearance it still includes the following features: a dam across the Potomac at Great Falls to divert water to the Maryland side, intake works on the shore including the original sandstone control gate house, tunnels totaling 5,392 feet in length, six bridges, numerous brick air vents, pump stations and reservoirs at Dalecarlia and Georgetown, and of course the conduit itself.

The dam on the river was originally built only about halfway across but increased demand for water resulted in its completion to the Virginia side. Built of cut stone the dam was anchored to the river floor, not to block the flow but to divert it.

The intake works are covered by a modern concrete observation deck keeping them from view.

The original sandstone control gatehouse is still in use and looks much the same as it did a century ago. Inside is a system of 20 small cast iron slide gates 2' wide by 4' high in two sets of 10 each, operated by iron stems 30' long with threaded hand wrenches.

A cut and cover header lies beneath the C&O canal bed.

The conduit itself was the largest item of construction. Almost 12 miles in length, the circular tube is 9' in diameter and is built of brick, stone, and mortar. The work on the conduit was done so well that the Corps of Engineers considers the old conduit in better condition than a parallel one built of concrete in the 1920's. A road was constructed parallel to the conduit to facilitate repairs and inspections. This road today is known as MacArthur Boulevard, named for the famous general. Its path lies above much of the original conduit, which first enters beneath the roadway near Anglers Inn in Montgomery County. However the conduit doesn't follow the exact route of the roadbed into the District since in various locations it was found advantageous to blast tunnels through the hillsides rather

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8. SIGNIFICANCE

PERIOD *(Check One or More as Appropriate)*

☐ Pre-Columbian	☐ 16th Century	☐ 18th Century	☐ 20th Century
☐ 15th Century	☐ 17th Century	☒ 19th Century	

SPECIFIC DATE(S) *(If Applicable and Known)*

AREAS OF SIGNIFICANCE *(Check One or More as Appropriate)*

Aboriginal	☐ Education	☐ Political	☐ Urban Planning
☐ Prehistoric	☐ Engineering	☐ Religion/Philosophy	☐ Other *(Specify)*
☐ Historic	☐ Industry	☐ Science	
☐ Agriculture	☐ Invention	☐ Sculpture	
☐ Architecture	☐ Landscape Architecture	☐ Social/Humanitarian	
☐ Art	☐ Literature	☐ Theater	
☐ Commerce	☒ Military	☒ Transportation	
☐ Communications	☐ Music		
☐ Conservation			

STATEMENT OF SIGNIFICANCE

The Washington Aqueduct, the District of Columbia's first water system, epitomizes the entry of the Army Corps of Engineers into the field of public works and consequently into direct involvement in major economic influences. From 1824 with the passage of the Rivers and Harbors Act until the Civil War, the Army Corps developed a special relationship with Congress based on its profound involvement in civil works. The Washington Aqueduct is a superlative illustration of the military influence on the civil sector of ante-bellum America.

The Aqueduct is a monument of engineering to its designer and developer, Montgomery Cunningham Meigs, future quartermaster general of the Army. From 1836 until the Civil War, Meigs was involved in engineering fortifications from Philadelphia to Fort Wayne, the Delaware Breakwater, and, ultimately, the dome and the wings of the Capitol. In the Aqueduct, which he counted his favorite project, he left such engineering superlatives as a 12-mile underground masonry conduit utilized to this day; the old Cabin John Bridge, which remained the longest masonry arch in the world until 1903; and the Rock Creek Bridge whose arched cast iron conduit supported the structure!

History

When L'Enfant drew up his original plan for the nation's Capital only Rock Creek was mentioned as a source of a future water supply for the city. The burning of the Capitol by British forces during the War of 1812, a later fire in the Capitol in December 1851 which destroyed many valuable manuscripts, and an ever-increasing population within the boundary of the District of Columbia eventually forced the Congress into the realization that Washington required more than the present wells and springs for its source of water. In 1852, Lt. Montgomery C. Meigs, United States Army Corps of Engineers, was authorized by Congress to submit a report concerning the water needs of the Capital. Meigs report not only covered the present and future needs of the city's population, but also comparisons of the water supplies of other cities, storage, and the equipment and operating costs required for an aqueduct's operation. Due to the depth and scope of his study it was accepted, and for the next decade work

(continued)

SEE INSTRUCTIONS

9. MAJOR BIBLIOGRAPHICAL REFERENCES

Hutton, William R. "The Washington Aqueduct 1853-1898," The Engineering Record, Vol. 40, No. 9, 1899.

History of the Washington Aqueduct, Washington District Corps of Engineers, 1953.

10. GEOGRAPHICAL DATA

* see continuation sheet

LATITUDE AND LONGITUDE COORDINATES DEFINING A RECTANGLE LOCATING THE PROPERTY									OR	LATITUDE AND LONGITUDE COORDINATES DEFINING THE CENTER POINT OF A PROPERTY OF LESS THAN TEN ACRES					
CORNER	LATITUDE			LONGITUDE						LATITUDE			LONGITUDE		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds				Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
NW	38°	00'	20"	77°	15'	13"				38°	54'	15"	77°	73'	23"
NE	39°	00'	30"	77°	15'	13"									
SE	38°	58'	56"	77°	13'	35"									
SW	38°	58'	47"	77°	13'	50"									

Area #4

Rock Creek Bridge

APPROXIMATE ACREAGE OF NOMINATED PROPERTY: 163 acres

LIST ALL STATES AND COUNTIES FOR PROPERTIES OVERLAPPING STATE OR COUNTY BOUNDARIES

STATE:	CODE	COUNTY	CODE
Maryland		Montgomery	
STATE:	CODE	COUNTY:	CODE
District of Columbia		District of Columbia	
STATE:	CODE	COUNTY:	CODE
STATE:	CODE	COUNTY:	CODE

SEE INSTRUCTIONS

11. FORM PREPARED BY

NAME AND TITLE:
Ben Levy, Senior Historian, and Paul Ghioto, Assistant

ORGANIZATION: Division of History, Office of Archeology and Historic Preservation, National Park Service

DATE: June 27, 1973

STREET AND NUMBER:
1100 L Street, N.W.

CITY OR TOWN: Washington

STATE: D.C.

CODE:

12. STATE LIAISON OFFICER CERTIFICATION

As the designated State Liaison Officer for the National Historic Preservation Act of 1966 (Public Law 89-665), I hereby nominate this property for inclusion in the National Register and certify that it has been evaluated according to the criteria and procedures set forth by the National Park Service. The recommended level of significance of this nomination is:

National ☐ State ☐ Local ☐

Name _____

Title _____

Date _____

NATIONAL REGISTER VERIFICATION

I hereby certify that this property is included in the National Register.

_____

Chief, Office of Archeology and Historic Preservation

Date _____

ATTEST:

_____

Keeper of The National Register

Date _____

7. Description: (1) Washington Aqueduct

than make deep-rock cuts during the original construction. The most obvious example of this "deviance" is found at Bridge No. 3 where the bridge is not joined by any roadbed but instead lies at the foot of a hill through which a tunnel had been sent. According to Corps engineers the conduit is still in very good condition. Heavy loads on the roadbed above have caused it to "go a little out of round," however this has caused no problems.

Of the original six bridges only three (No. 3, Cabin John, and Rock Creek) remain in view today. Bridges No. 1 and 2 due to earth fills are nothing more than culverts while Bridge No. 5, which used to cross College Pond, has been covered along with the pond, also by earth fills. Only Bridge No. 3 and Cabin John Bridge retain their original appearance. Both constructed of sandstone and granite, Bridge No. 3's arch supports a span of 75-feet while that at Cabin John's supports one at 220-feet. From 1863 to 1903 the latter arch held the world's record for the longest single masonry arch span. Around the bases of both spans today thick underbrush makes access difficult. Rock Creek Bridge, with its two 48-inch diameter arched cast iron pipes not only carrying water for a city but also supporting a span for vehicular traffic, had its superstructure completely removed when a larger concrete bridge was built over it in 1916 to accommodate increased traffic loads.

Along the path of the conduit can be seen three brick air vent structures, weathered, but in good condition.

Today both Dalecarlia and Georgetown reservoirs have little of their outward appearance of the time when first constructed.

A gate house, with battlement parapet, at Georgetown Reservoir, about 70 years old, is remarkable in that it closely resembles the castle emblem of the U.S. Army Corps of Engineers.

The Aqueduct spills into the Dalecarlia Reservoir just as it reaches the District line. Constructed originally by placing an earth dike across the valley of Little Falls Brook the reservoir had a total holding capacity of about 150,000,000 gallons. It was hoped that allowing the murky river water to remain in this reservoir and the Georgetown reservoir two miles away that the material carried in suspension would settle to the bottom before distribution to the city. However such was not completely the case and the water was destined to have a muddy yellowish color until filtration was adopted in 1928 by the addition of a rapid-sand filter plant. Since this time other facilities have been added to Dalecarlia to make it a modern filtration plant.

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(Continuation Sheet)

STATE	
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(Number all entries)

7. Description: (2) Washington Aqueduct

The Georgetown Reservoir which unlike Dalecarlia, had to be excavated and then surrounded by an earth dike, was later paved with rip rap to further sedimentation and preserve the walls. Originally designed as the last point before distribution, its use now is as a sedimentation basin. From here partially-treated water flows to McMillan Reservoir, completed in NE Washington in 1905, where it is filtered and then sent on for public use.

GPO 921-724

would be done which would provide Washington with its first public water system.

In 1853 Congress appropriated the funds necessary for surveys right of way acquisitions, and initial construction. Ground was broken at Great Falls, Maryland in November of the same year for construction of the conduit. Problems which were to either stop completely or delay construction were numerous: little or no Congressional funding; difficulty in obtaining right of way; sickness (especially from malaria); politics; the outbreak of the Civil War; shortage of labor due to the war; and fear of Confederate raids.

The plan of Montgomery Meigs was to divert the waters of the Potomac River, at a point 12 miles upriver from the city of Georgetown, into a brick or stone conduit and with the aid of pumping stations and the force of gravity bring the water to retaining reservoirs where after several days it could then be pumped into the pipelines of the city. Accomplishing this feat required construction of a masonry dam halfway across the river and a control gate house at Great Falls, eleven tunnels with an aggregate length of 5,392 feet, six bridges, pump stations, pipelines, and two reservoirs.

The conduit itself was the largest item to be constructed and runs approximately 12 miles. With an interior diameter of 9 feet it was envisioned by Meigs that it could supply the city's water needs for the next 200 years. However population increases and the use of such things as "fixed" bath tubs resulted in capacity being reached in less than a third of the predicted time.

Building materials included cast iron for the outlet pipes at Georgetown and the conduit over Rock Creek, natural cement, sharp flint sand, concrete, mortar, rubble stone, brick, and sandstone (quarried at Seneca 7 miles upriver from Great Falls). Supplies were paid for directly by the U.S. Government and were brought to the site by wagon or canal boat using the C&O Canal. Rubble from tunnel excavations provided fill for valleys and roadways. The sandstone from Seneca was used in culverts, gate houses, and bridges.

Besides the construction of the conduit which brought water to the city, the most notable achievement of Meigs and his engineers was the construction of 6 bridges to aid in the flow of the stream. Two in particular, Cabin John Bridge and Rock Creek Bridge, enjoyed much critical acclaim at the time. Cabin John, constructed of timber, granite, and sandstone, held the record for the longest masonry arch in the world (220') for 40 years until the Luxemburg Bridge in Europe eclipsed it by its completion in 1903. Rock Creek employed the use of

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8. Significance: (2) Washington Aqueduct

arched cast iron pipes not only to transport water but also as a means of support for the bridge. Its arch of 200-feet is today still one of the longest unsupported metal pipe arches in the world.

The construction of the first reservoir (today known as Dalecarlia) was made by erecting an earthen dike across the valley of Little Falls brook near the District boundary line. The Georgetown reservoir, 2 miles down river, required excavation to 12-feet and construction of a large earthen rectangular dike for storage.

During the period of the Aqueduct's construction and for years afterward numerous personalities were to clash in its history. Captain Montgomery Meigs, the chief engineer for most of the period 1853-1863, met with disfavor from President Buchanan and in September 1860 was transferred by Secretary of War John Floyd to Dry Tortugas Island to superintend the construction of Fort Jefferson. Meigs was later returned as chief engineer in February 1861 upon Lincoln's accession to the presidency. Meigs considered the Aqueduct always as his favorite accomplishment and saw to it that numerous inscriptions were placed on various bridges, hydrants, and pumps heralding his deed and that of his assistants. The name of Jefferson Davis, Secretary of War in 1853 when the Aqueduct was begun, was stricken from a stone inscription on the west end of Cabin John Bridge in 1862 by orders of Secretary of the Interior Caleb Smith, who administered the Aqueduct for 5 years (1862-7). Later, in 1909, President Theodore Roosevelt ordered Davis's name reinstated. Living in retirement in D.C. until his death in 1892, Meigs often would submit reports condemning the proposed modifications of his successors at the Aqueduct and then submit his own plans directly to Congress. This caused quite a furor on several occasions.

Despite the many problems besetting the Nation, on December 5, 1863 the first water flowed into the conduit near Lock 20 on the C&O Canal. Two days later it was let into the reservoirs. After two weeks more the water was shut off in order to "point up the conduit." Reopened again in July 1864, the conduit was placed in service from that date. Drained in 1891 after 27 years of continuous use, the structure showed remarkable watertightness.

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STATE	
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(Number all entries)

10. Geographical Data

Area 3

NW	38° 58' 56"	77° 13' 35"
NE	38° 58' 27"	77° 08' 45"
SE	38° 58' 17"	77° 08' 47"
SW	38° 58' 45"	77° 13' 37"

Area 2

NW	38° 58' 21"	77° 08' 47"
NE	38° 58' 38"	77° 08' 11"
SE	38° 56' 27"	77° 06' 14"
SW	38° 56' 08"	77° 06' 53"

Area 1

NW	38° 54' 26"	77° 05' 34"
NE	38° 56' 08"	77° 06' 47"
SE	38° 56' 16"	77° 06' 29"
SW	38° 54' 33"	77° 05' 17"