McMillan Backwash Discharge to Sewer

Environmental Assessment

Washington Aqueduct, Washington, DC

Prepared by:

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This Environmental Assessment describes a proposed project to alter the Washington Aqueduct's treatment of filter backwash water at the McMillan Water Treatment Plant. The proposed action alternative and the no-action alternative were evaluated in detail to determine their potential impacts. The current practice discharges spent filter backwash water into a cove section of the McMillan Reservoir for settling of solids and recycling through the treatment plant. The proposed action would discharge filter backwash water to the DC Water sewer system for treatment at the Blue Plains Advanced Wastewater Treatment Plant, during dry weather conditions. The proposed action includes the construction of Backwash Equalization Basins, an adjacent Backwash Equalization Pumping Station building, and associated equipment to meet flow rate requirements set by DC Water.

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Executive Summary

Washington Aqueduct (WA), a division of the U.S. Army Corps of Engineers (USACE), Baltimore District, owns and operates the McMillan Water Treatment Plant (WTP) in Washington, D.C., as part of the system to supply potable water to the public in the District of Columbia and northern Virginia. WA is proposing the construction of facilities for alternative treatment of filter backwash water at the McMillan WTP. The proposed action would allow WA to more effectively and safely accomplish its mission of providing high-quality drinking water in sufficient quantities to customers in the service area while meeting all regulatory requirements.

The purpose of the McMillan Backwash Discharge to Sewer Project is to provide WA with a supplementary method for disposing of filter backwash water from the daily cleaning of granular media filters used in the removal of solids from drinking water that does not rely on returning it to the McMillan Reservoir under most operating conditions. Currently, the filter backwash water is discharged into a cove area of the McMillan Reservoir, where solids in the filter backwash water settle out of solution, and the clarified water is returned to the main body of the reservoir and is recycled through the plant. Settled solids trapped in the cove are periodically dredged and disposed of offsite. This project will provide an additional treatment barrier that further reduces the risk that contaminants in the filter backwash water could be returned to the drinking water treatment process by eliminating the recycle of backwash water to the McMillan Reservoir most of the time.

With this project, WA is seeking to discharge most of the filter backwash water to a combined (sanitary and storm) sewer system operated by the District of Columbia Water and Sewer Authority (DC Water) that passes through the McMillan WTP campus. WA has requested and received final approval from DC Water to discharge to the sewer during dry weather conditions, according to limits set by DC Water. During wet weather conditions, the filter backwash water will continue to be recycled through the McMillan Reservoir. The project would reduce the volume of solids discharged to the McMillan Reservoir by approximately 90 percent.

The proposed action would install the 660,000-gallon (total volume) Backwash Equalization Basins (approximately 7,500 square feet), mostly below grade, and a 1,560-square-foot Backwash Equalization Pumping Station building adjacent to the basin to house a flow meter room, a small electrical room, drain pump electrical equipment, and a central area dedicated to drain pump removal and maintenance. The total project construction area would be approximately 14,000 square feet. The project location was selected based upon its proximity to an existing combined sewer manhole, the existing filter building, and the associated filter backwash conveyance pipe to the McMillan Reservoir cove.

A 2017 engineering study (WA, 2017) evaluated four filter backwash treatment alternatives to the proposed action alternative. All four alternatives sited the proposed backwash facilities on the McMillan WTP site to minimize offsite construction and neighborhood impacts and reduce construction cost. The four alternatives were eliminated due to higher capital and operating costs, direct impact to historic resources, or the need for additional or larger buildings that could negatively affect the viewshed of neighboring onsite historic buildings.

Anticipated impacts associated with the alternatives considered are summarized in Table ES-1. The project would affect a modest area of maintained lawn adjacent to the existing filter building that was previously disturbed by construction. The project will require no additional staff and will affect no unique or unusual habitats, threatened or endangered species, wetlands, surface waters, adjacent land uses, or transportation corridors. The project will create no new sources of air pollution or hazardous materials/waste. The project will not require any facility or treatment process modifications at the DC Water's Blue Plains Advanced Wastewater Treatment Plant. The project will require no changes to the National Pollutant Discharge Elimination System permits for either the DC Water plant or the McMillan WTP. The project is expected to have a minor positive impact on socioeconomics from construction.

The primary potential environmental impact of the project is to the visual character of the McMillan Park Reservoir Historic District, of which the entire McMillan WTP is a part. The project has been located so that the views of the site from public areas are limited by topography, vegetation, and other plant buildings. The backwash equalization basins will be almost entirely below ground, thereby minimizing the potential visual impact. The architecture of the new Backwash Equalization Pumping Station building next to the equalization basins has been designed to be compatible with the architecture of historic buildings at the plant.

The National Capital Planning Commission (NCPC) has oversight of the development of federal property within the National Capital Region for consistency with the *Comprehensive Plan for the National Capital*. The NCPC and U.S. Commission of Fine Arts must approve the final design plans prior to construction. WA, serving as lead federal agency under NEPA, is also consulting with the District of Columbia Historic Preservation Office (DC HPO) in accordance with Section 106 of the National Historic Preservation Act. A Section 106 Finding of Effect will be determined after the Notice of Availability is issued on this document, public comments are received and reviewed, and prior to making a final a decision on the project.

The project is expected to have no indirect or cumulative effects.

Table ES-1. Summary of Anticipated Impacts Associated with the Proposed Action and No Action Alternative

Resource	Proposed Action Alternative	No Action Alternative
Land use	No impacts	No impacts
Geology and soils	No impacts	No impacts
Topography and drainage	No impacts	No impacts
Climate	No impacts	No impacts
Air quality	No impacts	No impacts
Surface water	No impacts	No impacts
Floodplains	No impacts	No impacts
Groundwater	No impacts	No impacts
Wild and scenic rivers	No impacts	No impacts
Aquatic resources	No impacts	No impacts
Wetlands	No impacts	No impacts
Vegetation	No impacts	No impacts
Wildlife resources	No impacts	No impacts
Rare, threatened, or endangered species	No impacts	No impacts
Cultural resources	No impacts	No impacts
Contaminated sites	No impacts	No impacts
Hazardous material use, handling, and storage and hazardous substance generation	No impacts	No impacts
Storage tanks	No impacts	No impacts
Toxic contaminants	No impacts	No impacts
Traffic, roadways and transportation system	No impacts	No impacts
Potable water	**Positive impacts**	No impacts
Sanitary sewer/wastewater	**Minor impacts**	No impacts

Table ES-1. Summary of Anticipated Impacts Associated with the Proposed Action and No Action Alternative

Resource	Proposed Action Alternative	No Action Alternative
Stormwater systems	No impacts	No impacts
Solid waste management	No impacts	No impacts
Utilities	No impacts	No impacts
Demographics and environmental justice	No impacts	No impacts
Economics	**Minor positive impacts**	No impacts
Schools, recreational facilities and children's safety	No impacts	No impacts
Noise	No impacts	No impacts
Visual and aesthetic value	**Minor impacts**	No impacts

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Acronyms and Abbreviations

APE	area of potential effects
CFA	U.S. Commission of Fine Arts
CWA	Clean Water Act
DC HPO	District of Columbia Historic Preservation Office
DDOT	District Department of Transportation
DOEE	District Department of Energy and Environment
EO	Executive Order
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
IPaC	Information, Planning and Consultation System
NAAQS	National Ambient Air Quality Standards
NCPC	National Capital Planning Commission
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
WA	Washington Aqueduct
WTP	water treatment plant
WWTP	wastewater treatment plant

1. Purpose and Need

1.1 Introduction

Washington Aqueduct (WA), a division of the U.S. Army Corps of Engineers (USACE), Baltimore District, owns and operates the Dalecarlia and McMillan Water Treatment Plants (WTPs) in Washington, D.C. to provide potable water to over one million persons in the District of Columbia and northern Virginia. The treatment process removes solid particles and other constituents from the Potomac River supply water, treats and disinfects the water, and pumps the finished water to the metropolitan service area.

The National Capital Planning Commission (NCPC) is an independent agency with oversight responsibility of the development of federal property within the National Capital Region for consistency with the *Comprehensive Plan for the National Capital* (NCPC, 2018). NCPC prepares and adopts the federal elements of the comprehensive plan addressing the federal development and facilities in Washington, D.C., and the National Capital Region (NCPC, 2016). NCPC uses the federal elements as the criteria by which it evaluates and approves specific federal development plans and projects on federally owned land in Washington, D.C., to include buildings, uses, structures, and signage.

As a federal agency, NCPC must comply with the procedural requirements of National Environmental Policy Act (NEPA) when NCPC exercises approval authority.

The U.S. Commission of Fine Arts (CFA) reviews design proposals for public and private properties in the National Capital. Design review refers to the review of the aesthetic character of new or renovated construction or other public artistic endeavors (CFA, 2018). The CFA considers whether a proposed design is in keeping with such criteria as aesthetic merit, compatibility with and protection of historic structures and landscapes, best professional practices, and the advancement of the design of the capital city or other national symbols.

1.2 Purpose and Need of the Proposed Action

The purpose of the McMillan Backwash to Sewer Project is to provide WA with a supplementary method for disposing of backwash water from the daily cleaning of filters used in treatment of drinking water. The proposed action would allow WA to more effectively and safely accomplish its mission of providing high-quality drinking water in sufficient quantities to customers in the service area while meeting all regulatory requirements.

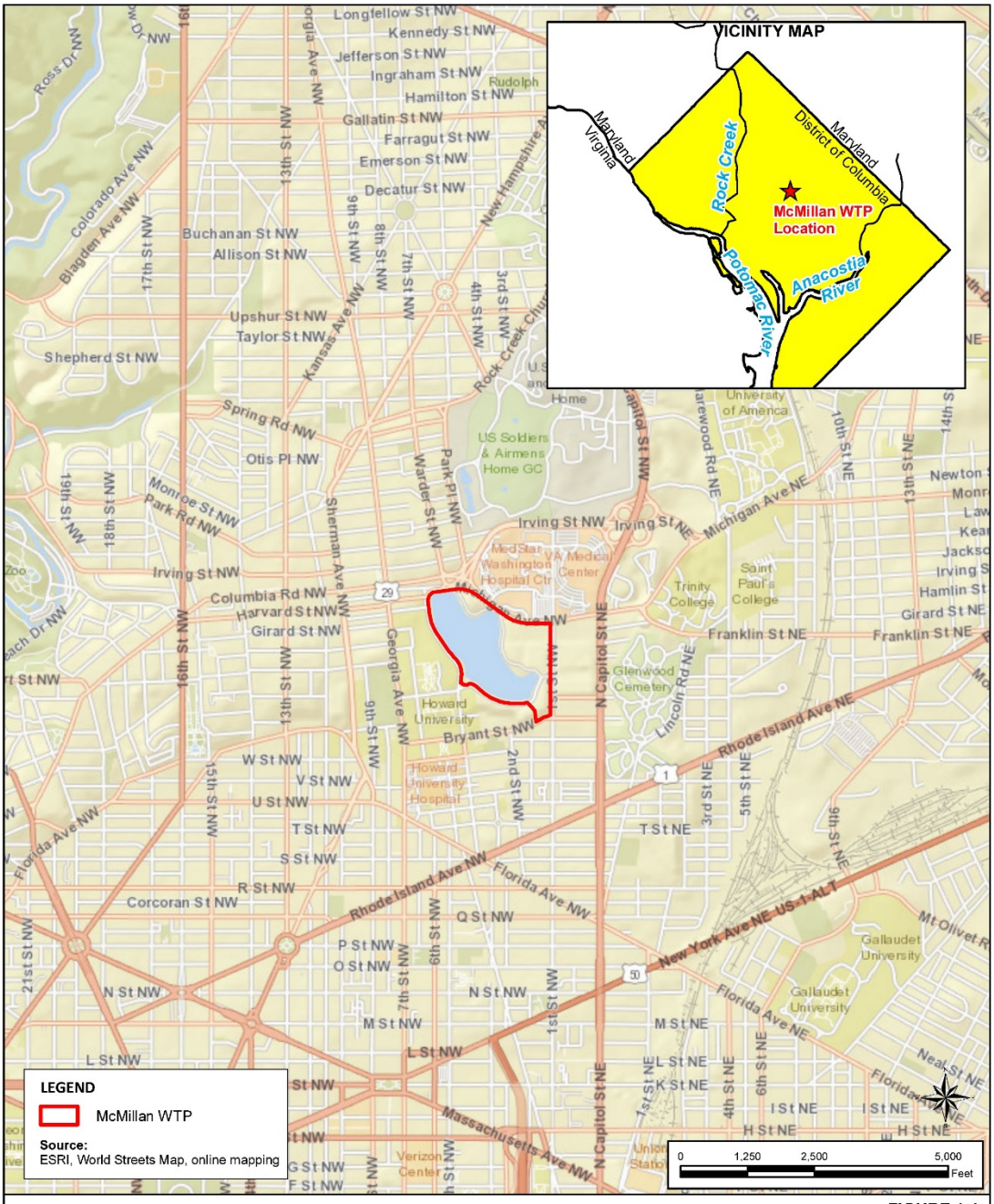

FIGURE 1-1
Project Location Map
McMillan Water Treatment Plant
Washington District of Columbia

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1.3 Project Overview

The Dalecarlia and McMillan WTPs employ conventional treatment processes consisting of coagulation, flocculation, sedimentation, filtration, and disinfection to treat raw surface water drawn from the Potomac River. For the McMillan WTP, the coagulation, flocculation, and sedimentation treatment steps occur remotely, at the Georgetown Reservoir site, located approximately 4 miles southwest of the McMillan WTP. Following settling, the partially treated water flows by gravity from the Georgetown Reservoir to the McMillan Reservoir, located on the McMillan WTP site. Here the water is pumped through filters to remove any remaining particles, disinfected, and supplied to the customers.

The McMillan WTP uses granular media filters to remove particles remaining in solution following settling. Settled water pumped from the McMillan Reservoir flows by gravity through the granular filter media to remove suspended solids. Periodically, the filters are taken offline one at a time and backwashed at a high rate with clean water to remove the accumulated solids. This process cleans the media and restores its particle capturing capability. The backwash water containing the concentrated solids removed from the filter media is known as spent filter backwash water.

The Filter Backwash Recycling Rule of the 1996 Safe Drinking Water Act requires that spent filter backwash water be returned to the head of the treatment process or discharged to an alternative location approved by the treatment plant's primacy agency, in this case, U.S. Environmental Protection Agency (EPA) Region 3. At the McMillan WTP, filter backwash water has historically been recycled to the adjacent McMillan Reservoir, which is downstream of the coagulation, flocculation, and sedimentation facilities located at the remote Georgetown Reservoir site. Filter backwash water is discharged into a cove area of the McMillan Reservoir, which is separated from the main body of the reservoir by a silt curtain. The alternate discharge location utilized at the McMillan WTP has been previously approved by EPA Region 3.

Solids in the filter backwash water settle out of solution and deposit in the cove area before the clarified backwash water returns to the main body of the reservoir. WA must periodically dredge the accumulated solids from the cove to maintain adequate backwash water treatment capacity.

As an alternative to recycling filter backwash water to the McMillan Reservoir Cove, WA is seeking to discharge most of the filter backwash water to a combined (sanitary and storm) sewer system operated by DC Water that passes through the McMillan WTP campus. This alternative discharge point would permit Washington Aqueduct to eliminate the recycle of filter backwash water to the McMillan Reservoir under most operating conditions by providing an alternate discharge location – the DC Water sewer system. Filter backwash water would only be returned to the McMillan Reservoir during wet periods, when sewer discharge is prohibited. WA has requested and received final approval from DC Water to do so. The final approval limits the rate of discharge of filter backwash water to the sewer to 10 million gallons per day during dry weather conditions and prohibits filter backwash water discharge to the sewer during wet weather conditions. The final approval also requires that a pre-treatment permit be obtained from DC Water for monitoring the quantity and quality of filter backwash water discharges. The monitoring data would be used to establish time periods during which filter backwash water discharges to the sewer would be allowed or prohibited.

The project will improve the McMillan filter backwash water handling facilities by:

- Disposing of most of the filter backwash water directly to the sewer system within the limits set by DC Water when the sewer system can receive the discharge. Reducing the volume of solids discharged to the cove will improve McMillan WTP filter performance and finished water quality by reducing the risk that solids or other contaminants present in the filter backwash water could be recycled from the McMillan Reservoir cove back to the treatment plant.
- Continuing to recycle filter backwash water to the McMillan Reservoir cove area when sewer discharge is not permitted. The project will add new backwash equalization basins to the treatment system. The new basins will allow a portion of the filter backwash solids to settle in the basins, for later discharge to the sewer when it is allowed, prior to discharging the remaining flow to the McMillan Cove. The new basins will also allow the peak discharge rate to the cove to be reduced and improve

solids removal in the cove. During periods when sewer discharge is permitted, the new basins will provide temporary storage of a portion of the backwash flow to maintain the peak discharge rate to the sewer in conformance with DC Water requirements.

2. Proposed Action and Alternatives

2.1 No Action Alternative

The no action alternative would include no improvements to the McMillan WTP. All filter backwash water would continue to discharge to the McMillan Reservoir cove. The cove would be periodically dredged, and the dredged material would be disposed offsite.

2.2 Proposed Action Alternative

The proposed action would install Backwash Equalization Basins, and Backwash Equalization Pumping Station at the McMillan WTP. The new backwash equalization basins would receive and temporarily store filter backwash water prior to discharging to either the DC Water combined sewer system or the McMillan Reservoir cove area. The peak backwash flow rates required to clean the granular filter media at the McMillan WTP exceed the maximum allowable sewer discharge rate of 10 million gallons per day permitted by DC Water. Temporary storage of some of the filter backwash water is required to "equalize" or reduce the peak backwash discharge rate to comply with these DC Water discharge requirements.

The total project construction area would be approximately 14,000 square feet. The proposed backwash equalization facilities would include the following major features:

- The 660,000-gallon backwash equalization basins (approximately 7,500 square feet), comprising two 330,000-gallon cells, would be constructed mostly below grade on maintained lawn immediately south of the existing McMillan filter building. Backwash water entering the proposed basin will be allowed to flow by gravity into either or both cells or bypass the basins and flow directly to the DC Water combined sewer. The proposed basins include automated gravity flow control, metering, and shut-off provisions for discharge to the sewer. The basins would also include drain pumps capable of discharging the contents back to the McMillan Reservoir cove area when sewer discharge is prohibited. An integral basin-flushing system would automatically remove any solids remaining on the basin floor after the cells are drained. Regular basin flushing would limit the amount of time that solids are stored in the basins and any associated risk of odor generation. Provisions for the periodic addition of sodium hypochlorite to flow entering the equalization basins would provide additional protection against odor formation. The operation of the backwash equalization basins would be automated and connected to the plant's computer control system and DC Water's control system to ensure compatibility with McMillan filter system operation and compliance with DC Water discharge flow restrictions.
- The Backwash Equalization Pumping Station building would be constructed on the top of the southern end of the equalization basins to house a stair tower to access the below grade flowmeter room, a small electrical room for the drain pump electrical equipment, and a central area dedicated to drain pump removal and maintenance. The total square footage of the proposed building would be approximately 1,560 square feet.

The equalization basins' location was selected based upon its proximity to an existing combined sewer manhole, the existing filter building, and the associated filter backwash conveyance pipe to the McMillan Reservoir cove. The project area was previously occupied by multiple slow sand filters, constructed in the early 1900's, to treat drinking water until they were replaced in the mid-1980's with the modern filter building in service today. A portion of the bottom slab of the old slow sand filters remains buried under the proposed backwash equalization basin site. The elevation of an existing below grade channel in the Filter Building controls the backwash equalization basin depth. To match the required elevation, construction of the new basin would remove a section of the buried slab and the earth below it. The bottom of excavation would vary along the length of the backwash basin, from 3 feet to 11 feet below the bottom of the old slow sand filter bottom slab. The anticipated bottom elevation at the northern (shallow) end of the proposed backwash basin would be approximately 148.0, and at the southern (deep) end would be approximately 140.0.

Project plans are included in Appendix 1.

2.3 Alternatives Eliminated from Consideration

A 2017 engineering study (WA, 2017) evaluated five filter backwash equalization and treatment alternatives, including the proposed action alternative. All five alternatives sited the proposed backwash facilities on the McMillan WTP site to minimize offsite construction and neighborhood impacts and reduce construction cost. The need to integrate the new backwash facilities into existing McMillan WTP operations and maintain backwash discharge to the McMillan Reservoir cove area during rainy periods also made it impractical to construct the new backwash facilities on another site.

The four alternatives eliminated from further consideration were the following:

2.3.1 Eliminated Alternative No. 1

Alternative 1 would construct a new backwash equalization basin immediately south of the existing filter building with provisions for discharge to the DC Water sewer system or to the McMillan Reservoir cove area, as for the proposed alternative. This alternative is very similar to the proposed alternative except the volume of the backwash equalization basin would be larger and the capital cost would be approximately $2.8 million more. It was eliminated from consideration when it was determined that the smaller basin of the proposed alternative was sufficient.

2.3.2 Eliminated Alternative No. 2

Alternative 2 would construct a new backwash equalization basin in the footprint of abandoned Slow Sand Filter No. 6. This intact historical resource would be demolished to facilitate this construction. Complex drain piping modifications would also be required to implement this alternative. The resulting structure would be visible from Michigan Avenue and Children's Hospital located north of the McMillan site, affecting the visual setting of adjacent onsite historic buildings. The capital cost of this alternative would be approximately $13.4 million more than the proposed alternative. The need for increased pumping would also increase the operating cost of this alternative. For these reasons, this alternative was eliminated from further consideration.

2.3.3 Eliminated Alternative No. 3

Alternative 3 would construct a new backwash equalization basin, immediately south of the existing Filter Building as for the proposed alternative. The filter backwash water would be discharged to a new treatment facility, including a plate settler particle-removal system and ultraviolet disinfection reactors, before being recycled to the McMillan Reservoir cove area. Settled solids removed from the new treatment system would be discharged to the DC Water sewer system. This alternative would reduce the risk of recycling backwash water to the McMillan Reservoir by greatly reducing the volume of solids discharged to the cove area and providing the additional solids removal and disinfection treatment of the backwash water. However, the need for a larger backwash equalization basin and a new pumping station building to house recycle treatment facilities would increase the visual impact of this alternative on the viewshed of the adjacent historic buildings. The capital cost of this alternative is approximately $9.8 million more than the proposed alternative. For these reasons, this alternative was eliminated from further consideration.

2.3.4 Eliminated Alternative No. 4

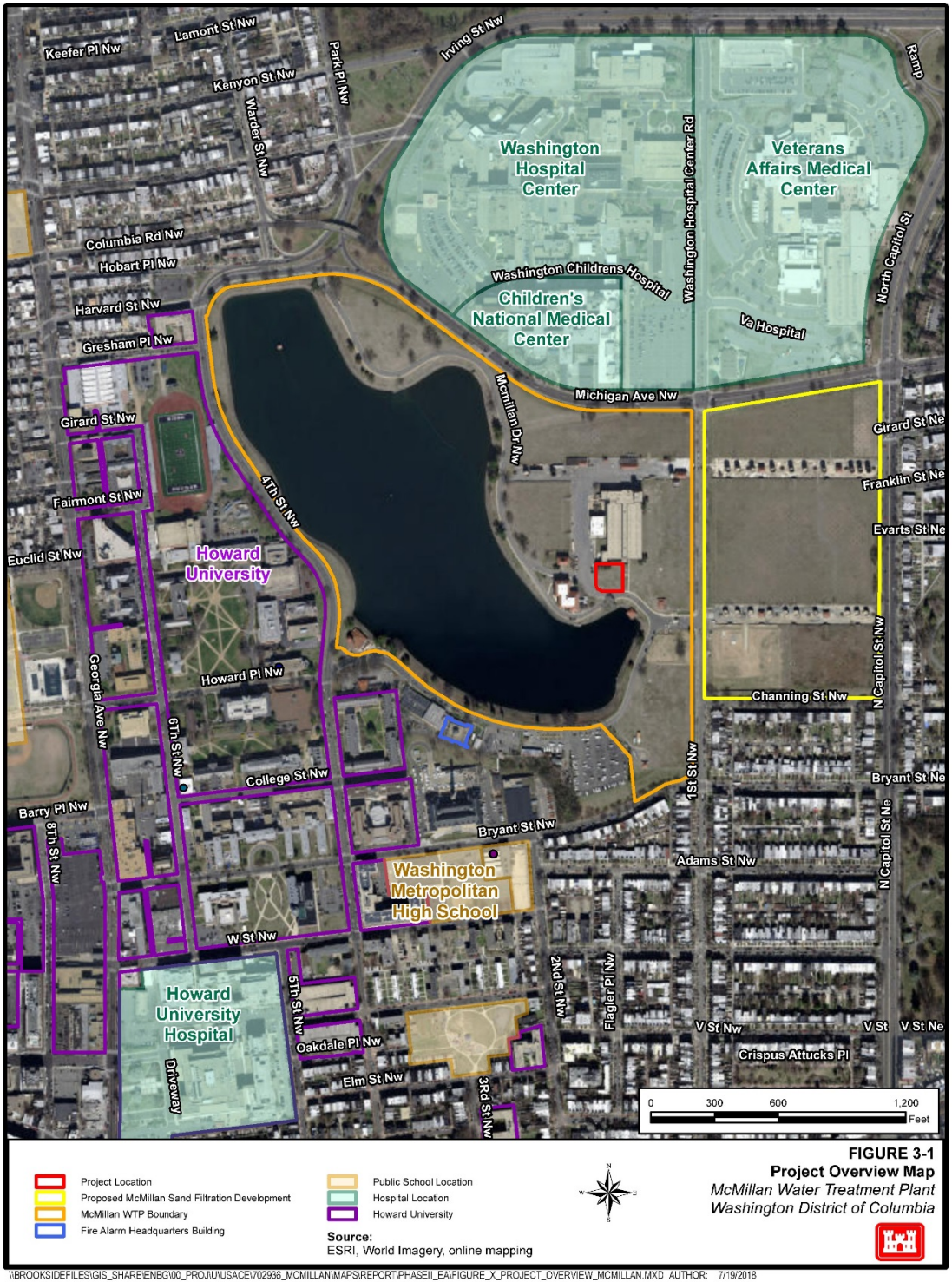
Alternative 4 would construct a new backwash equalization basin, immediately south of the existing filter building as for the proposed alternative. The filter backwash water would be discharged to a new ultraviolet disinfection treatment facility before being recycled to the McMillan Reservoir cove area. Backwash solids would continue to be discharged to the cove area and require periodic removal via dredging and offsite disposal. This alternative would reduce the risk of recycling backwash water to the cove by providing additional disinfection treatment. However, the need for a larger backwash equalization basin and additional recycle treatment facilities would increase the visual impact of this alternative on the viewshed of the adjacent historical buildings. The capital cost of this alternative is approximately $4.6

million more than the proposed alternative. For these reasons, this alternative was eliminated from further consideration.

3. Affected Environment

3.1 Land Use

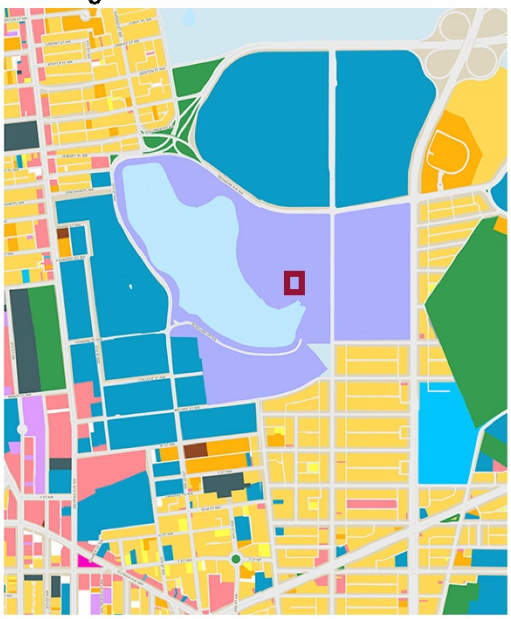
The McMillan WTP is bordered by a portion of the original sand filtration plant (now vacant) to the east, hospitals to the north, and Howard University to the west (Figure 3-1). Northwest and southeast of the WTP are largely low- to medium-density residential and commercial land uses. The nearest residential land use to the proposed project site is approximately 800 feet southeast, on Channing Street NW. Small areas of open space (triangle parks) occur north of the plant along Michigan Avenue NW around the intersections of Hobart Place NW and Fifth Street NW, and between Park Place NW and Warder Street NW.



The DC comprehensive plan (District of Columbia Office of Planning, 2011) identifies the current land use of the existing McMillan WTP in the category of Transport, Communication, Utilities (Figure 3-2). The former filtration plant property east of First Street NW is also in this category. Land uses north of Michigan Avenue (hospitals) and west of Fifth Street NW (mainly Howard University) are Institutional.

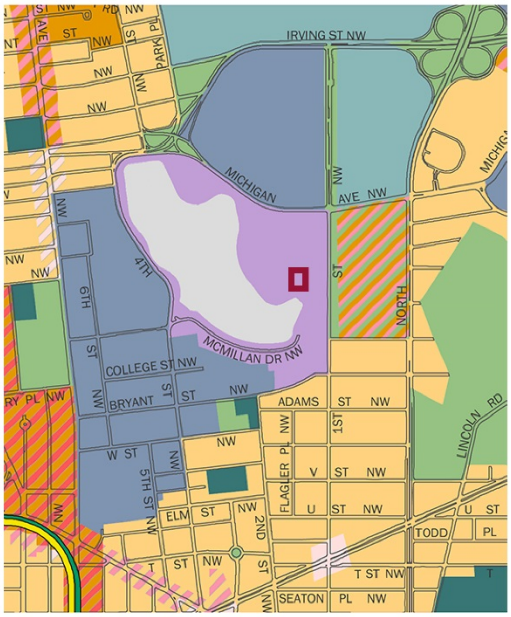
The future land use plan (District of Columbia Office of Planning, 2013) shows most of the current land uses surrounding the project site will remain (Figure 3-2). The main exception is the vacant 25-acre property east of First Street NW that was formerly part of the filtration plant but is now owned by the City. This property is currently under review for redevelopment as a mixed-use development by private investors (Figure 3-3). Current plans call for townhouses, apartments, healthcare facilities, public park, community center, and a grocery store (Vision McMillan Partners, 2018).

Existing Land Use



- Low Density Residential
- Low-Medium Density Residential
- Medium Density Residential
- High Density Residential
- Commercial
- Transport, Communication, Utilities
- Industrial
- Mixed Use
- Institutional
- Federal Public
- Local Public
- Public, Quasi-Public, Institutional
- Parks and Open Spaces
- Parking
- Roads; Alleys; Median
- Transportation Right of Way
- UnDetermined
- Water
- Vacant

Future Land Use



- Low Density Residential
- Moderate Density Residential
- Medium Density Residential
- High Density Residential
- Low Density Commercial
- Moderate Density Commercial
- Medium Density Commercial
- High Density Commercial
- Production, Distribution, and Repair
- Federal
- Local Public Facilities
- Institutional
- Parks, Recreation, and Open Space
- Mixed Lane Use
- Water

Source:
District of Columbia Office of Planning, 2011

LEGEND
Project Location

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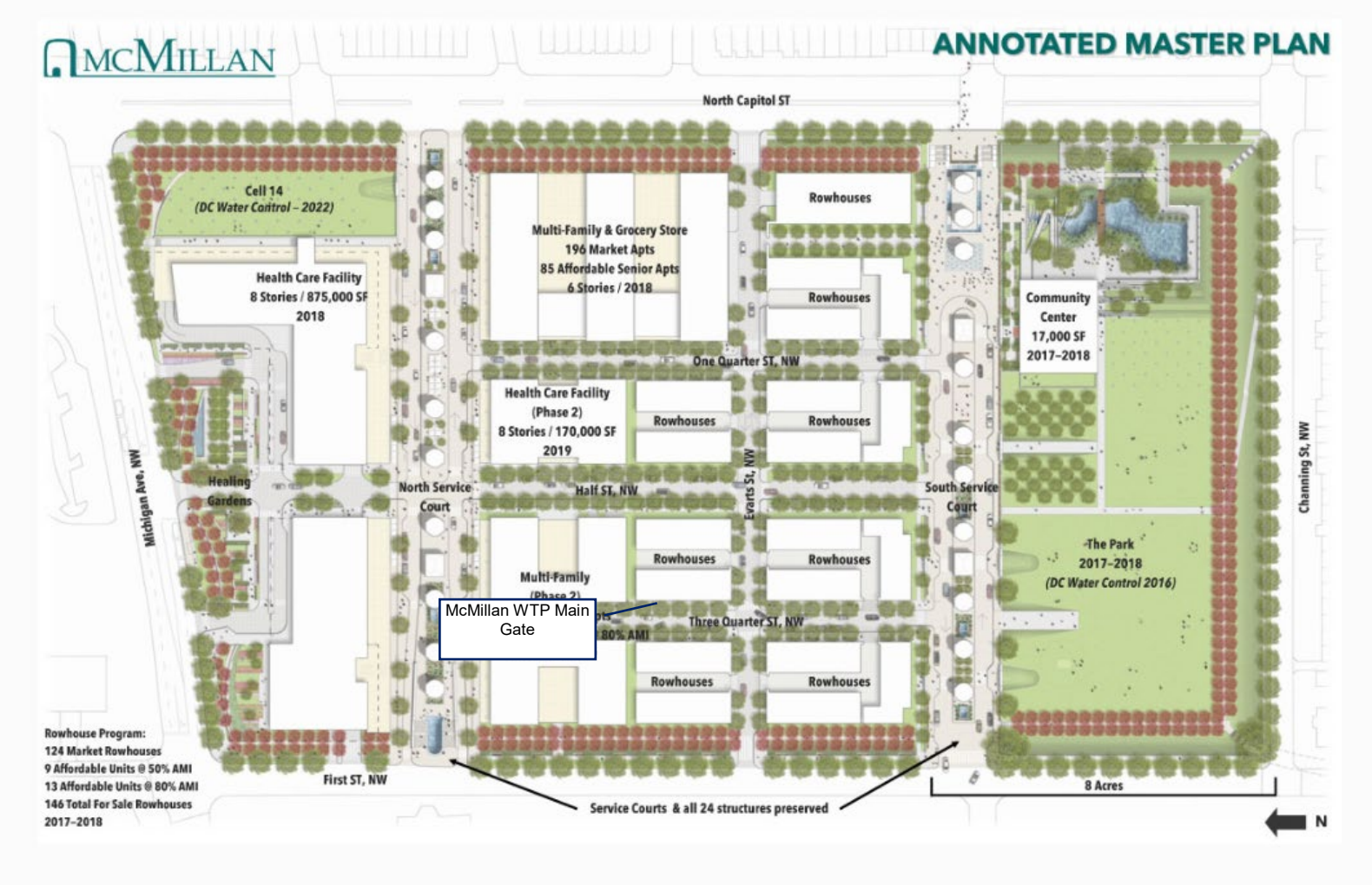
FIGURE 3-2
Current and Future Land Use around the McMillan WTP
McMillan Water Treatment Plant
Washington District of Columbia



Source: Vision McMillan Partners, 2018.

FIGURE 3-3
Proposed Development Plan for the McMillan Sand Filtration Site
McMillan Water Treatment Plant
Washington District of Columbia

3.2 Soils, Geology, and Topography

The overall McMillan WTP site is fairly level; elevations range on the property between 150 and 180 feet above mean sea level. The topography of the proposed project site slopes to the south and southwest toward the McMillan Reservoir, from an elevation of 170 feet in the northeast corner to 162 feet at McMillan Drive NW.

The geology and groundwater report for Washington, D.C., identifies the project site within the Patuxent Formation (Kpx), which is composed of large round pebbles, fine sand, and thin lenses of clay and kaolin over sedimentary rocks (Johnston, 1964). In the McMillan WTP area, the overburden is some 100–150 feet thick and composed of soil, disturbed ground and artificial fill, alluvial and terrace deposits, colluvium, and upland gravel; Coastal Plain sediments of gravel, sand, silt, and clay; and saprolite, a soft, weathered metamorphic rock (U.S. Department of Agriculture, 1976).

Urban development has left few, if any, natural geological features in and around the project site. The original topography was altered to construct the original sand filter system and the existing filter building. Underground utilities, building foundations and basements, and roadways have modified the natural soils and underlying geological formations.

The native soils have been substantially altered. The soils within the project site consist of Udorthents (U.S. Department of Agriculture, 2018). This mapping unit consists of areas that have been cut or filled during grading for land development, recreation areas, and similar uses (U.S. Department of Agriculture, 1976). The area contains no soils used or suitable for farming. Recent geotechnical borings at the project site confirm that the top 10 to 15 feet of earth at the site is fill material (Jacobs, 2018a).

The site of the proposed backwash equalization basins and pumping station building contains disturbed soils associated with the original sand filter system, the mid-1980's construction of the filter building, as well as more recent grading activities. Additionally, engineering data indicate that current subsurface conditions consist of fill placed on top of a concrete slab, which was left in place during construction of the filter building. This concrete slab was, in turn, constructed on fill placed during the previous construction at the McMillan Reservoir property.

3.3 Climate

The average annual precipitation for the Washington, D.C., area is 39.7 inches, and the average temperatures for the spring, summer, autumn and winter are 56°F, 77°F, 60°F, and 38°F, respectively (National Weather Service, 2018). The area experiences thunderstorms approximately 30 days per year. The annual average relative humidity is 53 percent during mid-afternoon and 74 percent at sunrise. The average wind speed is 9.4 miles per hour prevailing from the south (USACE, 2007a).

3.4 Air Quality

EPA's National Ambient Air Quality Standards (NAAQS), established pursuant to the federal Clean Air Act of 1970, set limits on concentration levels of the criteria pollutants in the air: carbon monoxide, particulate matter less than or equal to 10 microns (PM_{10}), particulate matter less than or equal to 2.5 microns ($PM_{2.5}$), ozone, volatile organic compounds, oxides of nitrogen (NO_X), sulfur dioxide (SO_2), and lead. EPA designates a region or county based on whether the area is in compliance with the NAAQS. A region that is meeting the air quality standard for a given pollutant is designated as being in "attainment" for that pollutant. If the region is not meeting the air quality standard, then it is designated as being in "nonattainment" for that pollutant. Areas that were previously designated as nonattainment areas but have recently met the standard are designated as "maintenance" areas.

The study area is within the Washington, D.C.–Maryland–Virginia region, which is designated in attainment for all criteria pollutants except for the 8-hour ozone standards (EPA, 2018a).

McMillan WTP is not classified as a major source of air pollution under the Clean Air Act. The plant does have air quality permits for boilers and emergency power generators. Air quality analysis of operations at the WA treatment plants shows the emissions from the plants are well below the threshold levels for affecting the regional or local air quality (USACE, 2007b).

3.5 Surface Waters and Wetlands

The protection of wetlands and water quality is mandated in federal and District regulations. The following list of pertinent regulations is not all-inclusive, but represents the primary regulations applicable to projects in the District:

- The Clean Water Act (CWA) is the primary federal law that protects surface waters and water quality.
  - Section 404 of the CWA regulates discharges of fill materials into waters of the United States, including streams, rivers, and wetlands.
  - Section 401 of the CWA provides states (in this case, the District Department of Energy and Environment [DOEE]) the right to review the aquatic resource impacts of federally issued permits and licenses and certify that the action is consistent with state water quality rules and regulations. Under Section 401, a federal agency cannot issue a permit or license for the activity until the state has granted or waived Section 401 certification.
  - Section 402 of the CWA establishes the National Pollutant Discharge Elimination System (NPDES) that regulates discharge from point sources into waterways.
- Executive Order (EO) 11990, Protection of Wetlands.
- District Water Pollution Control Act.

The biological site evaluation found no surface waters or wetlands within the project site (Appendix 2). The proposed project site consists of a sloped mown lawn that has been disturbed by several previous projects over the years.

Surface water at the McMillan WTP is limited to the McMillan Reservoir. As part of the public water treatment system, the McMillan Reservoir is not regulated under Sections 404 and 401.

3.6 Water Quality

Most of the water in the reservoir is partially treated water from the Dalecarlia and Georgetown Reservoirs. All outflow is through the public drinking water system. There is no direct discharge from the reservoir or the McMillan WTP to other surface waters.

The reservoir is located over the site of a groundwater spring that was once used as a public water supply. Some groundwater likely continues to seep into the reservoir. This water mixes with the much greater volume of treated water from the Georgetown Reservoir that is discharged into the reservoir and subsequently filtered and disinfected before it is distributed into the public water supply.

The stormwater runoff from the McMillan WTP property primarily drains to the District of Columbia combined sanitary/storm sewer system. A small portion of the site immediately surrounding. the McMillan Reservoir drains to the reservoir.

3.7 Floodplains

Federal and District agencies share responsibilities for activities along streams or within floodplains. The Federal Emergency Management Agency (FEMA) has primary responsibility for the protection of floodplains in accordance with EO 11988, “Floodplain Management.” Generally, FEMA regulates projects within the limits of the 100-year floodplain, as identified in the Flood Insurance Study.

Impacts to floodplains are also regulated under the District Flood Hazard Rule. The District Department of the Environment Watershed Protection Division, Sediment and Storm Water Technical Services Branch, has primary responsibility for technical review of impacts to the floodplain.

According to the FEMA (2010) Flood Insurance Rate Maps, the project site is neither within nor near any floodplains.

3.8 Groundwater

Groundwater in the District is used for industrial purposes. It is not used as a potable water source. The entire metropolitan area is served by the WA public water supply system.

The Patuxent Formation underlying the project site is one of the most productive water-bearing formations in Washington, D.C. (Johnston, 1964). Historically, groundwater seeps beneath the current McMillan Reservoir were used as a public water supply. Depending on conditions, some groundwater may continue to discharge into the McMillan Reservoir (D.C. Water Resources Research Center, 1993). Reservoir water could also seep into the groundwater.

Groundwater has been found around 23 to 25 feet below the ground surface at the project site in previous geotechnical studies at the site and in the recent geotechnical study for the project (Jacobs, 2018). This is approximately the same elevation as the normal pool elevation of the McMillan Reservoir. Based on the DOEE well permit records, there are several geotechnical and monitoring wells at the McMillan WTP (District of Columbia Geographic Information System, 2018). Of the 300 well permits within 1 mile of the project site, only one is a groundwater extraction well. This well is located more than 4,000 feet southeast of the project area and is associated with a commercial property (BP Station, 400 Rhode Island Avenue NE).

3.9 Biological Resources

A field investigation of the site was conducted in June 2018 to assess the biological resources (Appendix 2).

3.9.1 Aquatic Organisms

As the McMillan Reservoir is managed as a drinking water reservoir, the value of the reservoir as a natural aquatic habitat is minimal. The reservoir has no surface connections to any waterways.

3.9.2 Vegetation

The proposed backwash equalization basin location consists of a sloped mown lawn bounded by the existing filter building and associated access ramp to the north, the plant entrance road and parking lot to the west and south, and the buried north filtered water clear well to the east. There are a few landscape trees, mostly pine, adjacent to the filter building.

3.9.3 Wildlife

The project site and surrounding area provide minimal wildlife habitat. Field investigation in June 2018 found only a single European starling, a non-native bird, onsite. Species common in urban areas, such as songbirds, eastern gray squirrels (*Sciurus carolinensis*), and rodent species, also likely occur periodically in the project area.

The DC Wildlife Action Plan (DOEE, 2015) classifies the McMillan WTP as a “developed system”:

> Developed systems include areas that have been converted or significantly altered for human use. Developed systems include suburban and urban residential housing and yard space, commercial areas, industrial areas, and paved roadways. It can include areas typically considered “green space”: mowed grassy areas, athletic fields, picnic areas, water features, roadside rights-of-way, and golf courses. In

most cases these areas hold little value for wildlife unless specific effort is made to include and maintain pockets of high-quality habitat.

The Wildlife Action Plan ranks lands according to their potential to support species of greatest conservation need on a scale of 1 to 10, with 10 being the most valuable habitats. Neither the project site nor the McMillan Reservoir are ranked among the habitats identified for management of species of greatest conservation need. Overall habitat condition rating of the equalization basin site is very low, and moderately low for McMillan Reservoir. The area that includes the equalization basin and surrounding McMillan WTP property is ranked 1 and 2. While the Wildlife Action Plan identifies the McMillan Reservoir as a loafing and foraging habitat for birds, especially winter-resident ducks, the reservoir is rated low for species abundance and richness.

3.9.4 Threatened and Endangered Species

The Endangered Species Act (50 CFR, Part 402), administered jointly by the National Marine Fisheries Service for tidal waters and U.S. Fish and Wildlife Service (USFWS) for terrestrial areas and non-tidal waters, designates and protects native species that are considered endangered or threatened throughout their range.

Field investigation in June 2018 found the site is entirely mown lawn with few landscape trees. No unique or potential rare species habitats occur on or near the project site.

An official species list for consultation under Section 7 of the ESA was requested from the USFWS Chesapeake Bay Ecological Services Field Office using the Service's online Information, Planning and Consultation System (IPaC) search tool on November 9, 2018. The IPaC search indicated that no listed, proposed, or candidate species or critical habitats are known to occur near the project area (Appendix 2). A project review package and the USFWS online certification letter was submitted to the USFWS Chesapeake Bay Ecological Services Field Office via email on November 12, 2019. The submittal of the letter and the project review package to the USFWS completes the review of the project in accordance with the ESA.

Based on this information and in accordance with section 7 of the ESA, the USFWS certified that except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to exist within the project area. Therefore, no biological assessment or further section 7 consultation with the USFWS is required.

Based on the Wildlife Action Plan, no state species of concern are expected at the McMillan WTP.

3.10 Cultural Resources

Cultural resources include properties of the built environment; archaeological sites and artifacts; and Native American sites, artifacts, and traditional cultural properties. While there are various federal laws, regulations, and executive orders that pertain to the identification, evaluation, and treatment of significant cultural resources, the primary regulation for cultural resources is the National Historic Preservation Act (NHPA) of 1966 (80 Stat 915; 54 USC 300101 et seq.). Section 106 of the NHPA requires federal agencies to identify and assess the effects of their actions on historic properties, which are defined as any prehistoric or historic district, site, building, structure, or object included in or eligible for the National Register of Historic Places (NRHP) (36 CFR 800.16). The lead federal agency must consult with the appropriate state historic preservation office, any affected Indian tribes, and other appropriate consulting parties to consider their views and concerns about historic preservation issues when making final project decisions.

A cultural resources assessment conducted for this project (Appendix 3) reviewed previous cultural resources studies, NRHP nominations, maps, aerial photographs, and historical photographs of the McMillan WTP and surrounding areas.

Historic properties were evaluated within an area of potential effects (APE), defined as the footprint of proposed construction (direct effects) plus a 750-foot radius from the center point of the proposed backwash equalization basins and pumping station building (indirect effects).

Previous cultural resources studies have determined that the entirety of the current project site has been severely disturbed by site preparation and construction of the original reservoir and facilities, the slow sand filters, the existing filter building, the installation of a subsurface reservoir tank, and construction of access roads. Therefore, the site has low probability for archaeological resources.

The study identified two architectural and historical resources within or very near the APE. These are summarized in Table 3-1 and discussed further below.

Table 3-1. Historic Properties within and near the APE

Property Name	Property Address	National Register Status	DC Inventory Status
McMillan Park Reservoir Historic District	1st Street and Michigan Avenue NW	Listed on NRHP	Listed on DC Inventory
Fire Alarm Headquarters	300 McMillan Drive NW	Listed on NRHP as Contributor to Firehouses in Washington DC MPS	Listed on DC Inventory

The McMillan Park Reservoir Historic District is north of the Bloomingdale neighborhood and south of Michigan Avenue NW and is bounded on the east by North Capitol Street and on the west by Howard University. It includes the McMillan Reservoir, the entirety of the McMillan WTP with its associated historic buildings and structures, and the former sand filtration plant east of First Street NW. The property also includes landscaping remnants of McMillan Park, designed by landscape architect Frederick Law Olmsted.

The Fire Alarm Headquarters (within the boundary of the McMillan Park Reservoir Historic District) is just beyond the extent of the APE, on the south side of McMillan Reservoir, at 300 McMillan Drive NW, adjacent to the campus of Howard University. This 1939 building was added to the DC Inventory of Historic Sites and the NRHP in 2011. The relatively central location of this building in Washington, D.C., coupled with its belvedere, allowed it to serve as a watchtower over the city. The building also served as a “warning and control center” against possible air raids in World War II.

3.11 Hazardous Waste/Materials

The site of the proposed backwash equalization building is an entirely mown lawn overlaying disturbed soils associated with the original sand filter system. No recognized environmental concerns were identified at or adjacent to the site during the June 28, 2018 field investigation. In addition, the McMillan WTP is not a generator of hazardous wastes.

In normal operations and maintenance, the McMillan WTP uses hazardous materials that are stored in a separate designated building north of the filter building. The hazardous materials that are used in bulk at the McMillan WTP include sodium hypochlorite, aqua ammonia, sodium hydroxide, phosphoric acid, polyaluminum chloride, cationic polymer, #2 heating oil, diesel fuel, and sodium permanganate.

Bulk quantities of hazardous materials stored at the McMillan WTP are reported annually to the EPA, the District of Columbia Emergency Management Administration (serving as the State Emergency Planning Commission and the Local Emergency Planning Commission), and the District of Columbia Department of Fire and Emergency Medical Services. All necessary Toxic Release Inventory reports for the McMillan WTP are submitted annually to EPA and to DOEE.

A government database search was conducted in July 2018 for the proposed site. No known contaminated sites were identified at the McMillan WTP. The database identified one leaking underground storage tank (UST) record at the McMillan WTP that is now closed (Envirosite, 2018). The

WA confirmed that three USTs were removed from December 1998 through January 1999. The USTs were observed to be in good condition upon removal with no cracks, pitting or leakage apparent upon inspection. However, a small amount of contaminated soil was identified around each UST and was attributed to overfilling or leaking pipes. The USTs and contaminated soil were removed and disposed of at a site permitted for hazardous materials by the state of Maryland. The remediation of the sites was overseen by the District Department of the Environment (now, DOEE) and considered closed as of April 27, 1999.

The current heating oil tank for the boiler is north of the chemical building. The underground storage tank is 360 feet from the new backwash equalization basin.

The database search identified no offsite hazardous waste sources that would affect groundwater at the project site.

3.12 Transportation

Main access to the McMillan WTP is by way of the main gate on First Street NW. A secondary, northern entrance is on Michigan Avenue NW. The Michigan Avenue NW entrance does not have a guard house and is not routinely used. This entrance is used only when plant upgrade (for example, construction) projects prevent the use of the main entrance.

First Street NW is a two-way collector street (DDOT, 2016), with on-street parking along both sides between Michigan Avenue NW and Rhode Island Avenue NW. It is not a truck or bus through route. No bicycle lanes or trails or transit lines follow First Street NW near the entrances to the McMillan WTP. DDOT reports the average annual daily volume of traffic on First Street NW in 2015 (the most recent data available) was around 3,300 vehicles per day (DDOT, 2017).

Fifth Street NW/Michigan Avenue NW near the northern entrance to the site is a divided minor arterial roadway, with two lanes in each direction. The northern plant entrance is right-in/right-out, although with access to northbound Hobart Place NW. There is a designated bicycle lane along this section of Michigan Avenue. No transit lines follow the section of Michigan Avenue NW at the plant entrance. The average annual daily traffic on Michigan Avenue near First Street NW in 2015 was 23,700 vehicles per day.

Normal traffic to the plant consists of staff commuting to the site and supply deliveries. The average traffic to the plant is 30 vehicles per day, mostly passenger vehicles.

About every 7 to 10 years, the waste backwash solids returned to the McMillan Reservoir are removed from the cove by dredging and offsite disposal. In past years, dredge spoils were temporarily stored on site in one of the abandoned slow sand filters where natural drainage reduced their volume. The material was then gradually moved from the site by dump truck at a rate of less than one truckload per day over a period of about 2.5 months. Trucks would exit at First Street NW, and follow Michigan Avenue NW to North Capitol Street, a designated truck route. Thus, even when dredging is required, the plant has very little impact on traffic.

3.13 Socioeconomic Resources

As of September 30, 2013, WA employed 142 full-time employees (WA, 2013). Most of these employees are stationed at the Dalecarlia WTP. The McMillan WTP employs 20 full-time workers.

The existing business environment in the project area includes the Children's Hospital, Washington Hospital and Veterans Administration Hospital complexes to the north of Michigan Avenue NW, and Howard University west of McMillan Reservoir. DC Water operates the Bryant Street Pump Station immediately south of the McMillan Reservoir. Otherwise, residential properties dominate the surrounding area.

The proposed redevelopment of the McMillan Sand Filtration Site on the east side of First Street NW would include mixed-use development, including office and commercial uses. There is currently no defined schedule for construction of this development.

3.14 Demographics and Environmental Justice

EO 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations," stipulates that

> …each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.

Demographic data from the 2010 Census and the 2012–2016 American Community Survey 5-Year Estimates was accessed using the EPA EJSCREEN tool (EPA, 2018b) and the U.S. Census American FactFinder website (Census, 2016a, 2016b, 2016c).

According to the 2012–2016 American Community Survey 5-Year Estimates, the overall poverty rate for individuals living in the District of Columbia is 17.9 percent. Minorities compose 60 percent of the total population.

The census block groups that fall within a one-mile radius of the project site have a higher ratio of minorities than DC as a whole: the 2010 Census reports that minorities comprise 76 percent of the population, and the ACS estimates 70 percent minorities. Income data from the 2015 ACS indicate the poverty rate is lower than DC as a whole, with 16 percent of the population in surrounding block groups below the poverty level.

3.15 Schools and Recreational Facilities

There are numerous schools within a 1-mile radius of the project site. The nearest school is Washington Metropolitan High School, on Bryant Street NW, approximately ¼ mile from the project site. Howard University is just west of the McMillan Reservoir. There are no schools along First Street NW or Michigan Avenue NW near the McMillan WTP.

There are no recreational resources in the project site. The project site and the entirety of McMillan Reservoir are located on the McMillan WTP property, which has a perimeter fence and controlled access.

Small triangle parks occur along Michigan Avenue NW, north of the McMillan WTP (District of Columbia Department of Parks and Recreation, 2018). These parks have no connection with the WTP property.

The former sand filtration site east of First Street NW is currently fenced with no public access. The proposed mixed-use development of the property includes a park area at the south end of the property.

3.16 Noise

Traffic is the primary source of noise in the project area. This noise includes normal staff, visitor, and delivery traffic at the plant. As discussed in Section 3.12, vehicular traffic to the about 30 vehicles enter the site per day.

The existing treatment processes and equipment are housed within buildings that effectively screen noise. Normal plant operations, such as delivery and offloading of chemicals, and occasional construction projects are of short duration.

3.17 Aesthetics (Visual and Odor)

3.17.1 Visual

The 77-acre McMillan WTP comprises the irregularly shaped, 38-acre reservoir and surrounding undulating terrain. The area includes the modern (built in 1986) replacement filtration system and remnant buildings and structures of the historic slow sand filtration plant. Buildings and pavement occupy about 8 acres of the property. The remainder of the WTP is largely maintained lawn. Landscape trees occur around the reservoir that are consistent with the original Frederick Law Olmsted, Jr. plan for the McMillan Reservoir Park (EHT Traceries, 2010). Scattered trees occur elsewhere on the property.

Views of the project site from ground elevation in surrounding public areas are limited by topography, buildings, and vegetation.

- To the south and southeast, the plant is elevated some 20 feet above street level, making the project site and most of the McMillan WTP invisible from Bryant Street NW, Channing Street NW, and First Street NW south of the main entrance. The project site is visible from just south of the McMillan Reservoir but is partially obscured by plant buildings and vegetation (Figure 3-4). This property is currently owned by DC Water and inaccessible to the public.
- To the north, northeast, and northwest, First Street NW and Michigan Avenue NW are elevated above the plant, but the project site is invisible due to the filter building, other plant buildings, a berm along Michigan Avenue NW, and landscape trees on the plant property.
- From the west, the view of the project site from Fifth Street NW across the McMillan Reservoir (approximately ¼ mile away) is also largely obscured by buildings and vegetation.
- The project site is only fully visible at ground level from the east. It is visible from a section of First Street NW just north of the main entrance, where the plant elevations are slightly below or slightly above the street, and from the former sand filtration plant property east of First Street NW (currently vacant and inaccessible), which is approximately the same elevation as the McMillan WTP. Views from this angle include modern elements in the foreground, including light posts and WTP boundary fence, the filter building and several other historic plant buildings near the project site (Figure 3-5). Modern structures such as cell towers, smoke stacks, and buildings of Howard University and the DC Water property are visible in the distance from First Street NW.
- Just within the main gate along McMillan Drive, the modern filter plan building is prominent feature with surrounding streets, sidewalks and historic buildings (Figure 3-6).

Within the WTP boundary, the site is visible from east, southeast, and south. Views of the site from the north, northwest, and west are limited due to the existing filter building and other plant buildings.

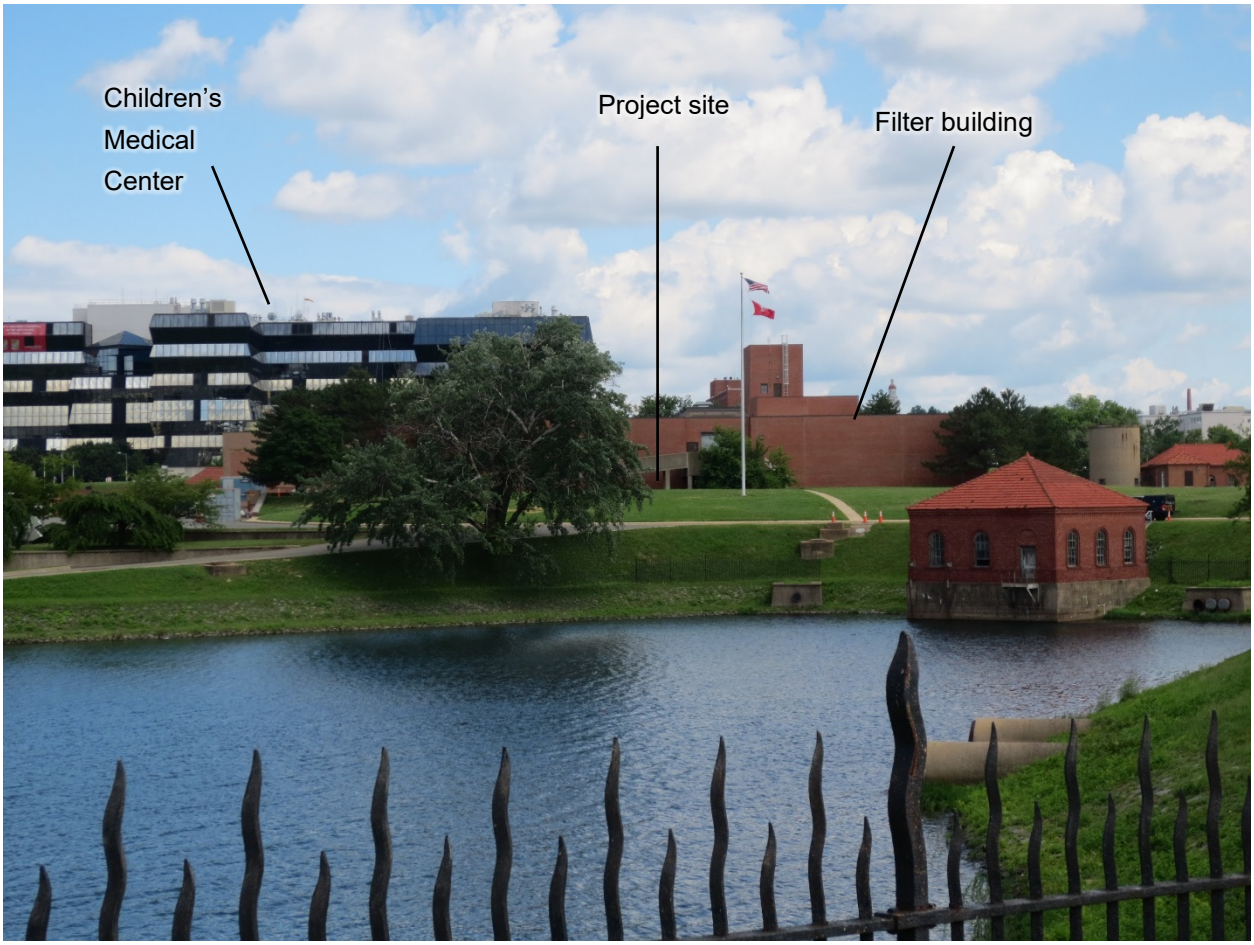


Figure 3-4. View from the South Rim of the Reservoir

The site is partially hidden by trees. The Children's Medical Center and modern filter building are prominent in the background.

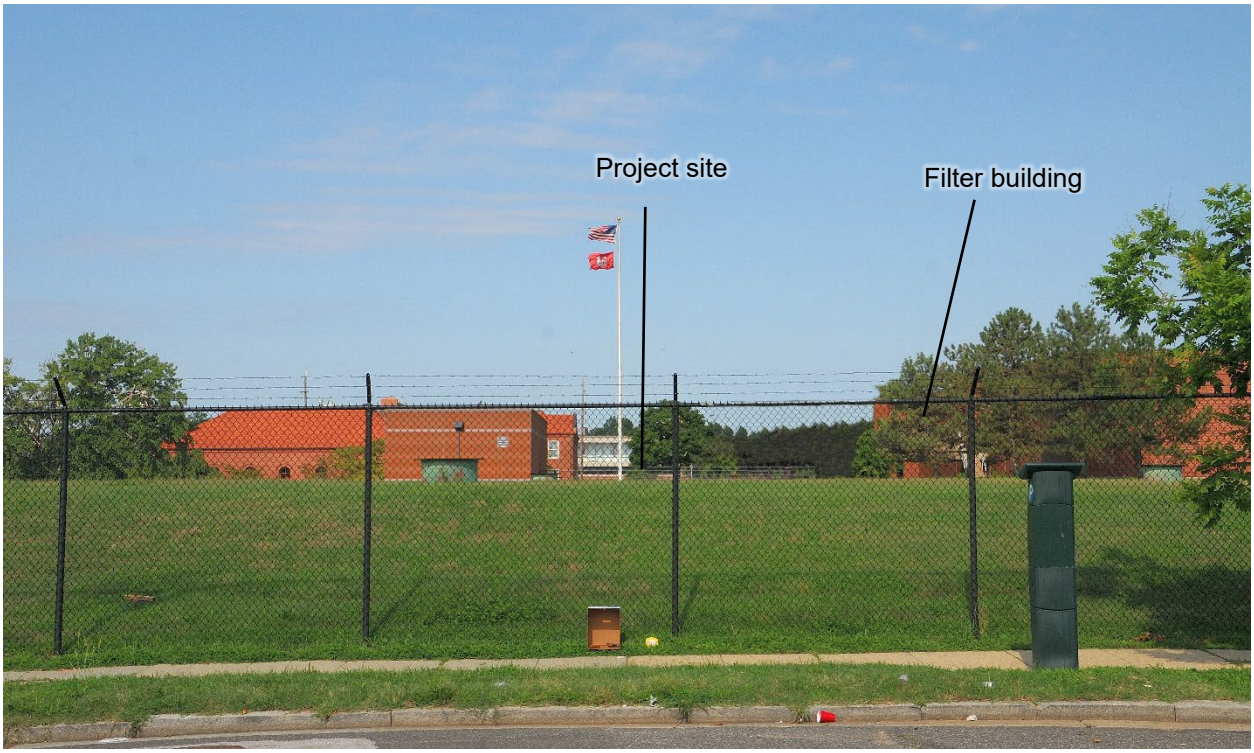


Figure 3-5. View of the Site looking West from Adjacent First Street NW
The elevation of the site is approximately eye level for a pedestrian along First Street NW.

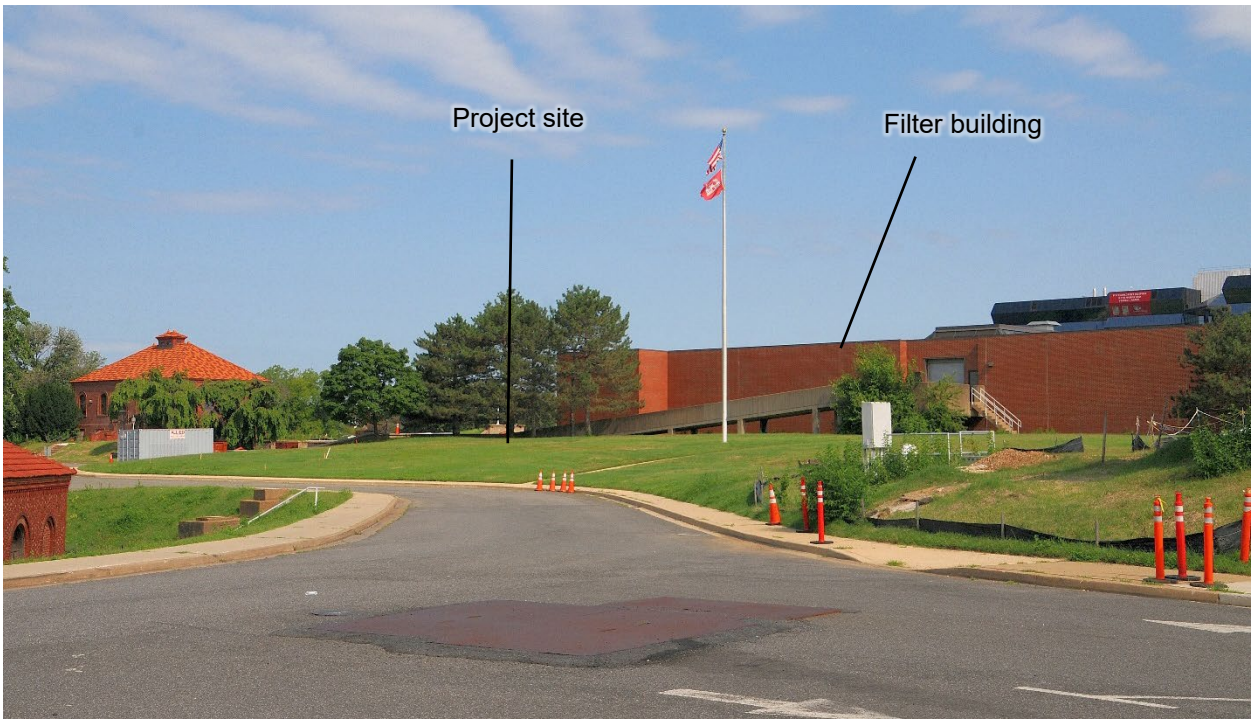


Figure 3-6. View of the Site Looking Northwest from Adjacent McMillan Drive
The modern filter building is the primary element in this view.

3.17.2 Odor

The McMillan WTP currently does not generate detectable outdoor odors. Filter backwash water is discharged to the McMillan Reservoir cove, where potential odor-producing solids are submerged and isolated from the air. All other processes at the plant are enclosed.

4. Environmental Consequences

4.1 Land Use

The project is consistent with the current land use at the McMillan WTP. The project would not change the operations at the plant in any way that would affect the use of surrounding properties.

4.2 Soils, Geology, and Topography

Excavation for the project will extend from 8 to 23 feet deep. The soil and earth that will be disturbed have been previously disturbed by construction and fill activities and the installation of underground utilities. The project will have no impact on natural soils or geologic features.

4.3 Air Quality

The project will create no new sources of air pollution and will not contribute to nonattainment of the NAAQS.

The use of sodium hypochlorite in the backwash equalization basins as an additional protection against odor will not be a source of air pollution. As explained in Section 4.9, Hazardous Waste/Materials, the project will use a very small amount of sodium hypochlorite compared to normal operations at the plant.

No additional air permits or air permit modifications are anticipated for this project.

4.4 Surface Waters and Wetlands

The project will affect no wetlands and will not discharge fill material into any surface waters. Therefore, no CWA Section 404 or 401 permits are required.

4.5 Water Quality

The water that passes through the McMillan WTP and the McMillan Reservoir is part of the permitted WA public water treatment system. The project will not change the treatment process, only the method for disposing of the filter backwash water. Therefore, the project will have no negative impact on the quality of the public water supply. The elimination of 90 percent of the waste backwash solids from the McMillan Reservoir will improve the potable water quality by reducing the risk of recycling solids from the cove back to the McMillan WTP.

Rather than discharging the filter backwash water to the McMillan Reservoir cove for settling, approximately 90 percent of the filter backwash water will be discharged to the sanitary sewer system and treated at DC Water's Blue Plains Advanced Wastewater Treatment Plant (WWTP). The plant has sufficient capacity for the normal daily flow of backwash water during dry weather conditions. The backwash equalization basins will include a dedicated flowmeter and flow control valve that will limit the discharge flow to the sewer to the allowable amount during dry periods. During wet weather, DC Water's sewer monitoring system will automatically close the basin discharge valve and prevent sewer discharge so that the additional flow will not exceed the capacity of the wastewater plant.

Traditionally, the waste backwash solids returned to the McMillan Reservoir have required periodic removal from the reservoir by dredging and offsite disposal. The time interval between dredging cycles has typically been approximately every 10 years. The timeframe between dredge events would be greatly increased with the addition of the proposed backwash equalization basins since the volume of solids discharged to the reservoir would be reduced to 10 percent or less of the historical value.

Section 402 of the CWA (also known as the NPDES) regulates discharges of pollutants from point and nonpoint sources, including construction sites. In the District, EPA is the permitting authority for the

NPDES program. Pursuant to Section 402 NPDES, EPA has issued a Municipal Separate Storm Water Sewer System permit to the District that allows discharges to federal waters from the District's entire storm sewer system. It requires the preparation and implementation of a stormwater management program to establish best management practices and other controls to limit pollutants in stormwater and requires the District to establish an implementation plan to reduce pollutants.

To that end, the District of Columbia's 2013 *Rule on Stormwater Management and Soil Erosion and Sediment Control* (District of Columbia Municipal Regulations Chapter 21, Title 5, Section 516: Stormwater Management), requires construction and redevelopment projects that clear, grade, or otherwise disturb more than 5,000 square feet of the earth's surface to have an approved stormwater management plan (DOEE, 2013). According to the DOEE *Stormwater Management Guidebook* (Center for Watershed Protection, 2013), the stormwater management plan must include permanent stormwater quantity and quality treatment in addition to construction phase sediment and erosion controls. The guidebook specifies methods for estimating the amount of runoff from the site and the best management practices to be used at the development site to accomplish the required controls.

Most of the site will include the equalization basins, which will be open to the air. The small amount of rain water falling directly onto the basins will become part of the treated volume of water discharged to the sewer or returned to the reservoir cove and downstream water treatment process. The additional impervious area (about 2,450 square feet) is small compared to approximately 650,000 square feet of impervious surface within the subwatershed that includes the project site.

As part of the design process, WA will develop a stormwater management plan in accordance with DOEE regulations. The DOEE will review the plan as part of the building permit approval process through the District Department of Consumer and Regulatory Affairs.

4.6 Groundwater

The DOEE policy for groundwater protection (DOEE, 2009) evaluates the potential impact to groundwater of projects using the four groundwater criteria described in Title 20 of the District of Columbia Municipal Regulations:

- *Might significantly deplete groundwater.* The project will withdraw no groundwater for operations. Groundwater occurs around 23 to 25 feet below the surface (Jacobs, 2018). Excavation for the basins and pumping station building footer will extend to approximately 28 feet below the surface. The excavation could encounter groundwater and may require dewatering during construction. The DOEE policy indicates that typical construction site dewatering is unlikely to significantly deplete groundwater.
- *Significantly degrade groundwater resources.* Under this criterion, DOEE evaluates only the pollutants generated by the project and added to the groundwater. The project will have no operational interaction with groundwater. The filter backwash water will be fully contained within the equalization basins and associated piping. The project will not involve the handling of hazardous substances or pollutants in a manner likely to result in spills, leaking, or any other discharge to groundwater. The McMillan Reservoir may interact with groundwater. The proposed project will add no pollutants to the reservoir and would reduce the volume of solids (in the filter backwash water) that would be discharged into the reservoir.
- *Significantly interfere with groundwater recharge.* The McMillan WTP, with extensive underground structures that were once part of the sand filtration system, contributes little to groundwater recharge. As noted above, the project site is underlain by a concrete slab from previous construction activities. Therefore, the impact of the project on groundwater recharge would be negligible.
- *Might cause significant adverse change in existing surface water quality or quantity.* The project will not will increase the pollutant loadings in nearby surface waters. Stormwater at the McMillan WTP is largely collected in the storm sewer system. Dewatering activities that will be regulated by an NPDES permit prior to discharge into a sewer system.

Using these criteria, the project will have no impact on groundwater quality or quantity.

4.7 Biological Resources

The project would remove approximately 14,000 square feet of ordinary mown lawn and a few landscape trees. The area has minimal habitat value. The project will cause no measurable impact to wildlife populations or aquatic life.

The project will have no effect on unique habitats or threatened and endangered species.

4.8 Cultural Resources

While the project area is located within the NRHP-listed and locally designated McMillian Park Reservoir Historic District, the proposed project site is immediately adjacent to the largest and most modern building on the property. This building does not contribute to the property's status as an NRHP-listed and locally designated historic district. Further, there are a number of modern, large-scale buildings associated with medical and educational facilities immediately north, west, and south of the district. Therefore, the proposed project maintains no potential to introduce adverse visual effects to historic resources, either within the McMillan Park Reservoir Historic District or farther removed from the property, including the Fire Alarm Headquarters.

WA is coordinating with the District of Columbia Historic Preservation Office (DC HPO) per Section 106 of the National Historic Preservation Act. A Section 106 Effect determination will be provided after the Notice of Availability is issued on this document, public comments are received and reviewed, and prior to making a final a decision on the project.

The site of the proposed backwash equalization basins and pumping station building contains disturbed, non-native or clean soils associated with the construction of the reservoir and associated facilities in the 1880's, the slow sand filter in the early 1900's, and the mid-1980's construction of the filter building, as well as separate, more recent grading activities. The construction of the proposed project would remove approximately 3 to 11 feet of non-native soil beneath the slow sand filter slab (see Appendix 1). The nature and extent of soils disturbance resulting from previous construction activities at the project site and nearby access roads results in low archaeological probability for the entirety of the project area. The disturbed, non-native soils that will be excavated lie in an area that was graded to facilitate construction of the reservoir in the 1880's and the sand filters in the early 1900's, resulting in low probability for archaeological materials. Therefore, the project will not adversely affect archaeological resources.

4.9 Hazardous Waste/Materials

The project will generate no hazardous waste. The solids present in filter backwash water are composed of a combination of colloidal particles that remain in suspension following upstream flocculation and sedimentation treatment processes, coagulants (polyaluminum chloride) to help remove the particles in the McMillan granular filter media, and algae present in the settled water during the warm summer months. None of this material is considered hazardous.

The project will affect no hazardous materials storage tanks or facilities. The project will not require the demolition of any buildings, and therefore will not risk release of hazardous materials such as lead-based paint or asbestos.

The project will not require the use of any new hazardous materials at the McMillan WTP. The additional intermittent use of sodium hypochlorite as an additional protection against odor in the equalization basins will amount to about 15 gallons of sodium hypochlorite per day. This is less than 1 percent of the amount that is normally used for water disinfection, which is 2,700–4,200 gallons of sodium hypochlorite per day.

There is no additional risk to the public or McMillan WTP staff from the use of the additional sodium hypochlorite. The sodium hypochlorite will be safely delivered by truck as it is currently, with no increase in frequency of delivery.

All waste products from the construction will be collected and disposed of in accordance with District and federal regulations.

In the event that suspected hazardous materials or potentially contaminated materials are encountered during construction activities, the contractor would be directed to discontinue work until further assessment occurs.

4.10 Transportation

Normal daily traffic at the plant would not be affected by the project. There would be no additional staff, deliveries, or shipping on a regular basis. The project will not require any detours or otherwise affect any bus routes.

The proposed treatment facilities would not generate a byproduct or waste stream that requires offsite disposal by trucking.

Traditionally, the waste backwash solids returned to the McMillan Reservoir have required periodic removal from the reservoir by dredging and offsite disposal. The time interval between dredging cycles has typically been approximately every 7 to 10 years. The project would reduce the volume of solids recycled to the reservoir to less than 10 percent of the current volume. Therefore, the frequency of dredge events would be greatly reduced, meaning the project would have a small, but beneficial impact on traffic around the plant by reducing the total number of vehicles visiting the site on a long-term basis.

4.11 Socioeconomic Resources

The project will not cause any direct or indirect impacts to surrounding land use. The project will not affect the employment at the McMillan WTP. Other than the short-term value of the project during construction, the project will have no impact on the socioeconomics of the surrounding area.

4.12 Demographics and Environmental Justice

The project will not cause the direct relocation of any residents or businesses, nor any direct or indirect impacts to surrounding land use. Therefore, it will not affect any minority or low-income populations.

4.13 Schools and Recreational Resources

The project will not affect any schools. It will not affect any transportation routes or land use that could directly or indirectly affect school attendance or facilities. The project will affect no recreational resources.

4.14 Noise

The proposed backwash equalization basins or pumping station are not expected to contribute noise to the surrounding environment. Design features that would control potential noise generation include the following:

- *Basins recessed in ground.* Water would discharge from the existing filter building to the proposed open-top backwash equalization basins. Similar noise levels are currently generated near the McMillan Reservoir when the backwash water discharges into the cove. The discharge will occur at approximately 9.0 feet below the proposed top of the backwash equalization basin wall. The operating water level within the backwash equalization basins will vary from 1 to 15 feet below the basin inlet pipe, or 9.0 to 23.0 feet below existing grade. Any noise attributable to water entering the basins is expected to be dissipated by the depth of the water surface below the basin wall, which will act as a noise barrier.
- *Submersible pumps.* Any noise attributable to drain pumping would be dissipated by using submersible pumps installed below the water surface within the basins.

- *Electrical room.* Noise attributable to electrical equipment would be contained within a dedicated electrical room within the proposed pumping station building at the south end of the basins.

Consequently, the project is not expected to cause any increase in noise levels perceptible at the property line.

4.15 Aesthetic Resources (Visual and Odor)

4.15.1 Visual

The project site is hidden from view from ground level at most surrounding properties by topography, existing buildings at the McMillan WTP, or landscaping. The project would be most visible to the public from the east. The proposed development plan for the property across First Street NW (see Figure 3-3) shows a perimeter of landscape trees around the property. The planned landscape trees would provide a visual barrier of the McMillan WTP from this viewpoint. Assuming trees are not part of the eventual redevelopment, the project site could be visible from this property. Otherwise, the public could view the site in passing along First Street NW, although with a setback of approximately 350 feet from the street.

Even though the project may be visible from some viewpoints, it will be consistent with overall plant architecture and the character of the limited viewsheds of the plant (Figures 4-1 and 4-2). The equalization basins will be largely below ground. As discussed in the cultural resources assessment technical memorandum (Appendix 3), the proposed pumping station building has been designed to be compatible with the architectural styles of the other buildings of the McMillan WTP (see also elevation drawings in Appendix 1). The placement near the nonhistoric filtration building with modern buildings in the background also softens the visual impact.

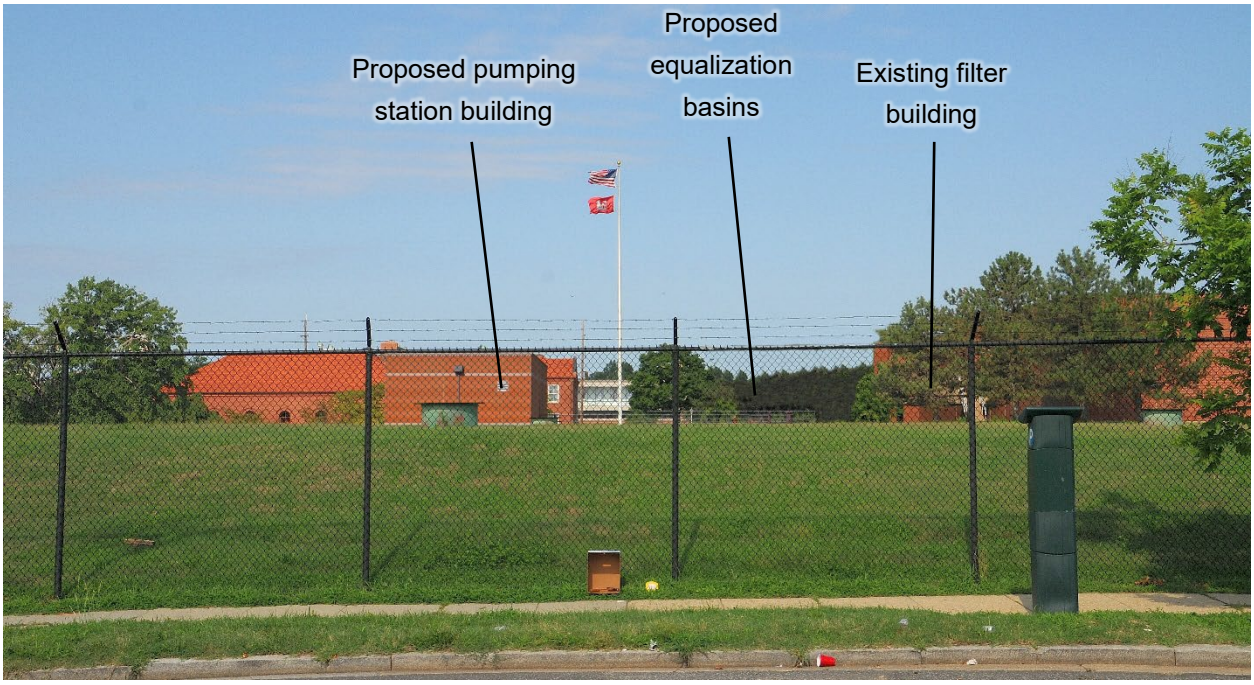


Figure 4-1. Simulated View of the Proposed Project Looking West from Adjacent First Street NW
The proposed backwash equalization basins are essentially invisible and the pumping station building blends with the architecture of other plant buildings. Compare with the view in Figure 3-5.

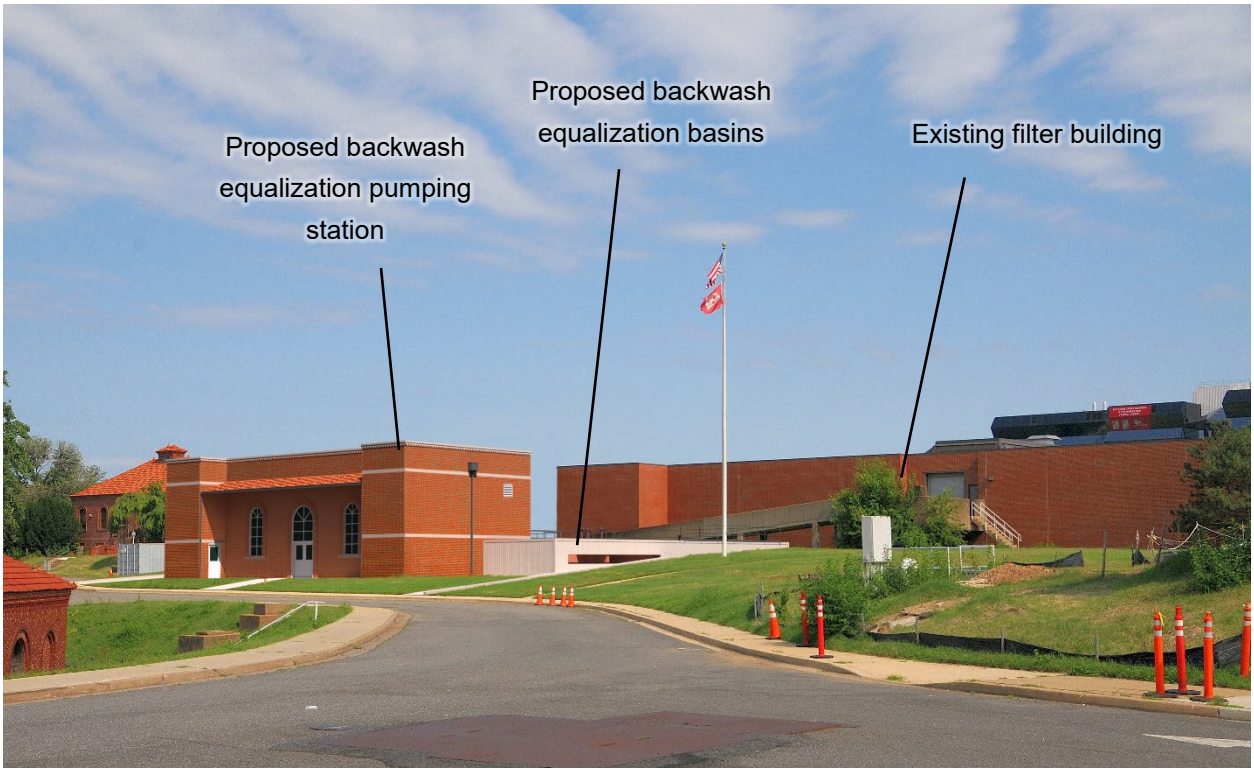


Figure 4-2. Simulated View of the Proposed Project Looking Northwest from Adjacent McMillan Drive
The proposed equalization basins have a very low profile, and the pumping station building blends with the architecture of other plant buildings. Compare with the view in Figure 3-6.

The National Capital Planning Act (United States Code Title 40 Part 8701) requires federal agencies to submit project plans and development proposals for federal property to the NCPC for review and approval to ensure consistency with the federal elements of the *Comprehensive Plan for the National Capital*. The federal elements consist of broad-based policies intended to ensure consistent, coordinated development of federal facilities. NCPC uses the federal elements as the criteria by which it evaluates and approves specific federal development plans and projects. The NCPC review will include an assessment of the visual impact of the project and consistency with Section 106 of the NHPA (see Section 4.8).

The CFA will also evaluate the aesthetic character of the proposed project in their review and approval of the project.

4.15.2 Odor

There is a small risk of odor from the accumulation of solids in the equalization basins. Odors typically occur when solids, allowed to settle out of solution and accumulate in the bottom of a basin, start to decay by normal microbiological activity (similar to the silt on the bottom of a lake), and the decaying solids are exposed to the atmosphere. The regular flushing of the basins after each drain down cycle to either the sanitary sewer or the McMillan Reservoir cove would limit the amount of solids that accumulate in the basins and limit the time that any solids remain in the basins. As an added protection, sodium hypochlorite (which is already used in the treatment process at the plant for disinfection) could be added to the flow into the equalization basins, if needed. These measures will effectively control any potential odors.

4.16 Permits and Authorizations

NPDES Permit No. DC0000019 authorizes the current water treatment system. The project will not alter the current water treatment process. Therefore, the project will require no change in the terms of the NPDES permit.

The Blue Plains WWTP operates under NPDES permit DC0021199. The WWTP requires no alterations for the project, and the limits on the discharge of filter backwash water from the McMillan WTP will keep the additional loadings within the current WWTP limits, and no changes in treatment process or equipment at the Blue Plains WWTP are needed for the filter backwash water. However, WA will need to obtain final approval and agreement from DC Water for the timing and volume of filter backwash water discharge to the sewer before construction begins.

The project will be reviewed for compliance with local codes as part of the Baltimore Corps of Engineers review. The DOEE will review the stormwater plan, including procedures for sediment and erosion control and dewatering during construction, and issue an NPDES construction permit.

The National Capital Planning Act (United States Code Title 40 Part 8701) requires federal agencies to submit project plans and development proposals for federal property to the NCPC for review and approval. The NCPC must approve the project before it can be constructed.

The CFA must also approve the project before it can be constructed. The CFA reviews projects in two stages: concept and final. Concept review provides an opportunity for the applicants to know what is acceptable at an early stage of design, but a concept approval does not constitute the required CFA review of the final submission. In effect, it is a courtesy review to make the review of the final submission more predictable.

The final review of a project will occur at a point where no significant exterior design changes are anticipated; the final review constitutes the official review of the project.

4.17 Construction and Staging

Construction is expected to start in the second or third quarter of 2019 and will last about 1.5 years. Construction will be timed to make connections to the filter building to avoid interruptions to the flow of treated water to the public water supply.

Excess earth excavated for the basins will be disposed of offsite. Soil that will be used to restore the grades around the site after construction will be stockpiled in a nearby grass covered area. No belowground disturbance will occur at the stockpile site.

Construction equipment will be stored on paved areas where possible, and on open lawn areas if needed.

4.18 Cumulative Effects

The project would remove some lawn area and a few trees and have no direct or indirect effects on wildlife populations in this urban area. Therefore, the project will not contribute to cumulative impacts to wildlife.

The project will have no direct or indirect impact on land use, cultural resources, aesthetics, transportation, or other features at the McMillan WTP or surrounding properties. Therefore, the project will have no cumulative impacts.

5. Agency Coordination

5.1 NCPC and CFA Coordination Meeting

A joint project presubmission meeting was held with CFA and NCPC on December 12, 2018, to review the project and receive any preliminary comments. The meeting included a discussion of the purpose and need for the project, the project location, including a presentation of the proposed McMillan Water Treatment Plant site plan, the proposed Backwash Equalization Pumping Station materials of construction, floor plans, elevation and photo simulations. CFA representatives suggested improvements to the roof detail for the south façade of pump station that were subsequently incorporated into the building design. The meeting also discussed logistics related to subsequent concept and design submissions for both agencies.

In a meeting held on February 21, 2019, CFA revised and approved the concept design for the new Backwash Equalization Basin and Pumping Station project at the McMillan WTP.

On March 14, 2019, NCPC approved the preliminary site and building plans for the Backwash Equalization Basin and Pumping Station project at the McMillan WTP.

5.2 Section 106 Consultation

A draft Cultural Resources technical memo was provided to the DC SHPO for comment on November 16, 2018. Comments on the draft technical memo were incorporated into a revised Cultural Resources technical memo, which was submitted for review to DC SHPO on March 28, 2019 (Appendix 3). DC SHPO subsequently issued a Section 106 Review Form concurring with a finding of No Adverse Effect for the project on March 29, 2019 (Appendix 4).

5.3 Biological Coordination

Consultation under Section 7 of the ESA was requested from the USFWS Chesapeake Bay Ecological Services Field Office using the Service's online Information, Planning and Consultation System (IPaC) search tool on November 9, 2018 (Appendix 2). A project review package and the USFWS online certification letter was submitted to the USFWS Chesapeake Bay Ecological Services Field Office via email on November 12, 2019. The submittal of the letter and the project review package to the USFWS completes the review of the project in accordance with the ESA.

A copy of this EA is being sent to the DOEE for review and comment. It provides confirmation that the project will affect no state-listed species.

6. List of Preparers

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Herndon, VA 20171

Name	Primary Role/Responsibilities
Glenn Palen, P.E. M.S., Environmental Engineering, University of North Carolina, 1981 B.S., Civil and Environmental Engineering, Clarkson College of Technology, 1979	Project Manager
Jennifer Armstrong M.S., Environmental Engineer, Duke University, 1998 B.S., Engineering Technology, Bates College, 1994 B.E., Chemical Engineering, Dartmouth College, 1994	Associate Project Manager
Carolyn Washburn, PhD PhD, Wetland Ecology, University of Washington, 2000 MS, Botany, North Carolina State University, 1996 BS, Biology, Rensselaer Polytechnic Institute, 1994	EA Project Manager; QA/QC of EA
Keisha Voigt MPP, Master of Public Policy, George Mason University, 2006 BS, Environmental Science, University of South Florida, 1997	EA Development; Hazardous Materials Analysis
Robert Hook MS, Biology, Eastern Kentucky University, 1984 BA, Biology, Thomas More College, 1978	EA Development
Lindsey Carr BS, Wildlife Biology, Virginia Polytechnic Institute and State University, 2000	Biological Resources
Jared Tuk M.A., Public History/Modern U.S. History, West Virginia University, 1998 B.A., History, West Virginia University, 1997	Cultural Resources

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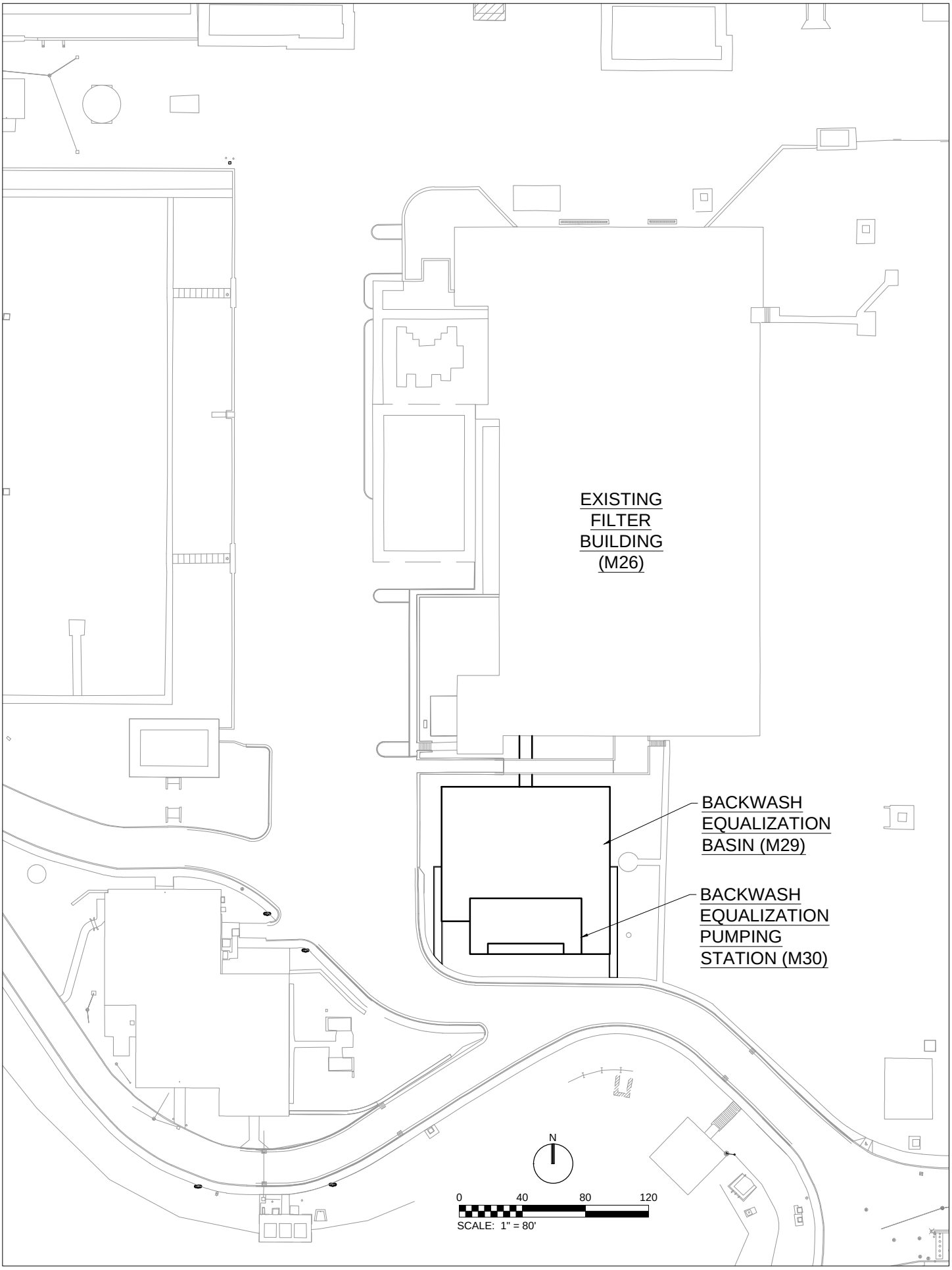
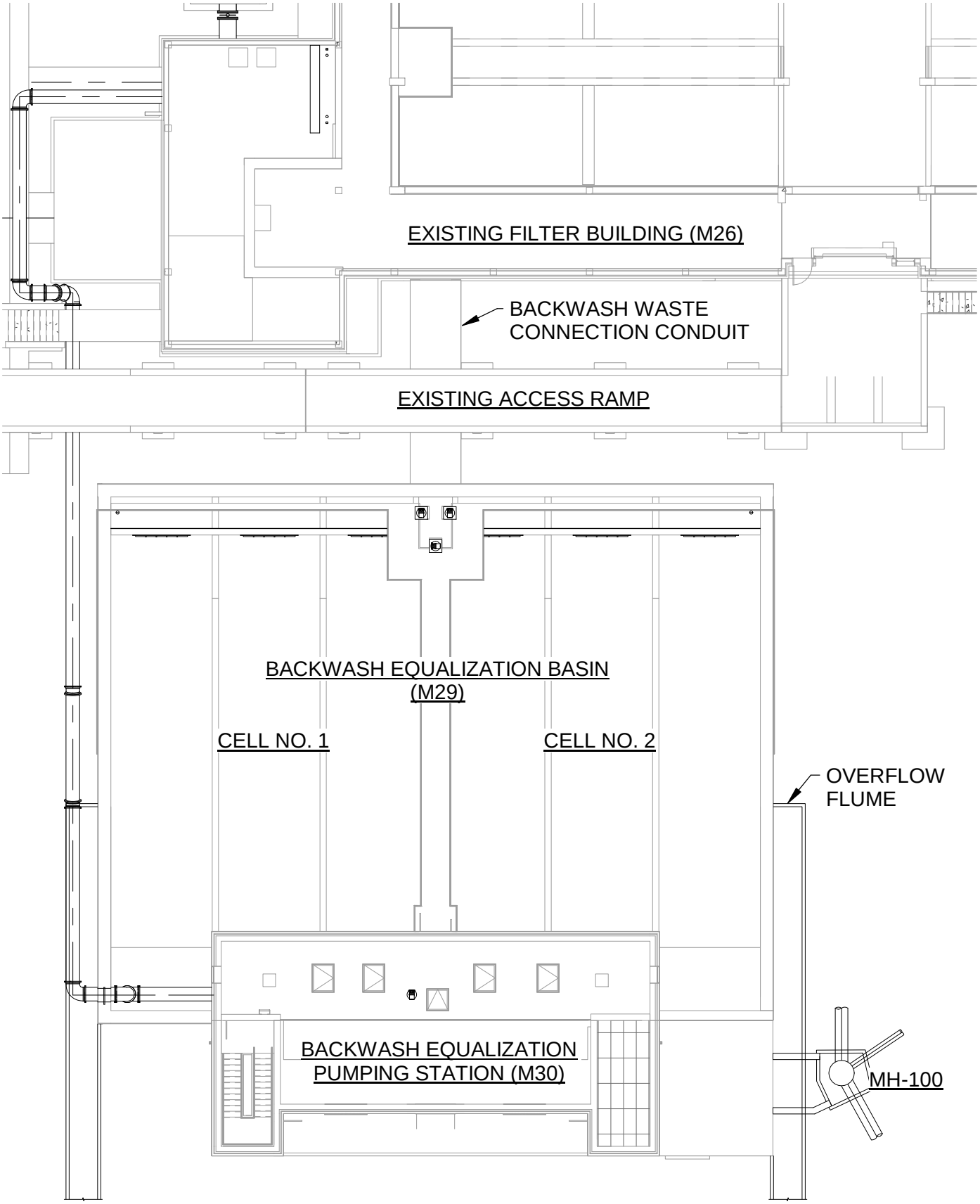
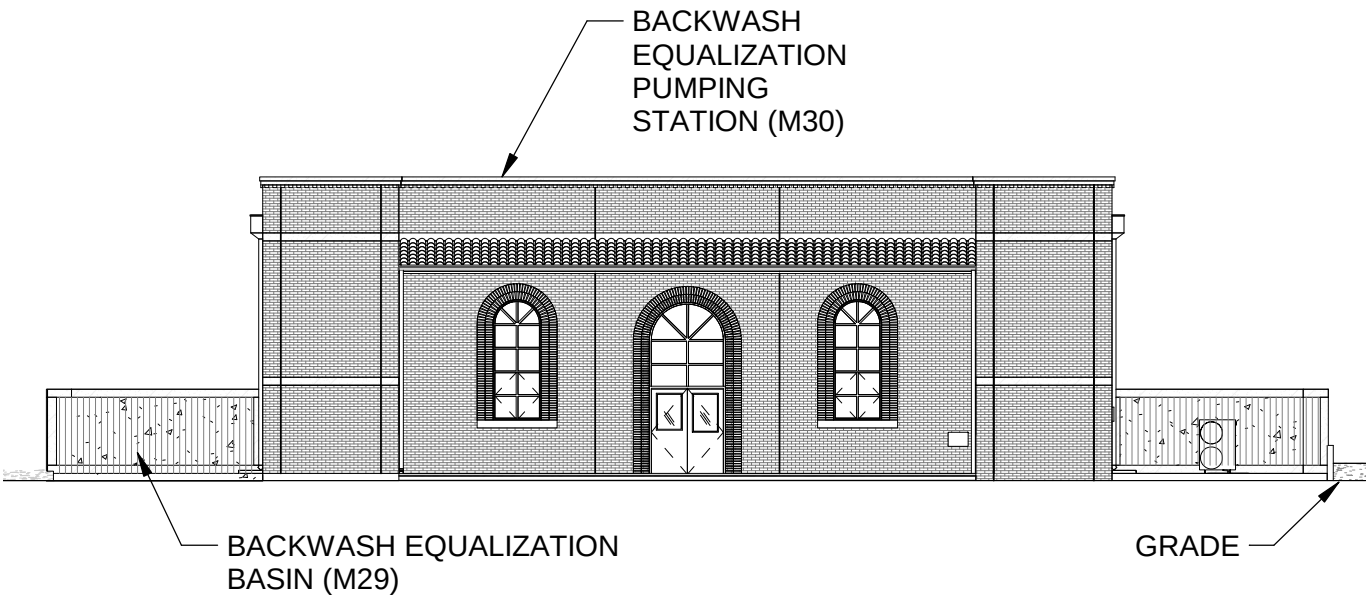
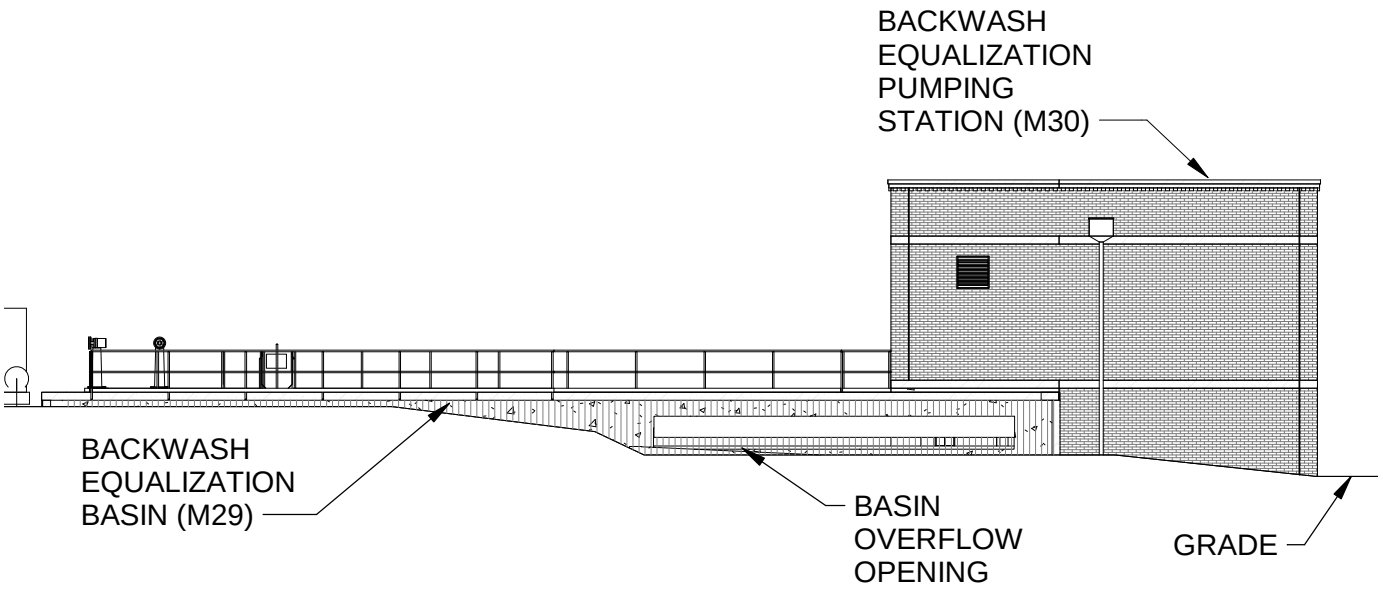
Appendix 1
Project Plans


EXISTING
FILTER
BUILDING
(M26)
BACKWASH
EQUALIZATION
BASIN (M29)
BACKWASH
EQUALIZATION
PUMPING
STATION (M30)
N
0
40
80
120
SCALE: 1" = 80'

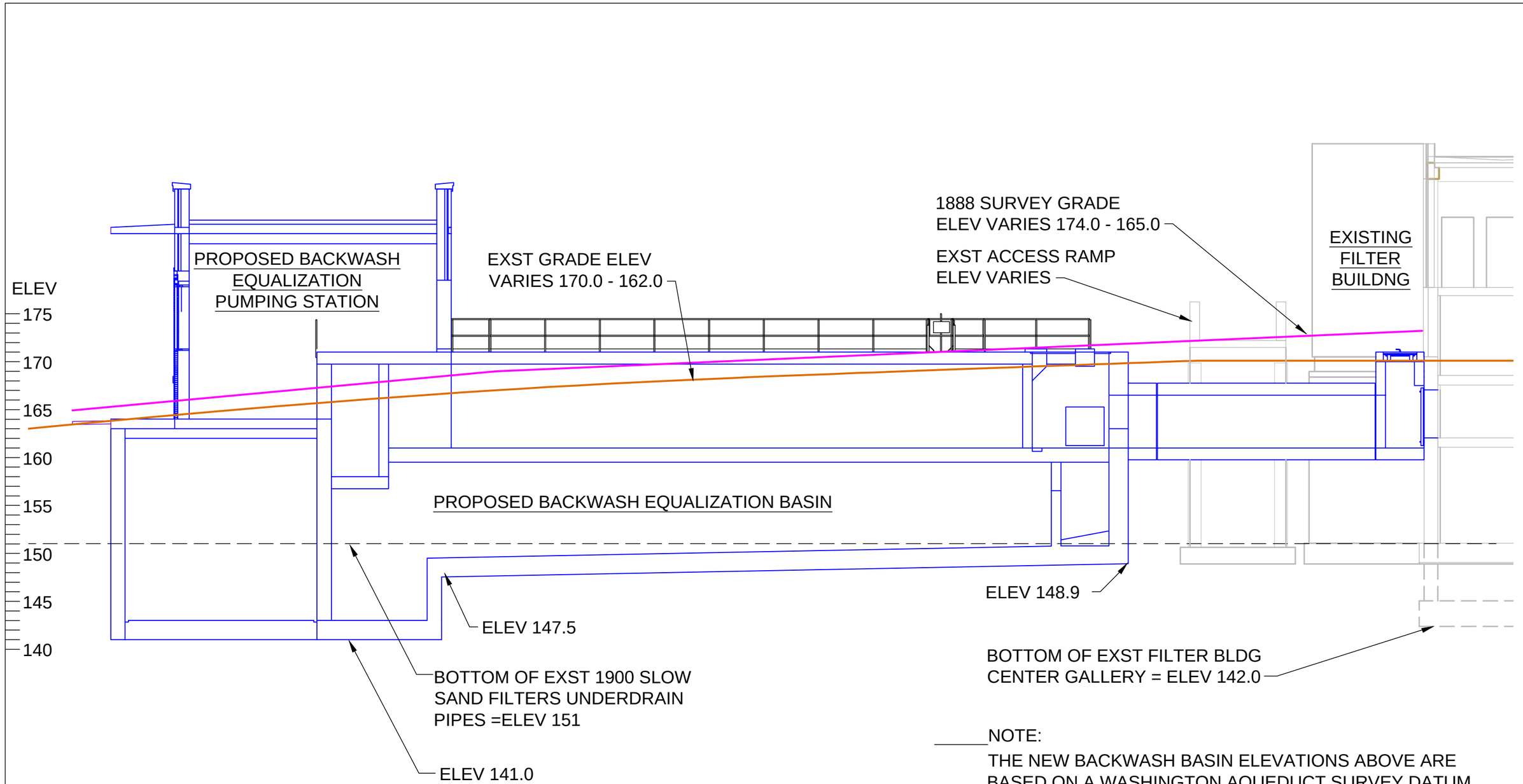

EXISTING FILTER BUILDING (M26)
BACKWASH WASTE CONNECTION CONDUIT
EXISTING ACCESS RAMP
BACKWASH EQUALIZATION BASIN (M29)
CELL NO. 1
CELL NO. 2
OVERFLOW FLUME
BACKWASH EQUALIZATION PUMPING STATION (M30)
MH-100



SOUTH ELEVATION



WEST ELEVATION



NOTE:

THE NEW BACKWASH BASIN ELEVATIONS ABOVE ARE BASED ON A WASHINGTON AQUEDUCT SURVEY DATUM FROM THE EARLY 1900S THAT MATCHES THE DATUM USED FOR THE 1888 SURVEY. THIS WAS CONFIRMED BY MATCHING ELEVATIONS FROM THE TWO SURVEYS AT THE MCMILLAN RESERVOIR INTAKE STRUCTURE. ACCORDINGLY, NO DATUM RELATED ADJUSTMENTS WERE MADE TO THE ELEVATIONS SHOWN ON THIS DRAWING.

LEGEND

- EXISTING STRUCTURE
- 1888 SURVEY GRADE
- EXISTING GRADE
- BOTTOM OF SLOW SAND FILTER UNDERDRAINS
- PROPOSED STRUCTURE

0 10 20 30

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=10'

JACOBS

Appendix 2
Biological Resources Assessment

JACOBS®

Memorandum

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Herndon, VA 20171
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Subject	**Biological Resources Assessment**
Project Name	Washington Aqueduct McMillan Backwash to Sewer Project
Attention	U.S. Army Corps of Engineers, Baltimore District Washington Aqueduct
From	Lindsey Carr/Jacobs Engineering Group
Date	November 15, 2018

1. Introduction

Biological resources are protected by a number of statutes and regulations at all levels of government and must be taken into consideration during the National Environmental Policy Act (NEPA) process. A biological factors memorandum for the McMillan Water Treatment Plant (WTP) was completed in 2007 (Reed, 2007). This memorandum updates the biological findings of Reed (2007) by examining potential impacts of the McMillan Backwash to Sewer Project (Project) on biological resources, including impacts on surface waters and wetlands, aquatic organisms, wildlife, and vegetation. The Project is located approximately 2.2 miles north of the Capitol (Figure 1).

2. Project Overview

Washington Aqueduct (WA), a division of the USACE–Baltimore District, maintains and operates the Dalecarlia and McMillan Water Treatment Plants (WTPs) to produce drinking water for Washington, DC and portions of northern Virginia. These WTPs employ conventional treatment processes consisting of coagulation, flocculation, sedimentation, filtration, and disinfection to treat raw surface water drawn from the Potomac River. For the McMillan WTP, the coagulation, flocculation, and sedimentation treatment steps occur remotely at the Georgetown Reservoir site, approximately 6 miles southwest of the McMillan WTP. Following settling, the partially treated water flows by gravity from the Georgetown Reservoir to the McMillan Reservoir, located on the McMillan WTP site. Here the water is pumped through filters to remove any remaining particles, disinfected, and supplied to customers.

The McMillan WTP uses granular media filters to remove particles remaining in solution following settling. Settled water pumped from the McMillan Reservoir flows by gravity through the granular filter media to remove suspended solids. Periodically, the filters are taken offline one at a time and backwashed at a high rate with clean water to remove the accumulated solids. This process cleans the media and restores its particle capturing capability. The backwash water containing the concentrated solids removed from the filter media is known as spent filter backwash water.

The Filter Backwash Recycling Rule of the 1996 Safe Drinking Water Act requires that spent filter backwash water be returned to the head of the treatment process or discharged to an alternative location approved by the treatment plant's primacy agency, in this case, U.S. Environmental Protection Agency (EPA) Region 3. At the McMillan WTP, filter backwash water is recycled to the adjacent McMillan Reservoir, which is downstream of the coagulation, flocculation, and sedimentation processes performed at the Georgetown Reservoir site. Filter backwash water is discharged into a cove area of the McMillan

Reservoir, which is separated from the main body of the reservoir by a silt curtain. The alternate discharge location utilized at the McMillan WTP is approved by EPA Region 3.

Solids in the spent filter backwash water settle out of solution and deposit in the cove area before the clarified backwash water returns to the main body of the reservoir. WA must periodically dredge the accumulated solids from the cove to maintain adequate backwash water treatment capacity.

As an alternative to recycling filter backwash water to the McMillan Reservoir Cove, WA is seeking to discharge the majority of the filter backwash water to a combined (sanitary and storm) sewer system operated by DC Water that passes through the McMillan WTP campus. WA has requested and received preliminary approval from DC Water to do so. The preliminary approval limits the rate of discharge of filter backwash water to the sewer to 10 million gallons per day during dry weather conditions and prohibits filter backwash water discharge to the sewer during wet weather conditions. The preliminary permit approval also requires that a pre-treatment permit be obtained from DC Water for monitoring the quantity and quality of filter backwash water discharges. The monitoring data would be used to establish time periods during which filter backwash water discharges to the sewer would be allowed or prohibited.

The project will improve the McMillan filter backwash water handling facilities by:

- Disposing of most of the filter backwash water directly to the sewer system within the limits set by DC Water when the sewer system can receive the discharge. Reducing the volume of solids or other contaminants present in the filter backwash water discharged to the cove will improve filter performance and finished water quality by reducing the risk that solids could be recycled from the cove back to the treatment plant.
- Continuing to recycle filter backwash water to the McMillan Reservoir cove area when sewer discharge is not permitted. The project will add new backwash equalization basins to the treatment system. The new basins will allow a portion of the filter backwash solids to settle in the basins, for later discharge to the sewer when it is allowed, prior to discharging the remaining flow to the McMillan Cove. The new basins will also allow the peak discharge rate to the cove to be reduced and improve solids removal in the cove. During periods when sewer discharge is permitted, the new basins will provide temporary storage of a portion of the backwash flow to maintain the peak discharge rate to the sewer in conformance with DC Water requirements.

3. Project Purpose and Need

The purpose of the McMillan Backwash to Sewer Project is to provide WA with a supplementary method for disposing of backwash water from the daily cleaning of filters used in treatment of drinking water. The proposed action would allow WA to more effectively and safely accomplish its mission of providing high-quality drinking water in sufficient quantities to customers in the service area while meeting all regulatory requirements.

4. Project Alternatives

4.1 No Action Alternative

The no action alternative would include no improvements to the McMillan WTP. All filter backwash water would continue to discharge to the McMillan Reservoir cove. The cove would be periodically dredged, and the dredged material would be disposed offsite.

4.2 Proposed Action Alternative

The proposed action would install Backwash Equalization Basins, and Backwash Equalization Pumping Station at the McMillan WTP. The new backwash equalization basins would receive and temporarily store filter backwash water prior to discharging to either the DC Water combined sewer system or the McMillan Reservoir cove area. The peak backwash flow rates required to clean the granular filter media at the McMillan WTP exceed the maximum allowable sewer discharge rate of 10 million gallons per day

permitted by DC Water. Temporary storage of some of the filter backwash water is required to "equalize" or reduce the peak backwash discharge rate to comply with these DC Water discharge requirements.

The total project construction area would be approximately 14,000 square feet (Figure 2). The proposed backwash equalization facilities would include the following major features (Figure 3):

- The 660,000-gallon backwash equalization basins (approximately 7,500 square feet), comprising two 330,000-gallon cells, would be constructed mostly below grade on maintained lawn immediately south of the existing McMillan filter building. Backwash water entering the proposed basin will be allowed to flow by gravity into either or both cells or bypass the basins to flow directly to the DC Water combined sewer . The proposed basins would include automated gravity flow control, metering, and shut-off provisions for discharge to the sewer. The basins would also include drain pumps capable of discharging the contents back to the McMillan Reservoir cove area when sewer discharge is prohibited. An integral basin-flushing system would automatically remove any solids remaining on the basin floor after the cells are drained. Regular basin flushing would limit the amount of time that solids are stored in the basins and limit any associated risk of odor generation. Provisions for the periodic addition of sodium hypochlorite to flow entering the equalization basins would provide additional protection against odor formation. The operation of the backwash equalization basins would be automated and connected to the plant's computer control system and DC Water's control system to ensure compatibility with McMillan filter system operation and compliance with DC Water discharge flow restrictions.

- The Backwash Equalization Pumping Station building would be constructed on the top of the southern end of the equalization basins to house a stair tower to access the below-grade flowmeter room, a small electrical room for the drain pump electrical equipment, and a central area dedicated to drain pump removal and maintenance. The total square footage of the proposed building would be approximately 1,560 square feet.

The equalization basins' location was selected based upon its proximity to an existing combined sewer manhole, the existing filter building, and the associated filter backwash conveyance pipe to the McMillan Reservoir cove. The project area was previously occupied by multiple slow sand filters, constructed in the early 1900's to treat the drinking water until they were replaced in the mid-1980's with the modern filter building in service today. A portion of the bottom slab of the old slow sand filters remains buried under the proposed backwash equalization basin site. The elevation of an existing below grade channel in the Filter Building controls the backwash equalization basin depth. To match the required elevation, construction of the new basin would remove a section of the buried slab and the earth below it. The bottom of excavation would vary along the length of the backwash basin, from 3 feet to 11 feet below the bottom of the slab. The anticipated bottom elevation at the northern (shallow) end would be approximately 148.0, and at the southern (deep) end would be approximately 140.0.

4.3 Alternatives Eliminated from Consideration

A 2017 engineering study (WA, 2017) evaluated five filter backwash equalization and treatment alternatives, including the proposed action alternative. All five alternatives sited the proposed backwash facilities on the McMillan WTP site to minimize offsite construction and neighborhood impacts and reduce construction cost. The need to integrate the new backwash facilities into existing McMillan WTP operations and maintain backwash discharge to the McMillan Reservoir cove area during rainy periods also made it impractical to construct the new backwash facilities on another site.

The four alternatives eliminated from further consideration were the following:

4.3.1 Eliminated Alternative No. 1

Alternative 1 would construct a new 1-million-gallon backwash equalization basin, divided into two 500,000-gallon cells, immediately south of the existing filter building with provisions for discharge to the DC Water sewer system or to the McMillan Reservoir cove area, as for the proposed alternative. This alternative is very similar to the proposed alternative except the volume of the backwash equalization

basin would be larger and the capital cost would be approximately $2.8 million more. It was eliminated from consideration when it was determined that the smaller basin of the proposed alternative was sufficient.

4.3.2 Eliminated Alternative No. 2

Alternative 2 would construct a new 1-million-gallon backwash equalization basin, divided into two 500,000-gallon cells, in the footprint of abandoned Slow Sand Filter No. 6. This intact historical resource would be demolished to facilitate this construction. Complex drain piping modifications would also be required to implement this alternative. The resulting structure would be visible from Michigan Avenue and Children's Hospital located north of the McMillan site, affecting the visual setting of adjacent onsite historic buildings. The capital cost of this alternative would be approximately $13.4 million more than the proposed alternative. The need for increased pumping would also increase the operating cost of this alternative. For these reasons, this alternative was eliminated from further consideration.

4.3.3 Eliminated Alternative No. 3

Alternative 3 would construct a new 1-million-gallon backwash equalization basin, divided into two 500,000-gallon cells, immediately south of the existing Filter Building as for the proposed alternative. The filter backwash water would be discharged to a new treatment facility, including a plate settler particle-removal system and ultraviolet disinfection reactors, before being recycled to the McMillan Reservoir cove area. Settled solids removed from the new treatment system would be discharged to the DC Water sewer system. This alternative would reduce the risk of recycling backwash water to the McMillan Reservoir by greatly reducing the volume of solids discharged to the cove area and providing the additional disinfection treatment. However, the need for a larger backwash equalization basin and a new pumping station building to house recycle treatment facilities would increase the visual impact of this alternative on the viewshed of the adjacent historic buildings. The capital cost of this alternative is approximately $9.8 million more than the proposed alternative. For these reasons, this alternative was eliminated from further consideration.

4.3.4 Eliminated Alternative No. 4

Alternative 4 would construct a new 1-million-gallon backwash equalization basin, divided into two 500,000-gallon cells, immediately south of the existing filter building as for the proposed alternative. The filter backwash water would be discharged to a new ultraviolet disinfection treatment facility before being recycled to the McMillan Reservoir cove area. Backwash solids would continue to be discharged to the cove area and require periodic removal via dredging and offsite disposal. This alternative would reduce the risk of recycling backwash water to the cove by providing additional disinfection treatment. However, the need for a larger backwash equalization basin and additional recycle treatment facilities would increase the visual impact of this alternative on the viewshed of the adjacent historical buildings. The capital cost of this alternative is approximately $4.6 million more than the proposed alternative. For these reasons, this alternative was eliminated from further consideration.

5. Site Description

Construction is proposed to occur on the south end of the existing filter building, in an area previously disturbed by construction activities (Figure 2). The Project area consists mainly of a sloped mowed lawn bounded by the existing filter building and associated access ramp to the north, the plant entrance road and parking lot to the west and south, and the buried north filtered-water clear well to the east. The total project construction area would be approximately 14,000 square feet (0.32 acre).

The native soils have been substantially altered. The Web Soil Survey (Soil Survey Staff, 2018) shows the soils of the Project area and surrounding areas of the McMillan WTP as Udorthents. This mapping unit consists of areas that have been cut or filled during grading for land development, recreation areas, and similar uses (USDA, 1976).

The USGS 7.5-minute quadrangle map (Figure 1) and the National Wetlands Inventory (USFWS, 2018) show no wetlands or waters in the Project area. The McMillan Reservoir is the only feature on either map in the vicinity.

6. Site Visit

A site visit was conducted on June 28, 2018, to determine the biological resources present in the Project area. The Project area consists of a mowed turf grass lawn. (See photographs in Section 9.) A group of seven landscape trees occurs at the southwestern corner of the filter building (Figure 2). Six trees are Austrian pine (*Pinus nigra*) whose diameter at breast height (DBH) ranges from 10.6 inches to 16.8 inches. The seventh tree is a sugar maple (*Acer saccharum*) whose DBH is 10.3 inches. The existing filter building was built between 1985 and 1986; based on aerial photography, it appears that the trees were planted in 1986 or later following construction of this building. These trees are not unique or historic design landscape trees but could be used by transient birds and animals for resting or feeding. Additional landscape trees occur at the southeastern corner of the filter building, beyond the Project area. Also, beyond the Project area, at the eastern end of the ramp to the Filter Building and next to the northeastern corner of the Project area, is a group of mulberry (*Morus* spp.) and black cherry (*Prunus serotina*) saplings. The saplings are volunteers and are not landscape plantings. Otherwise, the Project area is surrounded by mowed lawn and pavement. No woodland areas are located within or adjacent to the Project area.

There are no surface waters or wetlands within the Project area. The only surface water at the McMillan WTP is the McMillan Reservoir, which is located approximately 75 feet south of the Project area and separated from the site by McMillan Drive NW. The Project area does not support aquatic organisms as the site lacks surface waters or wetlands.

During the site visit, the only wildlife observed within the Project area was a single European starling (*Sturnus vulgaris*) foraging in the turf grass. A pair of American crows (*Corvus brachyrhynchos*) were also observed next to the McMillan Reservoir outside of the Project area. No other wildlife species were observed during the site visit.

Wildlife common to urban settings, including year-round resident and migrant birds, Eastern gray squirrels (*Sciurus carolinensis*), and rodent species, also likely occur periodically in the Project area. Several common birds adapted to urban/suburban environments, along with species associated with bodies of water, were identified during the 2007 investigation (Reed, 2007). The species observed during that study included European starlings, Canada geese (*Branta canadensis*), and several species of gulls, and shorebirds (unidentified, but possibly killdeers, *Charadrius vociferous*). No other wildlife was observed during the 2007 study.

7. Threatened and Endangered Species

A resource list report was generated from the U.S. Fish and Wildlife Service (USFWS) Chesapeake Bay Ecological Services Field Office using the Service's Information, Planning and Consultation System (IPaC) on July 5, 2018. The report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as "trust resources") under the USFWS jurisdiction that are known or expected to be on or near the Project area. (A resource list from the IPaC Resources page is not considered official USFWS correspondence for Endangered Species Act (ESA) consultation purposes.)

The resource list states there are no threatened or endangered species expected to occur at this location, but it did list 13 birds of particular concern whose ranges include the project area, and which either occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in the project location (Table 1). Preferred habitats for these bird species do not exist within the Project area and none of these species were observed.

Table 1. Summary of Birds of Conservation Concern in the IPaC Resource List for the Project Area

Common Name	Scientific Name	Habitat
Bald eagle	*Haliaeetus leucocephalus*	Coasts, rivers, large lakes; in migration, also mountains, open country. Typically, close to water, also locally in open dry country. Occurs in a variety of waterside settings where prey is abundant, including swamps in Florida, edges of conifer forest in southeastern Alaska, treeless islands in Aleutians, desert rivers in Arizona. (https://www.audubon.org/field-guide/bird/bald-eagle, accessed July 6, 2018)
Black-billed cuckoo	*Coccyzus erythropthalmus*	Dense wooded habitats and is often found in mesic environments that have strong associations with water, such as young deciduous and mixed deciduous-coniferous woods, the edges of bogs and marshes, rivers, and lake-shores, or abandoned farmlands or brushy hillsides and pastures. (https://ecos.fws.gov/ecp0/profile/speciesProfile?sId=9399; accessed July 6, 2018)
Bobolink	*Dolichonyx oryzivorus*	Hayfields, meadows; in migration, marshes. Original prime breeding areas were damp meadows and natural prairies with dense growth of grass and weeds and a few low bushes. Such habitats still favored but are hard to find. Today most Bobolinks in the eastern United States nest in hayfields. Migrants stopover in fields and marshes, often feeding in rice fields. (https://www.audubon.org/field-guide/bird/bobolink, accessed July 17, 2018)
Canada warbler	*Cardellina canadensis*	Forest undergrowth and shady thickets. Breeds in mature mixed hardwoods of extensive forests and streamside thickets. Prefers to nest in moist habitat: in luxuriant undergrowth, near swamps, on stream banks, in rhododendron thickets, in deep, rocky ravines and in moist deciduous second-growth. (https://www.audubon.org/field-guide/bird/canada-warbler, accessed July 17, 2018)
Cerulean warbler	*Dendroica cerulea*	Deciduous forests, especially in river valleys. Breeds in mature hardwoods either in uplands or along streams. Prefers elm, soft maple, oak, birch, hickory, beech, basswood, linden, sycamore, or black ash. Nests only in tall forest with clear understory. (https://www.audubon.org/field-guide/bird/cerulean-warbler, accessed July 17, 2018)
Golden-winged warbler	*Vermivora chrysoptera*	Open woodlands, brushy clearings, and undergrowth. It breeds in brushy areas with patches of weeds, shrubs, and scattered trees (such as alder or pine). This habitat type is found in places where a cleared field is growing up to woods again, as well as in marshes and tamarack bogs. (https://www.audubon.org/field-guide/bird/golden-winged-warbler; accessed July 6, 2018)

Table 1. Summary of Birds of Conservation Concern in the IPaC Resource List for the Project Area

Common Name	Scientific Name	Habitat
Kentucky warbler	*Oporornis formosus*	Woodland undergrowth. In summer, prefers deep shaded woods with dense, humid thickets, bottomlands near creeks and rivers, ravines in upland deciduous woods, and edges of swamps. (https://www.audubon.org/field-guide/bird/kentucky-warbler; accessed July 6, 2018)
Prairie warbler	*Dendroica discolor*	Brushy slashings, bushy pastures, and low pines. It breeds in dry old clearings, edges of forest, and sandy pine barrens with undergrowth of scrub oaks, especially on ends of slopes and ridges. Likes thick second-growth of hickory, dogwood, hazel, or laurel with blackberry vines. Found in flat, grassy lands with scattered trees and bushes in the South in the winter. (https://www.audubon.org/field-guide/bird/prairie-warbler; accessed July 6, 2018)
Prothonotary warbler	*Protonotaria citrea*	Wooded swamps. Breeds in flooded river bottom hardwoods including black willow, ash, buttonbush, sweetgum, red maple, hackberry, river birch, and elm; or wetlands with bay trees surrounded by cypress swamp. Also nests near borders of lakes, rivers and ponds, normally only in areas with slow moving or standing water. (https://www.audubon.org/field-guide/bird/prothonotary-warbler; accessed July 6, 2018)
Red-headed woodpecker	*Melanerpes erythrocephalus*	Breeds in deciduous woodlands with oak or beech, groves of dead or dying trees, river bottoms, burned areas, recent clearings, beaver swamps, orchards, parks, farmland, grasslands with scattered trees, forest edges, and roadsides. During the start of the breeding season, moves from forest interiors to forest edges or disturbed areas. Wherever it breeds, dead (or partially dead) trees for nest cavities are an important part of its habitat. In the northern part of their winter range, it lives in mature stands of forest, especially oak, oak-hickory, maple, ash, and beech. In the southern part, in pine and pine-oak. It nests in dead trees or dead parts of live trees—including pines, maples, birches, cottonwoods, and oaks—in fields or open forests with little vegetation on the ground. Often uses snags that have lost most of their bark, creating a smooth surface that may deter snakes. May also excavate holes in utility poles, live branches, or buildings. Occasionally uses natural cavities. Unlike many woodpeckers, the red-headed woodpecker often reuses a nest cavity several years in a row. (https://www.allaboutbirds.org/guide/Red-headed_Woodpecker/lifehistory; accessed July 6, 2018)
Red-throated loon	*Gavia stellate*	Coastal waters, bays, estuaries; in summer, tundra lakes. Breeding habitat includes small ponds as well as larger lakes, mostly on tundra but sometimes within edge of northern forest. Mainly on ocean in winter (a few on large lakes); often in shallower water than other loons, as in protected bays, and large estuaries. (https://www.audubon.org/field-guide/bird/red-throated-loon; accessed July 6, 2018)
Rusty blackbird	*Euphagus carolinus*	River groves, wooded swamps; muskeg in summer. Breeds in the muskeg region, in wet northern coniferous forest with many lakes and bogs. During migration and winter, favors areas with trees near water, as in wooded swamps and riverside forest; will also forage in open fields and cattle feedlots with other blackbirds. (https://www.audubon.org/field-guide/bird/rusty-blackbird; accessed July 6, 2018)

Table 1. Summary of Birds of Conservation Concern in the IPaC Resource List for the Project Area

Common Name	Scientific Name	Habitat
Wood thrush	*Hylocichla mustelina*	Mainly deciduous woodlands. Breeds in the understory of woodlands, mostly deciduous but sometimes mixed, in areas with tall trees. More numerous in damp forest and near streams than in drier woods; will nest in suburban areas where there are enough large trees. In migration, found in various kinds of woodland. (https://www.audubon.org/field-guide/bird/wood-thrush; accessed July 6, 2018)

The bird species seen during the site visit are common to urban settings and none are on the USFWS BCC list.

Pursuant to the federal mandate and as part of the District Comprehensive Plan, the Fisheries and Wildlife Division of the District Department of Health, Environmental Health Administration (now part of District Department of Energy and Environment's [DOEE's] Natural Resources Administration) prepared a comprehensive wildlife conservation strategy, from which a Wildlife Action Plan (WAP) was developed in 2005 (DCMR 10-A607). WAPs are reviewed and approved by the USFWS. DOEE updated its WAP in 2015 with input from several technical advisory committees, sister agencies, stakeholder organizations, and the public (DOEE, 2015). The plan was submitted to the USFWS for review and is awaiting approval.

The WAP characterizes each of the habitats in the District. It places the Project area in the "Developed" habitat formation class. Developed systems include areas that have been converted or significantly altered for human use. These developed systems generally hold little value for wildlife unless specific effort is made to include and maintain pockets of high-quality habitat (DOEE, 2015). There is no high-quality habitat in the Project area and no specific effort made to include or maintain pockets of high-quality habitat; therefore, there is no habitat for the Species of Greatest Conservation Need (SGCN) in the Project area or surrounding area.

The WAP also identifies current needs and priorities to protect the District's SGCN and their habitats. The SGCN list includes 58 birds, 21 mammals, 17 reptiles, 18 amphibians, 12 fish, and 79 invertebrates. The WAP classifies the habitats in the District by their value to sustain SGCN. On the scale of 1 (worst) to 10 (best), the McMillan WTP is classified as 2, meaning overall low habitat value for SGCN.

The Migratory Bird Treaty Act (16 U.S.C. 703–712; Ch. 128; July 13, 1918; 40 Stat. 755) protections make it unlawful to pursue, hunt, take, capture or kill, attempt to take, possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, if it is manufactured or not. During the site visit, no nesting birds or evidence of nesting birds was observed. As stated in the USFWS resource list, it is important to try to avoid and minimize impacts to all birds; efforts should be made, in particular, to avoid and minimize impacts to birds on the resource list, especially eagles and BCC species of rangewide concern.

An official species list for consultation purposes under Section 7 of the ESA was requested from the USFWS Chesapeake Bay Ecological Services Field Office using the Service's IPaC on July 17, 2018 and November 9, 2018. The USFWS responses indicated that no listed, proposed, or candidate species or critical habitats are known to occur near the Project area. A project review package, which includes the Online Project
Review Certification Letter, map of the action area, and PDF file of the species list dated November 9, 2018 from the IPaC site, was
emailed to the USFWS Chesapeake Bay Ecological Services Field Office after receiving client approval for certification (Attachment 1). The USFWS certification letter states that except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to exist within the Project area. Therefore, no Biological Assessment or further Section 7 consultation with the

USFWS is required. The Certification Letter will be maintained in the project files and is a part of the official record of compliance.

A copy of this EA is being sent to the DOEE for review and comment, to include confirmation that the project will affect no state listed species.

8. Conclusion

To facilitate enhanced filter backwash capabilities for treating water drawn from the Potomac River to produce drinking water for Washington, DC and portions of Northern Virginia, WA is sponsoring the McMillan Backwash to Sewer Project at the McMillan WTP in Washington DC, NW.

The Project will involve construction of new Backwash Equalization Basins, and Backwash Equalization Pumping Station adjacent to the existing McMillan WTP filter building, which was constructed in 1986. The proposed Backwash Equalization Basins will largely be located below grade. Backwash Equalization Pumping Station building would be a one-story building constructed on the top of the southern end of the equalization basins. Construction is proposed to occur on the south end of the existing filter building, in an area previously disturbed by construction activities.

Jacobs conducted a site visit on June 28, 2018, to determine the biological resources present at the proposed backwash equalization basins Project area. The Project will have no significant impacts on biological resources. The Project area is almost entirely mowed lawn. The proposed action would remove seven landscape trees. These trees are not unique, but could be used by transient birds and animals for resting or feeding. The Project will affect no wetlands or other waters. There is no critical habitat and the Project will affect no threatened or endangered species.

9. Photographs

Photograph 1. View of the site looking north from McMillian Drive NW, April 8, 2018.

Photograph 2. View of the seven landscape trees in the northwestern corner of the site and the access ramp to the Filter Building, April 8, 2018.

Photograph 3. Closeup view of the seven landscape trees located at the northwestern corner of the site, June 28, 2018.

Photograph 4. View of the southern portion of the site from McMillian Drive NW looking east-northeast, June 28, 2018.

Photograph 5. View of the group of saplings at the eastern end of the Filter Building ramp located along the southwestern corner of the Filter Building, June 28, 2018.

10. References

District Department of Energy and Environment (DOEE). 2015. *District of Columbia Wildlife Action Plan*. 2015 Update. July.

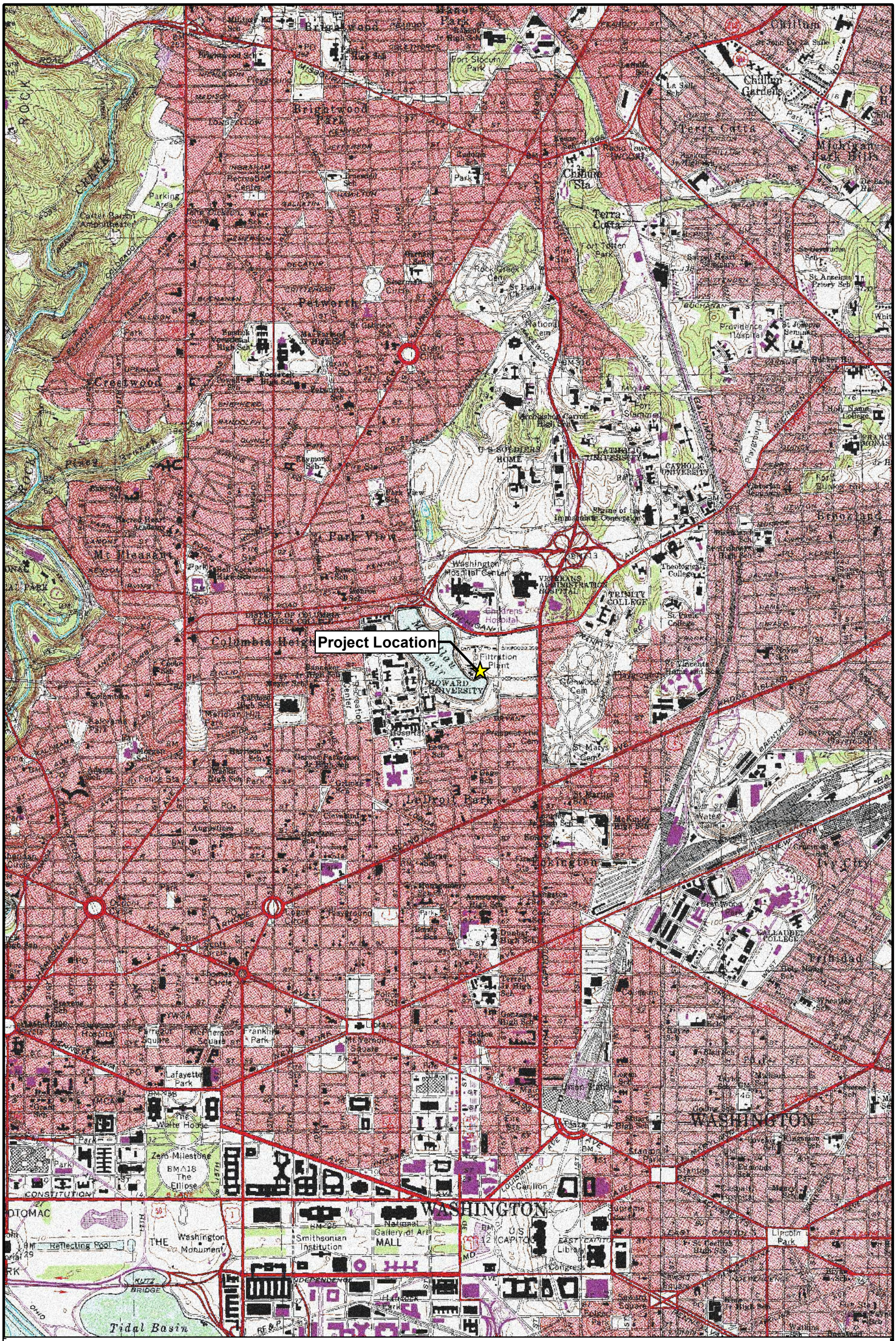
Reed, James R., Jr. 2007. *Biological Factors Memorandum*. Prepared for EE&T, Inc. March 5. 13 pp.

Soil Survey Staff. 2018. Web Soil Survey. Natural Resources Conservation Service, United States Department of Agriculture. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed July 11, 2018.

USDA (U.S. Department of Agriculture). 1976. *Soil Survey of District of Columbia*.

USFWS (U.S. Fish and Wildlife Service). 2018. National Wetlands Inventory. https://www.fws.gov/wetlands/data/mapper.html. Accessed July 11, 2018.

WA (Washington Aqueduct). 2017. Project Definition Report—McMillan Backwash to Sewer, Washington Aqueduct, Washington, DC. September 2017.



LEGEND

★ Project Location

Source:
USGS 7.5-minute Topographic Quadrangle
Washington West, VA (published 1984)

FIGURE 1
Project Overview Map
McMillan Water Treatment Plant
Washington District of Columbia

LEGEND

- Austrian pine (*Pinus nigra*)
- Sugar maple (*Acer saccharum*)
- Saplings
- Photograph Location
- Project LOD
- McMillan WTP Boundary

Source:
ESRI, World Imagery, online mapping

0 35 70 140 Feet

FIGURE 2
Project Area
McMillan Water Treatment Plant
Washington District of Columbia

Attachment 1
IPaC Project Review Package

From:	Carr, Lindsey/HRO
To:	"cbfoprojectreview@fws.gov"
Cc:	Palen, Glenn/WDC; Armstrong, Jennifer/WDC; Washburn, Carolyn/PNT; Hook, Robert/CIN
Subject:	Online Project Review Certification Letter for Washington Aqueduct McMillan Backwash to Sewer Project
Date:	Monday, November 12, 2018 2:51:00 PM
Attachments:	USFWS Project Review Package_WA_McMillan Backwash to Sewer Project.pdf

Hi Trevor,

Attached please find the project review package for the Washington Aqueduct McMillan Backwash to Sewer Project. The online review process indicated that no federally proposed or listed endangered or threatened species are known to exist within the project area.

If you have questions I can be reached via cell phone (703) 728-9444 or email lindsey.carr@jacobs.com.

Regards,

Lindsey Carr
Jacobs
Biologist | Environmental Planning
Global Environmental Solutions
757.224.7894 work
703.728.9444 mobile
Lindsey.Carr@jacobs.com

www.jacobs.com

From: CBFO Project Review, FW5
To: prvs=5854a1f02e=lindsey.carr@jacobs.com
Subject: "cbfoprojectreview@fws.gov" return receipt Re: [EXTERNAL] Online Project Review Certification Letter for Washington Aqueduct McMillan Backwash to Sewer Project
Date: Monday, November 12, 2018 2:55:44 PM

This message is a return receipt from the "cbfoprojectreview@fws.gov" mailbox. The U.S. Fish and Wildlife Service has received your project. Thank you.

United States Department of the Interior
U.S. Fish & Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401
410/573 4575

Online Certification Letter

Today's date: 11-9-2018

Project: Washington Aqueduct McMillan Backwash to Sewer Project

Dear Applicant for online certification:

Thank you for using the U.S. Fish and Wildlife Service (Service) Chesapeake Bay Field Office online project review process. By printing this letter in conjunction with your project review package, you are certifying that you have completed the online project review process for the referenced project in accordance with all instructions provided, using the best available information to reach your conclusions. This letter, and the enclosed project review package, completes the review of your project in accordance with the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended (ESA).This letter also provides information for your project review under the National Environmental Policy Act of 1969 (P.L. 91-190, 42 U.S.C. 4321-4347, 83 Stat. 852), as amended. A copy of this letter and the project review package must be submitted to this office for this certification to be valid. This letter and the project review package will be maintained in our records.

Based on this information and in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), we certify that except for occasional transient individuals, no federally proposed or listed endangered or threatened species are known to exist within the project area. Therefore, no Biological Assessment or further section 7 consultation with the U.S. Fish and Wildlife Service is required. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

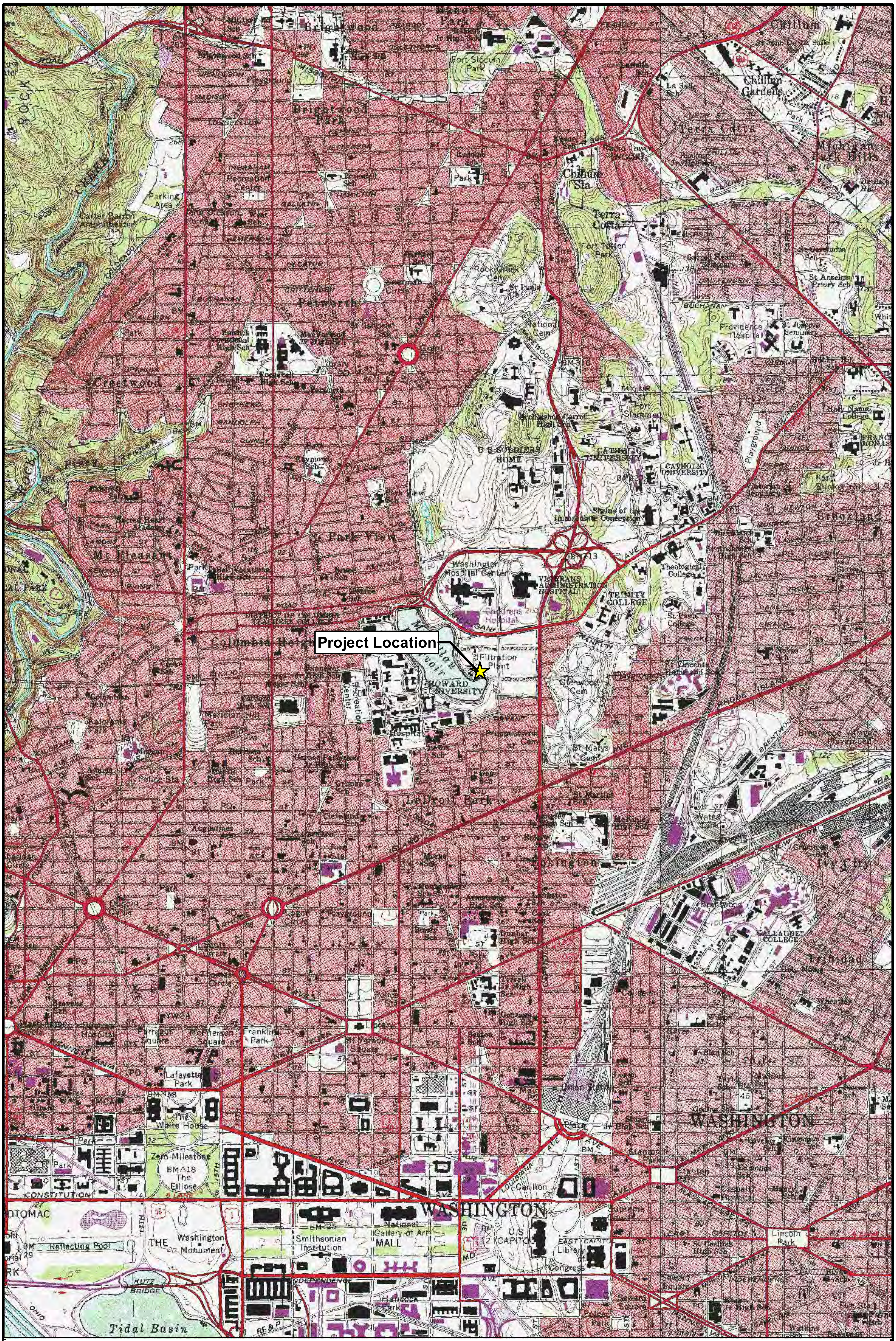
This response relates only to federally protected threatened or endangered species under our jurisdiction. For additional information on threatened or endangered species in Maryland, you should contact the Maryland Wildlife and Heritage Division at (410) 260-8573. For information in Delaware you should contact the Delaware Division of Fish and Wildlife, Wildlife Species Conservation and Research Program at (302) 735-8658. For information in the District of Columbia, you should contact the National Park Service at (202) 339-8309.

The U.S. Fish and Wildlife Service also works with other Federal agencies and states to minimize loss of wetlands, reduce impacts to fish and migratory birds, including bald eagles, and restore habitat for wildlife. Information on these conservation issues and how development projects can avoid affecting these resources can be found on our website (www.fws.gov/chesapeakebay)

We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interest in these resources. If you have any questions or need further assistance, please contact Chesapeake Bay Field Office Threatened and Endangered Species program at (410) 573-4527.

Sincerely,

Genevieve LaRouche
Field Supervisor



LEGEND

☆ Project Location

Source:
USGS 7.5-minute Topographic Quadrangle
Washington West, VA (published 1984)

0 1,000 2,000 4,000 Feet

FIGURE 1
Project Overview Map
McMillan Water Treatment Plant
Washington District of Columbia

LEGEND

- Project LOD
- McMillan WTP Boundary

Source:
ESRI, World Imagery, online mapping

0 150 300 600 Feet

FIGURE 2
Project Map
McMillan Water Treatment Plant
Washington District of Columbia

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
Phone: (410) 573-4599 Fax: (410) 266-9127
http://www.fws.gov/chesapeakebay/
http://www.fws.gov/chesapeakebay/endsppweb/ProjectReview/Index.html

In Reply Refer To: November 09, 2018
Consultation Code: 05E2CB00-2018-SLI-1560
Event Code: 05E2CB00-2019-E-00677
Project Name: Washington Aqueduct McMillan Backwash to Sewer Project

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chesapeake Bay Ecological Services Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401-7307
(410) 573-4599

Project Summary

Consultation Code: 05E2CB00-2018-SLI-1560

Event Code: 05E2CB00-2019-E-00677

Project Name: Washington Aqueduct McMillan Backwash to Sewer Project

Project Type: WATER QUALITY MODIFICATION

Project Description: The McMillan Backwash to Sewer Project is located approximately 2.2 miles north of the Capitol at the McMillan Water Treatment Plan in Washington DC. The purpose of the McMillan Backwash to Sewer project is to provide Washington Aqueduct (WA) with a supplementary method for disposing of backwash water from the daily cleaning of filters used in treatment of drinking water at the McMillan Water Treatment Plant (WTP). As an alternative to recycling filter backwash water to the McMillan Reservoir Cove, WA is seeking to discharge the majority of the filter backwash water to a combined (sanitary and storm) sewer system operated by DC Water that passes through the McMillan WTP campus. The project adds a new backwash equalization basin into the treatment system. The new basin will provide temporary storage of a portion of the backwash flow to control the peak discharge rate to the sewer in conformance with DC Water requirements. Construction of the equalization basin also allows the peak discharge rate to the cove be reduced and improve solids removal in the cove. The project allows the WA to more effectively and safely accomplish its mission of providing high quality drinking water in sufficient quantities to customers in the service area while meeting all regulatory requirements.

Construction is proposed to occur on the south end of the existing filter building, in an area previously disturbed by construction activities. The total project construction area would be approximately 14,000 square feet (0.32 acre). Construction will begin April 2019 and will take approximately two years to complete. The Project area consists mainly of a sloped mowed lawn bounded by the existing filter building and associated access ramp to the north, the plant entrance road and parking lot to the west and south, and the buried north filtered- water clear well to the east. A group of seven landscape trees occurs at the southwestern corner of the filter building. These trees are not unique, but could be used by transient birds and animals for resting or feeding. Additional landscape trees occur at the southeastern corner of the filter building, beyond the Project area. Also beyond the Project area, at the eastern end of the ramp to the Filter Building and next to the northeastern corner of the Project area, is a group of saplings. The saplings are volunteers and are not

landscape plantings. Otherwise, the Project area is surrounded by mowed lawn and pavement. No woodland areas are located within or adjacent to the Project area. There are no surface waters or wetlands within the Project area. The only surface water at the McMillan WTP is the McMillan Reservoir, which is located approximately 75 feet south of the Project area and separated from the site by McMillan Drive NW. The Project area does not support aquatic organisms as the site lacks surface waters or wetlands.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/38.923959297068464N77.01348457303177W

Counties: District of Columbia, DC

Endangered Species Act Species

There is a total of 0 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

Wetlands

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

THERE ARE NO WETLANDS WITHIN YOUR PROJECT AREA.

Appendix 3
Cultural Resources Assessment

JACOBS®

Memorandum

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Subject	**Cultural Resources Assessment**
Project Name	Washington Aqueduct McMillan Backwash to Sewer Project
Attention	U.S. Army Corps of Engineers, Baltimore District Washington Aqueduct
From	Jared N. Tuk, Architectural Historian/Jacobs Engineering Group Amy C. Favret, Archaeologist/Jacobs Engineering Group Glenn Palen, Project Manager/Jacobs Engineering Group
Date	March 27, 2019

1. Introduction

Cultural resources are protected by a number of statutes and regulations at all levels of government and must be taken into consideration during the National Environmental Policy Act (NEPA) process and documented in an environmental assessment. This memorandum examines potential impacts on cultural resources as a result of the McMillan Backwash to Sewer Project (Project), located approximately 2.2 miles north of the Capitol (Attachment 1, Figure 1). The Project is co-sponsored by the United States Army Corps of Engineers (USACE)–Baltimore District, the National Capital Planning Commission, and the United States Commission of Fine Arts, making it a federal undertaking under the National Historic Preservation Act (NHPA). The USACE is the lead federal agency.

The term cultural resources encompasses properties of the built environment; archeological sites and artifacts; and Native American sites, artifacts, and traditional cultural properties. The NHPA was passed in 1966 as a reflection of the importance of those resources to our national, regional, and local culture. According to 36 Code of Federal Regulations (CFR) 800.16(l)(1), the definition of an historic property is any historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP).

Jared N. Tuk, an architectural historian with Jacobs who meets the Secretary of the Interior's Professional Qualifications Standards for architectural history and history, and Amy C. Favret, an archaeologist who meets the Secretary of the Interior's Standards for archaeology, prepared this memorandum using existing available materials and through additional research.

Near the study area, there is one NRHP-listed historic district and one NRHP-listed property, both of which are also locally designated historic properties. The individually NRHP-listed property is the Fire Alarm Headquarters, located at 300 McMillan Drive NW, on the south end of the McMillan Reservoir. This resource is listed as a contributor to the Firehouses in Washington DC Multiple Property Submission. The McMillan Park Reservoir Historic District, which encompasses the study area, is a locally designated historic district that was also entered into the NRHP on February 20, 2013. This analysis finds that the Project would have no adverse effect on these historic properties.

2. Project Overview

The Washington Aqueduct (WA), a division of USACE–Baltimore District, treats water withdrawn from the Potomac River to produce drinking water for Washington, DC and portions of Northern Virginia. As part of this function, Washington Aqueduct (WA) maintains and operates the Dalecarlia and McMillan Water Treatment Plants (WTPs). These WTPs employ conventional treatment processes consisting of coagulation, flocculation, sedimentation, filtration, and disinfection to treat the water withdrawn from the Potomac River. For the McMillan WTP, the coagulation, flocculation and sedimentation treatment steps occur remotely at the Georgetown Reservoir site, approximately 6 miles southwest of the McMillan WTP. Following settling, the partially treated water flows by gravity through a tunnel that connects the Georgetown Reservoir to the McMillan Reservoir, located on the McMillan WTP site. Here the water is pumped through filters to remove any remaining particles, disinfected, and supplied to customers.

The McMillan WTP uses granular media filters to remove particles remaining in solution following settling. The water continuously flows by gravity through the granular filter media until its particle-capturing capability is exhausted, at which point each filter is taken offline one at a time and backwashed at a high rate with clean water to remove the accumulated solids. This process cleans the media and restores its particle-capturing capability. The backwash water containing the concentrated solids removed from the filter media is known as spent filter backwash water.

The Filter Backwash Recycling Rule of the 1996 Safe Drinking Water Act requires that spent filter backwash water be returned to the head of the treatment process or discharged to an alternate location approved by the treatment plant's primacy agency, in this case, U.S. Environmental Protection Agency (EPA) Region 3. At the McMillan WTP, spent filter backwash water is recycled to the adjacent McMillan Reservoir, which is downstream of the coagulation, flocculation, and sedimentation processes performed at the Georgetown Reservoir site. Filter backwash water is discharged into a cove area of the McMillan Reservoir, which is separated from the main body of the reservoir by a silt curtain. The alternate discharge location used at the McMillan WTP is approved by EPA Region 3.

Solids in the spent filter backwash water settle out of solution and deposit in the cove area before the clarified backwash water returns to the main body of the reservoir. WA must periodically dredge the accumulated solids from the cove to maintain adequate backwash water treatment capacity.

As an alternative to recycling filter backwash water to the McMillan Reservoir cove, WA is seeking to discharge the majority of the filter backwash water to a combined (sanitary and storm) sewer system operated by DC Water that passes through the McMillan WTP campus. WA has requested and received preliminary approval from DC Water to do so. The preliminary approval limits the rate of discharge of filter backwash water to the sewer to 10 million gallons per day (MGD) during dry weather conditions, and prohibits filter backwash water being discharged to the sewer during wet weather conditions. The preliminary permit approval also requires that a pre-treatment permit be obtained from DC Water for monitoring the quantity and quality of filter backwash water discharges. The monitoring data would be used to establish time periods during which filter backwash water discharges to the sewer would be allowed or prohibited.

The project will improve the McMillan filter backwash water-handling facilities by:

- Disposing of most of the filter backwash water directly to the sewer system within the limits set by DC Water when the sewer system can receive the discharge. Reducing the volume of solids discharged to the cove will improve filter performance and finished water quality by reducing the risk that solids or other contaminants present in the filter backwash water could be recycled from the cove back to treatment plant.
- Continuing to recycle filter backwash water to the McMillan cove area when sewer discharge is not permitted. The project will adda new backwash equalization basin to the treatment system to allow a portion of the filter backwash solids to settle in the basin, for later discharge to the sewer when it is allowed, prior to discharging the remaining flow to the McMillan cove. The new basin will also allow the peak discharge rate to the cove to be reduced and improve solids removal in the cove. During periods when sewer discharge is permitted, the new basin will provide temporary storage of a portion

of the backwash flow to maintain the peak discharge rate to the sewer in conformance with DC Water requirements.

3. Project Purpose and Need

The purpose of the McMillan Backwash to Sewer Project is to provide WA with a supplementary method for disposing of backwash water from the daily cleaning of filters used in treatment of drinking water. The proposed action would allow WA to more effectively and safely accomplish its mission of providing high-quality drinking water in sufficient quantities to customers in the service area while meeting all regulatory requirements.

4. Project Alternatives

4.1 No Action Alternative

The no action alternative would include no improvements to the McMillan WTP. All filter backwash water would continue to be discharged to the McMillan Reservoir cove. The cove would be periodically dredged, and the dredged material would be disposed of offsite.

4.2 Proposed Action Alternative

The proposed action would install a backwash equalization basin, associated pumps, and other equipment at the McMillan WTP by constructing new backwash equalization pumping station and basin adjacent to the existing filter building, which was constructed in 1986. To maximize safety and efficiency, and to minimize visual changes to the surroundings, the proposed backwash equalization pumping station and basin will be largely below grade. Construction is proposed to occur on the south end of the existing filter building, in an area previously disturbed by prior construction activities in 1985, 1999–2000, and 2005. The maximum estimated area of proposed construction will not exceed approximately 120 feet by 120 feet.

The new filter backwash equalization basin would receive and temporarily store filter backwash water prior to discharging to either the DC Water combined sewer system or the McMillan Reservoir cove area. The peak backwash flow rates required to clean the granular filter media at the McMillan WTP exceed the 10-MGD maximum allowable sewer discharge rate permitted by the DC Water permit. Temporary storage of some of the filter backwash water would “equalize” or reduce the peak backwash discharge rate to comply with these DC Water discharge requirements. The total project construction area would occur within the limit of disturbance shown on Attachment 1, Figure 2, and will be approximately 14,000 square feet. The proposed design for the project is included as Attachment 2. The proposed backwash equalization facilities would include the following major features:

- A 660,000-gallon equalization basin (approximately 7,500 square feet in area), divided into two 330,000-gallon cells, would be constructed mostly below grade on maintained lawn immediately south of the existing filter building. Backwash water entering the proposed basin will be allowed to flow by gravity into either or both cells or bypass the basin and flow directly to the DC Water combined sewer. The proposed basins include automated gravity flow control, metering, and shut-off provisions for discharge to the sewer. The basin would also include drain pumps capable of discharging the contents back to the McMillan Reservoir cove area when sewer discharge is prohibited. An integral basin flushing system would automatically remove any solids remaining on the basin floor after the cells are drained. Regular basin flushing would limit the amount of time that solids are stored in the basin and any associated risk of odor generation. Provisions for the periodic addition of sodium hypochlorite to the equalization basin would provide additional protection against odor formation. The operation of the backwash equalization basin would be automated and connected to the plant’s computer control system and DC Water’s control system to ensure compatibility with McMillan filter system operation and compliance with DC Water discharge flow requirements.
- The Backwash Equalization Pumping Station building would be constructed on top of the southern end of the equalization basin (described in the bullet above) to house a stair tower to access the

below-grade flow meter room, a small electrical room for drain pump electrical equipment, and a central area dedicated to drain pump removal and maintenance. The total area of the proposed building would be approximately 1,560 square feet.

The equalization basin location was selected based upon its proximity to an existing combined sewer manhole, the existing 1986 filter building, and the associated filter backwash conveyance pipe to the McMillan Reservoir cove. The project area was previously occupied by multiple slow sand filters, constructed in the early 1900s to treat the drinking water. These were replaced in the mid-1980s with the modern filter building, which remains in service today. A portion of the bottom slab of the early 1900s slow sand filters remains buried under the proposed backwash equalization basin site. The elevation of an existing below-grade channel in the filter building controls the backwash equalization basin depth. To match the required elevation, construction of the new basin would remove a section of the buried slab and the earth below it, which consists of non-native fill used during its construction. The bottom of excavation would vary along the length of the backwash basin, from three feet to 11 feet below the bottom of the slab. The anticipated bottom elevation at the northern (shallow) end would be approximately 148.0, and at the southern (deep) end would be approximately 140.0.

4.3 Alternatives Eliminated from Consideration

A 2017 engineering study evaluated five filter backwash equalization and treatment alternatives, including the proposed action alternative (WA, 2017). All five alternatives sited the proposed backwash facilities on the McMillan WTP site to tie into existing infrastructure, minimize off-site construction and neighborhood impacts, and to reduce construction cost. The need to integrate the new backwash facilities into existing McMillan WTP operations and maintain backwash discharge to the McMillan Reservoir cove area during rainy periods also made it impractical to construct the new backwash facilities on another site.

The four alternatives eliminated from further consideration included the following:

4.3.1 Eliminated Alternative No. 1

Alternative 1 would have involved constructing a 1-million-gallon backwash equalization basin, divided into two 500,000-gallon cells, immediately south of the existing Filter Building with provisions for discharge to the DC Water sewer system or to the McMillan Reservoir cove area, as for the proposed alternative. This alternative was similar to the proposed alternative except for the larger volume of the backwash equalization basin and the increase in capital cost of approximately $2.8 million. It was eliminated from consideration when it was determined that the smaller basin of the proposed alternative was sufficient.

4.3.2 Eliminated Alternative No. 2

Alternative 2 would have involved constructing a 1-million-gallon backwash equalization basin, divided into two 500,000-gallon cells, in the footprint of abandoned Slow Sand Filter No. 6. This intact historical resource would have been demolished to facilitate this construction. Complex drain piping modifications would also have been required to implement this alternative. The resulting structure would have been visible from Michigan Avenue and Children's Hospital, located north of the McMillan site, affecting the visual setting of adjacent historic buildings. The capital cost of this alternative would have been approximately $13.4 million more than the proposed alternative. The need for increased pumping would have also increased the operating cost of this alternative. For these reasons, this alternative was eliminated from further consideration.

4.3.3 Eliminated Alternative No. 3

Alternative 3 would have involved constructing a new 1-million-gallon backwash equalization basin, divided into two 500,000-gallon cells, immediately south of the existing filter building, similar to the proposed alternative. The filter backwash water would have been discharged to a new treatment facility, including a plate settler particle removal system and ultraviolet disinfection reactors, before being

recycled to the McMillan Reservoir cove area. Settled solids removed from the new treatment system would have been discharged to the DC Water sewer system. By providing additional treatment of backwash water prior to being periodically discharged to the McMillan Reservoir, this alternative would further reduce the risk of recycling backwash water to the McMillan Reservoir. However, the need for a larger backwash equalization basin and an additional building to house recycling treatment facilities would have increased the visual impact of this alternative on the viewshed of adjacent historical buildings. The capital cost of this alternative would have been approximately $9.8 million more than the proposed alternative. After consideration, it was concluded that the incremental benefit of providing additional backwash treatment did not offset the disadvantages of this alternative. For these reasons, this alternative was eliminated from further consideration.

4.3.4 Eliminated Alternative No. 4

Alternative 4 would have involved constructing a new 1-million-gallon backwash equalization basin, divided into two 500,000-gallon cells, immediately south of the existing filter building, similar to the proposed alternative. The filter backwash water would have been discharged to a new ultraviolet disinfection treatment facility before being recycled to the McMillan Reservoir cove area. Backwash solids would have continued to be discharged to the cove area when sewer discharge was prohibited and would have required periodic removal via dredging and off-site disposal. This alternative would have reduced the risk of recycling backwash water to the cove by providing the additional disinfection treatment. However, the need for a larger backwash equalization basin and additional recycle treatment facilities would have increased the visual impact of this alternative on the viewshed of the adjacent historical buildings. The capital cost of this alternative was approximately $4.6 million more than the proposed alternative. After consideration, it was concluded that the incremental benefit of providing additional backwash treatment did not offset the disadvantages of this alternative. For these reasons, this alternative was eliminated from further consideration.

5. Regulatory Context

5.1 Federal Regulations

There are various federal laws, regulations, and executive orders that pertain to the identification, evaluation, and treatment of significant cultural resources. Federal projects that affect cultural resources are subject to the following primary federal regulations:

- **National Environmental Policy Act of 1969 (83 Stat 852; 42 USC 4321).** The USACE, as the responsible federal agency for this Project, is charged with ensuring compliance with the Act. NEPA requires that all major actions sponsored, funded, permitted, or approved by federal agencies (referred to as federal undertakings) undergo planning to ensure that environmental considerations, such as effects on cultural resources, are given due weight in decision making. The federal implementing regulations for NEPA are in 40 CFR Parts 1500 through 1508 (Council on Environmental Quality). The NEPA regulations include sections on urban quality, historic and cultural resources, and the design of the built environment (40 CFR 1502.16(g)).
- **National Historic Preservation Act of 1966 (80 Stat 915; 54 USC 300101 et seq.)**. The Advisory Council on Historic Preservation (ACHP) is an independent federal agency that promotes the preservation, enhancement, and productive use of our nation's historic resources. The National Historic Preservation Act (NHPA) of 1966, as amended, which established the ACHP, is designed to have federal agencies act as responsible stewards of our nation's resources when their actions affect historic properties. The ACHP is the only entity with the legal responsibility to encourage federal agencies to factor historic preservation into federal project requirements.

Section 106 of the NHPA requires each federal agency to identify and assess the effects of its actions on historic resources. The responsible federal agency, which for this project is the USACE, must consult with the appropriate state historic preservation office (SHPO), any affected Indian tribes, and other appropriate consulting parties to consider their views and concerns about historic preservation issues when making final project decisions.

Effects are resolved by mutual agreement, usually among the affected state's SHPO or the Tribal Historic Preservation Office (THPO), the federal agency, and other involved parties. The ACHP may participate in controversial or precedent-setting situations.

The regulations implementing Section 106, which encourage maximum cooperation with NEPA, are codified at 36 CFR 800. The Section 106 review process involves four steps:

1) Initiate the Section 106 process by establishing the undertaking, developing a plan for public involvement, and identifying consulting parties.
2) Identify cultural resources within an Area of Potential Effects (APE) and evaluate their eligibility for inclusion in the NRHP.
3) Assess adverse effects by applying the criteria of adverse effect to historic properties.
4) Resolve adverse effects by consulting with the SHPO and other agencies and/or consulting parties, including the ACHP, if necessary, to develop an agreement that addresses the treatment of affected historic properties.

The implementing regulations of the NHPA define historic properties as any prehistoric or historic district, site, building, structure, or object included in or eligible for the NRHP (36 CFR 800.16). Under the NHPA, a property is significant if it meets the NRHP criteria listed in 36 CFR 60.4. In addition to significance, a property must retain enough integrity to convey that significance. There are seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. Section 106 requires federal agencies and others to consider the effects of proposed projects on historic properties and to provide the SHPO and ACHP, if necessary, with a reasonable opportunity to comment on any undertaking that would adversely affect properties listed in or eligible for listing in the NRHP.

6. Methodology

6.1 Records Search

A review of previous cultural resources studies, NRHP nominations, maps, aerial photographs, and historical photographs was conducted to provide an understanding of the history of the area and to inform expectations for resources that may be present within the study area. Background research indicated that the study area has been the subject of a number of cultural resources studies. As a result of these studies, the existing historic properties are well-known and documented. The aboveground historic properties found within the APE are already listed on the NRHP and the DC Inventory of Historic Sites. Importantly, a 1997 cultural resources management plan (Goodwin, 1997) determined that the entirety of the current Project area has been severely disturbed by site preparation and construction of the filter building, the installation of a subsurface reservoir tank, and construction of access roads. In addition, much of the landscape north of the current Project area, adjacent to Michigan Avenue, was altered as part of the general city improvement plan developed under the Burnham Commission (Goodwin, 1997). Furthermore, the 2012 NRHP nomination for the McMillan Park Reservoir Historic District, prepared by the District of Columbia Historic Preservation Office (DC HPO), defines the existing filter building, which is the largest building within the NRHP boundary of the historic district, as a noncontributing resource due to its recent construction (Williams, 2012).

To identify the extent to which the property was disturbed by the construction of the reservoir and extant above-ground facilities, a GIS cut-and-fill analysis was prepared using ESRI ArcGIS 10.5.1 software to compare historical and modern surface morphology. This involved comparison of baseline historic topographic data to current topography, using the 1888 US Coast & Geodetic Survey (USCGS) topo map for Washington County, compared to 2018 USGS NED 1/3 arc-second Contours. The 1888 USCGS map of the Project vicinity was converted into a three-dimensional elevation model with topographic contours at five-foot (1.5-meter) intervals to represent the historical terrain. Modern elevations were downloaded from OpenDataDC.gov. Modern elevation data were compiled in 2008 and were published in 2018. To account for the difference in vertical elevation measurement employed in the District of Columbia prior to the establishment of a national vertical datum by USCGS, elevation data from 1888 were corrected by subtracting 0.67 meter (2.2 feet) before comparison with modern elevations (see Katz et al. 2013).

Geoprocessing algebra was used to compare elevations and render the changes in historical and modern surface morphology. Additionally, a triangulated irregular network (TIN) analysis was created from the cut and fill analysis raster to confirm results. TINs eliminate data redundancy in areas of uniform terrain allowing for more complex analysis of smaller areas, they also tend to have higher resolution. These analyses revealed that both cutting and filling associated with reservoir and facility construction from the 1880s through the 1980s have resulted in the redistribution of soils across the Project area, from depths ranging from approximately 15 to 20 feet (see Attachment 1, Figures 3 and 3a). Therefore, the soils within the Project footprint are anticipated to be disturbed.

Given the results of the background records search, no additional field investigations were conducted for the Project. Considering the low archaeological probability throughout the study area, coupled with the Project's location adjacent to a large, noncontributing resource within the NRHP-listed and locally designated McMillan Park Reservoir Historic District, the study area and APE have been comprehensively examined for the presence of cultural resources.

6.2 National Register Eligibility Evaluation

To qualify for listing in the NRHP, a property must have historic significance and integrity, and generally must be at least 50 years old; certain properties less than 50 years if age may qualify for NRHP listing if they possess exceptional importance. Historic properties may include districts, sites, buildings, structures, and objects that possess integrity, which is defined as the ability of a property to convey its significance. A property must retain sufficient integrity to demonstrate significance in at least one of four main areas:

1) Association with events that have made a significant contribution to the broad patterns of our history
2) Association with the lives of persons significant in our past
3) Embodiment of the distinctive characteristics of a type, period, or method of construction or representative of the work of a master, or possessing high artistic value, or representative of a significant and distinguishable entity whose components may lack individual distinction
4) Yielding, or likely to yield, information important in prehistory or history

Historic significance is the importance of a property on the local, state, or national level. In addition to the NRHP eligibility criteria, significance is further defined by the historical theme in which the property made important contributions and by the period of time during which these contributions were made.

6.3 Effects Analysis Methods

Section 106 of the NHPA requires federal agencies to take into account the effects a proposed undertaking may have on historic properties. The NHPA's implementing regulations include specific criteria for adverse effects (36 CFR 800.5) that must be applied to historic properties that may be affected by federal undertakings. When considering the potential for adverse effects, all reasonably foreseeable impacts must be taken into account, including direct, indirect, and cumulative.

The ACHP has developed regulations that guide federal agencies on how to assess effects of their undertakings on historic properties and mitigate those effects, if necessary. Effects to historic properties are defined in the following ways:

- **No Historic Properties Affected:** Either no historic properties are present, or there is no effect of any kind, either harmful or beneficial, on the historic properties.
- **No Adverse Effect:** There is an effect, but the effect is not harmful to those characteristics that qualify the property for inclusion in the NRHP.
- **Adverse Effect:** There is an effect, and that effect diminishes the qualities of significance that qualify the property for inclusion in the NRHP.

An adverse effect is found when an undertaking may alter any characteristic of a historic property that qualifies the property for inclusion in the NRHP in a manner that would diminish the integrity of the

property. This includes diminishing the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time or be further removed in distance, or effects that may be cumulative.

Examples of adverse effects to historic properties outlined in 36 CFR 800.5 include, but are not limited to, the following:

1. Physical destruction of, or damage to, all or part of the property;
2. Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous materials remediation, and provision of handicapped access, that is not consistent with the Secretary of Interior's standards for the treatment of historic properties (36 CFR 68) and applicable guidelines;
3. Removal of the property from its historic location;
4. Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
5. Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
6. Neglect of a property which causes deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to a [Native American] or native Hawaiian organization; and
7. Transfer, lease, or sale of property out of federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

7. Area of Potential Effects

The APE is the area within which the direct and indirect effects of the Project may cause alterations to the character-defining features of historic properties. For this undertaking, the APE includes a 750-foot radius from the center point of the proposed backwash equalization pumping station and basin (indirect effects), inclusive of the footprint of proposed construction (direct effects). Considering the McMillan Reservoir property is surrounded by a number of modern, large-scale buildings, the proposed Project maintains no potential to introduce adverse visual effects to historic resources further removed from the property. Additionally, the proposed backwash equalization pumping station and basin location, adjacent to the 1986 filter building, which stands as the largest and most modern building on the McMillan Reservoir property, was carefully selected. The site of the proposed backwash equalization pumping station and basin contains disturbed and non-native soils associated with original reservoir construction in the 1880s, slow sand filter construction from 1902-1905, the mid-1980s construction of the filter building, and separate, more recent grading activities in 1999–2000 and again in 2005.

The extent of the APE reaches from Michigan Avenue NW on the north to the south edge of McMillan Reservoir on the south, and from McMillan Reservoir on the west to an area east of First Street NW on the east. The southeast edge of the APE passes through the intersection of First Street NW and Channing Street NW, but does not include any additional areas beyond the McMillan Reservoir property (see Attachment 1, Figure 2).

8. Identified Historic Properties

The background records search conducted for the Project determined that the entirety of the study area has been examined for the presence of architectural and historical resources, and that an archaeological probability analysis conducted of the McMillan Reservoir property (as part of an overall Washington Aqueduct cultural resources analysis) determined that the area in which the Project is located has been disturbed by a series of previous grading and construction events and maintains low archaeological potential. As a result, no archaeological sites and only two architectural and historical resources have been identified within the APE. These are summarized in Table 1 and discussed further below.

Table 1. Historic Properties within the APE

Property Name	Property Address	National Register Status	DC Inventory Status
McMillan Park Reservoir Historic District	1st Street and Michigan Avenue NW	Listed on NRHP	Listed on DC Inventory
Fire Alarm Headquarters	300 McMillan Drive NW	Listed on NRHP as Contributor to Firehouses in Washington DC Multiple Property Submission	Listed on DC Inventory

8.1 McMillan Park Reservoir Historic District

The following background and description of the McMillan Park Reservoir Historic District is largely drawn from data contained in the 2012 NRHP nomination prepared by the DC HPO (Williams, 2012).

The McMillan Park Reservoir Historic District occupies a 113-acre site at First Street and Michigan Avenue, NW and includes the operational McMillan Reservoir plant to the west of First Street NW, the now-defunct Slow Sand Filtration Plant, principally located to the east of First Street NW, and remnants of the landscaped grounds and park designed by landscape architect Frederick Law Olmsted, Jr. The property also includes the McMillan Memorial Fountain, designed by architect Charles Platt and sculptor Henry Adams, situated within the Olmsted-designed park landscape. The reservoir and the sand filtration plant, with their associated buildings and structures, present an architecturally cohesive engineering complex in which the majority of the historic buildings constructed as part of the development of the reservoir/filtration plant remain intact.

The McMillan Reservoir, including the 38-acre reservoir basin excavated 1885–1888, is located west of First Street NW, and is still a functioning element of the city's water supply system. Although closed to the public, the reservoir basin and its associated buildings are visible from the public right-of-way, especially along its western edge, at 5th Street NW, and along its northern edge, at Michigan Avenue NW. The curving, Olmsted-designed drive, McMillan Drive, encircles the basin and provides views over the water. The entrance to the McMillan Reservoir plant is located on the west side of First Street NW, between Michigan Avenue NW on the north and Bryant Street NW on the south, with flanking and arched brick gates demarcating access to the guardhouse and plant beyond.

The former Slow Sand Filtration Plant, constructed from 1902-1905, is principally located to the east of First Street, NW and occupies approximately 25 acres of the 113-acre property. This plant is readily visible from North Capitol and First Streets NW, with orderly rows of concrete sand bins dominating the flatly graded site and giving it its principal character.

In 1991, the McMillan Park Reservoir site was listed in the DC Inventory of Historic Sites as the McMillan Park Reservoir Historic District. The boundaries of the historic district include 19 contributing buildings, 66 contributing structures (including the surviving 22 of 29 sand bins), two sites (the Olmsted-designed landscape and the McMillan Reservoir basin), and one object (the McMillan Fountain). The property also includes four non-contributing buildings, namely those associated with the new chemical water treatment plant, completed in 1986 to replace the slow sand filtration plant.

The McMillan Park Reservoir Historic District includes the McMillan Reservoir (1885–1888), the Sand Filtration Plant (1904–1906), and the Olmsted-designed park (1908–1913), designated in 1906 as the McMillan Park Reservoir. The property consists of the historic reservoir with a modern (1986) replacement filtration system, and the now-defunct sand filtration plant with its associated buildings and structures, including 22 of the original 29 sand bins. The property also includes landscaping remnants of McMillan Park designed by landscape architect Frederick Law Olmsted. This park, established in 1906 and built from 1908-1913, is named for James McMillan, whose McMillan Commission had designated the reservoir as parkland.

The district is located north of the Bloomingdale neighborhood and south of Michigan Avenue NW, and is bounded on the east by North Capitol Street NW and on the west by Howard University. The reservoir is

located on the western part of the site, abutting Howard University, while the former sand filtration plant sits east of the reservoir basin and largely east of First Street NW. The property west of First Street NW is owned by the federal government, having been acquired by an Act of Congress at the turn of the 20th century, and is operated by the USACE. It consists of the irregularly-shaped, 38-acre reservoir basin and surrounding undulating terrain, as well as a section of the original sand filtration plant, including contributing and non-contributing buildings and structures associated with both the reservoir and the sand filtration plant (both historic and contemporary).

The sand filtration plant is an extensive, grass-covered flat area that historically spanned First Street NW and included 29 underground filter cells, two east-west service courts, and one north-south service court. Although some remnants of the plant still survive west of First Street NW on the reservoir site, the plant is primarily preserved on the 25-acre site east of First Street NW. To construct the filter beds, the site's topography was regraded, and an extensive campaign of cut and fill created an artificial topography that rises approximately sixteen feet above the level of Channing Street NW to the south and is depressed approximately 10 feet from the level of Michigan Avenue NW to the north. The paved service courts are depressed approximately five feet into this plateau and are bounded to the north and south by the parapet walls of the subterranean filter beds. These depressed service courts at the north and south ends of the site retain the original regulator buildings, the sand washers and the storage bins, all aligned in rows along the courts. This turf above the underground filters is dotted by a network of manholes located 14 feet on-center that once provided service access to each of the filter cells below. The cylindrical sand bins are the most prominent features of the site, and many of these abandoned bins are covered with vines.

The McMillan Park Reservoir Historic District was listed on the NRHP on February 20, 2013 under Criteria A, B, and C, for its significance in the areas of Engineering, Architecture, and Landscape Architecture. The reservoir is an important element of the city's still-functioning water supply system, while the now-defunct slow sand filtration plant provides an example of a water purification system designed and constructed at the turn of the 20th century. Although chemical filtration systems were already in use elsewhere in the United States at the time of its design and construction, the Washington medical community advocated for, and Congress mandated the establishment of, a slow sand filtration system over a chemical one. The reservoir and filtration system, as designed by the USACE and its consulting engineer, Allen Hazen, is significant in the history of water supply and purification, with above-ground buildings and structures that were integral to the function of the filtration system.

Architecturally, the contributing above-ground buildings and structures are all executed in a Georgian Revival style of architecture that was consistent with the aesthetic values of the City Beautiful Movement and that are significant to the city's architectural history. The buildings all embody distinguishing elements of the style, including red brick walls laid in Flemish bond with glazed headers, arched openings with molded surrounds, and cornices with dentils. The collection of buildings and structures is architecturally significant as it relates to the municipal works project in the District of Columbia.

McMillan Park, designed and landscaped after completion of the reservoir and filtration plant, opened the waterworks for public use and contributed to the civic beauty of the city. The landscaped grounds were designed by nationally acclaimed landscape architect Frederick Law Olmsted, who sought to soften the well-ordered and stark engineering complex with rows of trees, curvilinear drives, and walkways that were a signature of his designed landscapes. Although the designed landscape is no longer fully identifiable within its surroundings, and only scattered remnants of the original plantings survive, the notion of the reservoir as a park open to the public contributes to a complete understanding of the site.

8.2 Fire Alarm Headquarters

Located just beyond the extent of the APE, on the south side of McMillan Reservoir at 300 McMillan Drive NW, the Fire Alarm Headquarters sits on the south side of the street, adjacent to the campus of Howard University. This building, which was added to the DC Inventory of Historic Sites and the NRHP in 2011, was constructed in 1939 to serve as the hub of Washington DC’s fire alarm callbox system (DC HPO, 2011). The relatively central location of this building in Washington DC, coupled with its belvedere, allowed it to serve as a watchtower over the city. The building, which was designed by Municipal Architect Nathan Wyeth in the Colonial Revival style, also served as a “warning and control center” against

possible air raids in World War II. This building was listed on the NRHP on February 18, 2011, as a contributing resource to the Firehouses in Washington DC Multiple Property Submission. Although depicted within the property of the McMillan Park Reservoir Historic District, this building was specifically excluded as a potential contributing resource to the historic district in the 2012 NRHP nomination (Williams, 2012).

9. Findings of Effects

9.1 Effects on Archaeological Resources

Based on an archaeological sensitivity survey conducted as part of the 1997 cultural resources management plan that encompassed the McMillan Reservoir property (Goodwin, 1997), the entirety of the current Project area has been severely disturbed by site preparation and construction of the extant 1986 filter building, the installation of a subsurface reservoir tank, and construction of access roads. As such, the study recommended low archaeological probability for the entirety of the current Project area.

Additionally, engineering data indicates that current subsurface conditions consist of clean fill placed on top of a concrete slab, which was left in place during construction of the filter building. This concrete slab was, in turn, constructed on non-native fill during the early 1900s construction episode at the McMillan Reservoir property, making the likelihood of discovering intact cultural deposits within the footprint of proposed construction very low.

Jacobs recommends that due to the nature of disturbance throughout the area of the current proposed Project, including several grading and construction events throughout the site's history, and particularly since the mid-1980s, there will be no adverse effect on archaeological resources from the proposed Project.

9.2 Effects on Historic Architectural Resources

While the Project area is located within the NRHP-listed and locally designated McMillian Park Reservoir Historic District, the area of proposed construction, immediately adjacent to the largest and most modern building on the property, will not have a significant impact on the viewshed of this historic district. There are a number of modern buildings associated with medical and educational facilities located immediately north, west, and south of the district. Additionally, the NRHP-listed and locally designated Fire Alarm Headquarters, located approximately 1,000 feet south-southwest of the proposed Project, is almost entirely obscured from the proposed Project by existing buildings and vegetation on the McMillan Reservoir property. Furthermore, its proximity to modern buildings (within approximately 130 feet) on the campus of Howard University means that while its viewshed has been severely compromised, it retains its ability to convey its historical significance. Photographs showing existing conditions and buildings on the property are included as Attachment 3.

Jacobs recommends that the proposed McMillan Backwash to Sewer Project will have no adverse effect on the two historic properties located within the immediate vicinity.

9.3 Effects Summary

The McMillan Reservoir property is surrounded by a number of modern, large-scale buildings, and the proposed Project has been situated immediately adjacent to a large, modern building on the property that does not contribute to its status as an NRHP-listed and locally designated historic district. Therefore, the proposed Project maintains no potential to introduce adverse visual effects to historic resources either within the McMillan Park Reservoir Historic District or further removed from the property.

The proposed backwash equalization pumping station location was selected to be adjacent to the 1986 filter building, which stands as the largest and most modern building on the McMillan Reservoir property. The site of the proposed backwash equalization pumping station and basin contains disturbed, non-native soils associated with construction of the reservoir property and slow sand filters from the 1880s through early 1900s, as well as the mid-1980s construction of the filter building and separate, more recent grading

activities in 1999–2000 and again in 2005. Therefore, the Project will not adversely affect archaeological resources.

Jacobs recommends that the proposed Project will have no adverse effect on historic properties, and that no further cultural resources investigations are necessary.

10. Avoidance, Minimization, and Mitigation

The proposed McMillan Backwash to Sewer Project has been designed to avoid and minimize effects to cultural resources, among other considerations. As part of Project development, the site adjacent to the modern filter building was selected, in part, because of its location in a heavily and recently disturbed area of the property. By using this location, construction will occur within disturbed soils, and the proposed above-ground features will be scaled much smaller than the filter building. Additionally, the architectural design of the above-ground building considered the original, historic buildings on the McMillan Reservoir property, and every effort was made to generate a design that was sympathetic to the design features and materials of these original buildings, to further minimize visual intrusion (see design data in Attachment 2 and photographs in Attachment 3).

11. Conclusion

To facilitate enhanced filter backwash capabilities for treating water drawn from the Potomac River to produce drinking water for Washington, DC and portions of Northern Virginia, the Washington Aqueduct, a division of the USACE–Baltimore District, in cooperation with the National Capital Planning Commission and the United States Commission of Fine Arts, is sponsoring the McMillan Backwash to Sewer Project at the McMillan WTP in Washington DC.

The Project will involve construction of a new backwash equalization pumping station and basin adjacent to the existing McMillan WTP filter building, which was constructed in 1986. To maximize safety and efficiency, and to minimize visual changes to the surroundings, the proposed backwash equalization pumping station and basin will largely occur below grade. Construction is proposed to occur on the south end of the existing filter building, in an area previously disturbed by prior construction activities in the 1880s, the early 1900s, 1985, 1999–2000, and 2005. The maximum estimated area of proposed construction will not exceed approximately 120 feet by 120 feet.

Jacobs conducted a review of previous cultural resources studies, NRHP nominations, maps, aerial photographs, and historical photographs. Background research indicated that above-ground historic properties located within and near the APE are already listed on the NRHP and the DC Inventory of Historic Sites. Also, previous cultural resources studies have determined that the entirety of the current Project area has been disturbed by site preparation and construction activities, including those for the filter building, the installation of a subsurface reservoir tank, and construction of access roads.

Based on the results of the background records search, no additional field investigations were conducted for the current Project. Considering the low archaeological probability throughout the study area, coupled with the Project's location adjacent to a large, non-contributing resource within the NRHP-listed and locally designated McMillan Park Reservoir Historic District, Jacobs recommends that the Project will have no adverse effect on historic properties, and that the Project can proceed as planned without additional cultural resources investigations.

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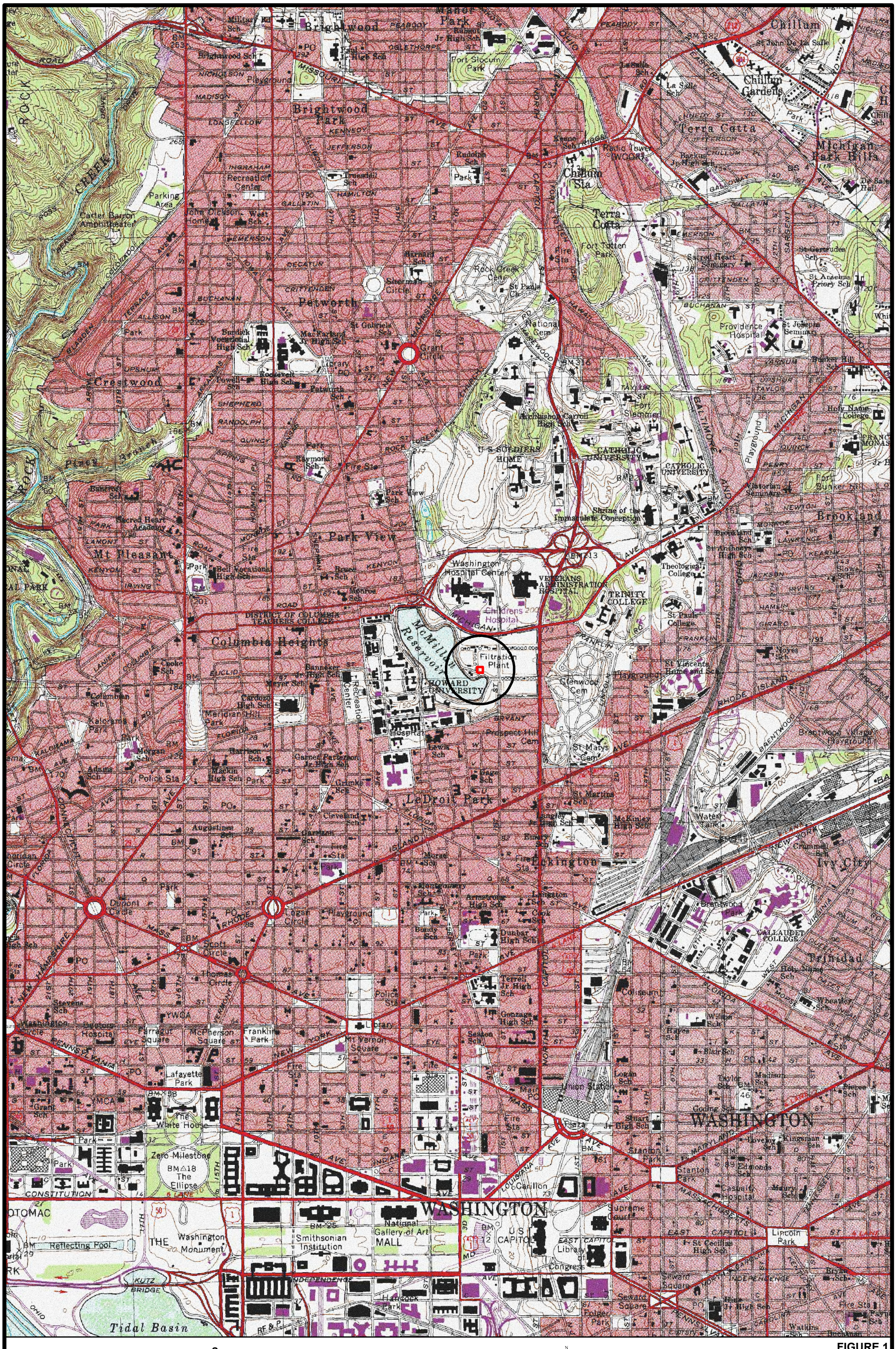
Attachment 1



LEGEND

- Project Limit of Disturbance
- Project APE

Source:
USGS 7.5-minute Topographic Quadrangle
Washington West, VA (published 1984)

0 1,000 2,000 4,000 Feet

FIGURE 1
Location of McMillan Backwash to Sewer Project
Washington District of Columbia

LEGEND

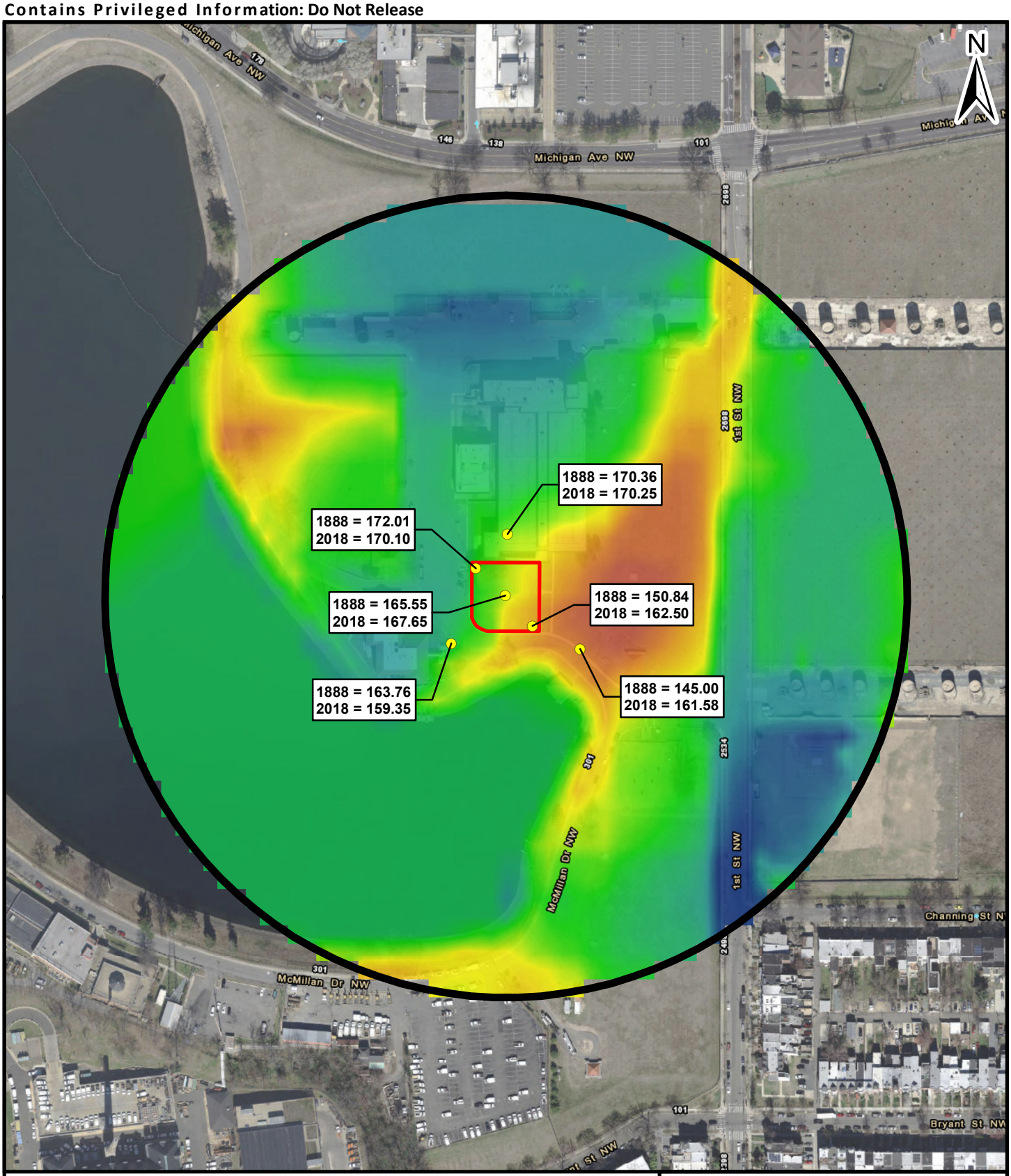
- Project Limit of Disturbance
- Project APE
- McMillan WTP Legal Boundary
- McMillian Park Reservoir Historic District Boundary
- Fire Alarm Headquarters Building

Source:
ESRI, World Imagery, online mapping

0 150 300 600 Feet

FIGURE 2
APE Limits and Historic Properties
McMillan Water Treatment Plant
Washington District of Columbia

Contains Privileged Information: Do Not Release



LEGEND:

- Project LOD
- Project APE
- 1888 & 2018 Spot Elevations in feet above mean sea level

Cut and Fill Analysis:

- High : 24.03 (Fill)
- Slight Change
- Low : -24.61 (Cut)

0 — 75
Scale in Meters

0 — 250
Scale In Feet

DATA SOURCES:
Base Map:ESRI World Imagery Layer, 2017
Elevations: NOAA Office of Coast Survey's Hisotrical Map and Chart Collection, Topographic Map of Washington Vicinity, Sheet 25, 1888, and USGS NED 1/3 arc-second Contours, 2018.

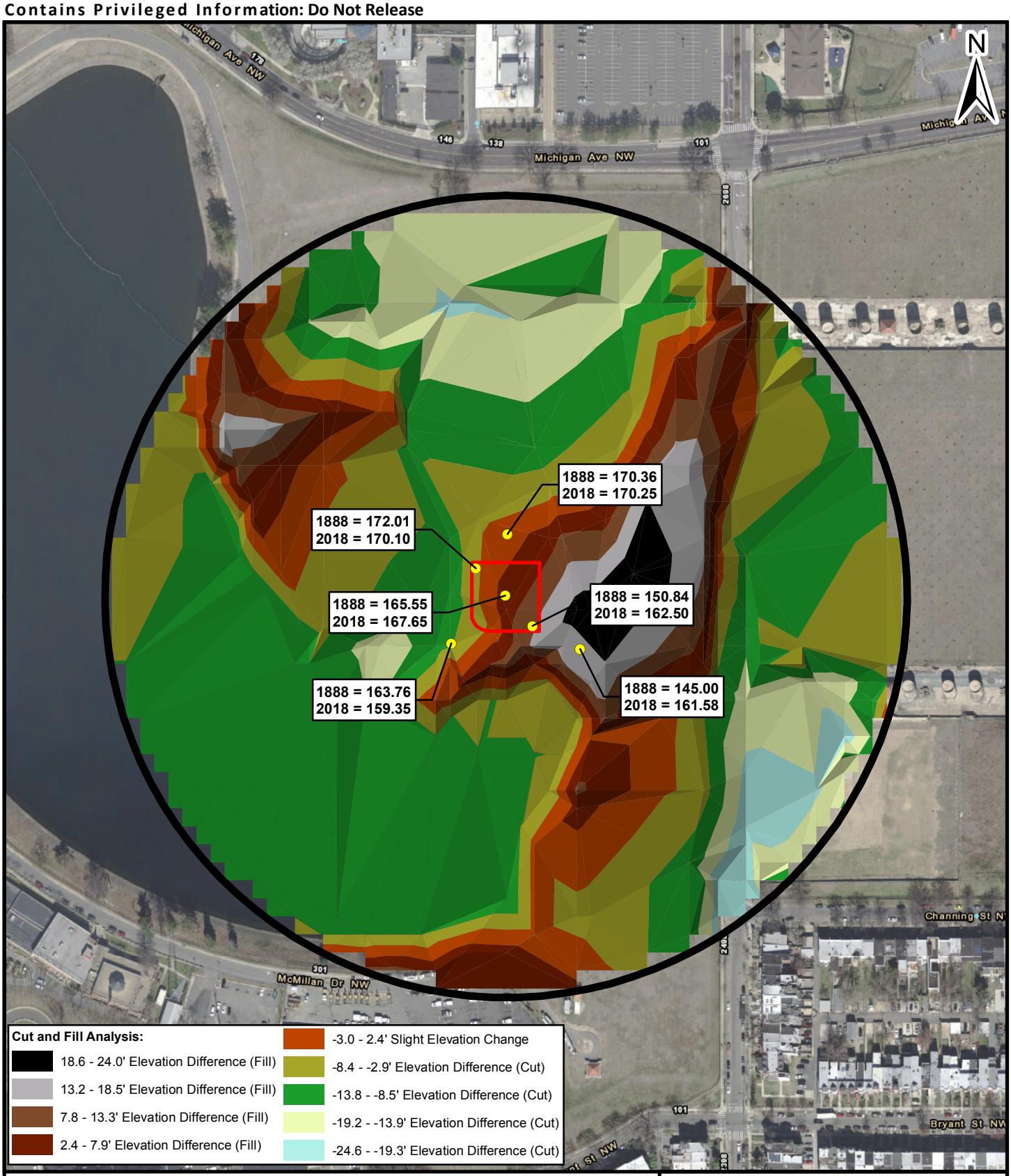
McMillan Water Treatment Plant
Washington District of Columbia

FIGURE 3
CUT FILL ANALYSIS
1888 AND 2018

CREATED BY: AG
REVIEWED BY: AF

JACOBS

Contains Privileged Information: Do Not Release



LEGEND:

- Project LOD
- Project APE
- 1888 & 2018 Spot Elevations in feet above mean sea level

0 75
Scale in Meters

0 250
Scale In Feet

DATA SOURCES:
Base Map:ESRI World Imagery Layer, 2017
Elevations: NOAA Office of Coast Survey's Hisotrical Map and Chart Collection, Topographic Map of Washington Vicinity, Sheet 25, 1888, and USGS NED 1/3 arc-second Contours, 2018.

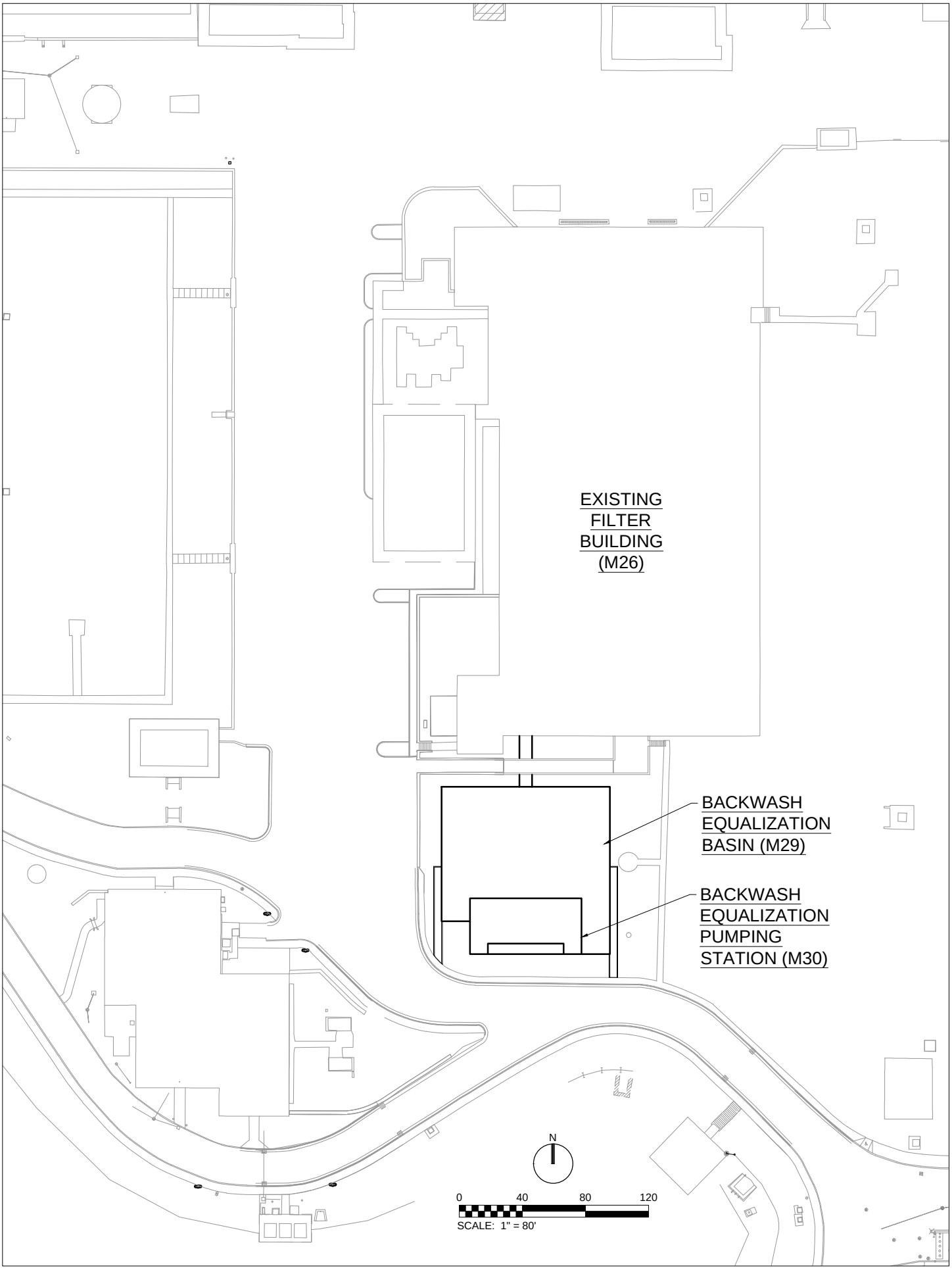
McMillan Water Treatment Plant
Washington District of Columbia

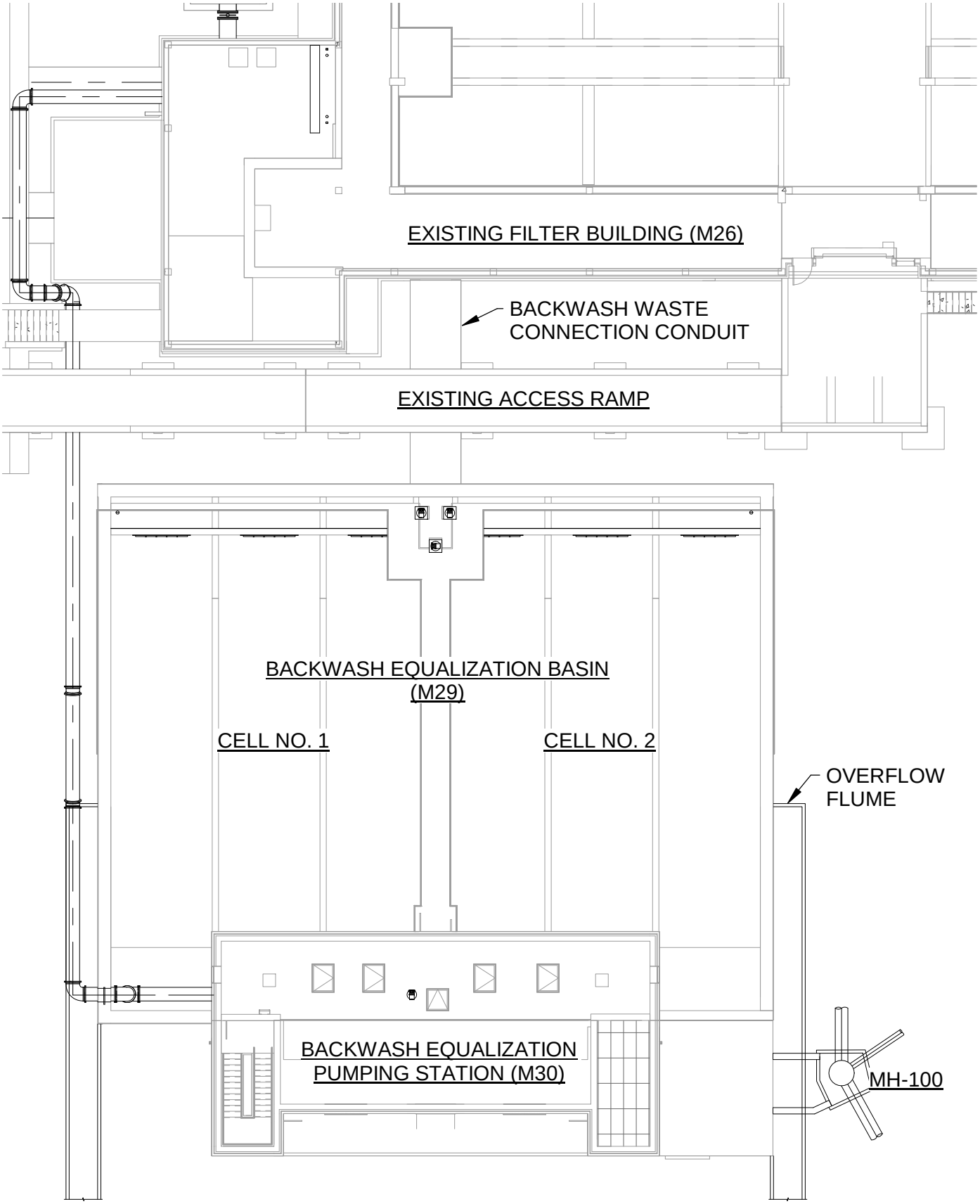
FIGURE 3a
CUT FILL ANALYSIS TIN
1888 AND 2018

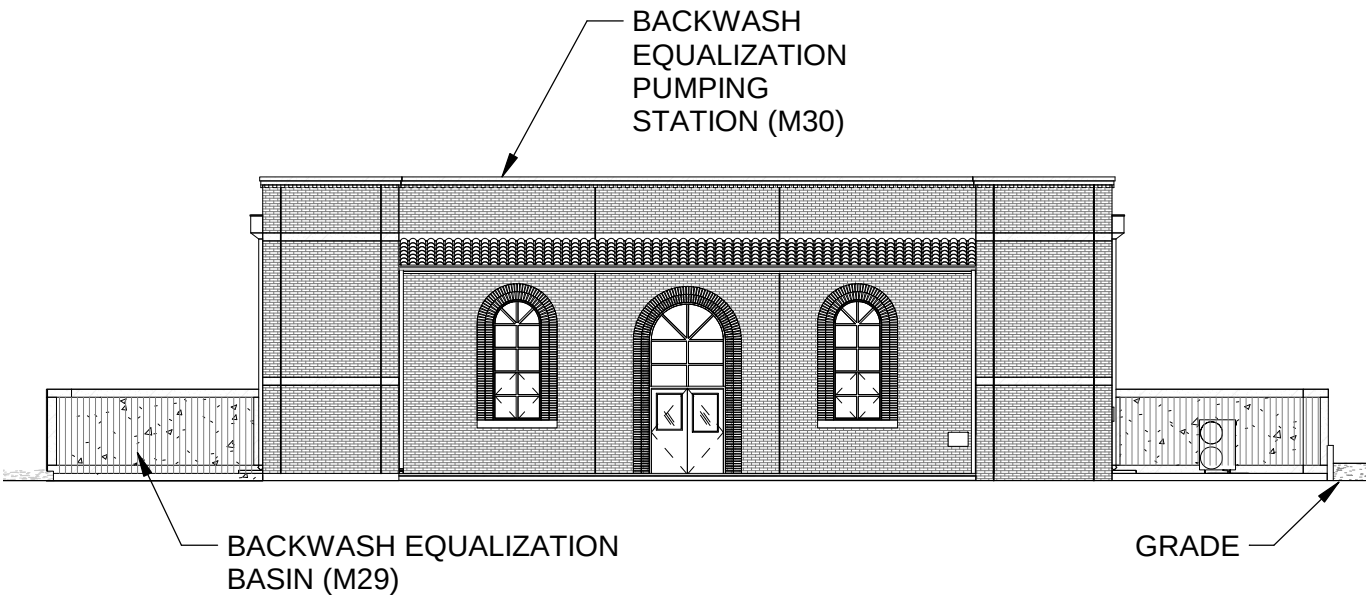
CREATED BY: AG
REVIEWED BY: AF

JACOBS

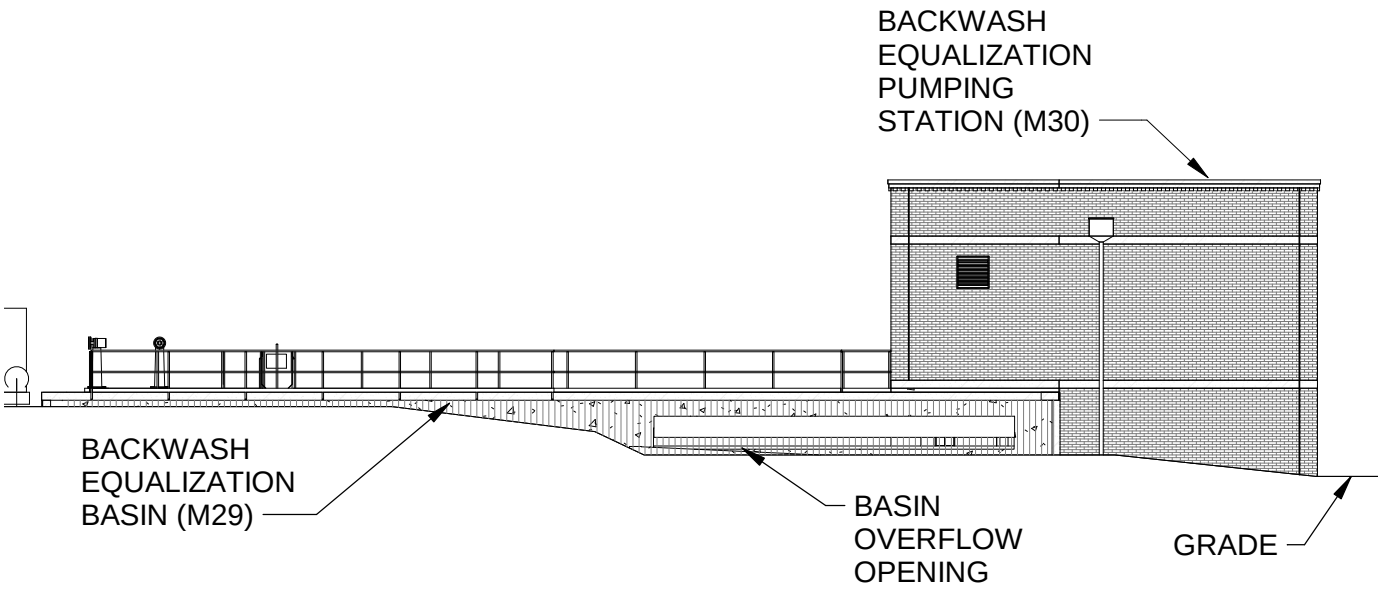
Attachment 2


EXISTING
FILTER
BUILDING
(M26)
BACKWASH
EQUALIZATION
BASIN (M29)
BACKWASH
EQUALIZATION
PUMPING
STATION (M30)
N
0
40
80
120
SCALE: 1" = 80'

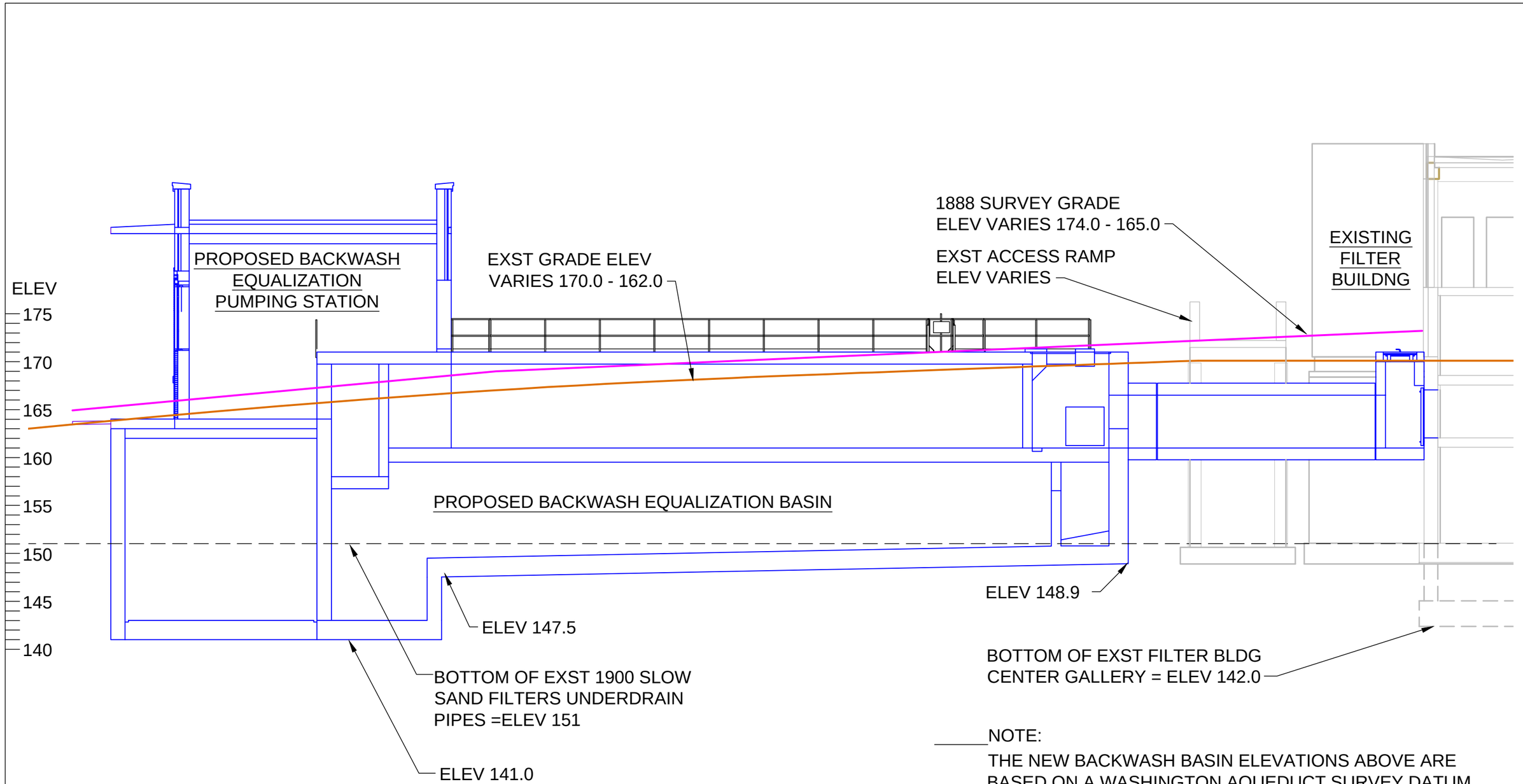

EXISTING FILTER BUILDING (M26)
BACKWASH WASTE CONNECTION CONDUIT
EXISTING ACCESS RAMP
BACKWASH EQUALIZATION BASIN (M29)
CELL NO. 1
CELL NO. 2
OVERFLOW FLUME
BACKWASH EQUALIZATION PUMPING STATION (M30)
MH-100



SOUTH ELEVATION



WEST ELEVATION



NOTE:

THE NEW BACKWASH BASIN ELEVATIONS ABOVE ARE BASED ON A WASHINGTON AQUEDUCT SURVEY DATUM FROM THE EARLY 1900S THAT MATCHES THE DATUM USED FOR THE 1888 SURVEY. THIS WAS CONFIRMED BY MATCHING ELEVATIONS FROM THE TWO SURVEYS AT THE MCMILLAN RESERVOIR INTAKE STRUCTURE. ACCORDINGLY, NO DATUM RELATED ADJUSTMENTS WERE MADE TO THE ELEVATIONS SHOWN ON THIS DRAWING.

LEGEND

- EXISTING STRUCTURE
- 1888 SURVEY GRADE
- EXISTING GRADE
- BOTTOM OF SLOW SAND FILTER UNDERDRAINS
- PROPOSED STRUCTURE

0 10 20 30

HORIZONTAL SCALE: 1"=10'
VERTICAL SCALE: 1"=10'

JACOBS

Attachment 3

Photograph 1. View of Office Building and McMillan Booster Pumping Station, Southwest of Filter Building and West-Southwest of Proposed Project, Facing Southwest.

Photograph 2. View of Substation Building, West of Filter Building and West of Proposed Project, Facing Northwest.

Photograph 3. View of Filter Building and Hypochlorite Building, with Children's Hospital in Background (Proposed Project Location on Right Side of Frame, Behind Storage Container), Facing Northeast.

Photograph 4. South Elevation of Filter Building, Showing Proposed Project Location in Foreground (Note Children's Hospital in Background), Facing North.

Appendix 4
Section 106 Consultation

DEPARTMENT OF THE ARMY
WASHINGTON AQUEDUCT
U.S. ARMY CORPS OF ENGINEERS, BALTIMORE DISTRICT
5900 MACARTHUR BOULEVARD, N.W.
WASHINGTON, D.C. 20016-2514

November 16, 2018

Office of the General Manager

Mr. Andrew Lewis
District of Columbia State Historic Preservation Officer
1100 4th Street SW; Suite E650
Washington, DC 20024

Dear Mr. Lewis,

The United States Army Corps of Engineers Baltimore District, Washington Aqueduct is preparing an Environmental Assessment for the Washington Aqueduct McMillan Backwash to Sewer Project (Project) in accordance with the National Environmental Policy Act.

The purpose of the Project is to provide Washington Aqueduct with a supplementary method for disposing of backwash water from the daily cleaning of filters used in treatment of drinking water. The proposed action would allow Washington Aqueduct to more effectively and safely accomplish its mission of providing high quality drinking water in sufficient quantities to customers in the service area while meeting all regulatory requirements.

The proposed action would install a backwash equalization basin, associated pumps, and other equipment at the McMillan Water Treatment Plant by constructing a new backwash equalization pumping station and basin adjacent to the existing filter building, which was constructed in 1986. To maximize safety and efficiency, and to minimize visual changes to the surroundings, the proposed backwash equalization basin will be largely below grade. The appearance of the proposed backwash equalization pumping station will also incorporate some of the architectural features of the historical plant buildings. Construction is proposed to occur on the south end of the existing filter building, in an area previously disturbed by prior construction activities in 1985, 1999–2000, and 2005. The maximum estimated area of proposed construction will not exceed approximately 120 feet by 120 feet.

The treatment plant is owned and operated by the Baltimore District of the United States Army Corps of Engineers, therefore the requirements of Section 106 of the National Historic Preservation Act (54 U.S. Code § 306108) and its implementing regulations, 36 CFR Part 800 are applicable. The purpose of this letter is to formally initiate the Section 106 process with you.

To begin the evaluation of the effects to historic properties, enclosed is a cultural resources assessment memorandum we have prepared for your review and comment. The Environmental Assessment is in preparation and has not yet been circulated.

If you have any questions or require additional information, please contact Jennifer Armstrong at 202-302-5750 (Jennifer.Armstrong@Jacobs.com) or Carolyn Washburn at 714-227-5463 (carolyn.washburn@jacobs.com).

Sincerely,

Thomas P. Jacobus
General Manager

cc: Jennifer Armstrong, Jacobs
Carolyn Washburn, Jacobs

Attachments:
Washington Aqueduct CULTURAL RESOURCES ASSESSMENT MEMO

GOVERNMENT OF THE DISTRICT OF COLUMBIA
STATE HISTORIC PRESERVATION OFFICE

DC STATE HISTORIC PRESERVATION OFFICE
SECTION 106 REVIEW FORM

TO: Thomas P. Jacobus, General Manager, U.S. Army Corps of Engineers, Baltimore District
Glenn Palen, Project Manager, Jacobs Engineering Group, Herndon, VA;
Jared Tuk, Architectural Historian, Jacobs Engineering Group

PROJECT NAME/DESCRIPTION: Washington Aqueduct McMillan Backwash to Sewer Project, McMillan Backwash Equalization Pumping Station and Basin new construction

PROJECT ADDRESS/LOCATION DESCRIPTION: McMillan Reservoir, adjacent to Filter Building at 1st St and McMillan Dr, NW.

DC SHPO PROJECT NUMBER: 19-0113; related 18-0586

The DC State Historic Preservation Office (DC SHPO) has reviewed the above-referenced federal undertaking(s) in accordance with Section 106 of the National Historic Preservation Act and has determined that:

☐ This project will have **no effect** on historic properties. No further DC SHPO review or comment will be necessary.

☐ There are **no historic properties** that will be affected by this project. No further DC SHPO review or comment will be necessary.

☒ This project will have **no adverse effect** on historic properties. No further DC SHPO review or comment will be necessary.

☐ This project will have no adverse effect on historic properties **conditioned** upon fulfillment of the measures stipulated below.

☒ **Other Comments / Additional Comments** (see below):

The DC SHPO has reviewed the proposed McMillan Backwash Equalization Pumping Station and Basin new construction project, located adjacent to the extant Filter Building at McMillan Reservoir, for above-ground historic properties and including archaeology. The proposed new construction will have no adverse effect on the surrounding McMillan Park Reservoir Historic District and historic landmark since it is relatively small and compatibly designed, and its associated basin is primarily below grade and not visible. The DC SHPO has also reviewed the submitted Cultural Resources Assessment technical memorandum (Report #759) and concurs that the proposed new construction remains within an area that has been substantially disturbed. The previous installation of Slow Sand Filter No. 3 ca. 1900, 14'-23' below the 1888 ground surface, would have truncated any remaining anthropogenic soils within this area and therefore this area retains no archaeological potential. Therefore, the DC SHPO has made a finding of **No Adverse Effect** on historic properties. If any type of post-review/unanticipated archaeological discovery is made during construction, immediately contact the City Archaeologist, Dr. Ruth Trocolli at 202-442-8836 or ruth.trocolli@dc.gov.

Ruth Trocolli

BY: _____ **DATE**: 29 March 2019

Ruth Trocolli, Ph.D.
Archaeologist, State Historic Preservation Office

1100 4th Street, SW, Suite 650-E, Washington, DC 20024
202-442-7600, fax 202-442-7638