National Park Service
US Department of the Interior

Rock Creek Park
Washington, DC

WETLAND STATEMENT OF FINDINGS

District of Columbia Water and Sewer Authority
DC Clean Rivers Project – Piney Branch Tunnel

Rock Creek Park

Washington, DC

1. INTRODUCTION

Pursuant to the National Environmental Policy Act of 1969 (NEPA), the District of Columbia Water and Sewer Authority (DC Water), in cooperation with the National Park Service (NPS), is preparing an Environmental Assessment (EA) for the proposed construction of the Piney Branch Tunnel Project, a component of DC Water's Long Term Control Plan (LTCP), also known as the DC Clean Rivers (DCCR) Project, within Rock Creek Park in northwest Washington, DC. The purpose of the Project is to reduce untreated discharges from the combined sewer system to Piney Branch by increasing CSO storage and conveyance capacity. The Project is needed to reduce CSOs that contribute to water quality impairment of Piney Branch and ultimately the Potomac River and the Chesapeake Bay; and to comply with the 2005 Federal Consent Decree entered into by DC Water, the District of Columbia, the US Environmental Protection Agency (USEPA), and the US Department of Justice, as amended January 2016, and modified December 2020.

Executive Order 11990 *Protection of Wetlands* (published in 1977) requires the NPS and other federal agencies to evaluate the likely impacts of actions in wetlands. Director's Order 77-1: *Wetland Protection* (effective October 2002), and Procedural Manual 77-1: *Wetland Protection* (reissued June 2016), provide NPS procedures for complying with Executive Order 11990. This Statement of Findings was prepared per Director's Order 77-1: *Wetland Protection* for the proposed Piney Branch Tunnel Project and documents compliance with the NPS wetland protection procedures. The NPS has completed a Statement of Findings because the proposed Project would result in both temporary and permanent impacts to riverine and palustrine forested (PFO) wetland systems on NPS property in Rock Creek Park.

Wetland investigations and delineations for the Piney Branch Tunnel Project were led by Mr. Sean Sipple, Senior Environmental Scientist for Coastal Resources Inc., and Senior Professional Wetland Scientist (SPWS) #1730, certified through the Society of Wetland Scientists Certification Program. Mr. Sipple was also the lead author of the *Waters of the U.S. (including Wetlands) Delineation* (Coastal Resources, Inc. 2022) report prepared for the Piney Branch Tunnel Project. Mr. Sipple has nearly 20 years of work experience performing wetland delineations and functional assessments. He has taken numerous basic and advanced wetland training courses focusing on the 3-parameter approach to wetland delineation in the Atlantic and Gulf Coastal Plain and the Eastern Mountains and Piedmont regions, and frequently instructs wetland courses for Environmental Concern, Inc. Mr. Sipple is well versed in conducting delineations to meet both Clean Water Act and NPS wetland protection requirements, such as Section 404 of the Clean Water Act and state regulations that govern the protection of both nontidal and tidal wetlands, as well as the procedures set forth by Director's Order (DO) 77-1: *Wetland Protection*, DO 77-2: *Floodplain Management*, and accompanying procedural manuals.

2. PROPOSED ACTION

Under Alternative B (the Proposed Action and Preferred Alternative), DC Water would construct the Piney Branch Tunnel Project to provide overflow control for CSO 049, located upstream of Rock Creek and adjacent to Piney Branch Parkway NW. DC Water estimates the proposed control would reduce CSOs into Piney Branch by 96 percent by volume and limit their frequency from 25 to one in a year of average rainfall. Instead of discharge flowing directly into Rock Creek via Piney Branch, the proposed tunnel would temporarily store captured combined sewage and then slowly release the overflows into the East Rock Creek Diversion Sewer (ERCDS) so they can be conveyed by gravity to Blue Plains Wastewater Treatment Plant for treatment when the existing system can handle the flow volume. The proposed action would comply with DC Water's Amended Federal Consent Decree and NPDES Permit. The Amended Federal Consent Decree requires that DC Water award a contract for construction of the Piney Branch Tunnel by May 23, 2026, and be operational by November 23, 2029.

2.1 Tunnel Corridor

Under the Proposed Action, DC Water would construct a deep underground sewer tunnel to store captured combined sewage that would otherwise discharge to Rock Creek via Piney Branch at CSO 049. The tunnel would

be approximately 2,200 feet (ft) long based on the preliminary design, providing capacity to store a minimum of 4.2-million-gallons of combined sewage. The diameter of the tunnel would be determined during detailed project design. DC Water would construct the proposed tunnel approximately 30 - 100 ft below the ground surface in geologic stratigraphy consisting of alluvium, clays, silts, sands, decomposed bedrock, and bedrock. The upstream end of the tunnel would connect to the proposed diversion structure and drop shaft that DC Water would construct at the outfall of the CSO 049 structure. At the downstream end, the tunnel would connect to a dewatering structure that would include a drop shaft and tunnel connection to the ERCDS.

2.2 CSO 049 Construction Staging Area

DC Water would construct a diversion structure, drop shaft, ventilation control vault, electrical / instrumentation vault, and CSO warning light and appurtenances within the CSO 049 Construction Staging Area (CSA) at the existing CSO 49 outfall northeast of the intersection of Piney Branch Parkway NW with 17th Street NW. CSO 049 CSA is approximately 5.5 acres and would also be where tunnel mining operations take place. Discharge from the CSO 049 structure that would otherwise flow into Piney Branch when the capacity of the ERCDS is exceeded would be captured by the diversion structure and flow into a drop shaft that would send the flow down to the storage tunnel. In addition to the diversion structure and drop shaft, DC Water would construct a below grade ventilation control vault to allow air to enter and exit the tunnel during filling and emptying, with equipment provided to mitigate fugitive emissions. The site would also include a below grade vault to place the required electrical / instrumentation equipment. Construction of the proposed diversion structure would include rerouting an existing 48-inch storm pipe to flow outside of the new structure and directly into Piney Branch to maintain baseflow.

There is a concrete apron forming a discharge channel at the end of the existing outfall that is in variable condition and appearance with substantial cracking. At the request of NPS, DC Water would extend the outfall face of the two northern bays to match the most southern bay to create a uniform face and construct a grouted stone channel where the existing concrete apron is located to improve the overall aesthetics of the outfall within the landscape. DC Water may replace the existing apron or construct a new apron on top of existing, pending detailed design. Stone selection and layout would be similar to the ashlar pattern of the adjacent retaining wall. Atop the extended outfall, soil would be spread and turfgrass established that would increase the green area in the park by 3,462 square feet.

DC Water would also remove graffiti between the outfall and the end of the existing concrete apron, maintain it as free of graffiti as practicable during and following project construction, coat the walls of the outfall structure with material to make future graffiti easier to remove, and install new fence / railing between the outfall and end of the existing concrete pad, meeting current code. The fence would be screened by border tree plantings around the outfall, with evergreen species such as American holly, Eastern red cedar or other species to be determined based on consultation with NPS.

DC Water would temporarily relocate a section of Piney Branch Parkway NW and the adjacent multi-use path within the CSO 049 CSA at the beginning of construction to maintain vehicle, pedestrian, and bicycle access. DC Water would then install temporary entrances for construction vehicles and equipment access to the staging areas on both sides of the roadway. For safety reasons due to the existing ground geology at the CSA, DC Water would temporarily close Piney Branch Parkway NW to vehicle traffic and implement detours during construction of the tunnel crossing under the roadway. Short, temporary closures would also be required to move materials and equipment from one side of the roadway to the other within the CSA. DC Water would install chain-link fencing or similar barrier around the staging area to secure the site.

Prior to the construction of the proposed tunnel, DC Water and the Potomac Electric Power Company (PEPCO) would extend high voltage electricity distribution lines to the CSO 049 CSA to deliver power needed for the mining and construction operations. The power source would also provide electricity for permanent instrumentation features needed to monitor flow levels once the tunnel system is in operation. A potential location from which the power lines could be extended is at the intersection of Newton Street NW and 16th Street NW. The power lines would be installed via trenching within the roadway of 16th Street NW.

After construction is complete, DC Water would restore the CSO 049 CSA substantially to pre-construction conditions. Due to access requirements for maintenance and operation, ventilation grating, access hatches, manholes, and other structure access points would be visible. A CSO warning light would also be visible at this site. The final site layout and restoration would be coordinated with the NPS, DC SHPO, NCPC, CFA and other stakeholders during final design review and permitting.

2.3 Park Road Construction Staging Area

DC Water would construct a drop shaft, ventilation control vault, dewatering structure, and electrical / instrumentation cabinet at the downstream end of the proposed storage tunnel within the Park Road CSA on the southern slope east of the Park Road NW Bridge. The dewatering structure consists of a chamber with an orifice that would discharge flow from the drop shaft to an opening over the existing ERCDS that would ultimately convey the flow to Blue Plains.

DC Water would require approximately 0.47 acres at the Park Road CSA to construct the dewatering structure, which would be excavated from the surface to reach the depth of the discharge end of the storage tunnel. DC Water would need to close the section of the Piney Branch Parkway foot trail within the Park Road CSA during construction of the dewatering structure and to install a temporary stabilized construction entrance off Park Road NW for construction vehicles and equipment access to the CSA. Relocation of foot trail adjacent to the Park Road CSA, if requested, would be coordinated with NPS. DC Water would also install chain-link fencing or similar barrier around the staging area to secure the site.

Prior to start of construction, DC Water and PEPCO would extend electricity distribution lines to the Park Road CSA to deliver power needed for construction operations as well as permanent instrumentation features needed to monitor flow levels once the system is in operation. A potential location from which the power lines could be extend is at the intersection of Mount Pleasant Street NW and Park Road NW. The power lines would be installed via trenching within the roadway of Park Road NW.

After DC Water completes construction of the drop shaft and dewatering structure the site would be restored substantially to pre-construction conditions. Due to access requirements for maintenance and operation, manholes, access hatches, and ventilation grating would be visible at grade. DC Water would coordinate the final site layout and restoration, including, but not limited to, tree replacement and ground stabilization measures, with the NPS, DC SHPO, NCPC, CFA, and other stakeholders during design review and permitting.

2.4 Combined Sewer Overflow Public Notification System

As part of the requirements for the Consent Decree, a public notification system would be installed as part of the Piney Branch Tunnel Project. The purpose of the system would be to notify the public of the occurrence of overflows not captured by the tunnel by using a visual system at four access locations to maximize visibility for users of Piney Branch and Rock Creek streams. Rock Creek is free flowing with no CSOs upstream of Piney Branch Parkway NW. The public notification system would turn on when flow is detected from the CSO 049 outfall through flow monitoring devices. The notification system would include red- and yellow-colored lights with signage describing the system's function. In addition to these measures, DC Water would also maintain a web site where a description and explanation of the notification system is available. DC Water has developed a standard detail for the CSO warning lights being deployed as part of the DC Clean Rivers Project on the Anacostia River, Potomac River, and Rock Creek for consistency of visual and verbal messaging.

3. OTHER ALTERNATIVES CONSIDERED

The NPS evaluated one additional alternative (the no action alternative) that the NPS did not select as the Preferred Alternative. Numerous other alternatives considered but dismissed from further evaluation can be found in Appendix D of the EA.

4. FUNCTIONS AND VALUES ASSESSMENT

An investigation was conducted for the Piney Branch Tunnel Project in 2022 to determine the presence, extent, and classification of waters of the United States in support of the project design and environmental compliance process (Coastal Resources, Inc. 2022). Piney Branch is a perennial tributary to Rock Creek classified as a riverine wetland by NPS that was delineated within the western portion of the CSO 049 CSA. Additionally, two small unnamed perennial tributaries to Piney Branch classified as riverine wetlands by NPS were delineated along the northern boundary of the CSA that includes adjacent PFO and palustrine scrub-shrub (PSS) wetlands. There are no wetlands at the Park Road CSA.

Detailed descriptions of the wetlands that would be permanently and / or temporarily impacted during construction of the Preferred Alternative are below. Descriptions also include a functions and values assessment for each wetland. **Figure 1** attached to this Statement of Findings displays the locations of the wetlands delineated at the CSO 049 CSA.

4.1 Riverine Wetlands

Watercourse 4 (WC4), named Piney Branch, is conveyed through the existing combined sewer system during low flow conditions. However, during CSO events, Piney Branch, as well as stormwater and untreated sewage, discharge from the CSO 049 outfall and flow west ultimately draining into Rock Creek outside of the study area. Piney Branch is classified as a riverine, upper perennial wetland system, with a bedrock, cobble, gravel, boulder, and concrete substrate (R3UB1). Most of the streambed within the limits of the CSO 049 CSA is lined in concrete. Streambank erosion is minor downstream of the outfall due to retaining walls that have provided protection.

Piney Branch serves hydrologic functions, primarily flood attenuation and groundwater discharge, and provides economic value since the regulated 100-year floodplain is contained within the stream channel, which provides flood protection for adjacent properties. Otherwise, Piney Branch provides minimal biotic functions within the Project area, research/scientific value, or other economic values, such as tourism or fisheries, due to the concrete-lined streambed, lack of consistent base flow, and frequent CSO discharges that pollute the waterway. Additionally, while the CSO 049 outfall is within the Rock Creek Park Historic District, the outfall has little cultural value because it does not contribute to the significance of the historic district and is not individually eligible for listing in the National Register of Historic Places. There are also no recreational opportunities and the outfall in its current state is not likely to be aesthetically pleasing to most visitors because of graffiti, overgrown vegetation, and oxidized iron stains on the concrete apron of the outfall.

Watercourse 6 (WC6) is a small, unnamed tributary that flows west along the northern boundary of the CSO 049 CSA, eventually flowing into Piney Branch outside of the study area. WC6 is classified as a riverine, upper perennial wetland system with sand, mud, organic, and vegetated substrate (R3UB2/3/4). Bank erosion throughout the reach is minor and the channel is relatively stable throughout.

Functions and values provided by WC6 are very limited. Minimal biotic functions, such as fish and wildlife habitat and productivity, are provided due to the wetland's small size and shallow depths. WC6 provides hydrologic functions on a small scale by serving to provide base flow to Piney Branch downstream of the Project area and to support groundwater discharge from the upstream hillslopes. Otherwise, WC6 provides little cultural value except that the wetland is in a historic district, and provides no research/scientific, or economic value.

Watercourse 7 (WC7) is another small, unnamed tributary that drains a palustrine scrub-shrub (PSS) wetland outside the CSO 049 CSA into WC6 to the east of the outfall. WC7 is classified as a perennial stream with a cobble, gravel, and mud substrate (R3UB1/3). Bank erosion is minor with a relatively stable channel throughout. Significant pollutants are present from roadway and residential runoff.

Functions and values provided by WC7 are similar to WC6 and are also very limited. Minimal biotic functions, such as fish and wildlife habitat and productivity, are provided due to the wetlands small size and shallow depths. WC7 provides hydrologic functions on a small scale by serving to provide base flow to Piney Branch downstream of the Project area and to support groundwater discharge from the upstream hillslopes. Otherwise, WC7 provides

little cultural value except that the wetland is in a historic district, and provides no research/scientific, or economic value.

4.2 Palustrine Wetlands

Wetland 3 (WL3) is a hillslope seep/swale wetland on the eastern portion of the study area adjacent to WC6. WL3 is classified as a PFO wetland with a saturated water regime (PFO1B). Hydrologic indicators observed during the site visit included surface water, high water table, saturation, water marks, water-stained leaves, drainage patterns, saturation visible on aerial imagery, FAC-neutral test, and geomorphic position of the wetland. Hydrophytic vegetation dominated WL3, including red maple (*Acer rubrum*) American hornbeam (*Carpinus caroliniana*), American elm (*Ulmus americana*), green ash (*Fraxinus pennsylvanica*), boxelder (*A. negundo*), watercress (*Nasturtium officinale*), rice cutgrass (*Leersia oryzoides*), English ivy (*Hedera helix*), and amur peppervine (*Ampelopsis brevipedunculata*). Soils are mapped as Joppa gravelly sandy loam at the location of WL3, which are not considered hydric by the Natural Resources Conservation Service (NRCS). However, soil samples met the Redox Dark Surface (F6) hydric soil indicator.

WL3 provides a variety of functions and values at a relatively small scale due to the size of the wetland. Biotic functions, such as wildlife habitat and production export are provided by WL3, as are hydrologic functions, including flood attenuation, groundwater recharge/discharge, erosion and sediment control, and water purification. WL3 provides no research/scientific or economic value but does provide limited cultural value due to its location in a historic district and its potential ability to support opportunities for education and interpretation.

4.3 Functional Quality Rating

Although WL3 provides a variety of functions and is forested, this wetland was given a "moderate" functional quality rating due to the presence of invasive species and potential pollutants in the watershed. Piney Branch (WC4), a riverine wetland, was given an overall functional quality rating of "low" due to alteration of the stream, pollution from CSOs, abundant trash, and lack of habitat, as most of the stream within the study area is lined in concrete. The functional quality of perennial tributaries WC6 and WC7 is considered "moderate" due to the presence of relatively stable banks; natural channels; groundwater discharge in adjacent wetlands; and high shading; however, habitat suitability is minimal due to the small size and shallow depths of the tributaries.

5. IMPACTS TO WETLANDS

Implementation of the Piney Branch Tunnel Project would require approximately 3,666 square feet (0.08 acres) of permanent impacts to Piney Branch to construct the diversion structure and extend the outfall face of the two northern bays to match the most southern bay to create a uniform face, and 9,274 square feet (0.21 acres) of temporary disturbance to Piney Branch immediately downstream of the outfall to replace or repair the existing concrete apron. These physical impacts will not have a detrimental effect on the limited functions and values of Piney Branch that include groundwater discharge and flood attenuation and protection. DC Water would ensure that construction of the diversion structure and modifications to the outfall do not affect the ability for the Piney Branch stream channel to store and convey flood flows during CSO events. Groundwater discharge primarily occurs downstream of the concrete apron and would not be hindered by construction. The hydrologic functions and economic value of Piney Branch would continue once construction is completed.

Additionally, replacing the northern retaining wall, relocating an existing 48-inch storm sewer immediately north of the outfall, and stream diversion activities would result in 1,597 square feet (0.04 acres) of temporary impacts to WC6, 80 square feet (0.002 acres) of impacts to WC7, 8,731 square feet (0.20 acres) of temporary impacts to the adjacent PFO wetlands (WL3), as well as 28 square feet (0.001 acres) of permanent impacts from the placement of manholes in the wetland. These impacts will affect the biotic functions of WL3 by removing trees within the wetland that provide habitat for wildlife. However, the functional loss would be temporary since DC Water will replant trees to replace those removed during construction. Additionally, DC Water would implement erosion and sediment control measures and maintenance of stream flow during construction. These wetlands

would be restored to pre-construction conditions, resulting in no long-term effects to wetland functions and values.

Figure 2 attached to this Statement of Findings presents the site-specific wetland impacts that DC Water anticipates would occur. **Table 1** provides a summary of the anticipated wetland impacts and the assigned functional quality rating.

6. JUSTIFICATION FOR USE OF WETLANDS

DC Water evaluated numerous strategies for CSO control in the development of its Combined Sewer System LTCP in 2002, which was amended in 2015, and modified in 2020. The Preferred Alternative described in the EA for the Piney Branch Tunnel Project represents the outcome of preliminary engineering design and analysis, as well as extensive collaboration between NPS and DC Water for a reasonable control strategy for CSO 049. This strategy is intended to comply with the Amended Federal Consent Decree, which stipulates the construction of a 4.2-million-gallon minimum capacity CSO storage facility at the CSO 049 outfall on Piney Branch. As such, temporary and permanent impacts to Piney Branch, classified as a riverine wetland by NPS, are unavoidable since Piney Branch discharges from the CSO 049 outfall.

Table 1. Summary of Construction-Related Wetland Impacts for the Preferred Alternative

Wetland	Wetland Type	Permanent Impact	Temporary Impact	Functional Quality Rating
WC4 (Piney Branch)	R3	3,666 square feet (0.08 acres)	9,274 square feet (0.21 acres)	Low
WC6	R3	None anticipated	1,597 square feet (0.04 acres)	Moderate
WC7	R3	None anticipated	80 square feet (0.002 acres)	Moderate
WL3	PFO	28 square feet (0.001acres)	8,731 square feet (0.20 acres)	Moderate
Total R3 Impact		3,666 square feet (0.08 acres)	10,951 square feet (0.25 acres)	
Total PFO Impact		28 square feet (0.001 acres)	8,731 square feet (0.20 acres)	
Total Wetland Impact		3,694 square feet (0.08 acres)	19,682 square feet (0.25 acres)	

Additionally, the temporary impacts to WC6 and WC7 – the small perennial tributaries to Piney Branch – and the temporary and permanent impacts to the adjacent PFO wetlands (WL3), are necessary to relocate an existing 48-inch storm sewer pipe behind the CSO 049 outfall. This pipe relocation would separate the storm sewer from the combined sewer system, allowing stormwater from the pipe to discharge into Piney Branch during storms instead of flowing into the proposed storage tunnel, maintaining base flow to the stream channel during storms that are free of untreated wastewater.

Over the long-term, implementation of the Preferred Alternative would reduce overflows to Piney Branch from the CSO 049 outfall by 96 percent by volume from 40 million gallons to approximately 1.5 million gallons during just one CSO event in a year of average rainfall. Reducing CSO discharges would significantly decrease pollutant loads of bacteria, suspended solids, oil and grease, organics, metals, and other pollutants associated with sanitary waste, resulting in substantial long-term benefits to water quality in Piney Branch and Rock Creek, as well as water quality benefits to the Potomac River and the Chesapeake Bay. The Preferred Alternative would also be expected to improve the quality of habitat for aquatic life, support healthier fish and benthic populations, and reduce human health concerns on Piney Branch and downstream segments of Rock Creek. As determined by DC Water, DOEE, and the USEPA, the proposed project would reduce CSOs to a level that would not cause or contribute to the exceedance of water quality standards, subject to post-construction monitoring. Additionally, as determined by various regulatory agencies, the proposed project, along with other actions, would support efforts to obtain compliance with Total Maximum Daily Load's (TMDLs) for Rock Creek.

7. MITIGATION

DC Water would implement the following measures to minimize wetland impacts associated with the Preferred Alternative:

1) Implementing the project would reduce overflows to Piney Branch by 96 percent by volume, thereby significantly decreasing pollutant loads that would result in substantial water quality benefits, improving the quality of aquatic habitat, and reducing human health concerns on Piney Branch and downstream segments of Rock Creek.
2) DC Water would obtain required authorizations and certifications for unavoidable wetland impacts in accordance with Sections 404 and 401 of the Clean Water Act from the US Army Corps of Engineers and District Department of Energy and Environment.
3) DC Water would develop an Erosion and Sediment Control Plan to contain sediment in the construction area. The ESC Plan would include a variety of Best Management Practices (BMP), such as stabilized construction entrances, silt fence, and other common practices, to prevent sediment transport offsite and potentially into wetlands.
4) To comply with Nationwide Permit conditions, the native soil or substrate from each affected wetland area would be carefully removed, stockpiled / stored, protected, and maintained for future restoration efforts. At the conclusion of construction, the stockpiled / stored native soil or substrate would be used to reestablish pre-construction contours within the temporarily impacted wetlands, sources of hydrology would be restored, a native wetland seed mix would be applied to establish an herbaceous plant layer, and trees would be planted within the construction staging area. The trees would be up to 2.5-inch caliper size per tree, and the quantity of replacement trees would be determined by NPS resource managers in accordance with NCPC Tree Preservation and Replacement Policy. The survival of tree plantings would be monitored per applicable permit conditions.

8. CONCLUSION

The Preferred Alternative would permanently impact 3,694 square feet (0.08 acres) of wetlands and temporarily impact 19,682 square feet (0.25 acres). This includes 3,666 square feet (0.08 acres) of permanent impacts and 10,951 square feet (0.25 acres) of temporary impacts to riverine wetlands, and 28 square feet (0.001 acres) of permanent impacts and 8,731 square feet (0.20 acres) of temporary impacts to PFO wetlands, based on schematic-level designs developed for the Piney Branch Tunnel Project.

The significant CSO reductions and associated water quality, aquatic habitat, and public health benefits would compensate for the temporary and permanent impacts to Piney Branch that are required to construct the diversion structures and replace or repair the concrete apron. Additionally, since the small perennial tributaries and adjacent PFO wetlands would be restored to pre-construction conditions, there would be no loss of wetland function over the long-term. The addition of manholes within the PFO wetland would not a have a noticeable effect on the functions of the wetland system. As such, the NPS Water Resources Division has waived the requirement to provide compensatory mitigation to comply with NPS Director's Order 77-1: *Wetland Protection*.

The NPS finds that this proposed action is consistent with the policies and procedures of Director's Order 77-1: *Wetland Protection*.

9. REFERENCES

National Park Service

2016 *Procedural Manual 77-1: Wetland Protection*. Online at https://www.nps.gov/policy/DOrders/Procedural_Manual_77-1_6-21-2016.pdf. Accessed February 6, 2023.

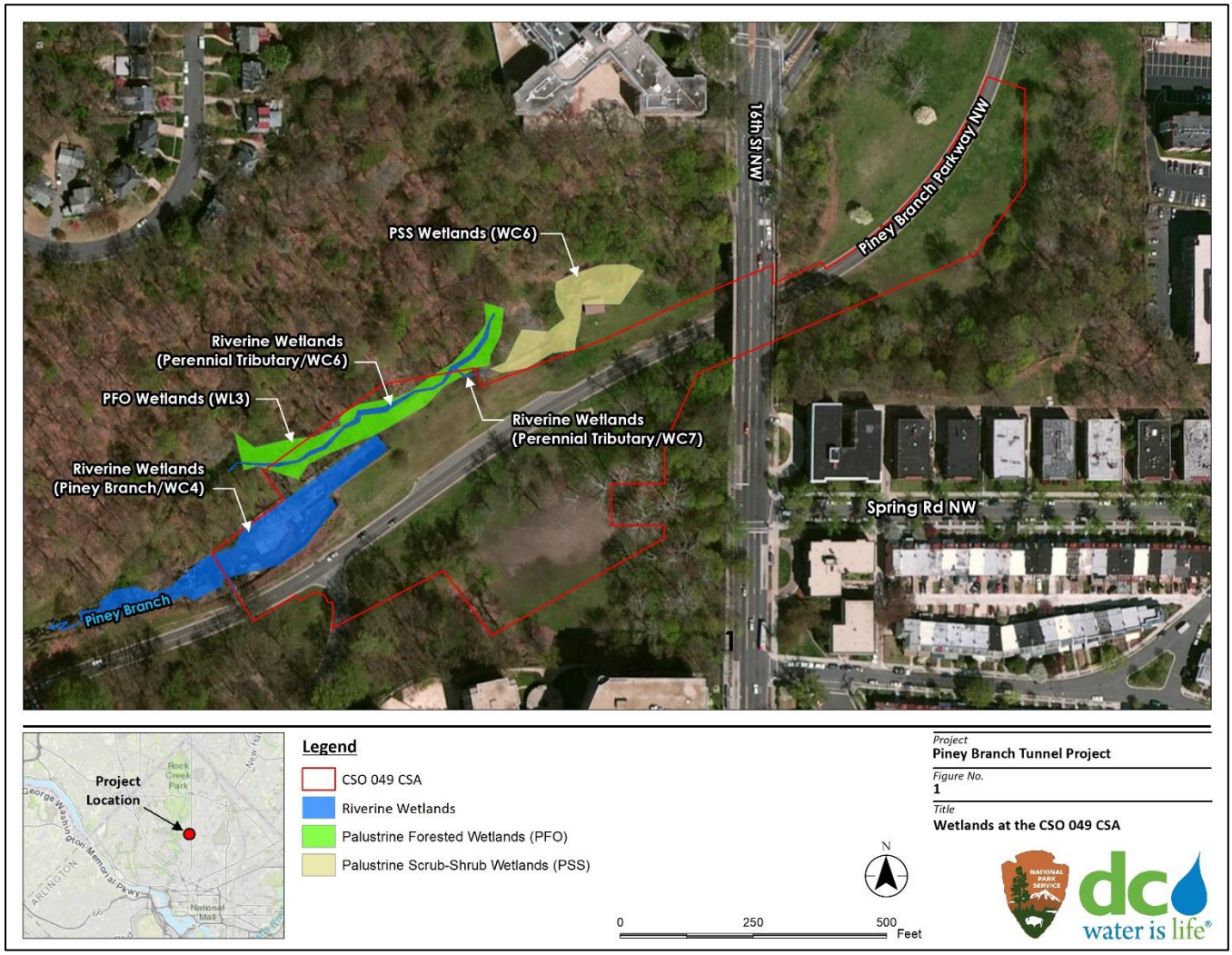
Coastal Resources, Inc.

2022 *Waters of the U.S. (Including Wetlands) Delineation Report.* Piney Branch CSO 049 Storage Project. Washington, D.C. Prepared for DC Water. August 2022.

ATTACHMENTS

Figure 1. Wetlands at the CSO 049 CSA

Figure 2. Preferred Alternative Wetland Impacts



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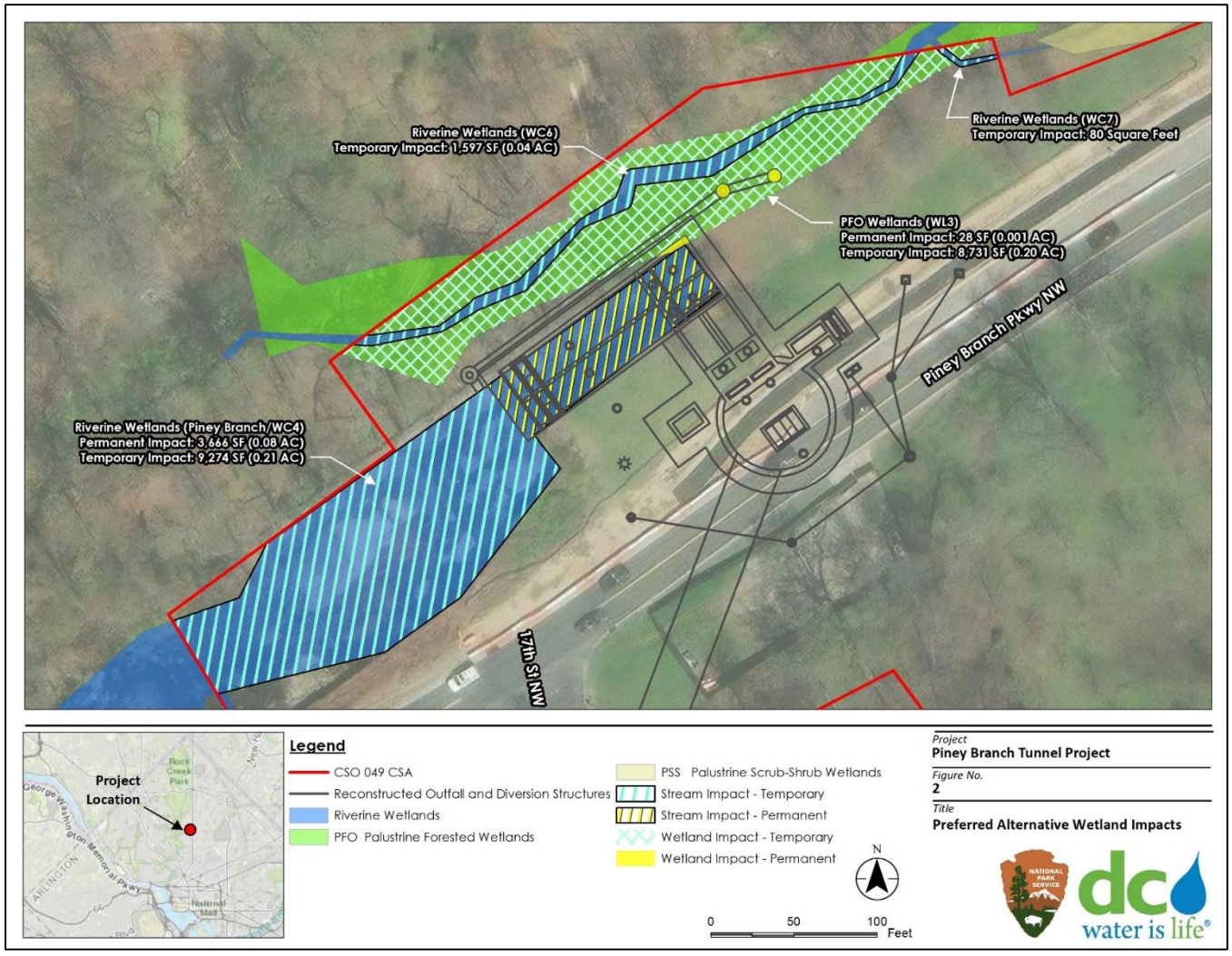

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