

**Wetland Delineation Report
for the Long Term Combined Sewer
Overflow Control Program
Anacostia River Projects
Washington, D.C.**

Prepared for:

District of Columbia Water and Sewer Authority
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1 INTRODUCTION

1.1 PROJECT DESCRIPTION

The District of Columbia Water and Sewer Authority (WASA) provides wastewater collection and treatment for the District of Columbia (District) and parts of Maryland and Virginia. A portion of the District is served by a combined sewer system (CSS). WASA is in the process of implementing a Long Term Control Plan (LTCP) for controlling combined sewer overflows (CSOs) to comply with the requirements of the CSO Policy of Section 102(q) of the Clean Water Act (CWA). The LTCP is being implemented under a federal court consent decree among the United States, the District, and WASA. This project provides for facilities to control CSOs to the Anacostia River and surface and basement flooding in the Northeast Boundary (NEB) area of the District. The CSO control facilities comprise a tunnel system to capture and store CSOs for treatment at WASA's advanced wastewater treatment plant at Blue Plains. The components of the tunnel system are referred to collectively as the Anacostia River Projects (ARPs). Construction of these facilities is expected to reduce CSO discharges to the Anacostia River by 98%.

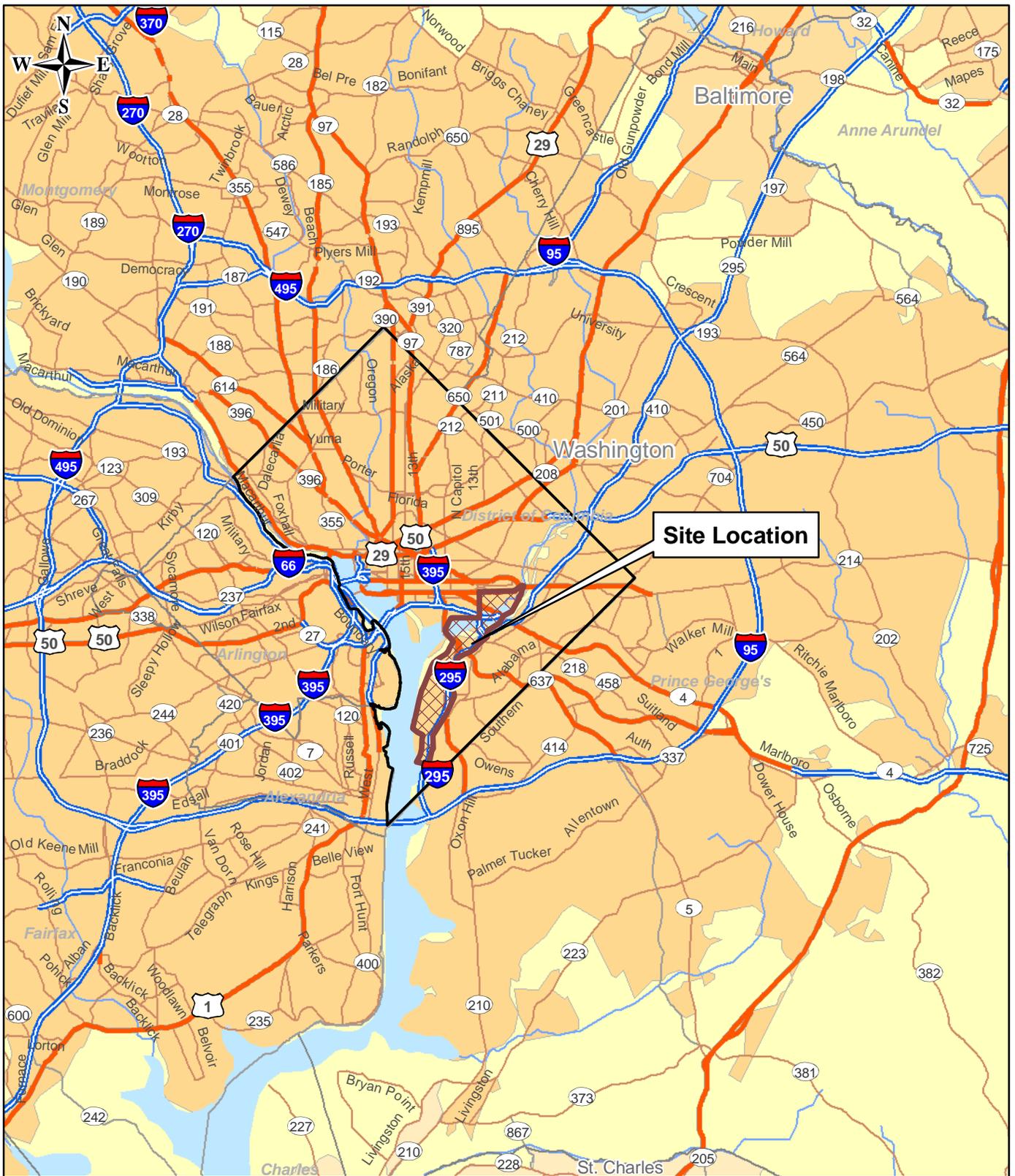
A wetland investigation of the ARP project study area was conducted to assist WASA in determining potential impacts to wetlands and other "waters of the U.S." Wetlands and other "waters of the U.S." were identified and delineated within the project area based on a review of published information and a field investigation.

1.2 STUDY AREA DESCRIPTION

The ARP boundary (see Figure 1) includes nine areas of proposed surface disturbance totaling approximately 30 acres. These areas of proposed disturbance are described in Table 1-1 and provide the basis for the nine study area boundaries for the wetland investigation (see Figure 2). The wetland delineation study areas are larger than the actual area of disturbance or impact. Following this delineation, efforts were made to avoid water resources within each study area. Accordingly, the M Street Diversion Facilities and the CSO 005 & 007 Diversion Facilities were relocated following the initial delineation, as described in Section 4. Land use in the study area includes industrial and commercial areas, Bolling Air Force Base, roadways, open space, parkland, rivers, and forest. The study area is located within the Atlantic Coastal Plain physiographic province and is within the Potomac River watershed.

Number on Figure	Proposed Surface Disturbance Area	Description
1	Tingey Street Diversion Sewers	The Tingey Street Diversion Chambers for CSO 013 and 014 consist of two diversion chambers, a junction chamber, and new 66-inch pipes along Tingey Street.
2	CSO 019 Overflow and Diversion Facilities	The CSO 019 Overflow and Diversion Structures consist of two diversion chambers, one vortex drop facility, and two tunnel overflow facilities. The proposed facility would be situated at the terminus of the Anacostia River Tunnel.

Table 1-1 DESCRIPTION OF PROPOSED SURFACE DISTURBANCE AREAS WITHIN ARP BOUNDARY		
Number on Figure	Proposed Surface Disturbance Area	Description
3	M Street Diversion Facilities	The M Street Diversion Sewer for CSOs 015, 016, and 017 consists of three diversion chambers (two of which would also function as junction chambers), one vortex drop facility, and one drop shaft. A series of new sewers (including 36-inch, 66-inch, and 96-inch diameter pipes and a 10-foot by 18-foot culvert) would extend along M Street to connect the diversion and junction chambers to the vortex drop facility.
4	CSO 018 Diversion Facilities	The CSO 018 Diversion Sewer consists of a diversion chamber, vortex drop facility, and drop shaft. A 90-inch diversion sewer would connect the diversion chamber to the vortex drop facility.
5	CSO 005 & 007 Diversion Facilities	The CSO 005 and 007 Diversion Sewer consists of two diversion chambers, one drop shaft, and new 36-inch and 48-inch sewer pipes. The sewer would extend approximately 2,100 feet parallel to the northwest side of Anacostia Freeway SE.
6	Bolling Air Force Base Overflow and Diversion Facilities	The Bolling Air Force Base Overflow Structure and Bolling Potomac Outfall Sewer Diversion Chamber would use a diversion chamber to redirect up to 450 million gallons per day from the existing Potomac Outfall Sewers into the Blue Plains Tunnel through a drop shaft. The drop shaft would also function as an overflow shaft, discharging up to 770 million gallons per day of excess flow to the Potomac River.
7	Main Pumping Station Diversion Facilities	The Main Pumping Station Facilities serve as the terminus point for the Blue Plains Tunnel (BPT). The facility would include four diversion chambers, one junction chamber, one tide gate chamber, and one drop shaft. The total diverted flow of 500 million gallons per day would be dropped into the BPT through the 55-foot-diameter Main Pumping Station Drop Shaft (MPS-DS). The MPS-DS will be located on the north side of the Main Pumping Station, partially within the pumping station property and partially within the right-of-way of the future Tingey Square.
8	Blue Plains Advanced Waste Water Treatment Plant Facilities	The Blue Plains Tunnel Dewatering Pumping Station and Enhanced Clarification Facility would house the pumping equipment required for dewatering the CSO storage/conveyance tunnels, as well as the facilities for trapping and collecting screens and grit. The facility would be situated at the terminus of the Blue Plains Tunnel and would consist of two shafts, one 60 feet in diameter and the other 110 feet in diameter, with an overall depth of approximately 160 feet.
9	Poplar Point Pumping Station	The Poplar Point Pumping Station Replacement project serves as the connection point between the Anacostia River Tunnel and the Blue Plains Tunnel.



**Figure 1:
Site Location Map**

CSO Long-term Control Plan
Anacostia River Projects
Washington, D.C.



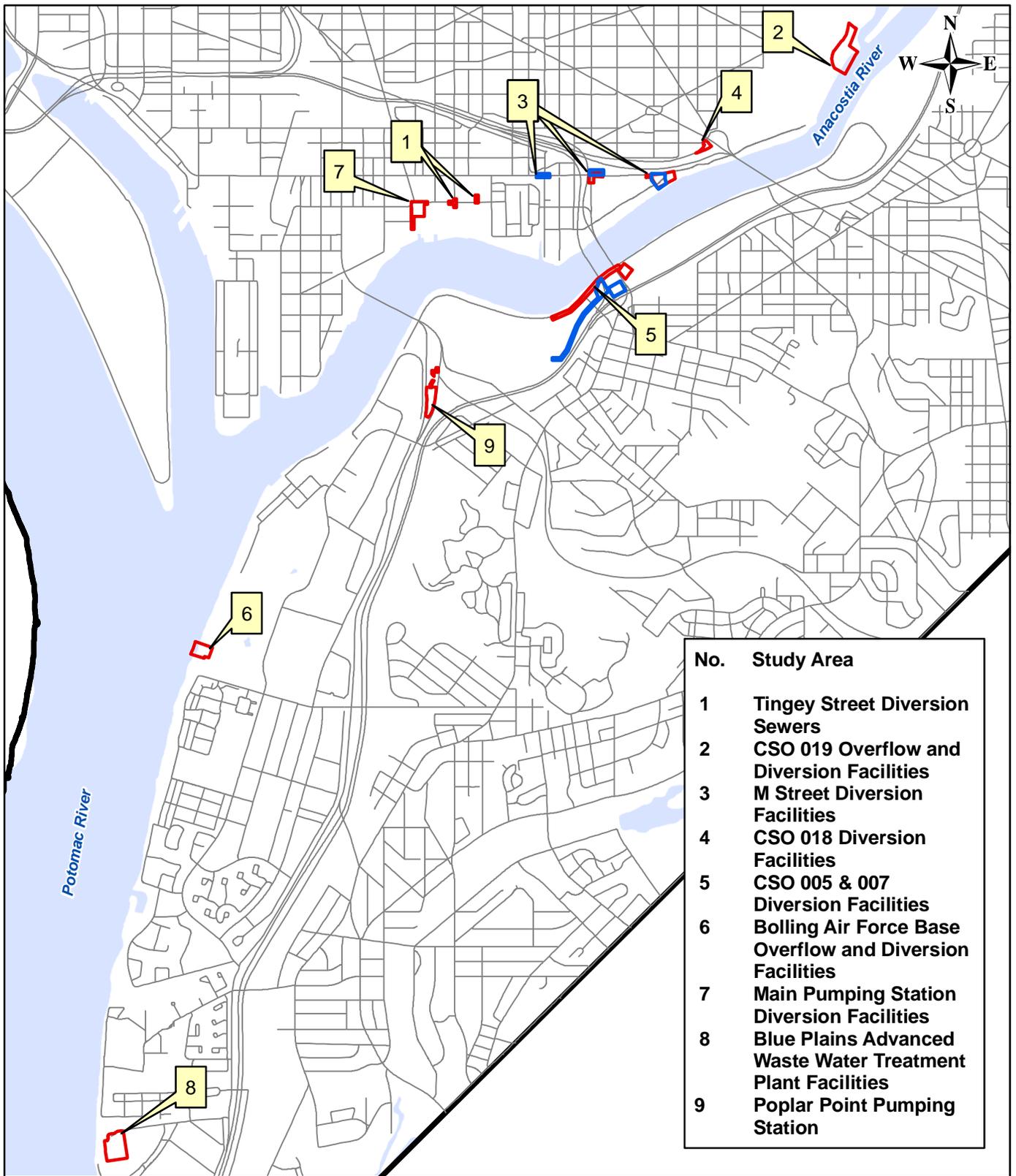
SERVING THE PUBLIC
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Legend:

 Anacostia River Projects Area Boundary

Scale: 1 inch = 4 miles





**Figure 2:
Study Area Map**

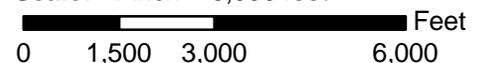
CSO Long-term Control Plan
Anacostia River Projects
Washington, D.C.



Legend:

- Road
- ▭ DC Boundary
- Revised Study Area
- Water
- Study Area

Scale: 1 inch = 3,000 feet



2 METHODOLOGY

2.1 WETLAND INVESTIGATION

A review of published information was conducted to identify potential or documented wetlands and other “waters of the U.S.” in the study areas. This information is presented in Table 2-1. A field investigation was conducted to confirm the published information and to document the presence of wetlands and other “waters of the U.S.” within the study areas.

All fieldwork was performed according to the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region* (US Army Corps of Engineers, 2008) using the routine on-site method. The manual outlines a three-parameter approach to delineating wetlands. All three parameters (hydrophytic vegetation, hydric soils, and hydrology) must be evident to classify an area as a wetland, unless the site has been disturbed (atypical) or is considered a problem area. In the case of disturbed or problem areas, only two parameters must be evident to classify those areas as wetlands. Each wetland and waterway was classified into system, subsystem, class, and subclass according to *Classification of Wetlands and Deep Water Habitats of the United States* (Cowardin, et al., 1979).

“Waters of the U.S.” are defined by the U.S. Army Corps of Engineers (ACOE) as “coastal and inland waters, lakes, rivers, and streams that are navigable waters of the United States, including their adjacent wetlands” and “tributaries to navigable waters of the United States, including adjacent wetlands” (*Corps of Engineers Wetlands Delineation Manual* [Environmental Laboratory, 1987]).

In order to comply with the *National Park Service Procedural Manual #77-1* (NPS, 2008), the National Park Service (NPS) uses the Cowardin definition of “waters of the U.S.” (Cowardin, et al., 1979), which is broader than the ACOE definition. Under this definition, a broader range of aquatic habitat types fall under NPS wetland protection procedures.

Table 2-1 REFERENCES FOR IDENTIFICATION OF JURISDICTIONAL WATERS AND WETLANDS		
Document	Date	Reference
<i>Soil Survey Geographic (SSURGO) Database for District of Columbia</i>	2002	United States Department of Agriculture, Natural Resource Conservation Service (USDA, NRCS)
<i>Soil Survey of District of Columbia</i>	1976	USDA, Soil Conservation Service
<i>National Wetlands Inventory Map for District of Columbia</i>	2002	United States Fish and Wildlife Service (USFWS)
<i>Digital Flood Insurance Rate Map Database, District of Columbia</i>	2002	Federal Emergency Management Agency (FEMA)
<i>Hydric Soils of District of Columbia</i>	2009	USDA, NRCS

Table 2-1 REFERENCES FOR IDENTIFICATION OF JURISDICTIONAL WATERS AND WETLANDS		
Document	Date	Reference
<i>Monthly Weather Summary for Washington National, DC</i>	2009	National Oceanic and Atmospheric Administration (NOAA)
<i>Ortho – 2008 (Ortho2008)</i>	2008	Office of the Chief Technology Officer
<i>11th Street Bridges Final Environmental Impact Statement</i>	2007	District of Columbia Department of Transportation, Federal Highway Administration
<i>Anacostia Riverwalk Environmental Assessment</i>	2004	National Park Service

3 FINDINGS

3.1 PUBLISHED INFORMATION

The *NWI Map for District of Columbia* (USFWS, 2002) identifies two waterways within the study areas (see Figures 3.1 – 3.8).

- One riverine, tidal, open water, permanent-tidal (R1OWV) waterway located in the CSO 019 Overflow and Diversion Facilities study area; and,
- One riverine, tidal, open water, unconsolidated bottom, permanent-tidal (R1UBV) waterway located in the Bolling Air Force Base Overflow and Diversion Facilities study area.

The *Soil Survey Geographic (SSURGO) Database for District of Columbia* (USDA, NRCS, 2002) and *Soil Survey of District of Columbia* (Smith, 1976) indicate that four soil series (Urban land, Galestown, Udorthents, Iuka) occur within the study areas (see Figures 3.1 – 3.8 and Table 3.1-1).

- Urban land (Ub) – nearly level to moderately sloping areas where more than 80 percent of the surface is covered by asphalt, concrete, buildings, or other impervious surfaces. Urban land soil is located in the following study areas:
 - Tingey Street Diversion Sewers
 - CSO 019 Overflow and Diversion Facilities
 - M Street Diversion Facilities
 - Blue Plains Advanced Waste Water Treatment Plant Facilities
- Urban land-Galestown complex (UmB) – nearly level to gently sloping areas on urbanized uplands and terraces. Galestown soils have been altered by grading for residential, urban, and industrial development. Approximately five percent of this complex is made up of relatively undisturbed Galestown soils. Permeability ranges from well drained to excessively drained in areas that are relatively undisturbed, and is variable in areas dominated by cuts, fills, and Urban land. Urban land-Galestown complex soil is located in the Blue Plains Advanced Waste Water Treatment Plant Facilities study area.
- Udorthents (U1) – very heterogenous, earthy fill material that has been placed on poorly drained to somewhat excessively drained soils on uplands, terraces, and flood plains to provide sites for buildings, roads, railroads, recreation areas, and other uses. Slopes range from nearly level to steep, but are dominantly nearly level to moderately sloping. Udorthents soil is located in the following study areas:
 - CSO 019 Overflow and Diversion Facilities
 - Bolling Air Force Base Overflow and Diversion Facilities
 - M Street Diversion Facilities
 - CSO 018 Diversion Facilities
 - CSO 005 & 007 Diversion Facilities

- Udorthents sandy (U3) – mostly sandy fill material that has been placed on soils of various drainage classes on uplands, terraces, and floodplains. Slopes range from nearly level to steep, but are dominantly nearly level to moderately sloping. Udorthents sandy soil is located in the CSO 005 & 007 Diversion Facilities study area.
- Udorthents clayey (U5) – clayey fill material that has been placed on soils of various drainage classes on uplands, terraces, and floodplains. Slopes range from nearly level to steep, but are dominantly nearly level to moderately sloping. Udorthents clayey soil is located in the M Street Diversion Facilities study area.
- Udorthents smoothed (U6) – areas that have been altered during grading for roads, railroads, housing developments, recreation areas, and similar uses. Slopes range from nearly level to steep, ranging to more than 60 percent. Udorthents smoothed soil is located in the following study areas:
 - CSO 005 & 007 Diversion Facilities
 - Poplar Point Pumping Station
- Iuka sandy loam (Ik) – nearly level, moderately well drained soil on floodplains. Iuka sandy loam soil is located in the CSO 005 & 007 Diversion Facilities study area.

Table 3.1-1 TYPICAL SOIL PROFILE			
Soil Series	Depth (Inches)	Color	Texture
Galestown	0-11	Dark brown (10YR 4/3)	Loamy sand
	11-29	Yellowish brown (10YR 5/6)	Loamy sand
	29-40	Strong brown (7.5YR 4/6)	Loamy sand
	40-51	Strong brown (7.5YR 5/6)	Sand
	51-58	Brownish yellow (10YR 6/6)	Sand
	58-65	Brownish yellow (10YR 6/6)	Sand
Iuka	0-7	Brown (10YR 4/3)	Sandy loam
	7-13	Brown (10YR 5/3)	Sandy loam
	13-22	Light yellowish brown (10YR 6/4)	Sandy loam
	22-60	Coarsely mottled gray (10YR 6/1) and yellowish brown (10YR 5/4)	Sandy loam

Note: There are no soil profiles for Urban land or Udorthents series.

Source: USDA, NRCS. 2009. *Official Soil Series Descriptions by Name*. <http://ortho.ftw.nrcs.usda.gov/cgi-bin/osd/osdname.cgi>

Iuka sandy loam soil, located in the CSO 005 & 007 Diversion Facilities disturbance area, is listed in *Hydric Soils of District of Columbia* (USDA, NRCS, 2009) as having up to 5% hydric inclusions of Bibb and Fluvaquents on floodplains, and up to 5% hydric inclusions of Fallsington.

The *Digital Flood Insurance Rate Map Database, District of Columbia* (FEMA, 2002) indicates that the 100-year floodplain of the Potomac River intersects the Bolling Air Force Base Overflow and Diversion Facilities study area (see Figure 3.3). The 100-year floodplain of the Anacostia River intersects the following study areas (see Figures 3.1, 3.4, and 3.6):

- Tingey Street Diversion Sewers
- CSO 019 Overflow and Diversion Facilities
- M Street Diversion Facilities
- CSO 005 & 007 Diversion Facilities

The DC GIS *Ortho2008* (Office of the Chief Technology Officer, 2008) shows industrial and commercial areas, Bolling Air Force Base, open space, parkland, forest, and rivers within the study areas (see Figures 3.1 – 3.8). Table 3.1-2 summarizes the land use shown in each study area.

Table 3.1-2 LAND USE IN STUDY AREAS	
Study Area	Land Use
Tingey Street Diversion Sewers	Industrial, roadways
Main Pumping Station Diversion Facilities	Roadways
CSO 019 Overflow and Diversion Facilities	Parkland, forest, river, roadways
Bolling Air Force Base Overflow and Diversion Facilities	Bolling Air Force Base, river
M Street Diversion Facilities	Parkland, forest, commercial, roadway
CSO 018 Diversion Facilities	Open space
CSO 005 & 007 Diversion Facilities	Parkland, forest, roadways
Blue Plains Advanced Waste Water Treatment Plant Facilities	Industrial, roadways
Poplar Point Pumping Station	Parkland, forest, open space, industrial, roadway

The *Monthly Weather Summary for Washington National, DC* (NOAA, 2009) reports that 8.85 inches of precipitation fell between October 1 and November 23, 2009, 3.3 inches above the normal value (see Table 3.1-3).

Table 3.1-3 PRECIPITATION DATA			
Time period	Observed Value	Normal Value	Depart from Normal
Month to date total (inches) ¹	3.24	2.33	0.91
November 22, 2009 (inches) ²	0.00	0.10	-0.10
Previous month to date total (inches) ³	8.85	5.55	3.30

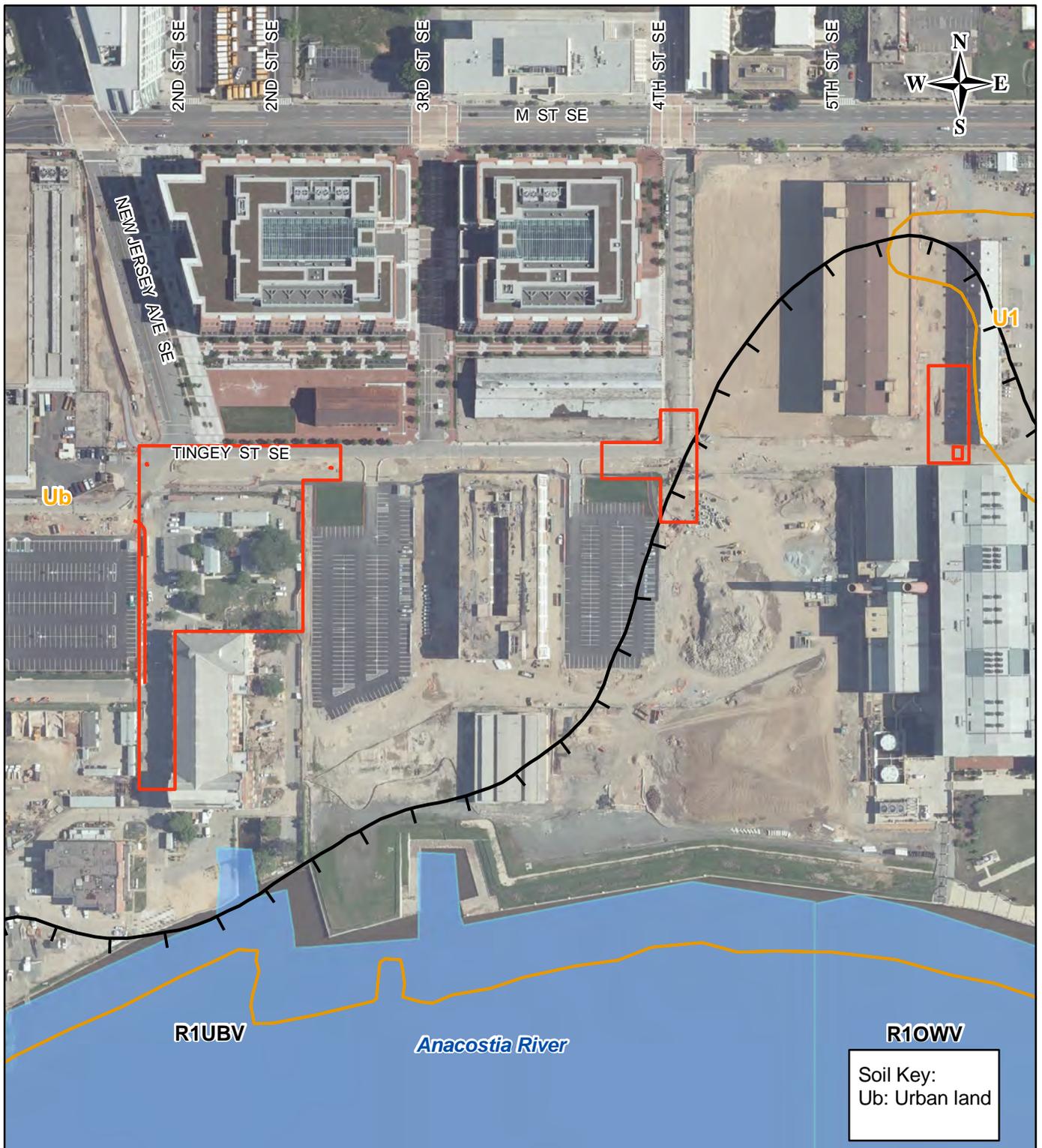
¹ For time period November 1 through 23, 2009

² Day prior to wetland delineation field investigation

³ October 1 through November 23, 2009

The 11th Street Bridges Final Environmental Impact Statement (FEIS; District of Columbia Department of Transportation [DDOT], Federal Highway Administration [FHWA], 2007) identifies one wetland within and one wetland near the CSO 005 & 007 Diversion Facilities study area. These wetlands were previously determined to be jurisdictional and are identified as WP005 and DP-1. Approximate boundaries of these wetlands are presented in Figure 3.9.

The *Anacostia Riverwalk Environmental Assessment* (National Park Service [NPS], 2004) identifies one waterway within the M Street Diversion Facilities study area. This waterway was previously determined to be jurisdictional and is identified as WL001A. The approximate boundary of this waterway is presented in Figure 3.10.



**Figure 3.1:
Environmental Features Map**

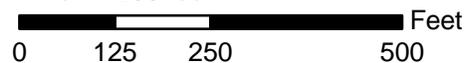
Tingey Street Diversion Sewer
for CSOs 013 & 014 and
Main Pumping Station Diversions
Washington, D.C.



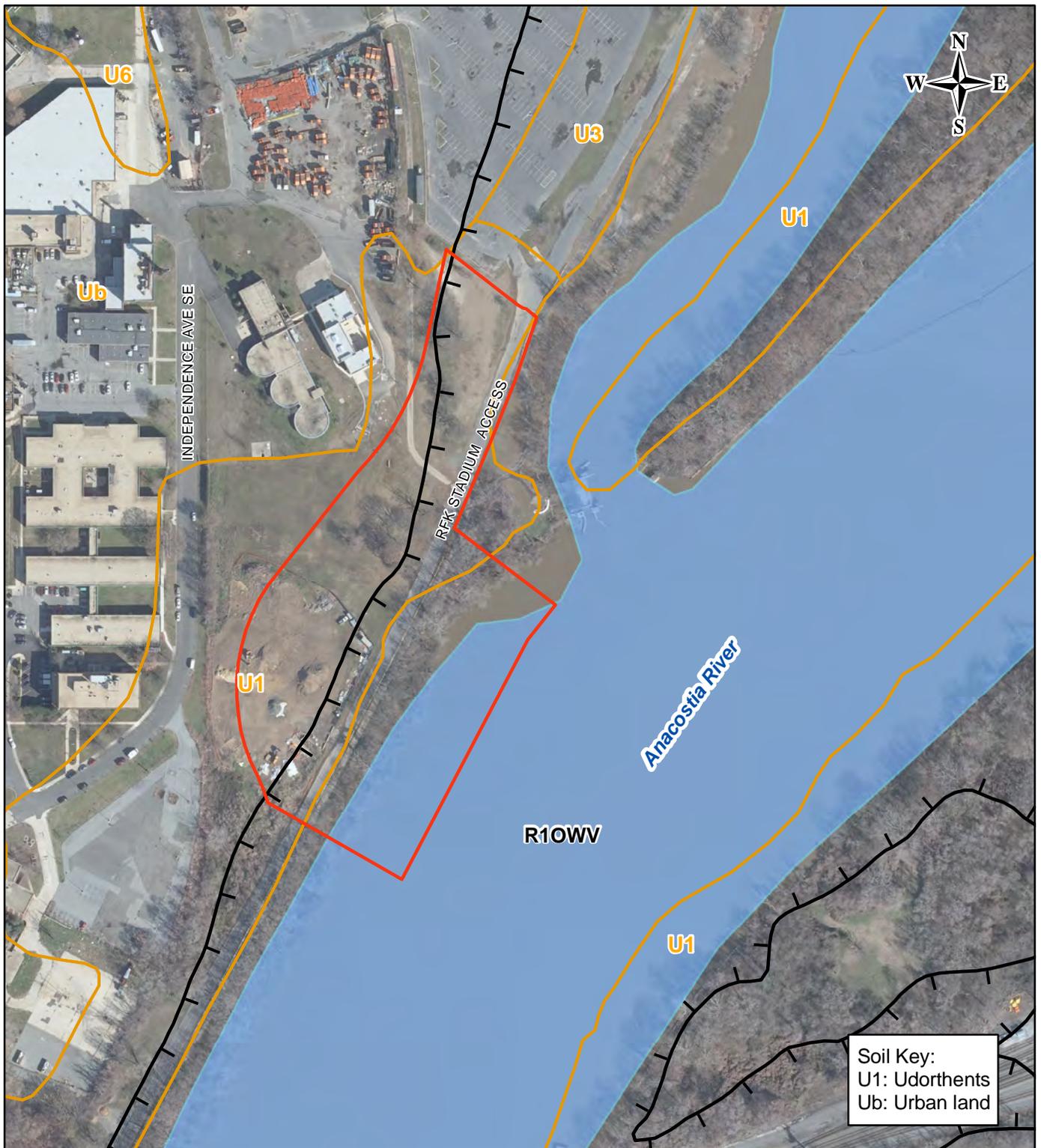
Legend:

- Study Area
- Soil Type Boundary
- 100-Year Floodplain
- NWI Waterway
- NWI Wetland

Scale: 1 inch = 250 feet



Sources: FEMA. 2002. *Digital Flood Insurance Rate Map Database, District of Columbia*. Washington, DC.
Office of the Chief Technology Officer. 2008. *Ortho - 2008 (Ortho2008)*. DC GIS. Washington, D.C.
USDA, NRCS. 2002. *Soil Survey Geographic Database (SSURGO) for District of Columbia*. Washington, DC.
USFWS. 2002. *National Wetlands Inventory Map for District of Columbia*. Washington, DC.



**Figure 3.2:
Environmental Features Map**

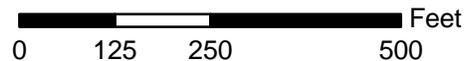
CSO 019 Overflow
and Diversion Structures
Washington, D.C.



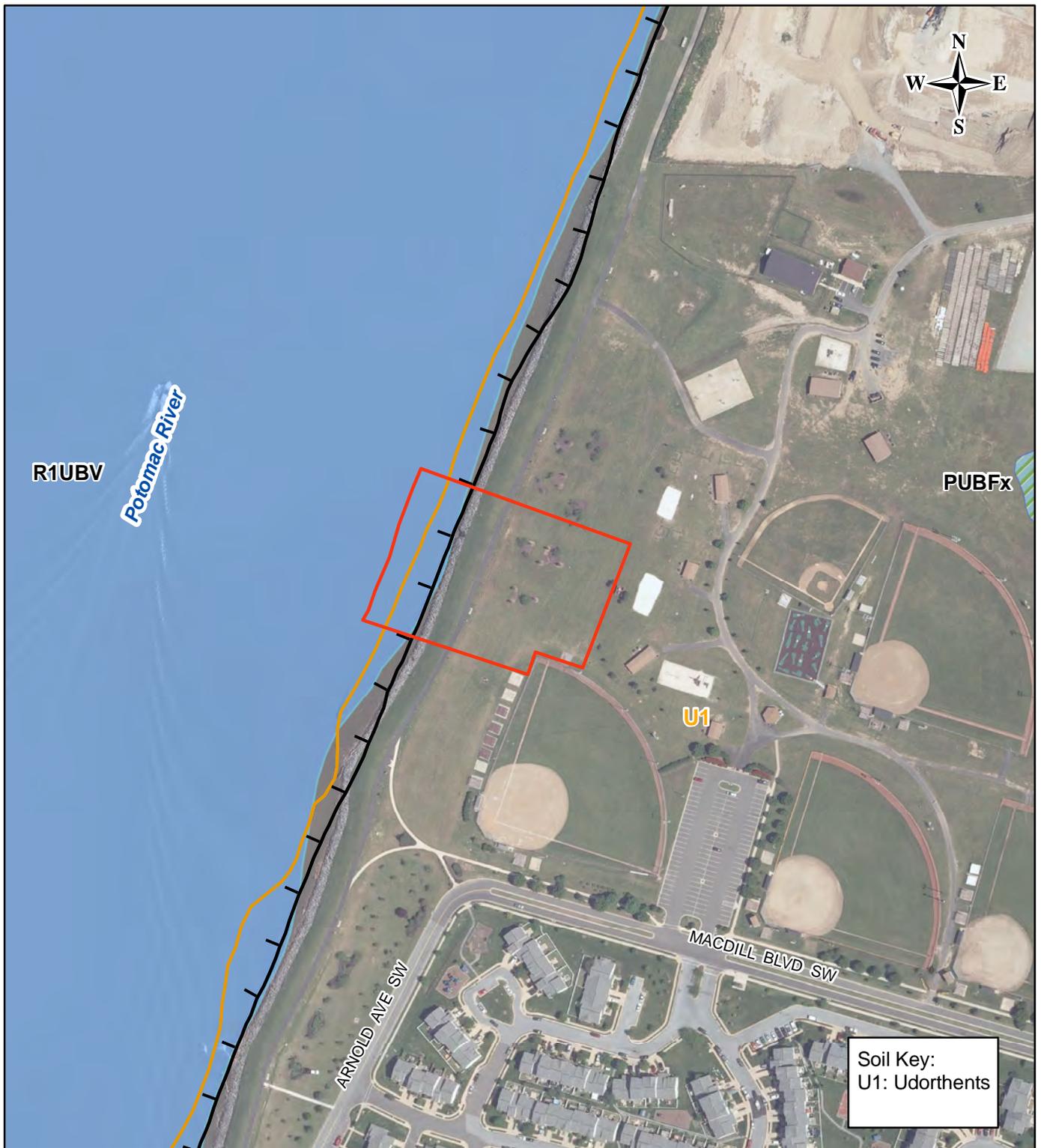
Legend:

- Study Area
- Soil Type Boundary
- 100-Year Floodplain
- NWI Waterway
- NWI Wetland

Scale: 1 inch = 250 feet



Sources: FEMA. 2002. *Digital Flood Insurance Rate Map Database, District of Columbia*. Washington, DC.
Office of the Chief Technology Officer. 2008. *Ortho - 2008 (Ortho2008)*. DC GIS. Washington, D.C.
USDA, NRCS. 2002. *Soil Survey Geographic Database (SSURGO) for District of Columbia*. Washington, DC.
USFWS. 2002. *National Wetlands Inventory Map for District of Columbia*. Washington, DC.



**Figure 3.3:
Environmental Features Map**

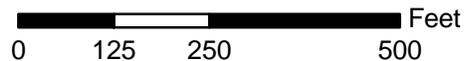
Bolling Air Force Base
Overflow and Potomac Outfall
Diversion Sewer
Washington, D.C.



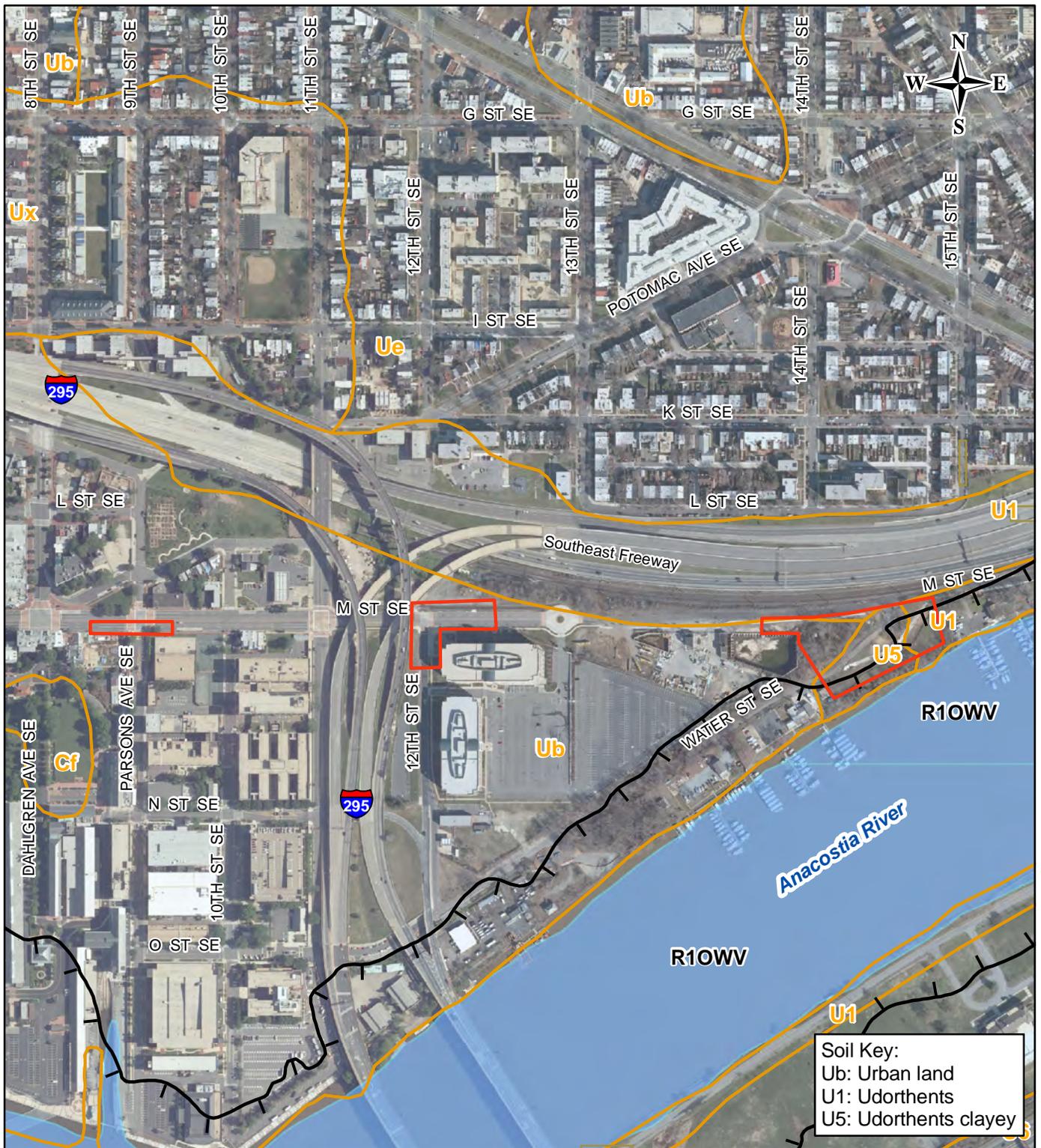
Legend:

- Study Area
- Soil Type Boundary
- 100-Year Floodplain
- NWI Waterway
- NWI Wetland

Scale: 1 inch = 250 feet



Sources: FEMA. 2002. *Digital Flood Insurance Rate Map Database*, District of Columbia. Washington, DC.
Office of the Chief Technology Officer. 2008. *Ortho - 2008 (Ortho2008)*. DC GIS. Washington, D.C.
USDA, NRCS. 2002. *Soil Survey Geographic Database (SSURGO) for District of Columbia*. Washington, DC.
USFWS. 2002. *National Wetlands Inventory Map for District of Columbia*. Washington, DC.



**Figure 3.4:
Environmental Features Map**

M Street Diversion Sewer
for CSOs 015, 016 & 017
Washington, D.C.



Legend:

- Study Area
- Soil Type Boundary
- 100-Year Floodplain
- NWI Waterway
- NWI Wetland

Scale: 1 inch = 500 feet



Sources: FEMA. 2002. *Digital Flood Insurance Rate Map Database, District of Columbia*. Washington, DC.
Office of the Chief Technology Officer. 2008. *Ortho - 2008 (Ortho2008)*. DC GIS. Washington, D.C.
USDA, NRCS. 2002. *Soil Survey Geographic Database (SSURGO) for District of Columbia*. Washington, DC.
USFWS. 2002. *National Wetlands Inventory Map for District of Columbia*. Washington, DC.



**Figure 3.5:
Environmental Features Map**

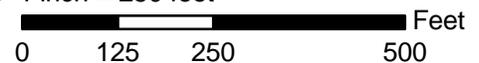
CSO 018 Diversion Sewer
Washington, D.C.



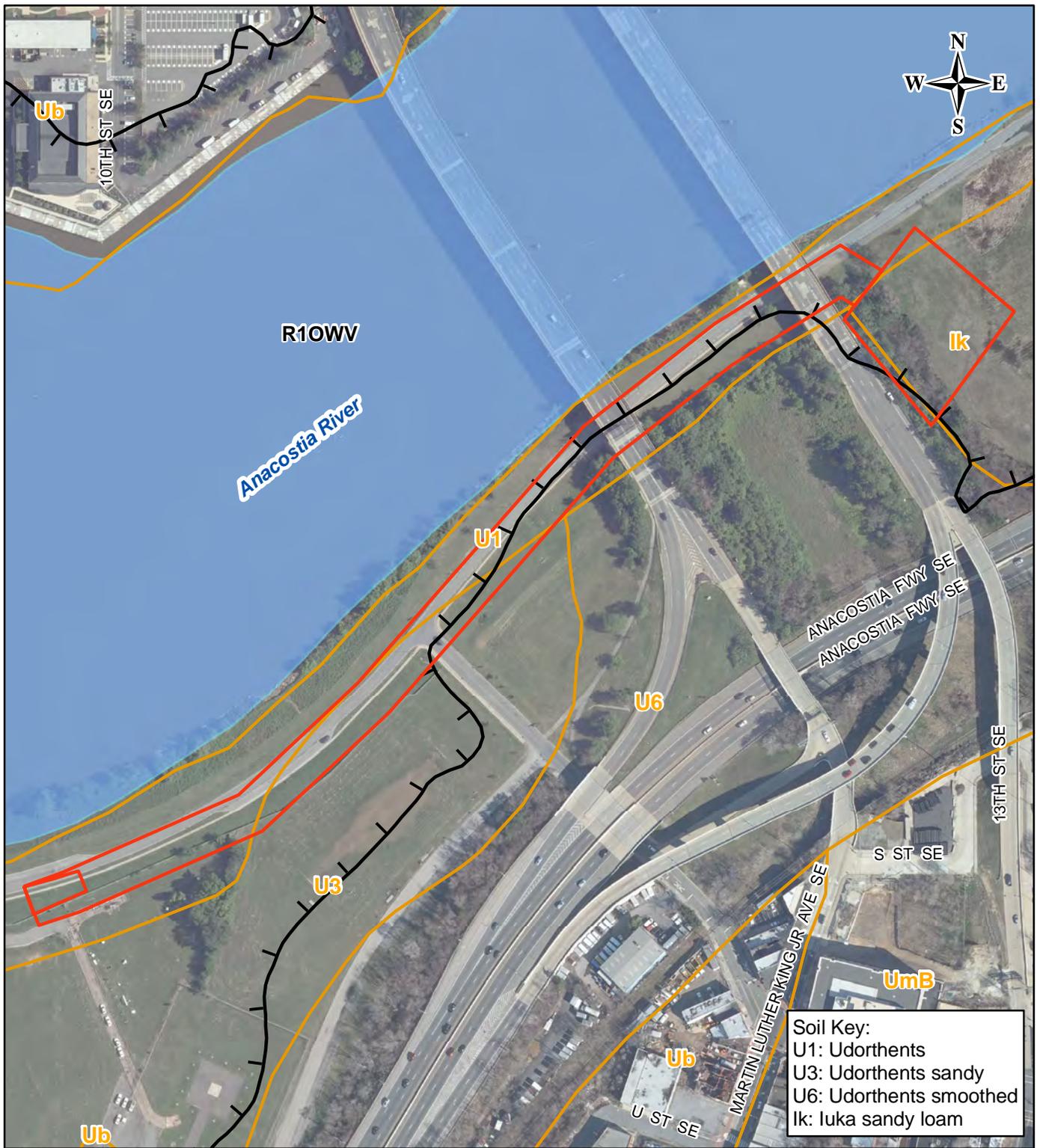
Legend:

- Study Area
- Soil Type Boundary
- 100-Year Floodplain
- NWI Waterway
- NWI Wetland

Scale: 1 inch = 250 feet



Sources: FEMA. 2002. *Digital Flood Insurance Rate Map Database, District of Columbia*. Washington, DC.
 Office of the Chief Technology Officer. 2008. *Ortho - 2008 (Ortho2008)*. DC GIS. Washington, D.C.
 USDA, NRCS. 2002. *Soil Survey Geographic Database (SSURGO) for District of Columbia*. Washington, DC.
 USFWS. 2002. *National Wetlands Inventory Map for District of Columbia*. Washington, DC.



Soil Key:
 U1: Udorthents
 U3: Udorthents sandy
 U6: Udorthents smoothed
 lk: luka sandy loam

**Figure 3.6:
 Environmental Features Map**

CSO 005 & 007 Diversion Sewer
 Washington, D.C.



Legend:

- Study Area
- Soil Type Boundary
- 100-Year Floodplain
- NWI Waterway
- NWI Wetland

Scale: 1 inch = 250 feet



Sources: FEMA. 2002. *Digital Flood Insurance Rate Map Database, District of Columbia*. Washington, DC.
 Office of the Chief Technology Officer. 2008. *Ortho - 2008 (Ortho2008)*. DC GIS. Washington, D.C.
 USDA, NRCS. 2002. *Soil Survey Geographic Database (SSURGO) for District of Columbia*. Washington, DC.
 USFWS. 2002. *National Wetlands Inventory Map for District of Columbia*. Washington, DC.



Soil Key:
 Ub: Urban land
 UmB: Urban land - Galestown complex

**Figure 3.7:
 Environmental Features Map**

Blue Plains Tunnel
 Dewatering Pumping Station
 & Enhanced Clarification Facility
 Washington, D.C.

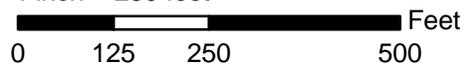


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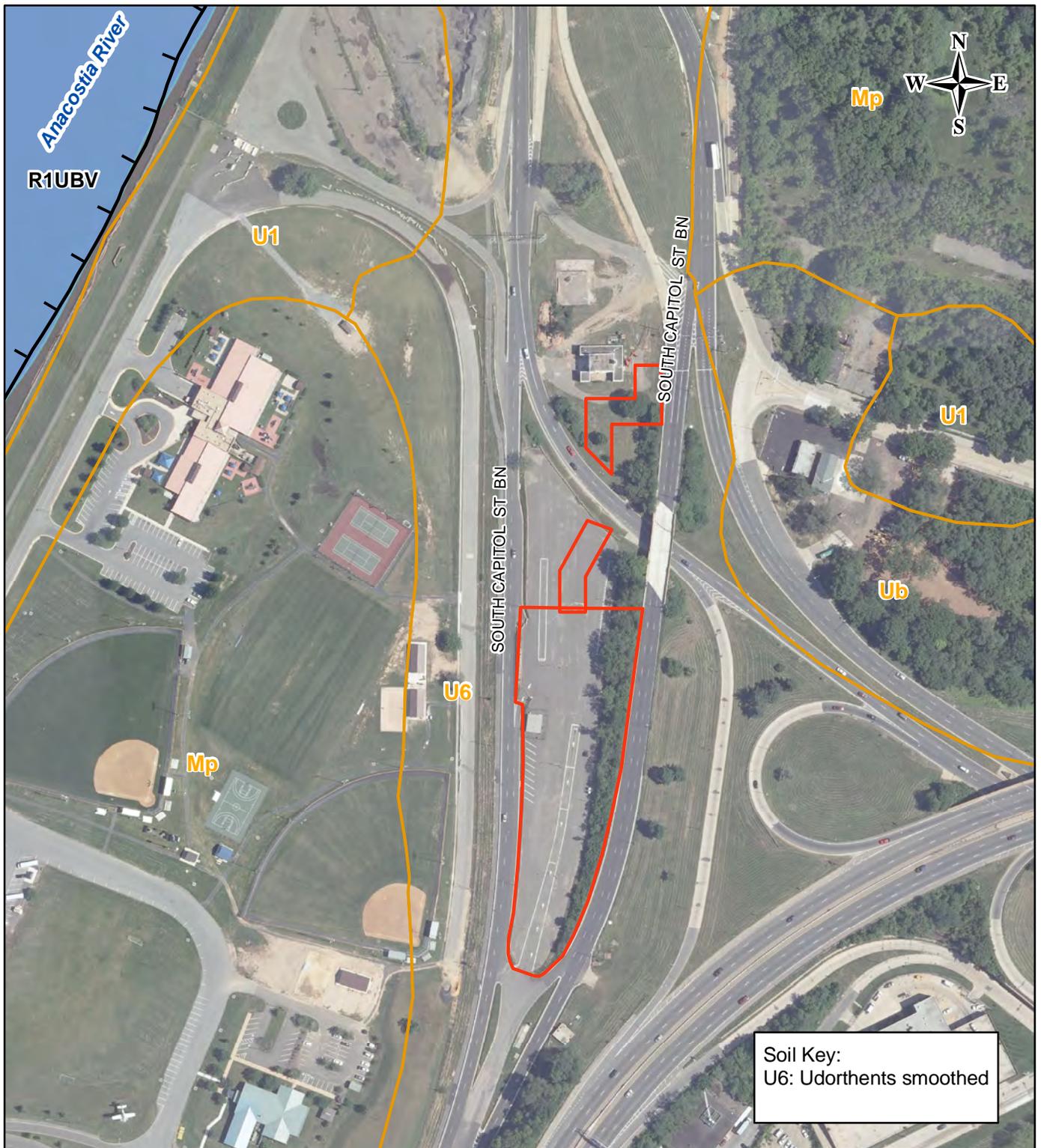
Legend:

- Study Area
- Soil Type Boundary
- 100-Year Floodplain
- NWI Waterway
- NWI Wetland

Scale: 1 inch = 250 feet



Sources: FEMA. 2002. *Digital Flood Insurance Rate Map Database, District of Columbia*. Washington, DC.
 Office of the Chief Technology Officer. 2008. *Ortho - 2008 (Ortho2008)*. DC GIS. Washington, D.C.
 USDA, NRCS. 2002. *Soil Survey Geographic Database (SSURGO) for District of Columbia*. Washington, DC.
 USFWS. 2002. *National Wetlands Inventory Map for District of Columbia*. Washington, DC.



**Figure 3.8:
Environmental Features Map**

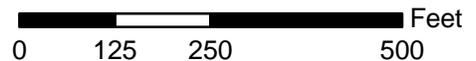
Poplar Point
Pumping Station Replacement
Washington, D.C.



Legend:

- Study Area
- Soil Type Boundary
- 100-Year Floodplain
- NWI Waterway
- NWI Wetland

Scale: 1 inch = 250 feet



Sources: FEMA. 2002. *Digital Flood Insurance Rate Map Database, District of Columbia*. Washington, DC.
Office of the Chief Technology Officer. 2008. *Ortho - 2008 (Ortho2008)*. DC GIS. Washington, D.C.
USDA, NRCS. 2002. *Soil Survey Geographic Database (SSURGO) for District of Columbia*. Washington, DC.
USFWS. 2002. *National Wetlands Inventory Map for District of Columbia*. Washington, DC.

3.2 FIELD INVESTIGATION

Field investigations were conducted within the study areas on November 3 and 23, 2009, to confirm the presence of wetlands and other “waters of the U.S.” previously determined to be jurisdictional and to investigate the presence of additional wetlands or other “waters of the U.S.” Two wetlands and one waterway previously determined to be jurisdictional were confirmed, and two additional waterways were identified within the study areas. No new sample plots were established; however, field observations are included in the following discussion. Previously delineated systems retain labels as assigned at the time of initial survey. Newly delineated systems were assigned labels based on accepted waterways names. These systems are described in the following paragraphs and illustrated in Figures 3.9 – 3.12.



Note: Waterway extends beyond the study area boundary.

Figure 3.9:
Waters of the U.S.
Location Map

CSO 019 Overflow
 and Diversion Structures
 Washington, D.C.



Legend:

- Study Area
- Waterway

Scale: 1 inch = 250 feet



Source: Office of the Chief Technology Officer. 2008. *Ortho - 2008 (Ortho2008)*. DC GIS. Washington, D.C.



Figure 3.10:
Waters of the U.S.
Location Map

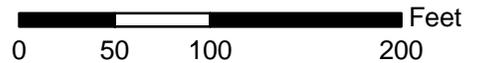
M Street Diversion Sewer
 for CSOs 015, 016 & 017
 Washington, D.C.



Legend:

- Study Area
- Waters of the U.S.

Scale: 1 inch = 100 feet



Sources: Office of the Chief Technology Officer. 2008. *Ortho - 2008 (Ortho2008)*. DC GIS. Washington, D.C.



Figure 3.11:
Waters of the U.S.
Location Map

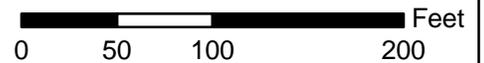
Bolling Air Force Base
 Overflow and Potomac Outfall
 Diversion Sewer
 Washington, D.C.



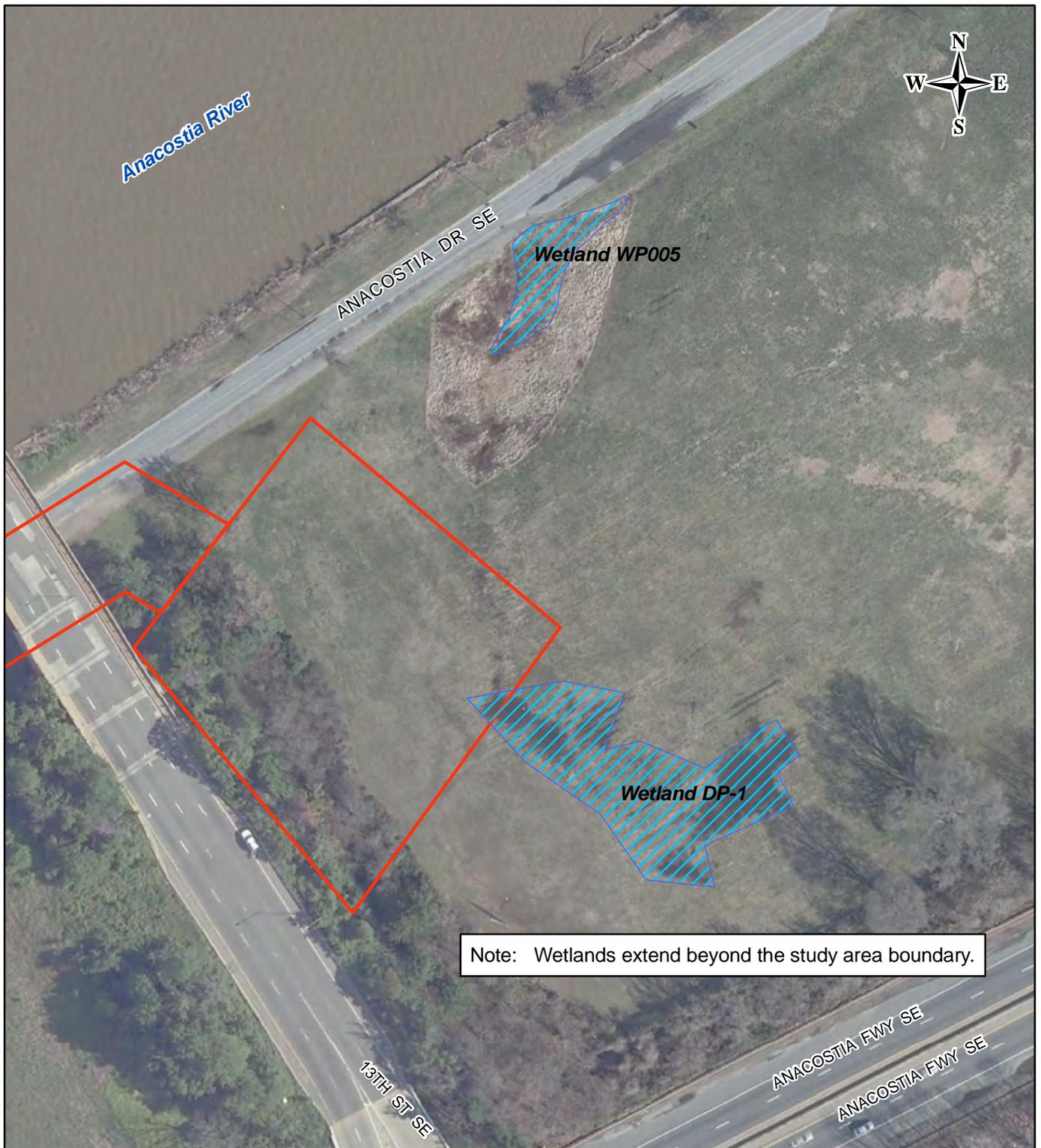
Legend:

- Study Area
- Waters of the U.S.

Scale: 1 inch = 100 feet



Sources: Office of the Chief Technology Officer. 2008. *Ortho - 2008 (Ortho2008)*. DC GIS. Washington, D.C.



Note: Wetlands extend beyond the study area boundary.

**Figure 3.12:
Waters of the U.S.
Location Map**

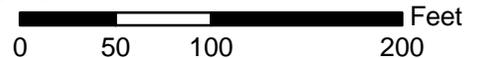
CSO 005 & 007 Diversion Sewer
Washington, D.C.



Legend:

-  Study Area
-  Wetlands

Scale: 1 inch = 100 feet



Sources: Office of the Chief Technology Officer. 2008. *Ortho - 2008 (Ortho2008)*. DC GIS. Washington, D.C.

The Potomac River, Anacostia River, and their tributaries within the study area are designated Use I-P (Code of Maryland Regulations [COMAR] 26.08.02.08, 2009), and as such are protected for water contact recreation, protection of aquatic life, and public water supply.

Anacostia River

An approximately 250-foot segment of the Anacostia River is located within the CSO 019 Overflow and Diversion Facilities study area (see Figure 3.9). The Anacostia River is a traditional navigable waterway and tributary to the Potomac River. It originates outside of the study area to the northeast and conveys flow southwest, exiting the study area at 22nd Street Northeast near the Congressional Cemetery. The Anacostia River 2009 tide tables for the Washington Naval Yard and Kingman Lake tide stations average a 2.82-foot mean tidal range (NOAA, 2009). This segment of the river is partially modified by a seawall. The *NWI Map for District of Columbia* (USFWS, 2002), identifies this system as a riverine, tidal, open water, permanent-tidal (R1OWV) waterway. The Anacostia River is identified as “waters of the U.S.”

This R1OWV system conforms to the NPS criteria for tidal wetlands, per *National Park Service Procedural Manual #77-1* (NPS, 2008), which states that the area within the distance from Mean Low Water (MLW) out to a water depth of two meters is identified as wetland.

Waterway WL001A

Waterway WL001A is an approximately 212-foot segment of an ephemeral stream located within the M Street Diversion Facilities study area, approximately 100 feet south of the M Street/Water Street intersection (see Figure 3.10). Waterway WL001A was previously determined to be jurisdictional (NPS, 2004). The location of the ephemeral channel was resurveyed on November 3, 2009, due to adjustments to the channel’s location caused by the Anacostia Riverwalk Trail. The waterway originates outside of the study area to the north and conveys flow south, exiting the study area at its confluence with the Anacostia River. Waterway WL001A receives hydrology from roadway runoff. It passes through three 18-inch concrete pipes located under the Anacostia Riverwalk, and continues south into the Anacostia River. Waterway WL001A is classified as a riverine, intermittent, streambed, intermittently flooded (R4SBW) waterway. Waterway WL001A is identified as “waters of the U.S.”

Potomac River

An approximately 98-foot segment of this perennial waterway, the Potomac River, is located within the Bolling Air Force Base Overflow and Diversion Facilities study area (see Figure 3.11). The Potomac River is a traditional navigable waterway. It originates outside of the study area to the north and conveys flow south, exiting the study area south of Bolling Air Force Base. The Potomac River 2009 tide tables for the Bellevue and Washington Channel, D.C., tide stations average a 2.79-foot mean tidal range (NOAA, 2009). This segment of the Potomac River is fully modified by a rip-rap shoreline. The *NWI Map for District of Columbia* (USFWS, 2002), identifies this waterway as a riverine, tidal, open water, unconsolidated bottom, permanent-tidal (R1UBV) waterway. The Potomac River is identified as “waters of the U.S.”

This R1UBV system conforms to the NPS criteria for tidal wetlands, per *National Park Service Procedural Manual #77-1* (NPS, 2008), which states that the area within the distance from Mean Low Water (MLW) out to a water depth of two meters is identified as wetland.

Wetland DP-1

Wetland DP-1 is an approximately 0.35-acre emergent wetland located within the CSO 005 & 007 Diversion Facilities study area (see Figure 3.12). Wetland DP-1 was previously determined to be jurisdictional (DDOT, FHWA, 2007). It is classified as a palustrine, emergent, persistent, temporarily flooded (PEM1A) wetland, and consists of a series of shallow ponded depressions in a ballfield in Anacostia Park. This is a disturbed area, due to regular mowing which results in minimal vegetative growth. At the time of the current field investigation, observations of vegetation included the following dominant species: oriental lady's thumb (*Polygonum cespitosum*), white panicle aster (*Aster simplex*), and grass species (Gramineae sp.). Wetland DP-1 receives hydrology from surface water and Wetland WP005. At the time of the current field investigation, standing water was observed. The *NWI Map for District of Columbia* (USFWS, 2002) does not identify this wetland.

Wetland WP005

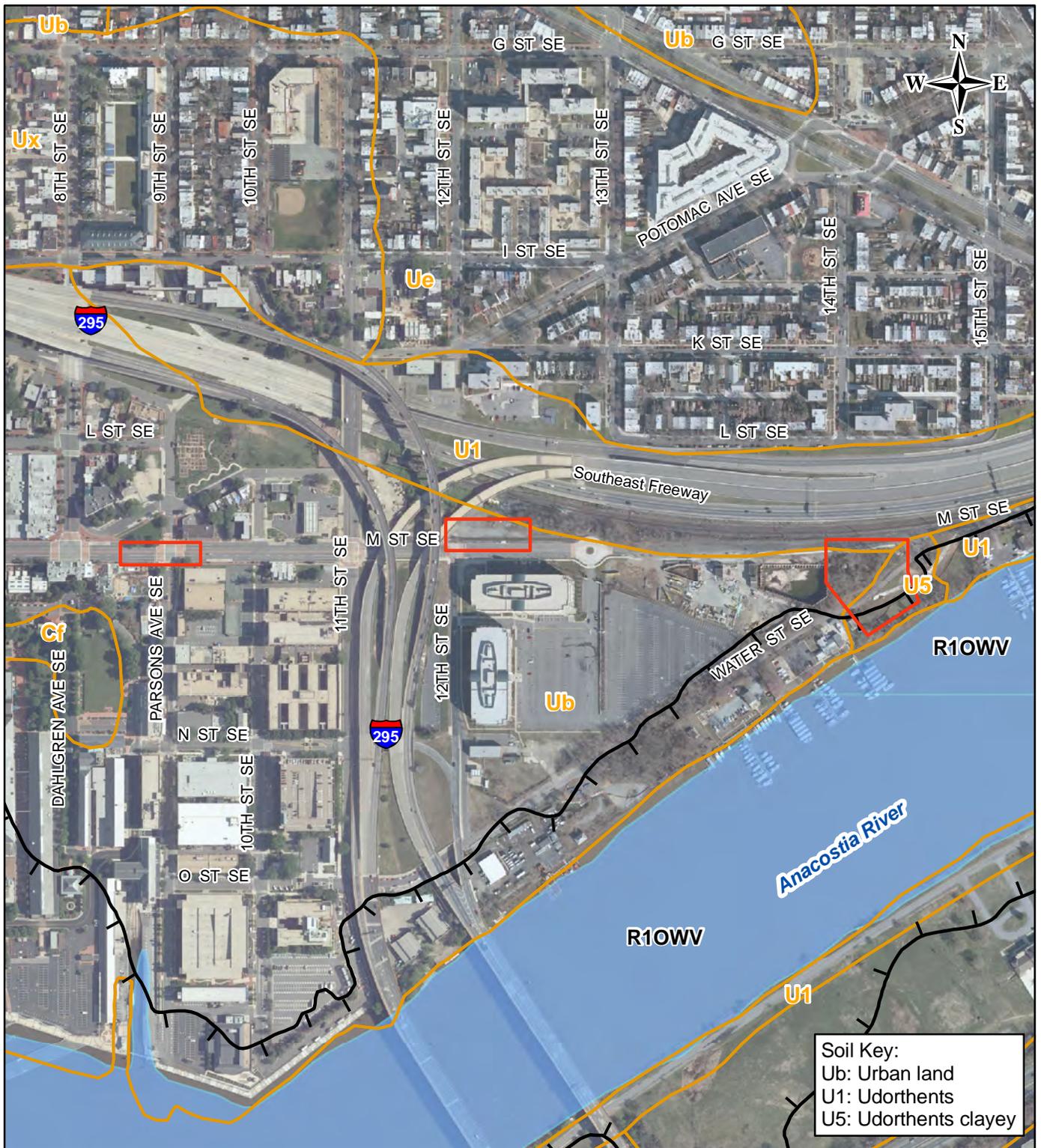
Wetland WP005 is an approximately 0.08-acre emergent wetland located near Wetland DP-1 within the CSO 005 & 007 Diversion Facilities study area (see Figure 3.12). Wetland WP005 was previously determined to be jurisdictional (DDOT, FHWA, 2007). It is classified as a palustrine, emergent, persistent, saturated (PEM1B) wetland. At the time of the current field investigation, observation of vegetation included the following dominant species: porcelain-berry (*Ampelopsis brevipedunculata*), grass species (Poaceae sp.), crimson-eyed rosemallow (*Hibiscus moscheutos*), purple loosestrife (*Lythrum salicaria*), and pink knotweed (*Polygonum pennsylvanicum*). Wetland WP005 receives hydrology from roadway and other upland runoff, and conveys hydrology to Wetland DP-1. At the time of the current field investigation, standing water was observed in this wetland. The *NWI Map for District of Columbia* (USFWS, 2002) does not identify this wetland.

4 REVISED STUDY AREAS

During the design process for the LTCP, after the initial field investigation, the M Street Diversion Facilities and CSO 005 & 007 Diversion Facilities surface disturbance areas were revised to avoid impacts to waterway WL001A, wetland DP-1, and wetland WP005. The wetland delineation study areas for these two surface disturbance areas were revised accordingly. A review of published information was conducted to identify potential or documented wetlands and other “waters of the U.S.” within the revised study areas. A second field investigation was conducted on December 12, 2009, to confirm the published information and to document the presence of wetlands and other “waters of the U.S.” within these areas.

The *NWI Map for District of Columbia* (USFWS, 2002) does not identify waterways or other “waters of the U.S.” within the revised study areas (see Figures 4.1 and 4.2). The *Soil Survey Geographic (SSURGO) Database for District of Columbia* (USDA, NRCS, 2002) and *Soil Survey of District of Columbia* (Smith, 1976) indicate that soil types that occur within the revised study area for the M Street Diversion Facilities remain the same as those within the original study areas (Udorthents [U1], Udorthents clayey [U5], and Urban land [Ub]). The soil types that occur within the revised study area for the CSO 005 & 007 Diversion Facilities, include Udorthents (U1), Udorthents sandy (U3), Udorthents smoothed (U6), and Urban land (Ub). The revised study area avoids impacts to the hydric soil type (Iuka sandy loam [Ik]) that occurred in the original study area. The *Digital Flood Insurance Rate Map Database, District of Columbia* (FEMA, 2002) indicates that the 100-year floodplains of the Potomac River and Anacostia River do not intersect the revised study areas. The DC GIS *Ortho2008* (Office of the Chief Technology Officer, 2008) shows that the land use within the revised study areas is the same as the land use within the original study areas.

The field investigation conducted on December 12, 2009, confirmed that there are no wetlands or other “waters of the U.S.” within the revised study areas.



**Figure 4.1:
Environmental Features Map**

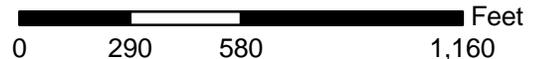
M Street Diversion Sewer
for CSOs 015, 016 & 017
Washington, D.C.



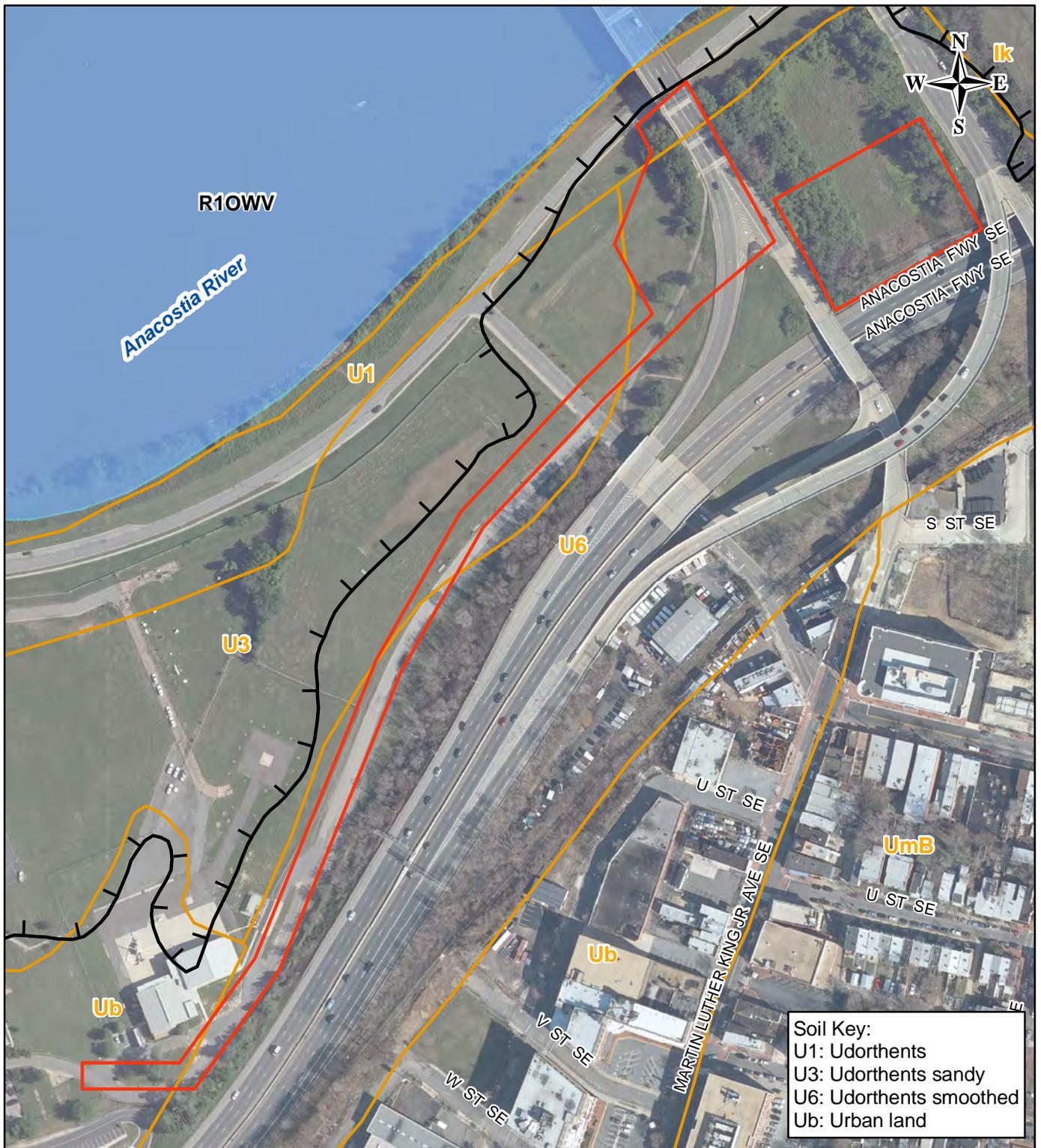
Legend:

- Study Area
- Soil Type Boundary
- 100-Year Floodplain
- NWI Waterway
- NWI Wetland

Scale: 1 inch = 500 feet



Sources: FEMA. 2002. *Digital Flood Insurance Rate Map Database, District of Columbia*. Washington, DC.
Office of the Chief Technology Officer. 2008. *Ortho - 2008 (Ortho2008)*. DC GIS. Washington, D.C.
USDA, NRCS. 2002. *Soil Survey Geographic Database (SSURGO) for District of Columbia*. Washington, DC.
USFWS. 2002. *National Wetlands Inventory Map for District of Columbia*. Washington, DC.



Soil Key:
 U1: Udorthents
 U3: Udorthents sandy
 U6: Udorthents smoothed
 Ub: Urban land

**Figure 4.2:
 Environmental Features Map**

CSO 005 & 007 Diversion Sewer
 Washington, D.C.



Legend:

- Study Area
- Soil Type Boundary
- 100-Year Floodplain
- NWI Waterway
- NWI Wetland

Scale: 1 inch = 250 feet



Sources: FEMA. 2002. *Digital Flood Insurance Rate Map Database, District of Columbia*. Washington, DC.
 Office of the Chief Technology Officer. 2008. *Ortho - 2008 (Ortho2008)*. DC GIS. Washington, D.C.
 USDA, NRCS. 2002. *Soil Survey Geographic Database (SSURGO) for District of Columbia*. Washington, DC.
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5 CONCLUSIONS

WASA is in the process of implementing a LTCP for controlling CSOs to comply with the requirements of the CSO Policy of Section 102(q) of the CWA. Associated activities will include the construction of the Blue Plains and Anacostia River Tunnels. The components of the tunnel system are referred to collectively as the Anacostia River Projects.

A review of published information and a field investigation were conducted based on the 1987 *Corps of Engineers Wetlands Delineation Manual* to identify wetlands and other “waters of the U.S.” within the study area. Two wetlands and one waterway previously determined to be jurisdictional were confirmed within the study areas. Two additional waterways were identified within the study areas. Table 5-1 summarizes the wetlands and other “waters of the U.S.” identified within the area of investigation.

Table 5-1 SUMMARY OF WETLANDS AND OTHER “WATERS OF THE U.S.”		
Wetlands and “Waters of the U.S.”	Classification	Study Area
Anacostia River	Traditional navigable waterway	CSO 019 Overflow and Diversion Facilities
Waterway WL001A ^{1,2}	Ephemeral waterway	M Street Diversion Facilities
Potomac River	Traditional navigable waterway	Bolling Air Force Base Overflow and Diversion Facilities
Wetland DP-1 ^{1,2}	PEM1A wetland	CSO 005 & 007 Diversion Facilities
Wetland WP005 ^{1,2}	PEM1B wetland	CSO 005 & 007 Diversion Facilities

PEM1A – palustrine, emergent, persistent, temporarily flooded

PEM1B – palustrine, emergent, persistent, saturated

¹Previously determined to be jurisdictional

²Resource was avoided during the design process for the LTCP. The revised study area, as documented in Section 4, no longer intersects this feature.

During the design process for the Long Term Control Plan, after the initial field investigation, the M Street Diversion Facilities and CSO 005 and 007 Diversion Facilities surface disturbance areas were revised to avoid impacts to waterway WL001A, wetland DP-1, and wetland WP005. The review of published information and a second field investigation confirmed that there are no wetlands or other “waters of the U.S.” within the revised study areas.

6 REFERENCES

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**APPENDIX:
PHOTOGRAPHS**

Photograph 1



Comments: The Anacostia River along the RFK Stadium Access Road.
Source: Bing Maps – Map of Washington, D.C. 2009. <http://www.bing.com/maps/>

Photograph 2



Date: November 3, 2009

Comments: WL001A facing north toward M Street Southeast.

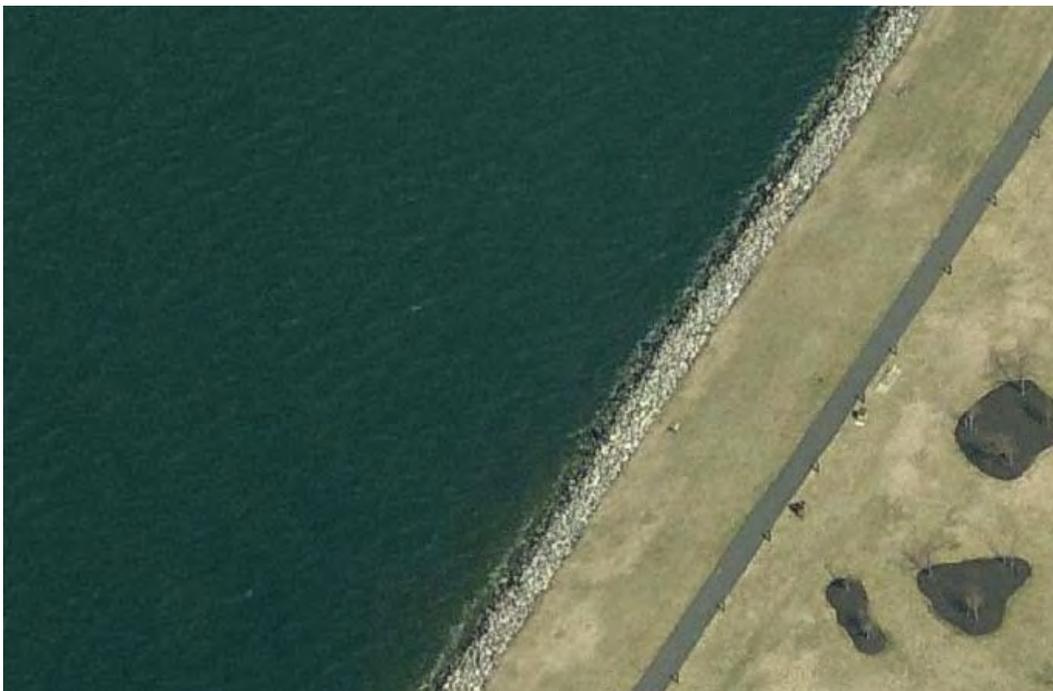
Photograph 3



Date: November 3, 2009

Comments: WL001A facing south toward the Anacostia River.

Photograph 4



Comments: The Potomac River located along Bolling Air Force Base.

Source: Bing Maps – Map of Washington, D.C. 2009. <http://www.bing.com/maps/>

Photograph 5



Date: November 3, 2009

Comments: DP-1 facing southeast toward Anacostia Freeway Southeast.

Photograph 6



Date: November 3, 2009

Comments: WP005 facing south toward Anacostia Freeway Southeast.

Photograph 7



Date: November 3, 2009

Comments: DP-1 connection to WP005 facing north toward the Anacostia River.