National Park Service

U.S. Department of the Interior

National Mall and Memorial Parks

Rehabilitation of Tidal Basin and West Potomac Park Seawalls

Section 106 Assessment of Effects

Cultural Resources

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Prepared by:

Laura Hughes, Principal
Kim Daileader, Director of Technical Preservation
EHT Traceries
440 Massachusetts Avenue, NW
Washington DC, 20001

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Acronyms and Abbreviations

APE	Area of Potential Effect
AOE Report	Assessment of Effects Report
CFR	Code of Federal Regulations
DC SHPO	District of Columbia Historic Preservation Office
DHR	Virginia Department of Historic Resources
EA	Environmental Assessment
GW Parkway	George Washington Memorial Parkway
HD	Historic District
MVMH	Mount Vernon Memorial Highway
NCPC	National Capital Planning Commission
NEPA	National Environmental Policy Act of 1969
NPS	National Park Service
NRHP	National Register of Historic Places
Section 106	Section 106 of the National Historic Preservation Act of 1966
USACE	US Army Corps of Engineers

INTRODUCTION

The National Park Service (NPS) is developing a design for the rehabilitation of portions of the failing Tidal Basin and West Potomac Park seawalls in the National Mall and Memorial Parks (Park) in Washington, DC. As a federal undertaking, this project is subject to Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations (36 Code of Federal Regulations [CFR] Part 800) "Protection of Historic Properties" (Section 106). This Assessment of Effects Report (AOE Report) describes the project (the proposed undertaking) and the no-action alternative, and analyzes potential adverse effects on historic properties, including archeological resources, within the project area. It has been prepared as part of the continuing consultation process between the NPS, the District of Columbia State Historic Preservation Office (DC SHPO), and Virginia Department of Historic Resources (DHR).

Section 106 consultation for the rehabilitation of the seawalls was initiated with DC SHPO, DHR, and Federally Recognized Tribes in letters dated May 19, 2022 (see **Appendix A**). The letters were delivered to:

Absentee Shawnee Tribe of Indians of Oklahoma Nation
Catawba Indian Nation
Cherokee Nation
Chickahominy Indian Tribe
Chickahominy Tribe Eastern Division
Delaware Nation
Monacan Indian Nation
Nansemond Indian Nation
Pamunkey Indian Tribe
Rappahannock Tribe
Shawnee Tribe
Upper Mattaponi Indian Tribe

As part of the Section 106 process, the NPS has developed this AOE Report to document the identification of historic properties and cultural landscapes in support of the Tidal Basin and West Potomac Park seawalls project. As defined in 36 CFR Part 800.16(l)(1), a historic property means any prehistoric or historic district, site, building, structure, or object listed or eligible for listing in the National Register of Historic Places (NRHP). The identification of historic resources was undertaken within the Area of Potential Effect (APE) established for the project. The APE was previously presented to the Consulting Parties at the first consulting party meeting held virtually on August 2, 2022. A second consulting party meeting was held on December 15, 2022, which presented the AOE Report and proposed avoidance, minimization, and mitigation measures. The presentations and formal comments received from both meetings can be found in **Appendix A**. Work for this AOE Report was directed and conducted by staff that meet the *Secretary of the Interior's Professional Qualifications Standards* (36 CFR Part 61) in the disciplines of Historic Preservation and Architectural History.

Concurrently, the NPS has prepared an Environmental Assessment (EA) to assess alternatives and their potential impacts on the environment in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended.

DESCRIPTION OF UNDERTAKING

Purpose and Need

The purpose of the undertaking is to restore the historic functional height of approximately 6,800 linear feet of seawalls (**Figure 1**), restore the cultural landscape, improve visitor experience along the shorelines, stabilize and eliminate settlement of the seawalls, minimize soil erosion and safety hazards, and provide some flood protection. The undertaking is primarily needed because the existing structural deficiencies of the seawalls negatively impact the experience and safety of Park visitors and allow brackish water to drown out vegetation affecting the landscape.

Figure 1: Project Area Map

No Action Alternative

In the years since their construction, the seawalls have significantly settled and been compromised, leading to overtopping of the seawalls in some sections twice daily during normal tidal conditions which does not dissipate in a timely manner due to poor drainage. This has led to reduced public access, damage to historic cultural landscapes and Park infrastructure, resulting in negative impacts to visitor use and experience. When the water does recede, the overtopped areas are littered with wood debris and other trash from the river that often collides with and damages the seawalls. The debris and trash are not only unsightly, but they cause further deterioration and failure. The failing seawalls, standing water, and debris are concerns for visitor safety. The Tidal Basin and West Potomac Park experience thousands of visitors every day of the year with peak visitation during the spring with the blooming of the Japanese cherry trees. The current condition of the seawalls affect visitor use and visitor experience

as the pedestrian trails in many areas have degraded, and the uneven terrain creates trip and fall hazards. Portions of the trails are regularly inaccessible due to standing water, mud, and debris left behind from daily high tides. NPS staff expend significant resources and costs to remove the debris load after each overtopping event. The inundation extends inland in many areas causing degradation and loss of Japanese cherry trees and other significant landscape features along the Tidal Basin. This damage is expanded by social trails through the trees and landscaped areas created by visitors as a means to get around the inundation on the concrete trails.

Under the No Action Alternative, the undertaking would not be implemented. The walls and shoreline would continue to deteriorate and settle over time, resulting in increased flooding and failure events. Beyond this, the No Action Alternative would result in continued degradation of the cultural landscape, including the Japanese cherry trees and other significant landscape features along the Tidal Basin, thereby negatively impacting historic resources. Eventually, without intervention, the damage will expand, threatening the memorials and monuments surrounding the Tidal Basin and the expanding loss of land in West Potomac Park will threaten more of the historic landscape and infrastructure. The NPS would continue emergency maintenance and management operations with regard to the seawalls as available staff and funding permit, and visitor experience would increasingly be impacted. In addition, the areas barricaded due to safety hazards would be expanded further reducing the visitor's access, recreation, and experience.

Action Alternative: Seawall Rehabilitation

This proposed undertaking would rehabilitate approximately 6,800 linear feet of seawalls along West Potomac Park and portions of the Tidal Basin. The seawalls would be engineered and rehabilitated to be resilient to flooding during normal tidal events, minor flood stage events, as well as to be adaptable to changing climate patterns, including storms of greater intensity. It is anticipated that construction would begin in fiscal year 2024 with up to a three-year construction duration.

The existing stone masonry seawall would be removed and reconstructed along the historic alignment and to the historic functional height of the original seawalls, which placed the top of the seawalls approximately six feet above mean low water (NPS, 1973). To the extent possible, the stones of the historic wall would be salvaged and reused in the rehabilitation of these seawalls. Extant stones would be cut for maximum use of historic stone. Additional stones would be sourced based on color, size, and texture for consistency with the historic material. Due to settlement and sea level rise that has occurred since these walls were constructed, the top of wall elevation for the rehabilitated seawall would need to be raised above original construction elevations to achieve the historic functional height. Existing top of wall elevations range from +0.88 feet to +3.57 feet within the Tidal Basin project area and range from 0.00 feet to +3.20 feet along West Potomac Park[1]. The proposed top of wall elevation would be elevation +4.75 feet within the Tidal Basin and would be +5.50 feet along West Potomac Park. The

[1] Elevations are based on the North American Vertical Datum of 1988 (NAVD88)

higher elevation in West Potomac Park is necessary to account for wind and wave conditions along the Potomac River.

The design of the proposed seawall includes pile-supported platform foundations that bear on bedrock, relieving the weight of the structure on the soft soils that caused the previous settlement. This type of foundation allows additional capacity for the walls to be extended vertically in response to future sea level rise or changing climate patterns, including storms of greater intensity and frequency that may result in increasing storm surge elevations. To the extent possible, the stones of the historic wall would be salvaged and reused in the rehabilitation of these seawalls. Riprap would be placed along the bottom of the pile-supported platform along West Potomac Park to reduce the erosive effects of wave action. The rehabilitated seawalls would have a structural service life of approximately 100 years. **Figure 2** through **Figure 8** depict typical Tidal Basin and West Potomac Park seawall cross sections.

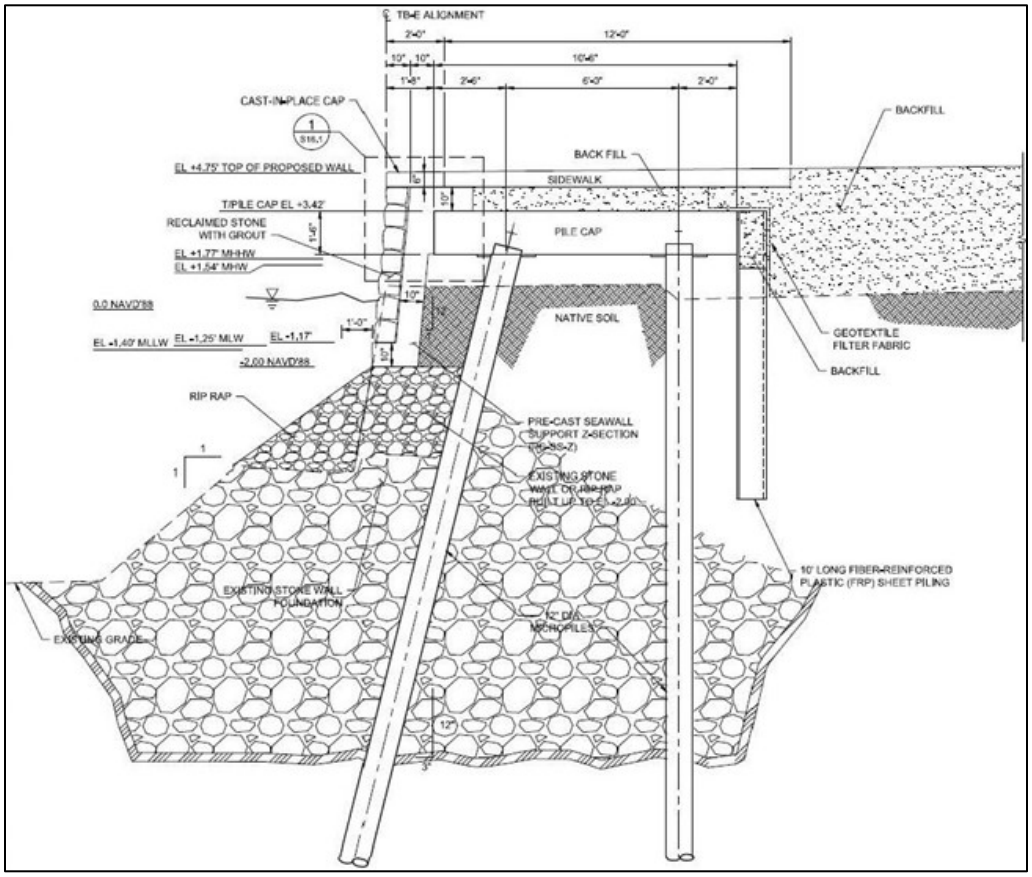


Figure 2: Tidal Basin East – Proposed Seawall Section (Typical)

The seawalls around the Tidal Basin are the foundation for the walkways, which would also be repaired or replaced to re-establish the character of the Park and improve the visitor experience. The rehabilitated walkway would be widened from eight to twelve feet and would connect to existing pedestrian walkways around the Tidal Basin providing a seamless and accessible route to the

rehabilitated seawall. The proposed action would correct deficiencies in the upland area behind the walls as well. Grading would be adjusted for the corrected seawall height and to re-establish sheet flow of runoff by eliminating the pockets of settlement that have developed. Re-establishing the historic functional height of the seawalls and regrading of the adjacent areas would eliminate the daily inundation of the tides, reduce the impact of, and provide positive drainage for the more extreme water events, allowing for the cultural landscape of the Park to be rehabilitated. These areas would be replanted with trees and other significant plantings as part of the rehabilitation. **Figures 3** and **4** below demonstrate the existing condition and the proposed rehabilitated wall to its historic functional height.

This project directly addresses condition deficiencies on high priority assets by rebuilding portions of two seawall systems and returning these assets to the historical functional height. It is important to note that this project only rehabilitates a portion of the total seawall length in areas managed by the National Mall and Memorial Parks. This project would increase the percentage of total park area that is open and safely accessible for public visitation and Park staff. Just as importantly, at the end of all construction phases, a significant amount of deferred maintenance backlog across these systems would be eliminated.

Further detail on the Action Alternative can be found in **Appendix B**.

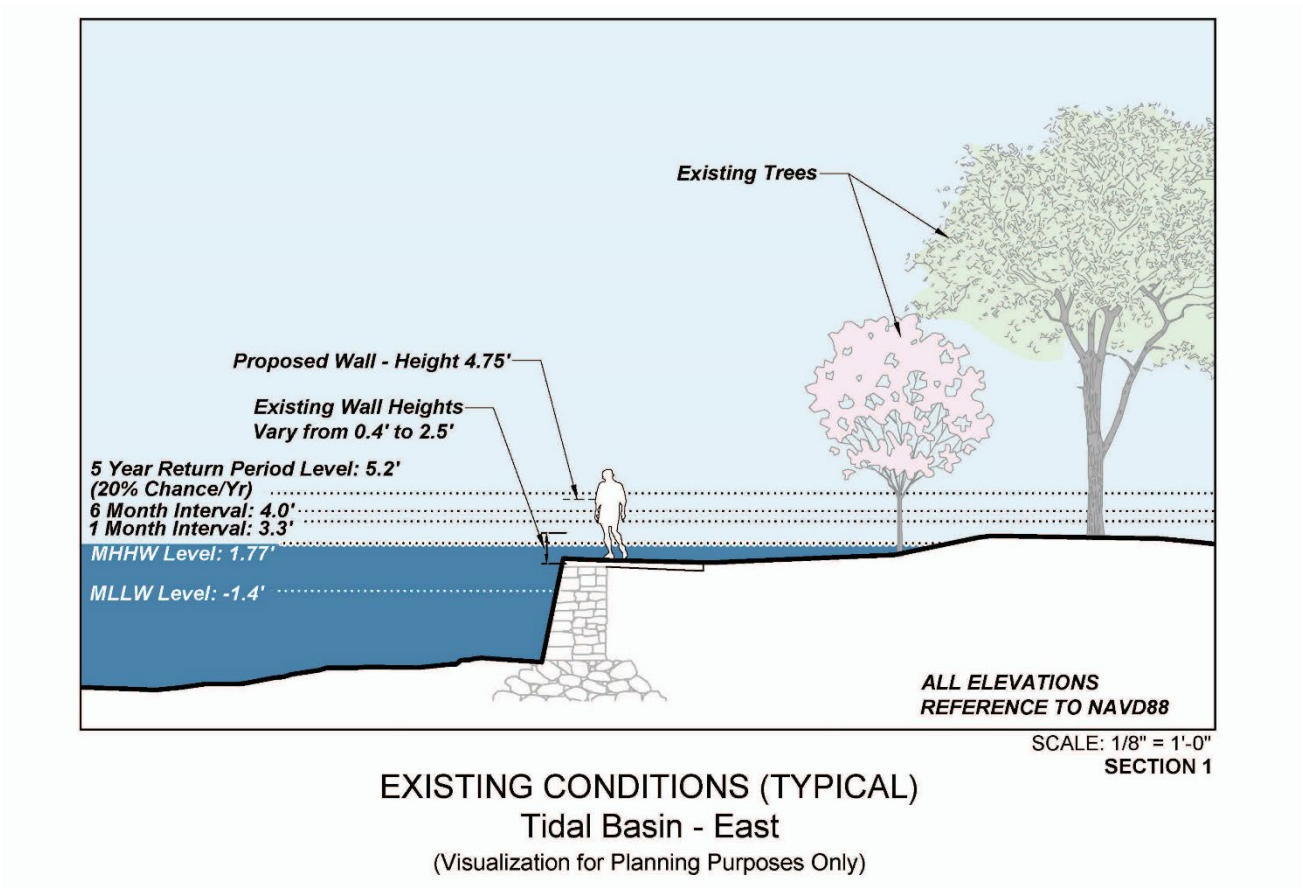
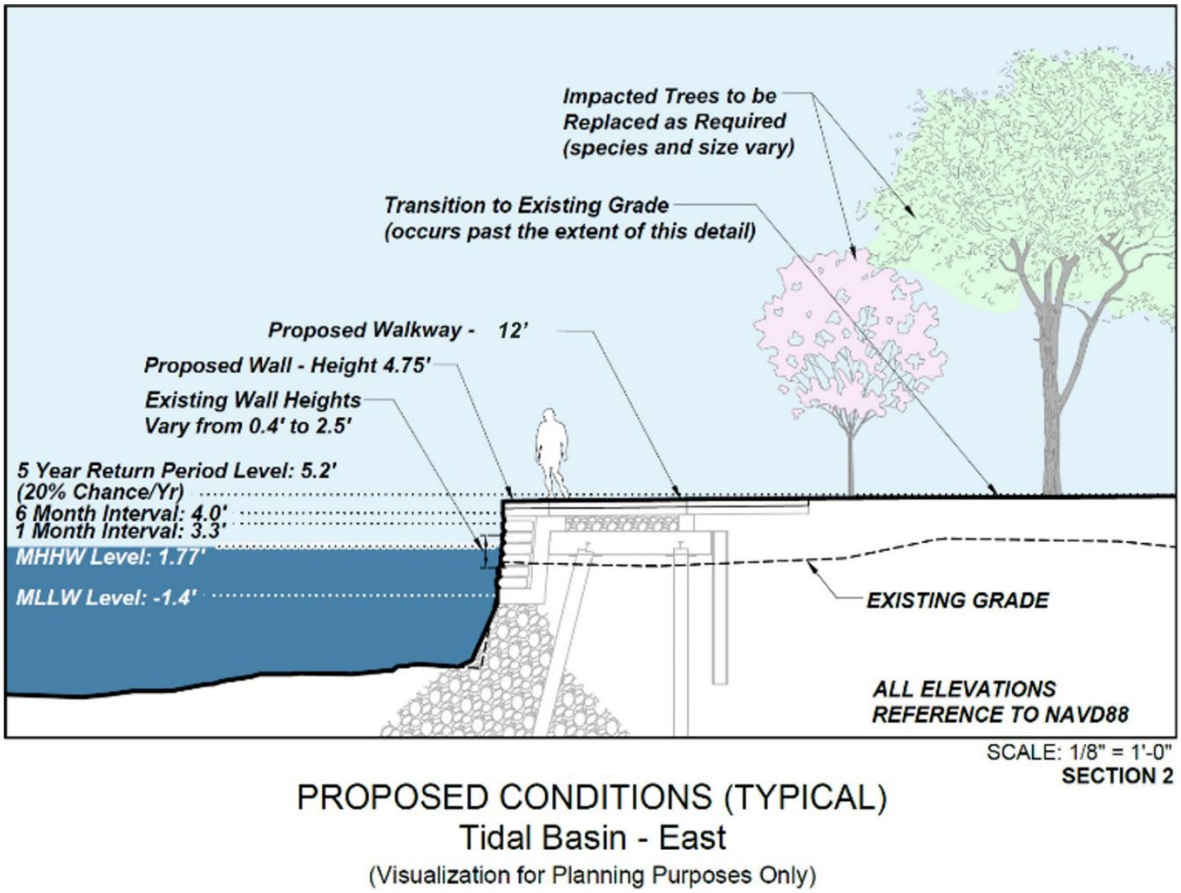


Figure 3: Existing Condition Tidal Basin East



SCALE: 1/8" = 1'-0"
SECTION 2

PROPOSED CONDITIONS (TYPICAL)
Tidal Basin - East
(Visualization for Planning Purposes Only)

Figure 4: Proposed Seawall Rehabilitation Tidal Basin East

HISTORICAL SUMMARY OF PROJECT AREA

The seawall systems included within this project date from the late 1800s to early 1900s. During this timeframe, the United States Army Corps of Engineers (USACE) conducted a large-scale dredging operation within the Potomac River to improve navigation along the river adjacent to Washington, DC. The land reclamation project was part of a larger, national movement to sanitize, expand, and beautify polluted, dense, and urban landscapes in the late nineteenth century. Though not originally part of L'Enfant's Plan for the City of Washington in 1791, the surrounding extant land was identified as the monumental core for the Federal City. This was reiterated in the 1901 – 1902 McMillan Senate Park Commission, which applied the City Beautiful principles with emphasis on monuments and buildings connected by open spaces and pathways, so visitors have ample access to light and air.

As early as 1866, dredging began to improve navigation and shipping channels. By 1875, the term Potomac Flats was introduced, though the reclaimed land was not formally declared a public park until 1897. Between 1882 and 1896, the USACE dredged more than twelve million cubic yards to create more than 600 acres of new land. The seawalls were ultimately constructed to retain the dredged material. The reclaimed lands were transferred from the USACE to the Office of Public Buildings and Grounds for further development and in 1933, the NPS assumed management of East and West Potomac Parks.

The seawalls in the project area are divided into four distinct sections: Tidal Basin East, Tidal Basin West, West Potomac Park South, and West Potomac Park North (**Figure 5**).

Figure 5: Four Distinct Seawall Sections

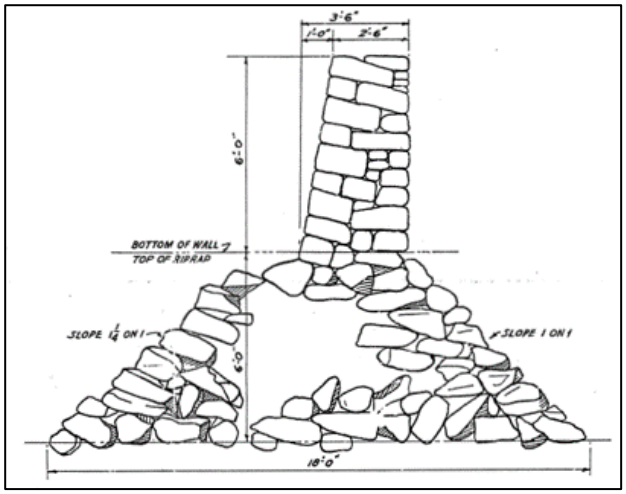


Figure 6: Original seawall design cross section (NPS, 1940)

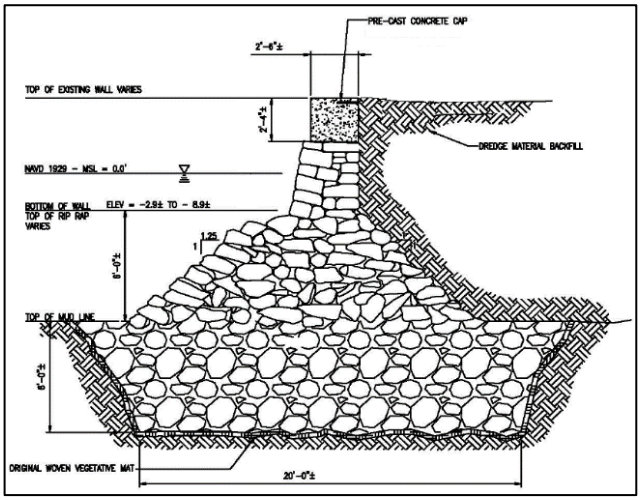


Figure 7: 1957 section of seawall (Dewberry, 2011)

The Tidal Basin East seawall dates to the early 1940s, as a portion of the Tidal Basin itself was adjusted to accommodate the construction of the Thomas Jefferson Memorial. The ca. 1940s portion features a concrete wall with historic stones along its outward face. This was blended into the adjacent dry stacked stone wall. The transition point is almost imperceivable.

The Tidal Basin West wall was reconstructed in 1909, when the Inlet Bridge was constructed by the USACE. In 1941, an eight-inch thick concrete coping was added to the top. Like Tidal Basin East, in 1942 a railing was added but was removed at an unknown date.

West Potomac Park South seawalls are the oldest in the project area. The foundations were completed in 1884 and the top of the seawall completed in 1891; however, riprap and other fill like concrete and asphalt, have been periodically added to stabilize the wall or shoreline through the 1990s.

The newest section of the wall is the West Potomac Park North portion, which dates to 1957. PEPCO rebuilt this section of the wall (**Figure 7**) with a concrete cap. Excavation of the soil behind the wall in this area indicates that remnants of the historic wall may be up to five feet in height (**Figure 8**). It is currently unknown if there are any portions of the historic foundations remaining.

Figure 8: 1957 rebuilt seawall section in West Potomac Park North.

Area of Potential Effect

The APE is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking. The seawall rehabilitation stretches approximately 6,800 linear feet from Memorial Bridge to the Inlet Bridge and into the Tidal Basin. The overall project APE encompasses the entire

Tidal Basin and West Potomac Park, as well as land across the Potomac River in Virginia where the proposed seawall rehabilitation has the potential for visual impacts (**Figure 9**).

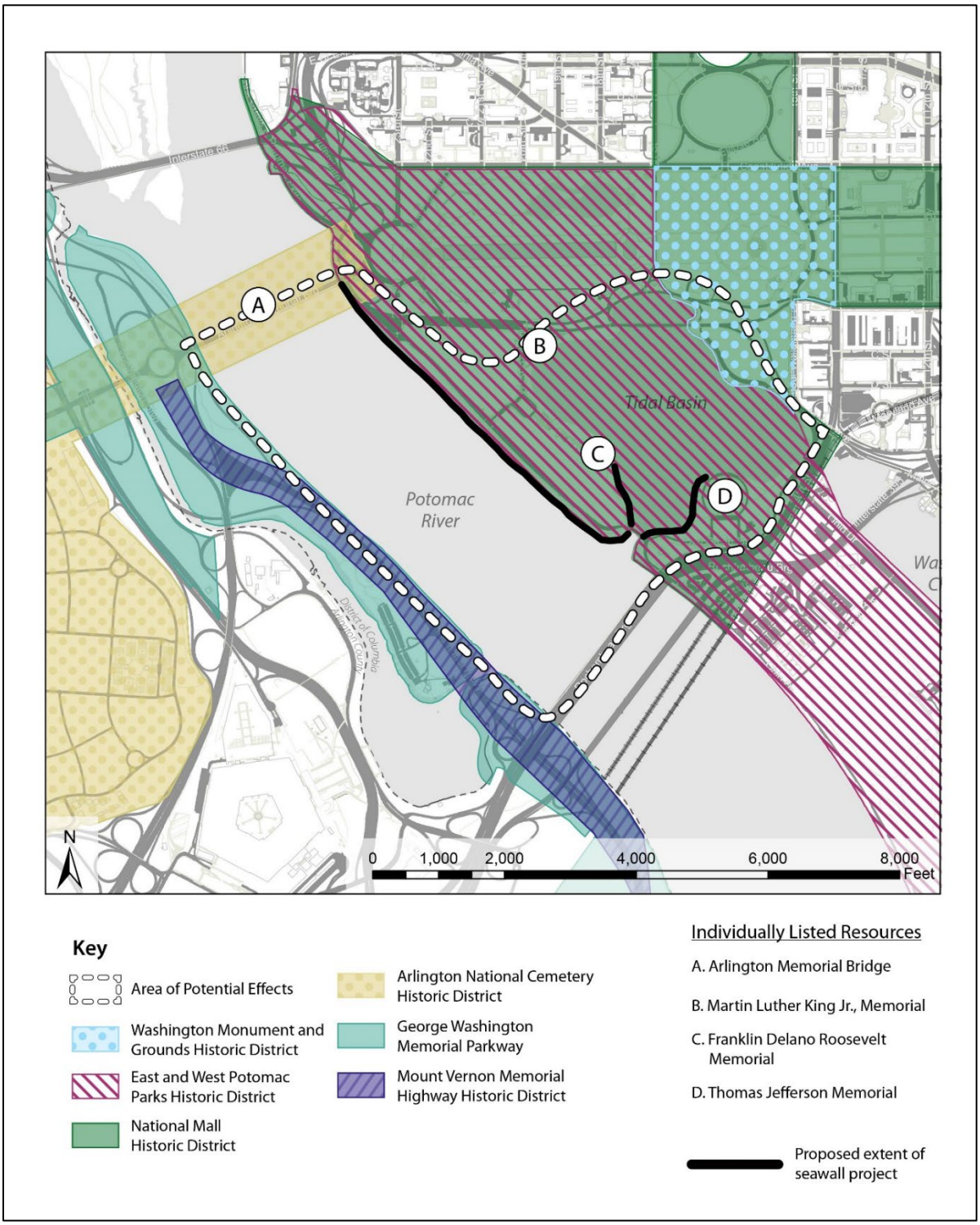


Figure 9: Historic Resources within the APE

EXISTING CONDITIONS

The seawalls along the Potomac River and Tidal Basin were created as part of a land reclamation project in the mid- to late nineteenth century. The project area includes portions of the Potomac River and Tidal Basin, seawalls, and adjacent shoreline. The project area extends inland to tie the raised seawall into the existing cultural landscape. The Tidal Basin West shoreline is tightly packed with a narrow pathway atop the extant seawall and dense trees, including iconic Japanese cherry trees. The Tidal Basin East portion of the project area is more open, with clusters of vegetation, though continuous flooding in this area has resulted in the death and removal of many trees. The Inlet Bridge separates the Tidal Basin from the Potomac River shoreline, but the bridge would not be altered as part of this undertaking.

The West Potomac Park shoreline gently slopes down from Ohio Drive SW and the adjacent trail towards the river. The seawall along the southern half of West Potomac Park has a less defined alignment as the wall structure in areas has failed and riprap has been used as mitigation to protect the exposed shoreline against erosion. Vegetation and historic trees are clustered throughout this area.

Based on existing GIS data from 2017, there are approximately 590 trees within the identified limits of the project area, ranging from deciduous trees, evergreens, and cherry trees. There are approximately 270 trees in the West Potomac Park project area, 200 trees in Tidal Basin East, and 120 trees in Tidal Basin West. Further detail on the existing trees and wall conditions can be found in **Appendix B**.

Significant expanses of land are inundated after common and extreme weather events, threatening historic resources and Park infrastructure. Portions of the walkway on top of the Tidal Basin seawall on either side of the Inlet Bridge are underwater twice daily, creating a hazardous condition for Park visitors. Due to the settlement of the seawalls and adjacent land, and the subsequent decrease in elevation above mean water level, the overtopped areas do not drain effectively or quickly. When the water recedes, the overtopped areas are littered with wood debris and other trash from the river. The debris loads often collide with and damage the seawalls, which only accelerates their failure. Manmade litter, such as trash, plastics, and metals, are mixed into the woody debris which also leads to concerns for sanitation and health safety for Park visitors and NPS employees. Significant cost and effort are expended by NPS staff to remove the mud and debris after each overtopping event.

The mortar between the blocks of stone masonry in portions of the West Potomac Park seawall has eroded completely, and water seeps through these open joints during the normal ebb and flow of the river. When water returns to the river through the open joints, it carries dredged material back to the river. Over time, this has led to a significant loss of soil compromising the integrity of the seawall, resulting in failing wall sections and blocks of stone masonry falling into the river.

Historic Resources and Cultural Landscapes

The APE contains numerous overlapping historic properties and cultural landscapes; many resources contribute to multiple properties and districts. Historic properties include archaeological, cultural landscapes and architectural resources.

Historic Resources

The APE includes six historic districts (HD), multiple cultural landscapes, and individually listed resources.

National Mall HD: The National Mall is one of the most significant public spaces in the United States and its design reflects two of the most significant plans for the Federal City, the L'Enfant Plan and the McMillan Plan. The National Mall is significant under Criteria A, C, and D; though the period of significance for Criteria C and D ends in 1965, the period of significance under Criterion A is open-ended. The National Mall contains a monument and numerous significant national memorials and landscapes, several of which are sited within the APE. (NPS 2016)

- ***Component Landscape Lincoln Memorial and Grounds:*** Though only the southwest corner of the 94-acre cultural landscape falls within the APE, the Lincoln Memorial and Grounds is a significant cultural landscape. Numerous significant landscape architects made contributions to the formal landscaping of the Lincoln Memorial, including Frederick Law Olmsted, Jr., James L. Greenfield, Charles F. McKim, and Harry Bacon. Areas within the APE that contribute to the Lincoln Memorial and Grounds are areas of passive recreation and the Ericsson Memorial. Two contributing vistas within the APE are to and from the Arlington House and to and from the Ericsson Memorial. (NPS 1999)
- ***Component Landscape Washington Monument Grounds:*** Historically known as U.S. Reservation 2, the Washington Monument is one of the country's most iconic landmarks sited at the center of the National Mall. The Washington Monument and Grounds were listed upon passage of the NHPA in 1966 and were formally documented in 1981 and its boundaries were expanded in 2016. The Tidal Basin Japanese cherry trees are a significant contributing resource to the landscape within the APE. (NPC 2016)
- ***Component Landscape Tidal Basin*:** The Tidal Basin is a significant designed landscape within the National Mall. As stated in the 2020 Cultural Landscape Report "designed vistas across the landscape visually and thematically connect many of the National Mall's key commemorative and governmental buildings. The landscape is also world-renowned for its Japanese cherry trees that bring in millions of visitors annually to the National Cherry Blossom Festival. (NPS 2020)

East and West Potomac Parks HD: Encompassing 730 acres of public parkland, East and West Potomac Parks was created by the large reclamation undertaking in the mid- to late nineteenth century by the USACE. The public lands provide spaces for both active and passive recreation, a monument and several memorials, as well as other significant cultural landscapes. The HD was listed in the NRHP in 1973 under Criteria A and C; additional documentation was accepted in 2001. Contributing resources within the APE include the Japanese cherry trees, seawalls, and the Inlet Bridge.

- ***Component Landscape Lincoln Memorial and Grounds (see above)***
- ***Component Landscape Washington Monument Grounds (see above)***
- ***Component Landscape Tidal Basin (see above)***

Washington Monument and Grounds HD: Described above as part of a component landscape of the National Mall HD.

Arlington National Cemetery HD: Arlington National Cemetery and related features, including the Arlington Memorial Bridge (which is individually listed as well) are a significant resource linking the Federal City to the National Cemetery. The bridge itself was design by McKim, Mead, and White, and was constructed in 1932. The bridge was a major part of the 1902 McMillan Plan, serving as a symbolic link between north and south, connecting Arlington House (the home of Robert E. Lee) and the Lincoln Memorial.

George Washington Memorial Parkway (GW Parkway): The Parkway is a twenty-five-mile, scenic parkway administered by the NPS. Constructed in the 1930s, the parkway provides a ceremonial and recreational corridor between northern Virginia and Mount Vernon, the home of George Washington, with unfolding scenic views throughout the Park. Contributing resources includes vistas from the parkway across the Potomac River to the monuments in the APE.

Mount Vernon Memorial Highway (MVMH) HD: MVMH HD was the first parkway project undertaken by the U.S. government. Initial planning began in the 1880s, but its execution was delayed until the late 1920s. The parkway was completed in 1932 to commemorate the 200th birthday of George Washington.

L'Enfant Plan: Though not initially part of L'Enfant's Plan for the City of Washington in 1791, the Tidal Basin and other designed landscapes were part of the 1902 McMillan Plan and are included in the NRHP listing.

Martin Luther King, Jr. Memorial: This granite memorial was dedicated in 2011 and honors Martin Luther King, Jr.'s legacy and the struggle for freedom, equality, and justice. A prominent leader in the modern civil rights movement, Dr. King was a tireless advocate for racial equality, working class, and the oppressed around the world. Martin Luther King, Jr. is the first African American honored with a memorial on the National Mall.

Franklin Delano Roosevelt Memorial: Designed by Lawrence Halprin, Robert Marquis, and various sculptors, this memorial tells the life story of the thirty-second president of the United States. The open landscape was dedicated in 1997.

Thomas Jefferson Memorial and Grounds: This national memorial to the third president of the United States helped shape the Tidal Basin itself in the late 1930s. Designed by famed architect John Russell Pope, the Pantheon design, and circular Ionic peristyle and portico excellently frame sculptor Rudolph Evans' 19 ½ foot tall statue of Jefferson.

Specific features that contribute to the above-described historic resources and are located within the APE are summarized in **Table 1**.

Table 1: Contributing Resources within the APE

Contributing Resources	Individually Listed	National Mall/Wash. Monument Grounds	East and West Potomac Parks	Arlington National Cemetery	GW Parkway	MVMH HD
Tidal Basin		X	X			
Stone Seawalls		X	X			
Japanese cherry trees		X	X			
Other Contributing Vegetation		X	X		X	X
Inlet Bridge		X	X			
Views around the Tidal Basin		X	X			
Arlington Memorial Bridge	X	X	X	X		
Survey Lodge		X				
Sacrifice and *Valor*		X		X		
John Ericsson Memorial		X	X			
Ohio Drive		X	X			

Contributing Resources	Individually Listed	National Mall/Wash. Monument Grounds	East and West Potomac Parks	Arlington National Cemetery	GW Parkway	MVMH HD
First Airmail Flight Marker		X				
Japanese Pagoda		X	X			
Franklin Delano Roosevelt Memorial	X	X				
Martin Luther King, Jr. Memorial	X	X				
West Potomac Park Reservation No. 332		X	X			
Independence Avenue Extension		X	X			
First Cherry Tree Planting Plaque		X				
Japanese Lantern		X				
Kutz Bridge		X	X			
Commodore John Paul Jones Statue		X	X			
Outlet Bridge		X	X			
Thomas Jefferson Memorial	X	X	X			
George Mason Memorial		X				
Number 4 Fountain		X	X			
View from Lincoln Memorial to Arlington House		X		X		
View from Lincoln Memorial to Ericsson Memorial		X		X		
Views from Virginia shoreline to National Mall					X	X

Cultural Landscapes

As part of the Potomac River watershed, the entire APE falls within the Potomac River Cultural Landscape. Numerous other previously mentioned cultural landscapes were described above, as were historic resources, such as GW Parkway and MVMH HD, that also serve as cultural landscapes.

Archaeological Resources

There are no registered archaeological sites in West Potomac Park or the Tidal Basin. Prior to filling in the late nineteenth century, the project area was likely a floodplain landform.

EFFECTS ASSESSMENT

This document records the assessment of effects on the historic resources identified in the previous section. As stated in the No Action Alternative, the walls would continue to settle, deteriorate, and be overtopped by daily tides that would result in significant adverse effect to the historic resources. If no action is taken, increasingly larger portions of the historic district would be inundated daily, further threatening the memorials and Japanese cherry trees and other contributing vegetation while also diminishing visitor use opportunities. Following recent site walks and discussions, DC SHPO and other agencies have stated that no action would result in an adverse effect to numerous historic resources. Continued flooding of the Tidal Basin, sea level rise, and settling of the seawalls, would continue to erode the cultural landscape, damage trees, impact access to memorials, and eventually be completely inaccessible to any visitors. Should no action be taken, the memorials around the Tidal Basin themselves would be at threat due to regular inundation, deterioration, erosion, and sea level rise under the no action alternative.

The section below addresses anticipated effects of the Action Alternative. Only those contributing resources within the APE that could experience an adverse effect are discussed.

Historic Resources and Cultural Landscapes

Tidal Basin: During construction, full visitor access to the Tidal Basin would be restricted, resulting in a temporary adverse effect. The alignment, size, and function of the Tidal Basin would not be changed.

Seawalls: The seawalls would be taken down to the foundation and a new structural support wall would be built to support the historic functional height of the seawalls, resulting in an adverse effect. The contemporary structural wall would be faced with salvaged stone from the extant walls, and the historic ashlar pattern recreated. The extant historic stone would be used to the maximum amount possible and would be concentrated towards the top of the walls, the most visible portions. The original workmanship, design, and materials would be compromised with the removal and reconfiguration of historic stones, including cutting historic stones and altering their proportions to reface the new wall. Masons would be required to stack the historic stone in the same manner as the historic masons to minimize adverse effects to the integrity of the seawalls. The bottom edge of the contemporary structure of the seawall would be visible only during extreme low tide events and only until it is naturally coated with sediment and algae. The alignment of the seawall would not be altered or changed. There would be a temporary adverse effect during construction but restoring the seawalls to their historic functional height would not result in a permanent adverse effect. Further, the no action alternative would allow for a continued adverse effect to the seawalls as they would progressively degrade and fail, increasing risk to the surrounding memorials and cultural landscapes.

Japanese cherry trees: Numerous Japanese cherry trees would be removed to allow the rehabilitation and regrading of the landscape. Some trees are large-caliper specimens with wide canopies, while others were intentionally planted in clusters. Their removal would result in an adverse effect though many are currently struggling due to constant flooding and root exposure. Trees would be replanted within the landscaped buffer following construction, replacing trees removed during the project and adding trees lost prior to the project due to age and decline in the cultural landscape.

Other Contributing Vegetation: Numerous deciduous and evergreen trees would be removed for construction resulting in an adverse effect, though many are currently struggling due to constant flooding and root exposure. Trees would be replanted within the landscaped buffer following construction, replacing trees removed during the project and adding trees lost prior to the project due to age and decline in the cultural landscape.

Inlet Bridge: The rehabilitated seawalls would not connect structurally to the Inlet Bridge but abut the face of the Bridge at the same northwest, southwest, and northeast locations of the existing seawalls. Where they abut, the interface would be sealed, to prevent soil migration through a gap. The seal between the two structures would be done sensitively and would improve the extant interfaces that are failing due to the sinking and crumbling walls. The gates would not be repaired in this project since they are managed by USACE. By restoring the seawall to their historic functional height, the action alternative would restore historic viewsheds to and from the Inlet Bridge.

Views around the Tidal Basin: The various views around the Tidal Basin would temporarily be adversely affected during construction. By restoring the seawalls to their historic functional height, the action alternative would restore historic viewsheds around the resource. The surrounding land behind the seawalls would be infilled and would be tied into the existing landscape, avoiding any adverse effects.

Arlington Memorial Bridge: The rehabilitated seawalls would not connect structurally to the Memorial Bridge but would abut the edge of the Bridge, at the current location of the existing seawall. Where it abuts, the interface would be sealed, to prevent soil migration through a gap. The seal between the two structures would be done sensitively and would improve the extant interfaces that are failing due to the sinking and crumbling walls. Design and construction would avoid any adverse effects to the bridge itself. Views to and from Memorial Bridge would not be adversely affected. By restoring the seawalls to their historic functional height, the action alternative would restore historic viewsheds from the bridge to West Potomac Park.

Survey Lodge: No changes would be made to the lodge. Tidal Basin walls adjacent to the lodge are not within the project area and views to the project area are obscured by extant vegetation and Kutz Bridge so the project would not result in any adverse effect.

Sacrifice* and *Valor: No changes would occur to the statues. Views to and from the statues would not be adversely affected.

John Ericsson Memorial: No changes would occur to the memorial. Views from the Memorial to the Potomac River would not be adversely affected; the existing slope from the road to the water allows for the wall to be raised to its historic functional height without rising above the ground plane of the road.

Ohio Drive: Portions of Ohio Drive may require closure during construction for material movement resulting in a temporary adverse effect; however, the closures would be intermittent and full access restored after the seawalls are rehabilitated. Views from Ohio Drive to the Potomac River would not be adversely affected; the existing slope from the road to the water

allows for the wall to be raised to its historic functional height without rising above the ground plane of the road.

First Airmail Flight Marker: During construction, the First Airmail Flight Marker would be blocked from visitor experience, resulting in a temporary adverse effect. Views to and from the marker would not be adversely affected. By restoring the seawalls to their historic functional height, the action alternative would restore historic viewsheds from around the marker.

Japanese Pagoda: No changes would be made to the pagoda. Views to the surrounding memorials and Tidal Basin would not be adversely affected. By restoring the seawalls to their historic functional height, the action alternative would restore historic viewsheds around the resource.

Franklin Delano Roosevelt Memorial: During construction, access to the memorial would be restricted at the southeast end of the memorial resulting in a temporary adverse effect. Views around the memorial would not be adversely affected. By restoring the seawalls to their historic functional height, the action alternative would restore historic viewsheds around the resource.

Martin Luther King, Jr. Memorial: No changes would be made to the memorial. The project end location is near the southeast corner of the Franklin D Roosevelt Memorial, no construction activity or disturbance would result near the Martin Luther King, Jr. Memorial. Restoring the seawall within the project limits to its historic functional height would not have an adverse effect on the memorial. Due to distance of the view from the Memorial across the Tidal Basin to where the change in seawall height would occur, the new wall height would be minimally noticeable and would be consistent with the current height of the wall to the north of the Jefferson Memorial.

West Potomac Park (Reservation No. 332): The lands adjacent to the seawall would not be accessible during construction resulting in a temporary adverse effect. Views around Reservation 332 would not be adversely affected. By restoring the seawalls to their historic functional height, the action alternative would restore historic viewsheds from the reservation to the Potomac River and new landscaping would restore the historic landscape.

Independence Avenue Extension: No changes would be made to the Independence Avenue Extension. Tidal Basin walls adjacent to the Independence Avenue Extension are not within the project area and views east and west on Independence Avenue would not be affected.

First Cherry Tree Planting Plaque: No changes would be made to the plaque. Restoring the seawall to its historic functional height would not have an adverse effect on the plaque. Due to its distance across the Tidal Basin, the change in seawall height within the project limits would be minimally noticeable and would be consistent with the current height of the wall to the north of the Jefferson Memorial.

Japanese Lantern: No changes would be made to the lantern. Views to the surrounding memorials and Tidal Basin would not be adversely affected. By restoring the seawalls to their historic functional height, the action alternative would restore historic viewsheds around the resource.

Kutz Bridge: No changes would be made to the bridge. Views from the Kutz Bridge to the Inlet Bridge and surrounding memorials and monument would not be adversely affected. By

restoring the seawalls to their historic functional height, the action alternative would restore historic viewsheds around the resource.

Commodore John Paul Jones Memorial: No changes would be made to the memorial. Tidal Basin walls adjacent to the John Paul Jones Statue are not within the project area and views to the project area are obscured by extant vegetation and Kutz Bridge.

Outlet Bridge: No changes would be made to the bridge. Views to and from the bridge would not be adversely affected. By restoring the seawalls to their historic functional height, the action alternative would restore historic viewsheds. The change in height would be minimally noticeable from that distance as well.

Thomas Jefferson Memorial: No changes would be made to the memorial, but access to the west may be restricted from certain places during construction resulting in a temporary adverse effect to the resource. Raising the top of the seawall to the historic functional height up to the southwest corner of the Thomas Jefferson Memorial plaza would eliminate the bottom two steps of the transition from the Tidal Basin walkway to the plaza. The stone steps would be reused at the end of the level walkway to maintain the historic appearance. The rehabilitated seawalls would not connect structurally to the previously rehabilitated seawall at the Memorial plaza, but would abut the edge of that seawall, at the current location of the existing seawall to be rehabilitated. Where it abuts, the interface would be sealed, to prevent soil migration through a gap. The seal between the two structures would be done sensitively and would improve the extant interfaces that are failing due to the sinking and deteriorating walls. Design and construction would avoid any adverse effects to the Memorial seawall itself. By restoring the seawalls to their historic functional height, the action alternative would restore historic viewsheds around the memorial.

George Mason Memorial: No changes would be made to the memorial. Extant vegetation around the memorial obscures the project area from view.

Number 4 Fountain: No changes would be made to the fountain. Extant vegetation around the fountain obscures the project area from view.

Views from Lincoln Memorial to Arlington House: No changes would affect the views from the Lincoln Memorial to Arlington House.

Views from Lincoln Memorial to Ericsson Memorial: No changes would affect the views from the Lincoln Memorial to the Ericsson Memorial.

Views from Virginia shoreline to National Mall: Views to the National Mall and its monument and memorials from the Virginia shoreline, specifically MVMH HD and GW Parkway, would temporarily be adversely affected during construction. Restoring the seawall to the historic functional height would not adversely affect these views, as the change from that distance would be minimally noticeable and would be restoring a historic viewshed.

The rehabilitation of the seawalls would minimize existing and continual adverse effects to historic resources resulting from the failing seawalls, including prevention of daily flooding, erosion of the landscape, and the continued loss of Japanese cherry trees and other vegetation. Though the seawall rehabilitation would result in adverse effects, there would also be a

significant adverse effect to historic resources by not proceeding with the rehabilitation of the seawalls.

AVOIDANCE, MINIMIZATION, AND MITIGATION

To avoid, minimize, and mitigate adverse effects described above, the following steps would be undertaken by NPS during the implementation of the Action Alternative.

- The horizontal alignment of the seawalls would not be altered, avoiding any changes to the shape of the Tidal Basin and West Potomac Park and adverse effects pertaining to the location of the seawall.
- Trees and vegetation within the construction area that are to remain would be protected throughout construction to avoid adverse effects.
- Construction of the new wall would be as consistent as possible with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.
- The maximum amount practicable of original stone from the historic stacked stone wall would be reused in the most visible portions of the new walls to minimize adverse visual effects that would result from the use of all new stone.
- New stone would be placed on the lower levels of the new walls where tides would limit visibility.
- The new seawalls would be constructed using an ashlar pattern based upon the most common stacking patterns and other construction details of the historic seawalls. This would further minimize adverse visual effects by maintaining some visual consistency between the historic and new seawalls.
- Efforts would be made during construction to minimize temporary adverse effects to visitor experience with sensitive fencing and signage directing them around the construction to minimize the adverse effects to visitor experience during construction. After construction, full access, as consistent with that established by the Americans with Disabilities Act, to the resources would be restored.
- To mitigate the loss of approximately 300 trees from the cultural landscape during rehabilitation efforts, an estimated 381 trees would be replaced in-kind, or with a more acceptable/suitable species for the location, soil conditions, and the National Mall as determined by an interdisciplinary team led by a historical landscape architect. Trees would be replaced based on diameter at breast height (DBH) of trees removed, with an overall increase in total DBH at the site, as per National Capital Planning Commission (NCPC) policy:
    1. Trees less than 10-inches in diameter would be replaced one tree for every one tree removed (1:1);
    2. Trees 10-inches in diameter or greater would be replaced using the following formula: Tree Diameter (in inches) x Species Rating (as percentage) x Condition Rating (as percentage) = Score; and
    3. Trees would be replaced at the following rates based on the score: 1-4.9 = one tree, 5-9.9 = two trees, 10-14.9 = three trees, 15-19.9 = four trees, 20-24.5 = five trees, and 25+ = six trees. (NCPC, 2020)

  The replanting of more appropriate vegetation in the newly graded landscape would mitigate the adverse effects from the loss of contributing vegetation and provide a more receptive environment for the vegetation to thrive.

- The project would mitigate the risks to visitor safety and health which currently exist due to both the deteriorated seawall structure and walkways, and the deposits of mud and debris which remains prevalent even in normal tidal conditions. Visitors should feel that these parks are open in their entirety and are safely accessible to all. Improved visitor satisfaction would result in increased visitation.
- To mitigate adverse effects that cannot be avoided or minimized, the NPS would install one interpretive sign in the Tidal Basin educating the public on the history and significance of the Tidal Basin and the seawalls.
- To mitigate adverse effect that cannot be avoided or minimized, the NPS would complete a comprehensive plan for the Tidal Basin that would include alternatives to rehabilitate the cultural landscape and protect/enhance area aquatic environments while accommodating and meeting very high levels of visitor use in an attractive, convenient, high quality, energy efficient and sustainable manner. The Plan would address multi-modal circulation and transportation; connectivity; conservation; tree preservation; protection of aquatic resources; climate change and sea level rise resilience; infrastructure; memorials and cultural landscape protection; security; visitor experience, enjoyment, recreation, and services; seawall solutions and facilities; and flexible public spaces to accommodate a wide variety of national celebrations, First Amendment gatherings and other permitted activities.

REFERENCES

DC Office of Planning
2009 District of Columbia Inventory of Historic Sites.

NCPC
202 Tree Preservation and Replacement Resources Guide. Available at: https://www.ncpc.gov/docs/publications/Tree_Preservation_and_Replacement_Resource_Guide_2020.pdf. Accessed February 7, 2023.

NPS
1973 National Register of Historic Places, Nomination Form, East and West Potomac Parks

NPS
1985 Annotated Comprehensive Guide for the Washington Seawalls

NPS
1997 National Register of Historic Places, Nomination Form, L'Enfant Plan of the City of Washington, District of Columbia

NPS
1999a National Register of Historic Places, Nomination Form, East and West Potomac Parks Revised

NPS
1999b Lincoln Memorial Grounds Cultural Landscape Report

NPS
2003 Thomas Jefferson Memorial Cultural Landscape Inventory

NPS
2006 National Mall and Memorial Parks Cultural Landscape Inventory

NPS
2009 Washington Monument Cultural Landscape Inventory

NPS
2016 National Register of Historic Places, Nomination Form National Mall Historic District Boundary Increase/Additional Documentation

NPS
2020 Tidal Basin Cultural Landscape Report

Rehabilitation of Tidal Basin and West Potomac Park Seawalls

Section 106 Assessment of Effects Report

Appendix A: Section 106 Consultation

United States Department of the Interior

National Mall and Memorial Parks
National Park Service
National Capital Region
900 Ohio Drive, NW
Washington, DC 20024

IN REPLY REFER TO:

May 19, 2022

Mr. David Maloney
State Historic Preservation Officer
Historic Preservation Office
District of Columbia Office of Planning
1100 4th Street SW Suite E650
Washington, DC 20024

Re: Initiation of Section 106 Consultation, Rehabilitate Tidal Basin and West Potomac Park Seawalls

Dear Mr. Maloney:

The National Park Service (NPS) is preparing a plan and corresponding Environmental Assessment (EA) to rehabilitate and reconstruct approximately 6,800 feet of the seawall in the Tidal Basin and West Potomac Park that are administered by National Mall and Memorial Parks (Park). The NPS is writing to formally initiate consultation with the District of Columbia State Historic Preservation Office (DC SHPO) in compliance with Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108) and its implementing regulations (36 CFR § 800).

Project Undertaking

To mitigate flooding and siltation issues in this area of the Potomac River, the US Army Corps of Engineers initiated a land reclamation project in the late nineteenth-century resulting in new parkland. Stone seawalls were constructed to line and contain the new parkland and prevent erosion. Portions of the original seawalls date to the 1870s, other sections have been repaired or moved over time, including a significant portion for the construction of the Jefferson Memorial in the late 1930s and the northern end of West Potomac Park. The seawalls are in a deteriorated condition and land settlement combined with sea level rise create continuous flooding in the Park areas.

The project is broken down into four locations: approximately 4,670 feet in West Potomac Park along the Potomac River, separated by wall type in the north and south, along with approximately 800 feet west of the Inlet Bridge on the Tidal Basin, and approximately 1,200 feet east of the Inlet Bridge on the Tidal Basin. The proposal is to rehabilitate and reconstruct the seawalls and adjacent infrastructure. The actual seawalls will be reconstructed to their historic functional height to protect West Potomac Park and the Tidal Basin between the Jefferson Memorial and FDR Memorial, while meeting the requirements of park visitation and addressing the estimated changes in future water levels. Repairs to the surrounding infrastructure may

include grading, stormwater control, pedestrian/multi-use paths, curbing, and replacement in-kind of any construction damage to the landscape and trees.

Section 106 and Historic Properties

To prepare for the Section 106 consultation process, the NPS has developed a graphic illustration of the draft Area of Potential Effects (APE) provided as Attachment A. The draft APE is intended as a basis for discussion and is subject to modification through the consultation process. The draft APE includes potential visual and physical effects, from the Virginia shoreline and from construction staging areas and the area within the Limits of Disturbance for construction of the project.

A preliminary list of historic resources within the draft APE includes National Mall Historic District, Washington Monument and Grounds Historic District, East and West Potomac Parks Historic District, Mount Vernon Memorial Highway Historic District, George Washington Memorial Parkway Historic District, and the Arlington National Cemetery Historic District, all of which are listed in the National Register of Historic Places (NRHP). Additional individually NRHP-listed resources include Arlington Memorial Bridge and Related Features, Martin Luther King, Jr., Memorial. Franklin Delano Roosevelt Memorial, and Thomas Jefferson Memorial.

The NPS will work with the DC SHPO and other consulting parties to finalize a formal determination of effect through the Section 106 consultation process. A list of potential consulting parties can be found in Attachment B. We look forward to working with you as we further develop concepts to rehabilitate, and reconstruct failing seawalls located in the Park.

Section 106 and NEPA Coordination

In accordance with the National Environmental Policy Act (NEPA), NPS will prepare an EA to analyze potential impacts of the proposed rehabilitation and reconstruction of the seawalls. NPS plans to coordinate the Section 106 and NEPA processes per the implementing regulations (36 CFR § 800.8) of the NHPA. The NPS will also develop an Assessment of Effect Report for this project as a separate, but parallel, process to the EA.

We look forward to beginning the Section 106 consultation process for this project. If you have any questions or have preliminary feedback related to the project, draft APE, historic properties, and potential consulting parties, please contact Catherine Dewey, Chief of Resource Management, at catherine_dewey@nps.gov or 202-510-1117.

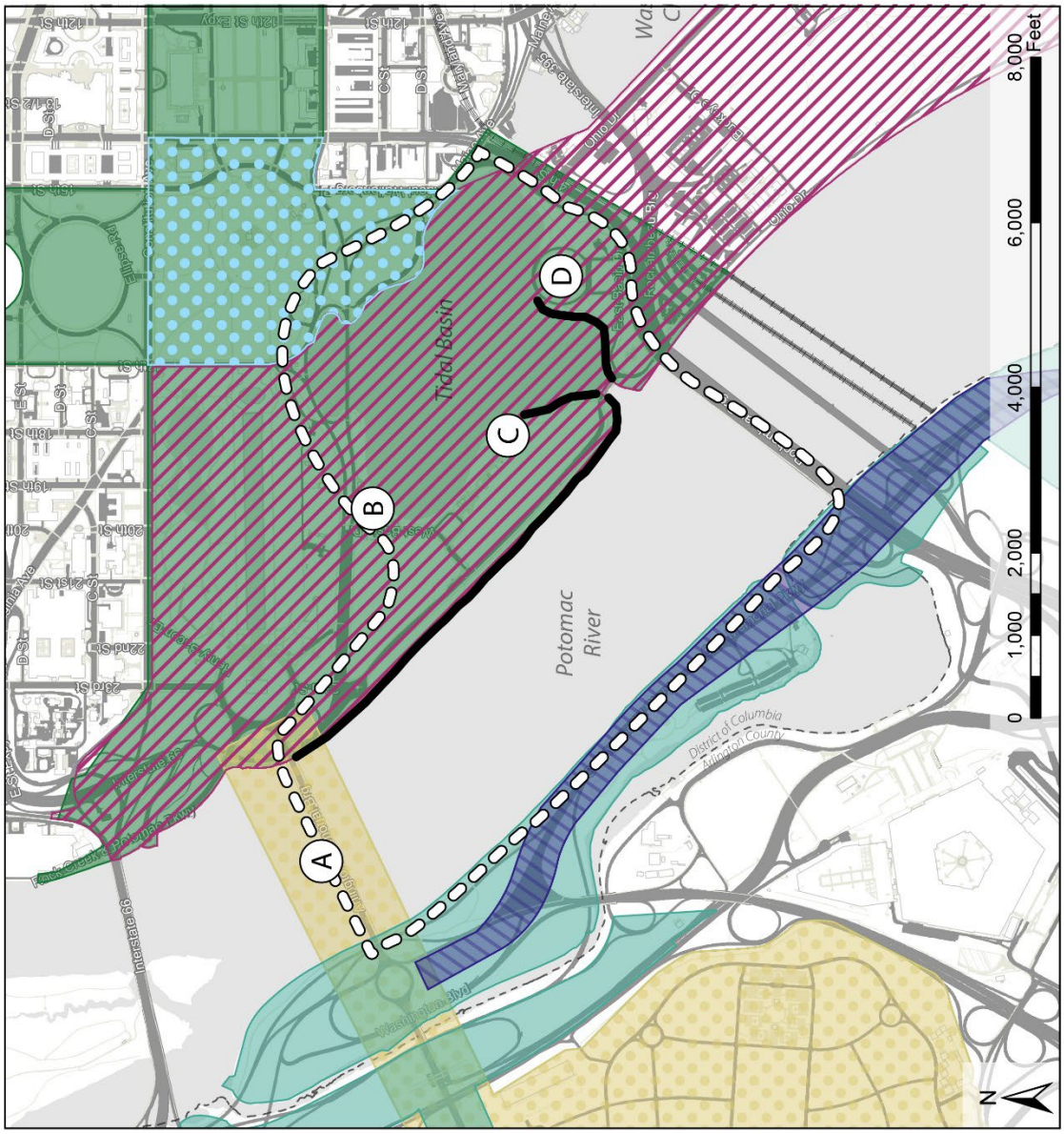
Sincerely,

Jeffrey P. Reinbold
Superintendent
National Mall and Memorial Parks

Attachments: A: Draft Area of Potential Effects Map
B: List of Potential Consulting Parties

cc: Andrew Lewis, DC SHPO
Dr. Ruth Trocolli, DC SHPO
Tammy Stidham, NPS
Catherine Dewey, NPS

Attachment A: Draft Area of Potential Effects Map



Key

- Area of Potential Effects
- Washington Monument and Grounds Historic District
- East and West Potomac Parks Historic District
- National Mall Historic District
- Arlington National Cemetery Historic District
- George Washington Memorial Parkway
- Mount Vernon Memorial Highway Historic District

Individually Listed Resources

A. Arlington Memorial Bridge

B. Martin Luther King Jr., Memorial

C. Franklin Delano Roosevelt Memorial

D. Thomas Jefferson Memorial

- Poposed extent of seawall project

Attachment B: Potential Consulting Parties

	NAMA 318722 POTENTIAL CONSULTING PARTIES			
	NAME	**TITLE**	**AGENCY**	**EMAIL**
Tribes	Deborah Dotson	President	Delaware Nation	ec@delawarenation-nsn.gov
	Erin Thompson	Historic Preservation Director	Delaware Nation	ethompson@delawarenation-nsn.gov
	Chuck Hoskin, Jr.	Principal Chief	Cherokee Nation	chuck-hoskin@cherokee.org
	Robert Gray	Chief	Pamunkey Indian Tribe	pamunkeytribe@pamunkey.org
	Frank Adams	Chief	Upper Mattaponi Indian Tribe	wfrankadams@verizon.net
	Reggie Tupponce	Tribal Administrator	Upper Mattaponi Indian Tribe	admin@umitribe.org
	Anne Richardson	Chief	Rappahannock Tribe	chiefannerich@aol.com
	Earl Bass	Chief	Nansemond Indian Nation	earllbass@gmail.com and Chief@nansemond.org
	Megan Bass		Nansemond Indian Nation	administrator@nansemond.org
	Stephen Adkins	Chief	Chickahominy Indian Tribe	stephenradkins@aol.com and chiefstephenadkins@gmail.com
	Dana Adkins	Tribal Environmental Director	Chickahominy Indian Tribe	dana.adkins@chickahominytribe.org
	Gerald Stewart	Chief	Chickahominy Tribe Eastern Division	wasandson@cox.net
	Kenneth Branham	Chief	Monacan Indian Nation	TribalOffice@MonacanNation.com
	Rufus Elliot	Tribal Administrator	Monacan Indian Nation	tribaladmin@monacannation.com
	William "Bill" Harris	Chief	Catawba Indian Nation	bill.harris@catawbaindian.net
	Wenonah George Haire	THPO	Catawba Indian Nation	wenonah.haire@catawba.com
	John Johnson	Governor	Absentee Shawnee Tribe of Indians of Oklahoma	jjohnson@astribe.com
	Tonya Tipton	THPO	Shawnee Tribe	tonya@shawnee-tribe.com
	Benjamin Barnes	Chief	Shawnee Tribe	chief@shawnee-tribe.com

	NAME	TITLE	AGENCY	EMAIL
Agencies	Kirsten Kulis	NPS Liaison	Advisory Council on Historic Preservation	kkulis@achp.gov
	Thomas Luebke	Secretary	US Commission of Fine Arts	tluebke@cfa.gov
	Dan Fox	Historic Preservationist	US Commission of Fine Arts	dfox@cfa.gov
	Sarah Batcheler	Architect	US Commission of Fine Arts	flindstrom@cfa.gov
	Marcel Acosta	Executive Director	National Capital Planning Commission	marcel.acosta@ncpc.gov
	Diane Sullivan	Director, Urban Design and Plan Review	National Capital Planning Commission	diane.sullivan@ncpc.gov
	Lee Webb	Historic Preservation Specialist	National Capital Planning Commission	lee.webb@ncpc.gov
	David Maloney	State Historic Preservation Officer	DC Historic Preservation Office	david.maloney@dc.gov
	Andrew Lewis	Senior Historic Preservation Specialist	DC Historic Preservation Office	andrew.lewis@dc.gov
	Julie Langan	State Historic Preservation Officer	Virginia Department of Historic Resources	julie.langan@dhr.virginia.gov
	Tim Roberts	National Park Service Reviewer	Virginia Department of Historic Resources	tim.roberts@dhr.virginia.gov
	Genevieve LaRouche	Project Leader, Chesapeake Bay Field Office	US Fish and Wildlife Service	genevieve_larouche@fws.gov
	Jonathan Greene	Community Planner	Ward 2	jonathan.greene@dc.gov
ANCs	Joel Causey	Chair	ANC2A	2A@anc.dc.gov
Preservation Advocacy Groups	Rebecca Miller	Executive Director	DC Preservation League	rebecca@dcpreservation.org
	Catherine Townsend	President and CEO	Trust for the National Mall	ctownsend@nationalmall.org
	Teresa Durkin	Executive Vice President	Trust for the National Mall	tdurkin@nationalmall.org
	Laura Brower Hagood	Executive Director	Historical Society of Washington DC	lhagood@dchistory.com
	Betsy Merritt	Deputy General Council	National Trust for Historic Preservation	bmerritt@savingplaces.org
	Kirby Vining	Chair	Committee of 100 on the Federal City	info@committeeof100.net

United States Department of the Interior

National Mall and Memorial Parks
National Park Service
National Capital Region
900 Ohio Drive, NW
Washington, DC 20024

IN REPLY REFER TO:

May 19,2022

Ms. Julie Langan
State Historic Preservation Officer
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

Re: Initiation of Section 106 Consultation, Rehabilitate Tidal Basin and West Potomac Park Seawalls

Dear Ms. Langan:

The National Park Service (NPS) is preparing a plan and corresponding Environmental Assessment (EA) to rehabilitate and reconstruct approximately 6,800 feet of the seawall in the Tidal Basin and West Potomac Park that are administered by National Mall and Memorial Parks (Park). The NPS is writing to formally initiate consultation with the Virginia Department of Historic Resources (DHR) in compliance with Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108) and its implementing regulations (36 CFR § 800).

Project Undertaking

To mitigate flooding and siltation issues in this area of the Potomac River, the US Army Corps of Engineers initiated a land reclamation project in the late nineteenth-century resulting in new parkland. Stone seawalls were constructed to line and contain the new parkland and prevent erosion. Portions of the original seawalls date to the 1870s, other sections have been repaired or moved over time, including a significant portion for the construction of the Jefferson Memorial in the late 1930s and the northern end of West Potomac Park. The seawalls are in a deteriorated condition and land settlement combined with sea level rise create continuous flooding in the Park areas.

The project is broken down into four locations: approximately 4,670 feet in West Potomac Park along the Potomac River, separated by wall type in the north and south, along with approximately 800 feet west of the Inlet Bridge on the Tidal Basin, and approximately 1,200 feet east of the Inlet Bridge on the Tidal Basin. The proposal is to rehabilitate and reconstruct the seawalls and adjacent infrastructure. The actual seawalls will be reconstructed to their historic functional height to protect West Potomac Park and the Tidal Basin between the Jefferson Memorial and FDR Memorial, while meeting the requirements of park visitation and addressing the estimated changes in future water levels. Repairs to the surrounding infrastructure may

include grading, stormwater control, pedestrian/multi-use paths, curbing, and replacement in-kind of any construction damage to the landscape and trees.

Section 106 and Historic Properties

To prepare for the Section 106 consultation process, the NPS has developed a graphic illustration of the draft Area of Potential Effects (APE) provided as Attachment A. The draft APE is intended as a basis for discussion and is subject to modification through the consultation process. The draft APE includes potential visual and physical effects, from the Virginia shoreline and from construction staging areas and the area within the Limits of Disturbance for construction of the project.

A preliminary list of historic resources within the draft APE includes National Mall Historic District, Washington Monument and Grounds Historic District, East and West Potomac Parks Historic District, Mount Vernon Memorial Highway Historic District, George Washington Memorial Parkway Historic District, and the Arlington National Cemetery Historic District, all of which are listed in the National Register of Historic Places (NRHP). Additional individually NRHP-listed resources include Arlington Memorial Bridge and Related Features, Martin Luther King, Jr., Memorial. Franklin Delano Roosevelt Memorial, and Thomas Jefferson Memorial.

The NPS will work with DHR and other consulting parties to finalize a formal determination of effect through the Section 106 consultation process. A list of potential consulting parties can be found in Attachment B. We look forward to working with you as we further develop concepts to rehabilitate, and reconstruct failing seawalls located in the Park.

Section 106 and NEPA Coordination

In accordance with the National Environmental Policy Act (NEPA), NPS will prepare an EA to analyze potential impacts of the proposed rehabilitation and reconstruction of the seawalls. NPS plans to coordinate the Section 106 and NEPA processes per the implementing regulations (36 CFR § 800.8) of the NHPA. The NPS will also develop an Assessment of Effect Report for this project as a separate, but parallel, process to the EA.

We look forward to beginning the Section 106 consultation process for this project. If you have any questions or have preliminary feedback related to the project, draft APE, historic properties, and potential consulting parties, please contact Catherine Dewey, Chief of Resource Management, at catherine_dewey@nps.gov or 202-510-1117.

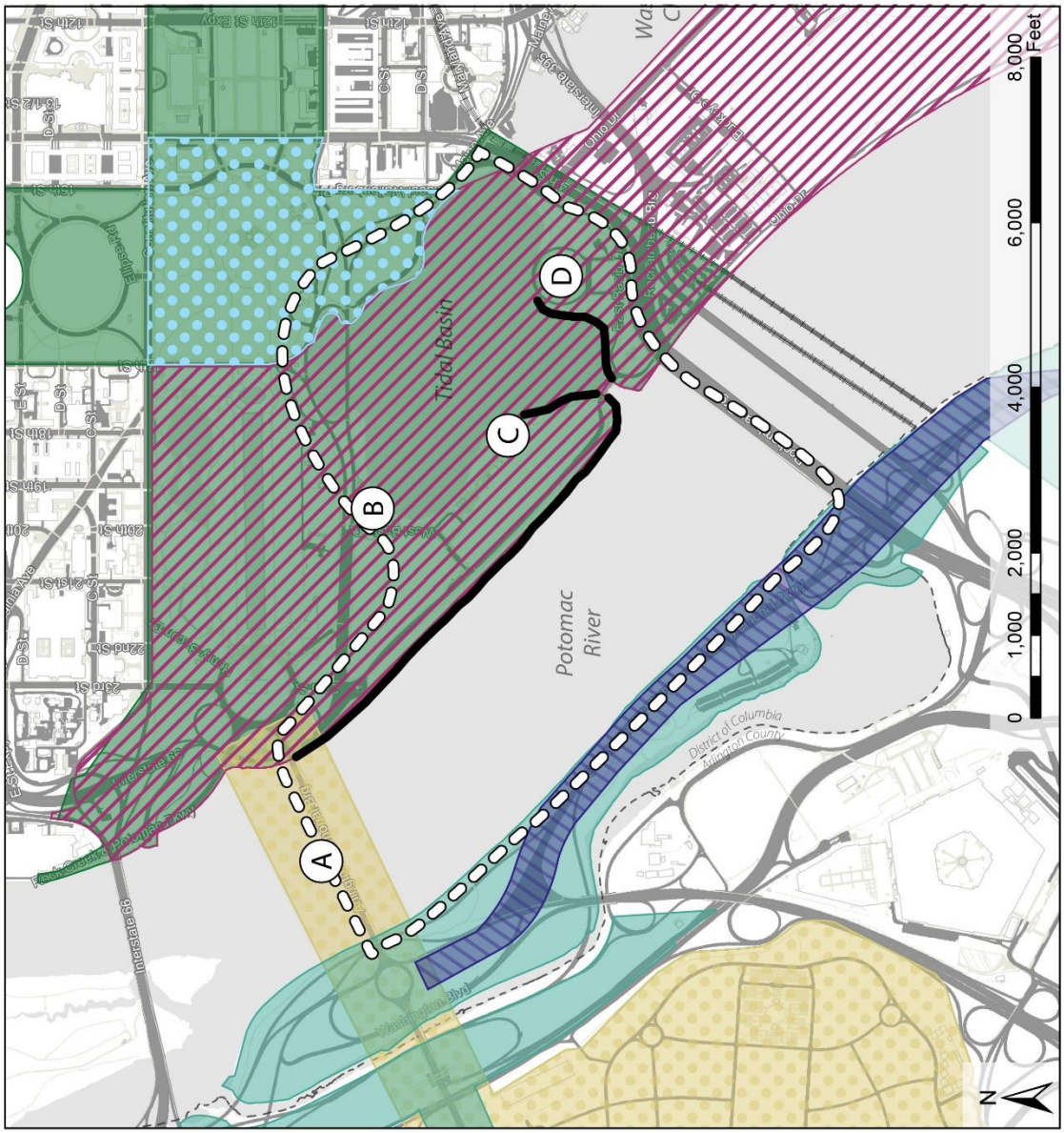
Sincerely,

Jeffrey P. Reinbold
Superintendent
National Mall and Memorial Parks

Attachments: A: Draft Area of Potential Effects Map
B: List of Potential Consulting Parties

cc: Tim Roberts, DHR
Tammy Stidham, NPS
Catherine Dewey, NPS

Attachment A: Draft Area of Potential Effects Map



Key

- Area of Potential Effects
- Washington Monument and Grounds Historic District
- East and West Potomac Parks Historic District
- National Mall Historic District
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- George Washington Memorial Parkway
- Mount Vernon Memorial Highway Historic District

Individually Listed Resources

A. Arlington Memorial Bridge

B. Martin Luther King Jr., Memorial

C. Franklin Delano Roosevelt Memorial

D. Thomas Jefferson Memorial

- Poposed extent of seawall project

Attachment B: Potential Consulting Parties

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	Erin Thompson	Historic Preservation Director	Delaware Nation	ethompson@delawarenation-nsn.gov
	Chuck Hoskin, Jr.	Principal Chief	Cherokee Nation	chuck-hoskin@cherokee.org
	Robert Gray	Chief	Pamunkey Indian Tribe	pamunkeytribe@pamunkey.org
	Frank Adams	Chief	Upper Mattaponi Indian Tribe	wfrankadams@verizon.net
	Reggie Tupponce	Tribal Administrator	Upper Mattaponi Indian Tribe	admin@umitribe.org
	Anne Richardson	Chief	Rappahannock Tribe	chiefannerich@aol.com
	Earl Bass	Chief	Nansemond Indian Nation	earllbass@gmail.com and Chief@nansemond.org
	Megan Bass		Nansemond Indian Nation	administrator@nansemond.org
	Stephen Adkins	Chief	Chickahominy Indian Tribe	stephenradkins@aol.com and chiefstephenadkins@gmail.com
	Dana Adkins	Tribal Environmental Director	Chickahominy Indian Tribe	dana.adkins@chickahominytribe.org
	Gerald Stewart	Chief	Chickahominy Tribe Eastern Division	wasandson@cox.net
	Kenneth Branham	Chief	Monacan Indian Nation	TribalOffice@MonacanNation.com
	Rufus Elliot	Tribal Administrator	Monacan Indian Nation	tribaladmin@monacannation.com
	William "Bill" Harris	Chief	Catawba Indian Nation	bill.harris@catawbaindian.net
	Wenonah George Haire	THPO	Catawba Indian Nation	wenonah.haire@catawba.com
	John Johnson	Governor	Absentee Shawnee Tribe of Indians of Oklahoma	jjohnson@astribe.com
	Tonya Tipton	THPO	Shawnee Tribe	tonya@shawnee-tribe.com
	Benjamin Barnes	Chief	Shawnee Tribe	chief@shawnee-tribe.com

	NAME	TITLE	AGENCY	EMAIL
Agencies	Kirsten Kulis	NPS Liaison	Advisory Council on Historic Preservation	kkulis@achp.gov
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	Dan Fox	Historic Preservationist	US Commission of Fine Arts	dfox@cfa.gov
	Sarah Batcheler	Architect	US Commission of Fine Arts	flindstrom@cfa.gov
	Marcel Acosta	Executive Director	National Capital Planning Commission	marcel.acosta@ncpc.gov
	Diane Sullivan	Director, Urban Design and Plan Review	National Capital Planning Commission	diane.sullivan@ncpc.gov
	Lee Webb	Historic Preservation Specialist	National Capital Planning Commission	lee.webb@ncpc.gov
	David Maloney	State Historic Preservation Officer	DC Historic Preservation Office	david.maloney@dc.gov
	Andrew Lewis	Senior Historic Preservation Specialist	DC Historic Preservation Office	andrew.lewis@dc.gov
	Julie Langan	State Historic Preservation Officer	Virginia Department of Historic Resources	julie.langan@dhr.virginia.gov
	Tim Roberts	National Park Service Reviewer	Virginia Department of Historic Resources	tim.roberts@dhr.virginia.gov
	Genevieve LaRouche	Project Leader, Chesapeake Bay Field Office	US Fish and Wildlife Service	genevieve_larouche@fws.gov
	Jonathan Greene	Community Planner	Ward 2	jonathan.greene@dc.gov
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	Teresa Durkin	Executive Vice President	Trust for the National Mall	tdurkin@nationalmall.org
	Laura Brower Hagood	Executive Director	Historical Society of Washington DC	lhagood@dchistory.com
	Betsy Merritt	Deputy General Council	National Trust for Historic Preservation	bmerritt@savingplaces.org
	Kirby Vining	Chair	Committee of 100 on the Federal City	info@committeeof100.net

United States Department of the Interior

National Mall and Memorial Parks
National Park Service
National Capital Region
900 Ohio Drive, NW
Washington, DC 20024

IN REPLY REFER TO:

May 19, 2022

Mr. Marcel Acosta
Executive Director
National Capital Planning Commission
400 9th Street, NW
Suite 500
Washington, DC 20003

Re: Initiation of Section 106 Consultation, Rehabilitate Tidal Basin and West Potomac Park Seawalls

Dear Mr. Acosta:

The National Park Service (NPS) is preparing a plan and corresponding Environmental Assessment (EA) to rehabilitate and reconstruct approximately 6,800 feet of the seawall in the Tidal Basin and West Potomac Park that are administered by National Mall and Memorial Parks (Park). The NPS is writing to formally initiate consultation with the National Capital Planning Commission (NCPC) who has review authority over federal projects located within the District of Columbia will be a cooperating agency the National Capital Planning Act (40 U.S.C. § 8722(b)(1) and (d)) and Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108) and its implementing regulations (36 CFR § 800).

Project Undertaking

To mitigate flooding and siltation issues in this area of the Potomac River, the US Army Corps of Engineers initiated a land reclamation project in the late nineteenth-century resulting in new parkland. Stone seawalls were constructed to line and contain the new parkland and prevent erosion. Portions of the original seawalls date to the 1870s, other sections have been repaired or moved over time, including a significant portion for the construction of the Jefferson Memorial in the late 1930s and the northern end of West Potomac Park. The seawalls are in a deteriorated condition and land settlement combined with sea level rise create continuous flooding in the Park areas.

The project is broken down into four locations: approximately 4,670 feet in West Potomac Park along the Potomac River, separated by wall type in the north and south, along with approximately 800 feet west of the Inlet Bridge on the Tidal Basin, and approximately 1,200 feet east of the Inlet Bridge on the Tidal Basin. The proposal is to rehabilitate and reconstruct the seawalls and adjacent infrastructure. The actual seawalls will be reconstructed to their historic functional height to protect West Potomac Park and the Tidal Basin between the Jefferson Memorial and FDR Memorial, while meeting the requirements of park visitation and

addressing the estimated changes in future water levels. Repairs to the surrounding infrastructure may include grading, stormwater control, pedestrian/multi-use paths, curbing, and replacement in-kind of any construction damage to the landscape and trees.

Section 106 and Historic Properties

To prepare for the Section 106 consultation process, the NPS has developed a graphic illustration of the draft Area of Potential Effects (APE) provided as Attachment A. The draft APE is intended as a basis for discussion and is subject to modification through the consultation process. The draft APE includes potential visual and physical effects, from the Virginia shoreline and from construction staging areas and the area within the Limits of Disturbance for construction of the project.

A preliminary list of historic resources within the draft APE includes National Mall Historic District, Washington Monument and Grounds Historic District, East and West Potomac Parks Historic District, Mount Vernon Memorial Highway Historic District, George Washington Memorial Parkway Historic District, and the Arlington National Cemetery Historic District, all of which are listed in the National Register of Historic Places (NRHP). Additional individually NRHP-listed resources include Arlington Memorial Bridge and Related Features, Martin Luther King, Jr., Memorial. Franklin Delano Roosevelt Memorial, and Thomas Jefferson Memorial.

The NPS will work with the NCPC and other consulting parties to finalize a formal determination of effect through the Section 106 consultation process. A list of potential consulting parties can be found in Attachment B. We look forward to working with you as we further develop concepts to rehabilitate, and reconstruct failing seawalls located in the Park.

Section 106 and NEPA Coordination

In accordance with the National Environmental Policy Act (NEPA), NPS will prepare an EA to analyze potential impacts of the proposed rehabilitation and reconstruction of the seawalls. NPS plans to coordinate the Section 106 and NEPA processes per the implementing regulations (36 CFR § 800.8) of the NHPA. The NPS will also develop an Assessment of Effect Report for this project as a separate, but parallel, process to the EA.

We look forward to beginning the Section 106 consultation process for this project. If you have any questions or have preliminary feedback related to the project, draft APE, historic properties, and potential consulting parties, please contact Catherine Dewey, Chief of Resource Management, at catherine_dewey@nps.gov or 202-510-1117.

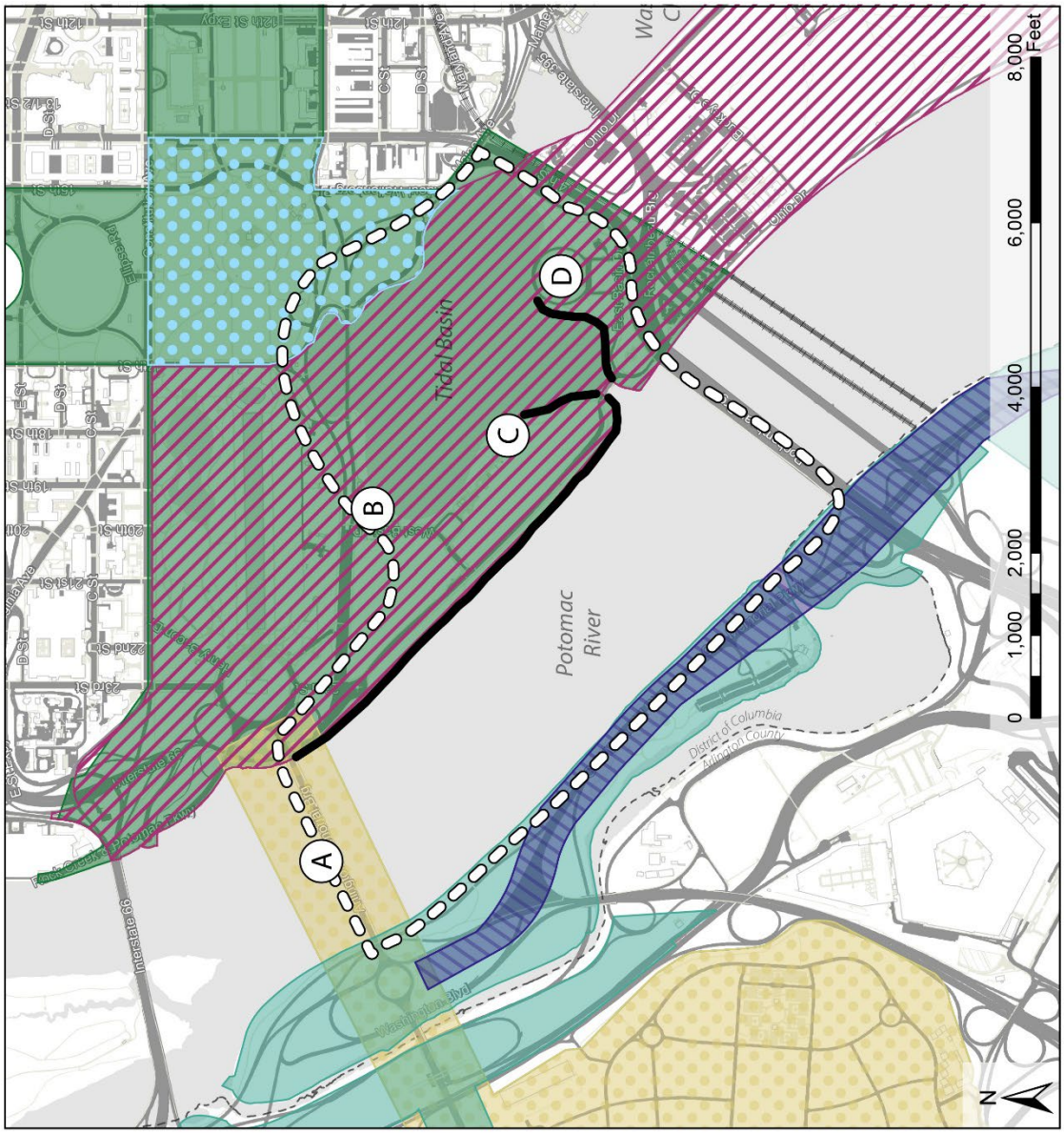
Sincerely,

Jeffrey P. Reinbold
Superintendent
National Mall and Memorial Parks

Attachments: A: Draft Area of Potential Effects Map
B: List of Potential Consulting Parties

cc: Diane Sullivan, NCPC
Lee Webb, NCPC
Tammy Stidham, NPS
Catherine Dewey, NPS

Attachment A: Draft Area of Potential Effects Map



Key

- Area of Potential Effects
- Washington Monument and Grounds Historic District
- East and West Potomac Parks Historic District
- National Mall Historic District
- Arlington National Cemetery Historic District
- George Washington Memorial Parkway
- Mount Vernon Memorial Highway Historic District

Individually Listed Resources

A. Arlington Memorial Bridge

B. Martin Luther King Jr., Memorial

C. Franklin Delano Roosevelt Memorial

D. Thomas Jefferson Memorial

- Poposed extent of seawall project

Attachment B: Potential Consulting Parties

	NAMA 318722 POTENTIAL CONSULTING PARTIES			
	NAME	**TITLE**	**AGENCY**	**EMAIL**
Tribes	Deborah Dotson	President	Delaware Nation	ec@delawarenation-nsn.gov
	Erin Thompson	Historic Preservation Director	Delaware Nation	ethompson@delawarenation-nsn.gov
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	Frank Adams	Chief	Upper Mattaponi Indian Tribe	wfrankadams@verizon.net
	Reggie Tupponce	Tribal Administrator	Upper Mattaponi Indian Tribe	admin@umitribe.org
	Anne Richardson	Chief	Rappahannock Tribe	chiefannerich@aol.com
	Earl Bass	Chief	Nansemond Indian Nation	earllbass@gmail.com and Chief@nansemond.org
	Megan Bass		Nansemond Indian Nation	administrator@nansemond.org
	Stephen Adkins	Chief	Chickahominy Indian Tribe	stephenradkins@aol.com and chiefstephenadkins@gmail.com
	Dana Adkins	Tribal Environmental Director	Chickahominy Indian Tribe	dana.adkins@chickahominytribe.org
	Gerald Stewart	Chief	Chickahominy Tribe Eastern Division	wasandson@cox.net
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	Rufus Elliot	Tribal Administrator	Monacan Indian Nation	tribaladmin@monacannation.com
	William "Bill" Harris	Chief	Catawba Indian Nation	bill.harris@catawbaindian.net
	Wenonah George Haire	THPO	Catawba Indian Nation	wenonah.haire@catawba.com
	John Johnson	Governor	Absentee Shawnee Tribe of Indians of Oklahoma	jjohnson@astribe.com
	Tonya Tipton	THPO	Shawnee Tribe	tonya@shawnee-tribe.com
	Benjamin Barnes	Chief	Shawnee Tribe	chief@shawnee-tribe.com

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United States Department of the Interior

National Mall and Memorial Parks
National Park Service
National Capital Region
900 Ohio Drive, NW
Washington, DC 20024

IN REPLY REFER TO:

May 19, 2022

John Johnson
Governor
Absentee Shawnee Tribe of Indians of Oklahoma Nation
2025 South Gordon Cooper Drive
Shawnee, OK 74801

Re: Initiation of Section 106 Consultation, Rehabilitate Tidal Basin and West Potomac Park Seawalls

Dear Governor Johnson:

The National Park Service (NPS) is preparing a plan and corresponding Environmental Assessment (EA) to rehabilitate and reconstruct approximately 6,800 feet of the seawall in the Tidal Basin and West Potomac Park that are administered by National Mall and Memorial Parks (Park). The NPS understands the Absentee Shawnee Tribe of Indians of Oklahoma Nation to have interest in the preservation of Native American cultural resources of significance in this region and is writing to formally initiate consultation in compliance with Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108) and its implementing regulations (36 CFR § 800).

Project Undertaking

To mitigate flooding and siltation issues in this area of the Potomac River, the US Army Corps of Engineers initiated a land reclamation project in the late nineteenth-century resulting in new parkland. Stone seawalls were constructed to line and contain the new parkland and prevent erosion. Portions of the original seawalls date to the 1870s, other sections have been repaired or moved over time, including a significant portion for the construction of the Jefferson Memorial in the late 1930s and the northern end of West Potomac Park. The seawalls are in a deteriorated condition and land settlement combined with sea level rise create continuous flooding in the Park areas.

The project is broken down into four locations: approximately 4,670 feet in West Potomac Park along the Potomac River, separated by wall type in the north and south, along with approximately 800 feet west of the Inlet Bridge on the Tidal Basin, and approximately 1,200 feet east of the Inlet Bridge on the Tidal Basin. The proposal is to rehabilitate and reconstruct the seawalls and adjacent infrastructure. The actual seawalls will be reconstructed to their historic functional height to protect West Potomac Park and the Tidal Basin between the Jefferson Memorial and FDR Memorial, while meeting the requirements of park visitation and addressing the estimated changes in future water levels. Repairs to the surrounding infrastructure may

include grading, stormwater control, pedestrian/multi-use paths, curbing, and replacement in-kind of any construction damage to the landscape and trees.

Section 106 and Historic Properties

To prepare for the Section 106 consultation process, the NPS has developed a graphic illustration of the draft Area of Potential Effects (APE) provided as Attachment A. The draft APE is intended as a basis for discussion and is subject to modification through the consultation process. The draft APE includes potential visual and physical effects, from the Virginia shoreline and from construction staging areas and the area within the Limits of Disturbance for construction of the project.

A preliminary list of historic resources within the draft APE includes National Mall Historic District, Washington Monument and Grounds Historic District, East and West Potomac Parks Historic District, Mount Vernon Memorial Highway Historic District, George Washington Memorial Parkway Historic District, and the Arlington National Cemetery Historic District, all of which are listed in the National Register of Historic Places (NRHP). Additional individually NRHP-listed resources include Arlington Memorial Bridge and Related Features, Martin Luther King, Jr., Memorial. Franklin Delano Roosevelt Memorial, and Thomas Jefferson Memorial.

The NPS will work with you and other consulting parties to finalize a formal determination of effect through the Section 106 consultation process. A list of potential consulting parties can be found in Attachment B. We look forward to working with you as we further develop concepts to rehabilitate, and reconstruct failing seawalls located in the Park.

Section 106 and NEPA Coordination

In accordance with the National Environmental Policy Act (NEPA), NPS will prepare an EA to analyze potential impacts of the proposed rehabilitation and reconstruction of the seawalls. NPS plans to coordinate the Section 106 and NEPA processes per the implementing regulations (36 CFR § 800.8) of the NHPA. The NPS will also develop an Assessment of Effect Report for this project as a separate, but parallel, process to the EA.

We look forward to beginning the Section 106 consultation process for this project. If you have any questions or have preliminary feedback related to the project, draft APE, historic properties, and potential consulting parties, please contact Catherine Dewey, Chief of Resource Management, at catherine_dewey@nps.gov or 202-510-1117.

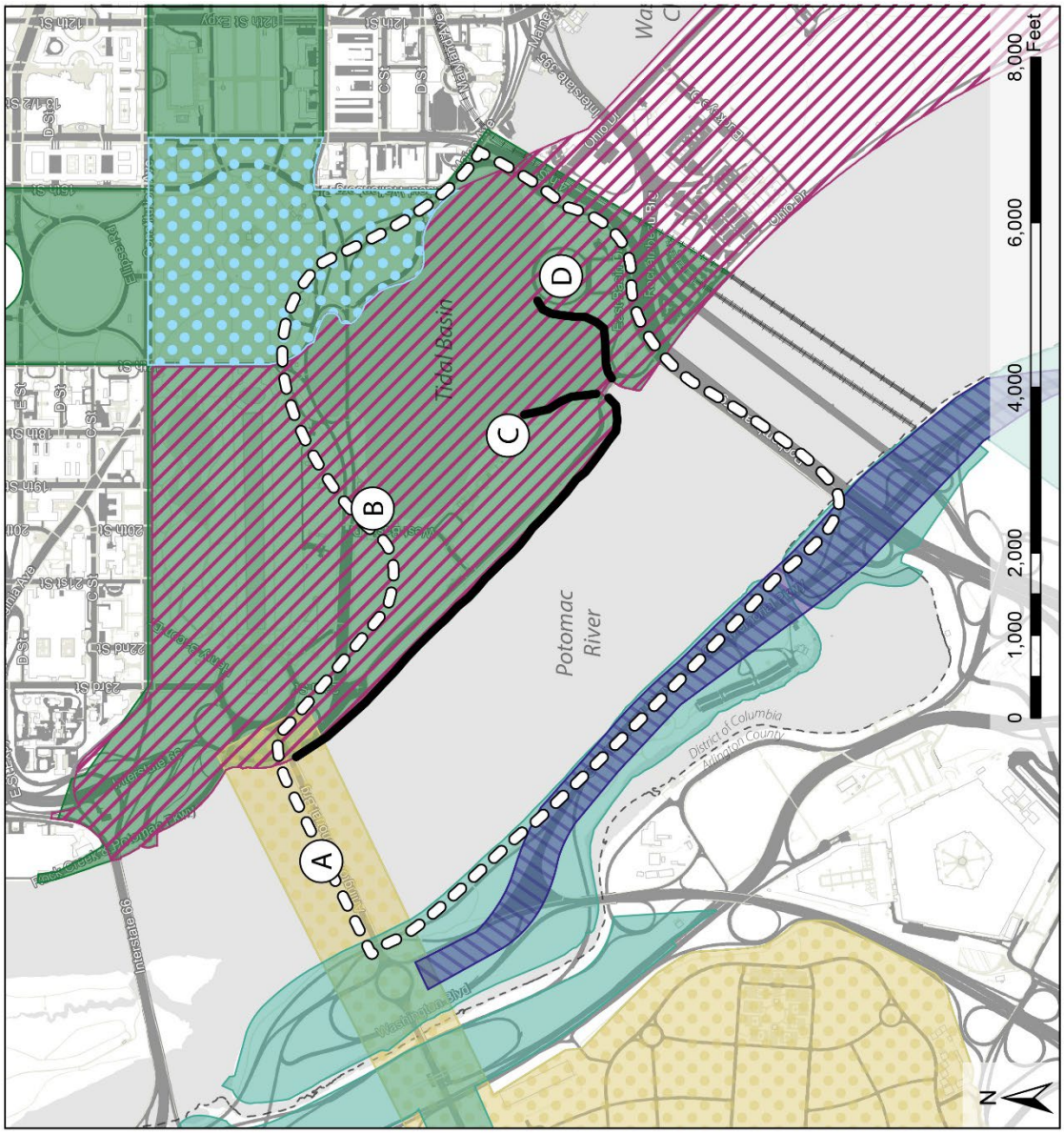
Sincerely,

Jeffrey P. Reinbold
Superintendent
National Mall and Memorial Parks

Attachments: A: Draft Area of Potential Effects Map
B: List of Potential Consulting Parties

cc: Tammy Stidham, NPS
Catherine Dewey, NPS

Attachment A: Draft Area of Potential Effects Map



Key

- Area of Potential Effects
- Washington Monument and Grounds Historic District
- East and West Potomac Parks Historic District
- National Mall Historic District
- Arlington National Cemetery Historic District
- George Washington Memorial Parkway
- Mount Vernon Memorial Highway Historic District

Individually Listed Resources

A. Arlington Memorial Bridge

B. Martin Luther King Jr., Memorial

C. Franklin Delano Roosevelt Memorial

D. Thomas Jefferson Memorial

- Poposed extent of seawall project

Attachment B: Potential Consulting Parties

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	Megan Bass		Nansemond Indian Nation	administrator@nansemond.org
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	Kirby Vining	Chair	Committee of 100 on the Federal City	info@committeeof100.net

United States Department of the Interior

National Mall and Memorial Parks
National Park Service
National Capital Region
900 Ohio Drive, NW
Washington, DC 20024

IN REPLY REFER TO:

May 19, 2022

William Harris
Chief
Catawba Indian Nation
966 Avenue of the Nations
Rock Hill, SC 29730

Re: Initiation of Section 106 Consultation, Rehabilitate Tidal Basin and West Potomac Park Seawalls

Dear Chief Harris:

The National Park Service (NPS) is preparing a plan and corresponding Environmental Assessment (EA) to rehabilitate and reconstruct approximately 6,800 feet of the seawall in the Tidal Basin and West Potomac Park that are administered by National Mall and Memorial Parks (Park). The NPS understands the Catawba Indian Nation to have interest in the preservation of Native American cultural resources of significance in this region and is writing to formally initiate consultation in compliance with Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108) and its implementing regulations (36 CFR § 800).

Project Undertaking

To mitigate flooding and siltation issues in this area of the Potomac River, the US Army Corps of Engineers initiated a land reclamation project in the late nineteenth-century resulting in new parkland. Stone seawalls were constructed to line and contain the new parkland and prevent erosion. Portions of the original seawalls date to the 1870s, other sections have been repaired or moved over time, including a significant portion for the construction of the Jefferson Memorial in the late 1930s and the northern end of West Potomac Park. The seawalls are in a deteriorated condition and land settlement combined with sea level rise create continuous flooding in the Park areas.

The project is broken down into four locations: approximately 4,670 feet in West Potomac Park along the Potomac River, separated by wall type in the north and south, along with approximately 800 feet west of the Inlet Bridge on the Tidal Basin, and approximately 1,200 feet east of the Inlet Bridge on the Tidal Basin. The proposal is to rehabilitate and reconstruct the seawalls and adjacent infrastructure. The actual seawalls will be reconstructed to their historic functional height to protect West Potomac Park and the Tidal Basin between the Jefferson Memorial and FDR Memorial, while meeting the requirements of park visitation and addressing the estimated changes in future water levels. Repairs to the surrounding infrastructure may

include grading, stormwater control, pedestrian/multi-use paths, curbing, and replacement in-kind of any construction damage to the landscape and trees.

Section 106 and Historic Properties

To prepare for the Section 106 consultation process, the NPS has developed a graphic illustration of the draft Area of Potential Effects (APE) provided as Attachment A. The draft APE is intended as a basis for discussion and is subject to modification through the consultation process. The draft APE includes potential visual and physical effects, from the Virginia shoreline and from construction staging areas and the area within the Limits of Disturbance for construction of the project.

A preliminary list of historic resources within the draft APE includes National Mall Historic District, Washington Monument and Grounds Historic District, East and West Potomac Parks Historic District, Mount Vernon Memorial Highway Historic District, George Washington Memorial Parkway Historic District, and the Arlington National Cemetery Historic District, all of which are listed in the National Register of Historic Places (NRHP). Additional individually NRHP-listed resources include Arlington Memorial Bridge and Related Features, Martin Luther King, Jr., Memorial. Franklin Delano Roosevelt Memorial, and Thomas Jefferson Memorial.

The NPS will work with you and other consulting parties to finalize a formal determination of effect through the Section 106 consultation process. A list of potential consulting parties can be found in Attachment B. We look forward to working with you as we further develop concepts to rehabilitate, and reconstruct failing seawalls located in the Park.

Section 106 and NEPA Coordination

In accordance with the National Environmental Policy Act (NEPA), NPS will prepare an EA to analyze potential impacts of the proposed rehabilitation and reconstruction of the seawalls. NPS plans to coordinate the Section 106 and NEPA processes per the implementing regulations (36 CFR § 800.8) of the NHPA. The NPS will also develop an Assessment of Effect Report for this project as a separate, but parallel, process to the EA.

We look forward to beginning the Section 106 consultation process for this project. If you have any questions or have preliminary feedback related to the project, draft APE, historic properties, and potential consulting parties, please contact Catherine Dewey, Chief of Resource Management, at catherine_dewey@nps.gov or 202-510-1117.

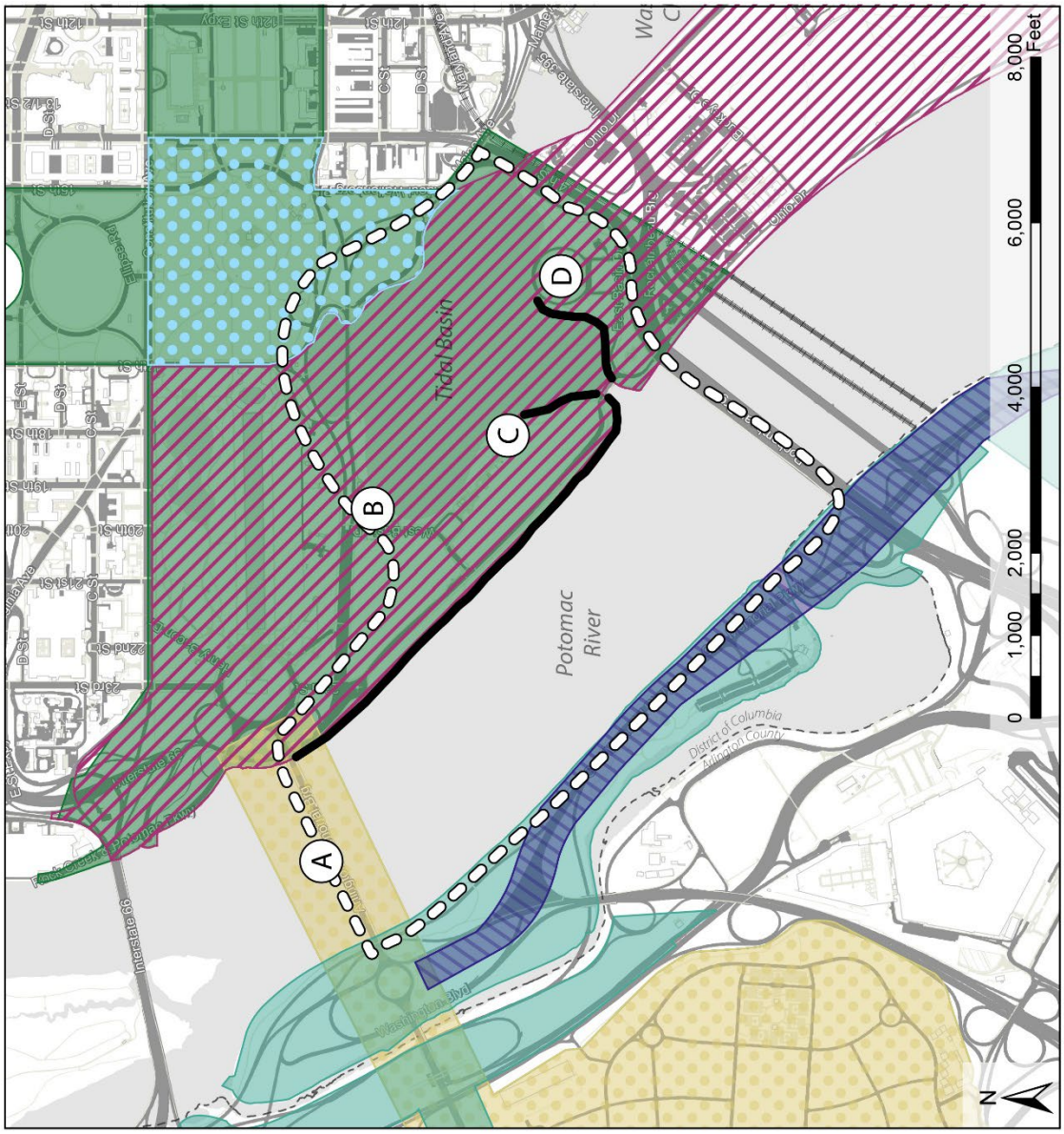
Sincerely,

Jeffrey P. Reinbold
Superintendent
National Mall and Memorial Parks

Attachments: A: Draft Area of Potential Effects Map
B: List of Potential Consulting Parties

cc: Wenonah George Haire, Catawba Indian Nation
Tammy Stidham, NPS
Catherine Dewey, NPS

Attachment A: Draft Area of Potential Effects Map



Key

- Area of Potential Effects
- Washington Monument and Grounds Historic District
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Individually Listed Resources

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United States Department of the Interior

National Mall and Memorial Parks
National Park Service
National Capital Region
900 Ohio Drive, NW
Washington, DC 20024

IN REPLY REFER TO:

May 19, 2022

Chuck Hoskin, Jr.
Principal Chief
Cherokee Nation
P.O. Box 984
Tehlequah, OK 74465

Re: Initiation of Section 106 Consultation, Rehabilitate Tidal Basin and West Potomac Park Seawalls

Dear Chief Hoskin:

The National Park Service (NPS) is preparing a plan and corresponding Environmental Assessment (EA) to rehabilitate and reconstruct approximately 6,800 feet of the seawall in the Tidal Basin and West Potomac Park that are administered by National Mall and Memorial Parks (Park). The NPS understands Cherokee Nation to have interest in the preservation of Native American cultural resources of significance in this region and is writing to formally initiate consultation in compliance with Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108) and its implementing regulations (36 CFR § 800).

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Section 106 and Historic Properties

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A preliminary list of historic resources within the draft APE includes National Mall Historic District, Washington Monument and Grounds Historic District, East and West Potomac Parks Historic District, Mount Vernon Memorial Highway Historic District, George Washington Memorial Parkway Historic District, and the Arlington National Cemetery Historic District, all of which are listed in the National Register of Historic Places (NRHP). Additional individually NRHP-listed resources include Arlington Memorial Bridge and Related Features, Martin Luther King, Jr., Memorial. Franklin Delano Roosevelt Memorial, and Thomas Jefferson Memorial.

The NPS will work with you and other consulting parties to finalize a formal determination of effect through the Section 106 consultation process. A list of potential consulting parties can be found in Attachment B. We look forward to working with you as we further develop concepts to rehabilitate, and reconstruct failing seawalls located in the Park.

Section 106 and NEPA Coordination

In accordance with the National Environmental Policy Act (NEPA), NPS will prepare an EA to analyze potential impacts of the proposed rehabilitation and reconstruction of the seawalls. NPS plans to coordinate the Section 106 and NEPA processes per the implementing regulations (36 CFR § 800.8) of the NHPA. The NPS will also develop an Assessment of Effect Report for this project as a separate, but parallel, process to the EA.

We look forward to beginning the Section 106 consultation process for this project. If you have any questions or have preliminary feedback related to the project, draft APE, historic properties, and potential consulting parties, please contact Catherine Dewey, Chief of Resource Management, at catherine_dewey@nps.gov or 202-510-1117.

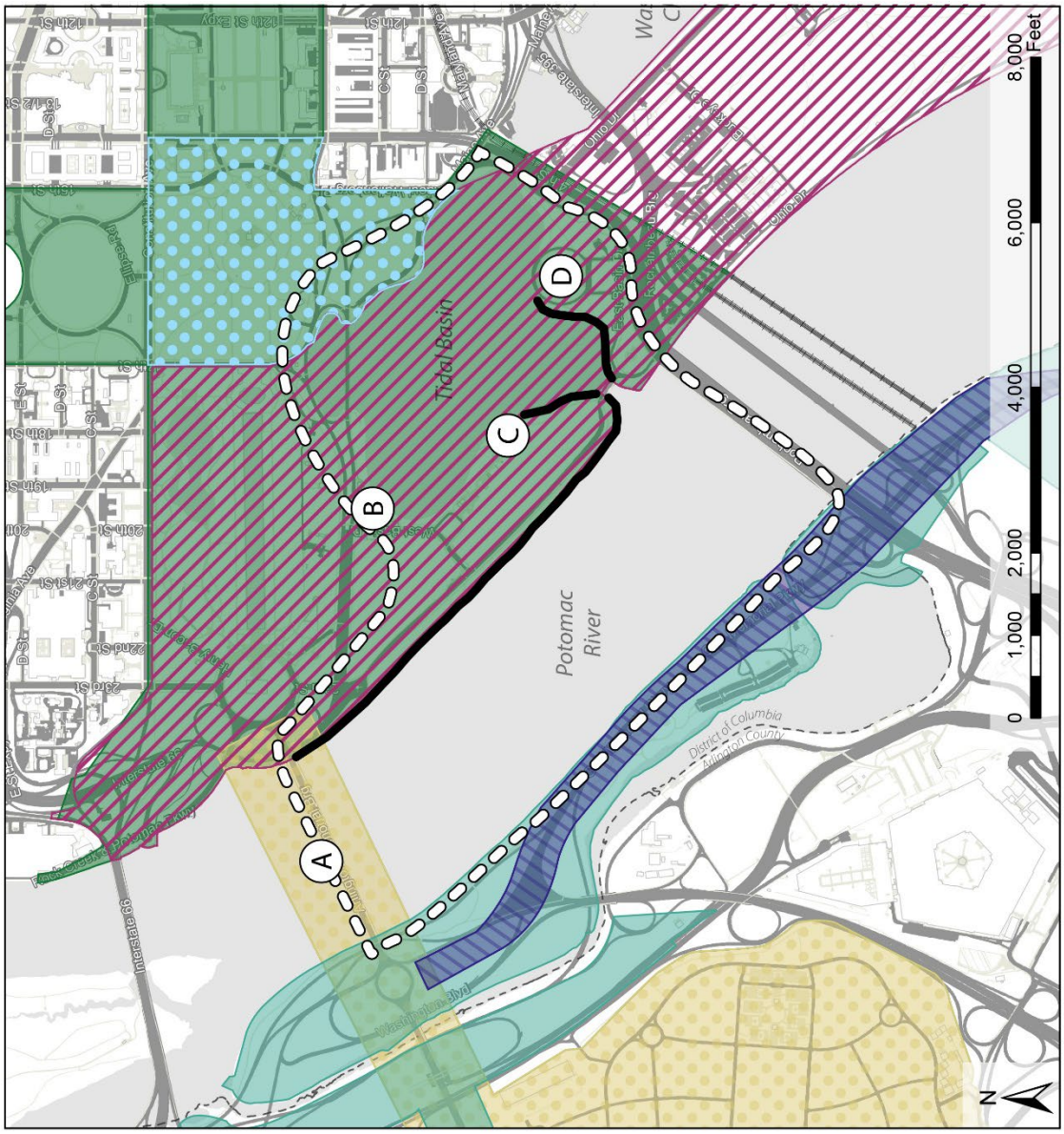
Sincerely,

Jeffrey P. Reinbold
Superintendent
National Mall and Memorial Parks

Attachments: A: Draft Area of Potential Effects Map
B: List of Potential Consulting Parties

cc: Tammy Stidham, NPS
Catherine Dewey, NPS

Attachment A: Draft Area of Potential Effects Map



Key

- Area of Potential Effects
- Washington Monument and Grounds Historic District
- East and West Potomac Parks Historic District
- National Mall Historic District
- Arlington National Cemetery Historic District
- George Washington Memorial Parkway
- Mount Vernon Memorial Highway Historic District

Individually Listed Resources

A. Arlington Memorial Bridge

B. Martin Luther King Jr., Memorial

C. Franklin Delano Roosevelt Memorial

D. Thomas Jefferson Memorial

- Poposed extent of seawall project

Attachment B: Potential Consulting Parties

	NAMA 318722 POTENTIAL CONSULTING PARTIES			
	NAME	**TITLE**	**AGENCY**	**EMAIL**
Tribes	Deborah Dotson	President	Delaware Nation	ec@delawarenation-nsn.gov
	Erin Thompson	Historic Preservation Director	Delaware Nation	ethompson@delawarenation-nsn.gov
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	Anne Richardson	Chief	Rappahannock Tribe	chiefannerich@aol.com
	Earl Bass	Chief	Nansemond Indian Nation	earllbass@gmail.com and Chief@nansemond.org
	Megan Bass		Nansemond Indian Nation	administrator@nansemond.org
	Stephen Adkins	Chief	Chickahominy Indian Tribe	stephenradkins@aol.com and chiefstephenadkins@gmail.com
	Dana Adkins	Tribal Environmental Director	Chickahominy Indian Tribe	dana.adkins@chickahominytribe.org
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United States Department of the Interior

National Mall and Memorial Parks
National Park Service
National Capital Region
900 Ohio Drive, NW
Washington, DC 20024

IN REPLY REFER TO:

May 19, 2022

Stephen Adkins
Chief
Chickahominy Indian Tribe
8200 Lott Cary Road
Providence Forge, VA 23140

Re: Initiation of Section 106 Consultation, Rehabilitate Tidal Basin and West Potomac Park Seawalls

Dear Chief Adkins:

The National Park Service (NPS) is preparing a plan and corresponding Environmental Assessment (EA) to rehabilitate and reconstruct approximately 6,800 feet of the seawall in the Tidal Basin and West Potomac Park that are administered by National Mall and Memorial Parks (Park). The NPS understands the Chickahominy Indian Tribe to have interest in the preservation of Native American cultural resources of significance in this region and is writing to formally initiate consultation in compliance with Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108) and its implementing regulations (36 CFR § 800).

Project Undertaking

To mitigate flooding and siltation issues in this area of the Potomac River, the US Army Corps of Engineers initiated a land reclamation project in the late nineteenth-century resulting in new parkland. Stone seawalls were constructed to line and contain the new parkland and prevent erosion. Portions of the original seawalls date to the 1870s, other sections have been repaired or moved over time, including a significant portion for the construction of the Jefferson Memorial in the late 1930s and the northern end of West Potomac Park. The seawalls are in a deteriorated condition and land settlement combined with sea level rise create continuous flooding in the Park areas.

The project is broken down into four locations: approximately 4,670 feet in West Potomac Park along the Potomac River, separated by wall type in the north and south, along with approximately 800 feet west of the Inlet Bridge on the Tidal Basin, and approximately 1,200 feet east of the Inlet Bridge on the Tidal Basin. The proposal is to rehabilitate and reconstruct the seawalls and adjacent infrastructure. The actual seawalls will be reconstructed to their historic functional height to protect West Potomac Park and the Tidal Basin between the Jefferson Memorial and FDR Memorial, while meeting the requirements of park visitation and addressing the estimated changes in future water levels. Repairs to the surrounding infrastructure may

include grading, stormwater control, pedestrian/multi-use paths, curbing, and replacement in-kind of any construction damage to the landscape and trees.

Section 106 and Historic Properties

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Section 106 and NEPA Coordination

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Sincerely,

Jeffrey P. Reinbold
Superintendent
National Mall and Memorial Parks

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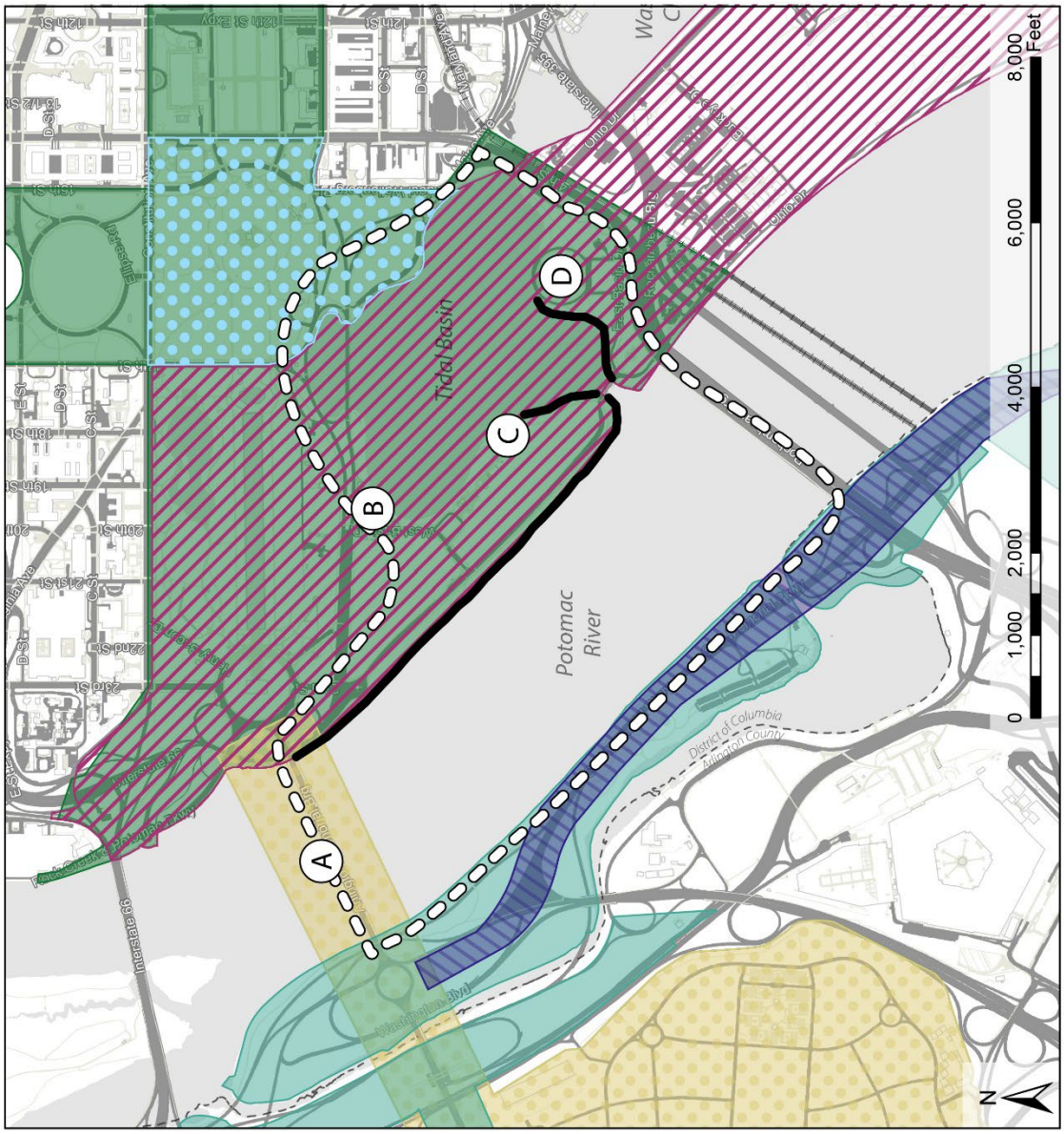
B: List of Potential Consulting Parties

cc: Dana Adkins, Chickahominy Indian Tribe
Tammy Stidham, NPS
Catherine Dewey, NPS

Attachment A: Draft Area of Potential Effects Map



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National Capital Region
900 Ohio Drive, NW
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IN REPLY REFER TO:

May 19, 2022

Gerald Stewart
Chief
Chickahominy Tribe Eastern Division
1191 Indian Hill Lane
Providence Forge, VA 23140

Re: Initiation of Section 106 Consultation, Rehabilitate Tidal Basin and West Potomac Park Seawalls

Dear Chief Stewart:

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Project Undertaking

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Jeffrey P. Reinbold
Superintendent
National Mall and Memorial Parks

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B: List of Potential Consulting Parties

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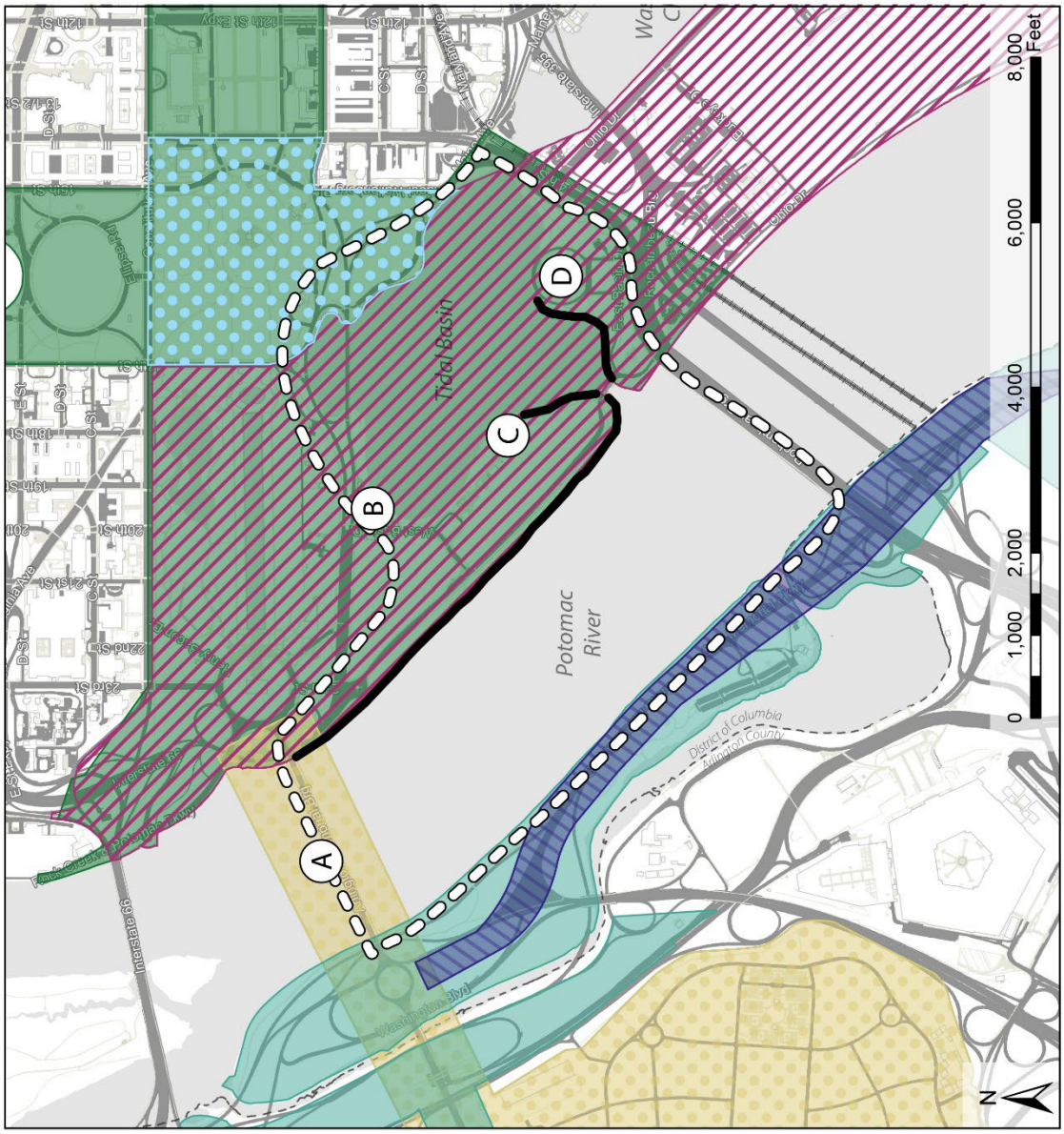

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United States Department of the Interior

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National Park Service
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900 Ohio Drive, NW
Washington, DC 20024

IN REPLY REFER TO:

May 19, 2022

Ms. Deborah Dotson
President
Delaware Nation
P.O. Box 825
Anadarko, OK 73005

Re: Initiation of Section 106 Consultation, Rehabilitate Tidal Basin and West Potomac Park Seawalls

Dear Ms. Dotson:

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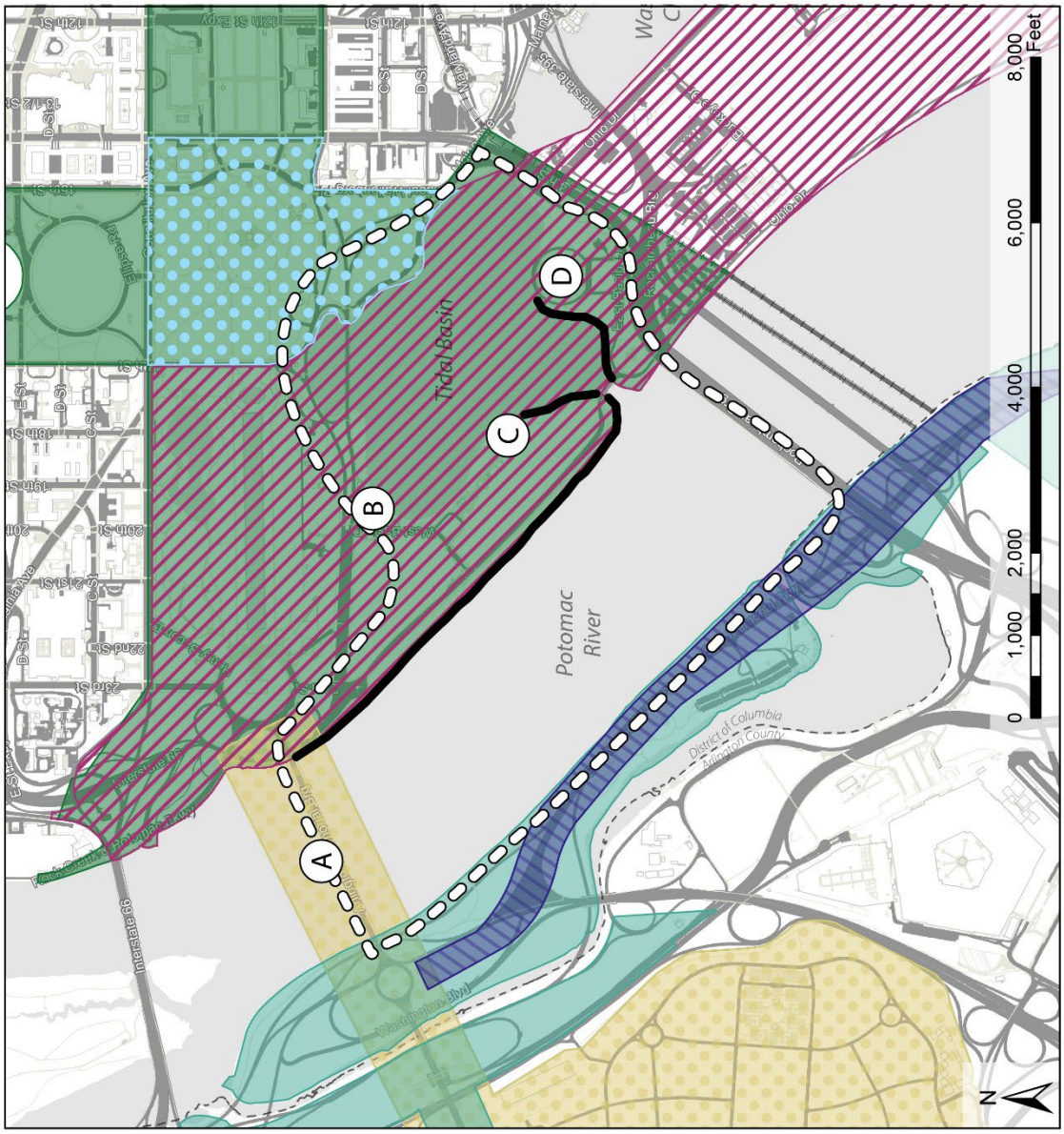
Catherine Dewey, NPS

Attachment A: Draft Area of Potential Effects Map



Key

- Area of Potential Effects
- Washington Monument and Grounds Historic District
- East and West Potomac Parks Historic District
- National Mall Historic District
- Arlington National Cemetery Historic District
- George Washington Memorial Parkway
- Mount Vernon Memorial Highway Historic District

Individually Listed Resources

A. Arlington Memorial Bridge

B. Martin Luther King Jr., Memorial

C. Franklin Delano Roosevelt Memorial

D. Thomas Jefferson Memorial

- Poposed extent of seawall project

Attachment B: Potential Consulting Parties

	NAMA 318722 POTENTIAL CONSULTING PARTIES			
	NAME	**TITLE**	**AGENCY**	**EMAIL**
Tribes	Deborah Dotson	President	Delaware Nation	ec@delawarenation-nsn.gov
	Erin Thompson	Historic Preservation Director	Delaware Nation	ethompson@delawarenation-nsn.gov
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	Megan Bass		Nansemond Indian Nation	administrator@nansemond.org
	Stephen Adkins	Chief	Chickahominy Indian Tribe	stephenradkins@aol.com and chiefstephenadkins@gmail.com
	Dana Adkins	Tribal Environmental Director	Chickahominy Indian Tribe	dana.adkins@chickahominytribe.org
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United States Department of the Interior

National Mall and Memorial Parks
National Park Service
National Capital Region
900 Ohio Drive, NW
Washington, DC 20024

IN REPLY REFER TO:

May 19, 2022

Kenneth Branham
Chief
Monacan Indian Nation
111 High View Drive
Madison Heights, VA 24572

Re: Initiation of Section 106 Consultation, Rehabilitate Tidal Basin and West Potomac Park Seawalls

Dear Chief Branham:

The National Park Service (NPS) is preparing a plan and corresponding Environmental Assessment (EA) to rehabilitate and reconstruct approximately 6,800 feet of the seawall in the Tidal Basin and West Potomac Park that are administered by National Mall and Memorial Parks (Park). The NPS understands the Monacan Indian Nation to have interest in the preservation of Native American cultural resources of significance in this region and is writing to formally initiate consultation in compliance with Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108) and its implementing regulations (36 CFR § 800).

Project Undertaking

To mitigate flooding and siltation issues in this area of the Potomac River, the US Army Corps of Engineers initiated a land reclamation project in the late nineteenth-century resulting in new parkland. Stone seawalls were constructed to line and contain the new parkland and prevent erosion. Portions of the original seawalls date to the 1870s, other sections have been repaired or moved over time, including a significant portion for the construction of the Jefferson Memorial in the late 1930s and the northern end of West Potomac Park. The seawalls are in a deteriorated condition and land settlement combined with sea level rise create continuous flooding in the Park areas.

The project is broken down into four locations: approximately 4,670 feet in West Potomac Park along the Potomac River, separated by wall type in the north and south, along with approximately 800 feet west of the Inlet Bridge on the Tidal Basin, and approximately 1,200 feet east of the Inlet Bridge on the Tidal Basin. The proposal is to rehabilitate and reconstruct the seawalls and adjacent infrastructure. The actual seawalls will be reconstructed to their historic functional height to protect West Potomac Park and the Tidal Basin between the Jefferson Memorial and FDR Memorial, while meeting the requirements of park visitation and addressing the estimated changes in future water levels. Repairs to the surrounding infrastructure may

include grading, stormwater control, pedestrian/multi-use paths, curbing, and replacement in-kind of any construction damage to the landscape and trees.

Section 106 and Historic Properties

To prepare for the Section 106 consultation process, the NPS has developed a graphic illustration of the draft Area of Potential Effects (APE) provided as Attachment A. The draft APE is intended as a basis for discussion and is subject to modification through the consultation process. The draft APE includes potential visual and physical effects, from the Virginia shoreline and from construction staging areas and the area within the Limits of Disturbance for construction of the project.

A preliminary list of historic resources within the draft APE includes National Mall Historic District, Washington Monument and Grounds Historic District, East and West Potomac Parks Historic District, Mount Vernon Memorial Highway Historic District, George Washington Memorial Parkway Historic District, and the Arlington National Cemetery Historic District, all of which are listed in the National Register of Historic Places (NRHP). Additional individually NRHP-listed resources include Arlington Memorial Bridge and Related Features, Martin Luther King, Jr., Memorial. Franklin Delano Roosevelt Memorial, and Thomas Jefferson Memorial.

The NPS will work with you and other consulting parties to finalize a formal determination of effect through the Section 106 consultation process. A list of potential consulting parties can be found in Attachment B. We look forward to working with you as we further develop concepts to rehabilitate, and reconstruct failing seawalls located in the Park.

Section 106 and NEPA Coordination

In accordance with the National Environmental Policy Act (NEPA), NPS will prepare an EA to analyze potential impacts of the proposed rehabilitation and reconstruction of the seawalls. NPS plans to coordinate the Section 106 and NEPA processes per the implementing regulations (36 CFR § 800.8) of the NHPA. The NPS will also develop an Assessment of Effect Report for this project as a separate, but parallel, process to the EA.

We look forward to beginning the Section 106 consultation process for this project. If you have any questions or have preliminary feedback related to the project, draft APE, historic properties, and potential consulting parties, please contact Catherine Dewey, Chief of Resource Management, at catherine_dewey@nps.gov or 202-510-1117.

Sincerely,

Jeffrey P. Reinbold
Superintendent
National Mall and Memorial Parks

Attachments: A: Draft Area of Potential Effects Map
B: List of Potential Consulting Parties

cc: Rufus Elliot, Monacan Indian Nation
Tammy Stidham, NPS
Catherine Dewey, NPS

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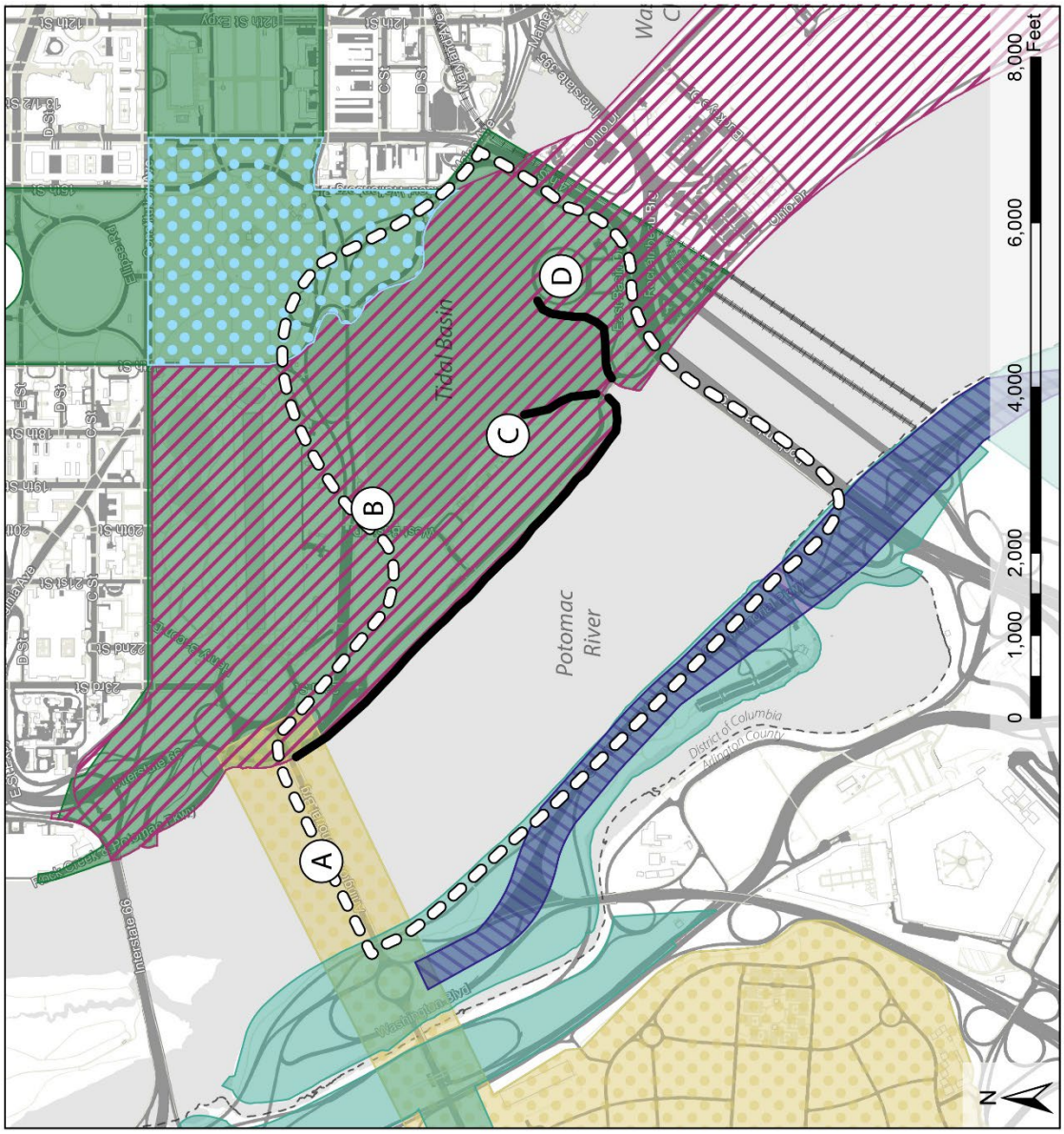

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United States Department of the Interior

National Mall and Memorial Parks
National Park Service
National Capital Region
900 Ohio Drive, NW
Washington, DC 20024

IN REPLY REFER TO:

May 19, 2022

Earl Bass
Chief
Nansemond Indian Nation
1001 Pembroke Lane
Suffolk, VA 23434

Re: Initiation of Section 106 Consultation, Rehabilitate Tidal Basin and West Potomac Park Seawalls

Dear Chief Bass:

The National Park Service (NPS) is preparing a plan and corresponding Environmental Assessment (EA) to rehabilitate and reconstruct approximately 6,800 feet of the seawall in the Tidal Basin and West Potomac Park that are administered by National Mall and Memorial Parks (Park). The NPS understands the Nansemond Indian Nation to have interest in the preservation of Native American cultural resources of significance in this region and is writing to formally initiate consultation in compliance with Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108) and its implementing regulations (36 CFR § 800).

Project Undertaking

To mitigate flooding and siltation issues in this area of the Potomac River, the US Army Corps of Engineers initiated a land reclamation project in the late nineteenth-century resulting in new parkland. Stone seawalls were constructed to line and contain the new parkland and prevent erosion. Portions of the original seawalls date to the 1870s, other sections have been repaired or moved over time, including a significant portion for the construction of the Jefferson Memorial in the late 1930s and the northern end of West Potomac Park. The seawalls are in a deteriorated condition and land settlement combined with sea level rise create continuous flooding in the Park areas.

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Section 106 and Historic Properties

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The NPS will work with you and other consulting parties to finalize a formal determination of effect through the Section 106 consultation process. A list of potential consulting parties can be found in Attachment B. We look forward to working with you as we further develop concepts to rehabilitate, and reconstruct failing seawalls located in the Park.

Section 106 and NEPA Coordination

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We look forward to beginning the Section 106 consultation process for this project. If you have any questions or have preliminary feedback related to the project, draft APE, historic properties, and potential consulting parties, please contact Catherine Dewey, Chief of Resource Management, at catherine_dewey@nps.gov or 202-510-1117.

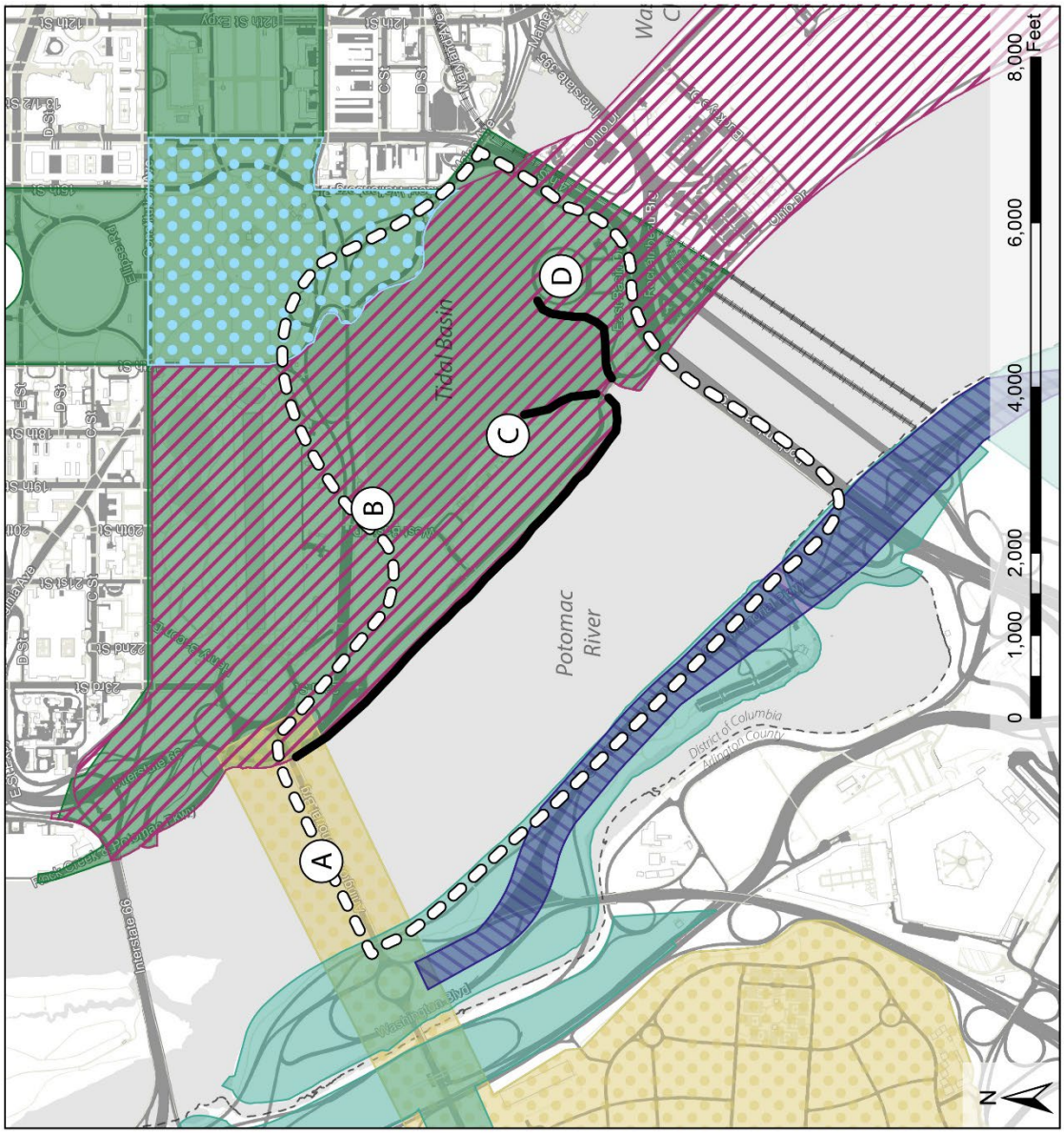
Sincerely,

Jeffrey P. Reinbold
Superintendent
National Mall and Memorial Parks

Attachments: A: Draft Area of Potential Effects Map
B: List of Potential Consulting Parties

cc: Megan Bass, Nansemond Indian Nation
Tammy Stidham, NPS
Catherine Dewey, NPS

Attachment A: Draft Area of Potential Effects Map



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IN REPLY REFER TO:

May 19, 2022

Robert Gray
Chief
Pamunkey Indian Tribe
1054 Pocahontas Trail
King William, VA 23086

Re: Initiation of Section 106 Consultation, Rehabilitate Tidal Basin and West Potomac Park Seawalls

Dear Chief Gray:

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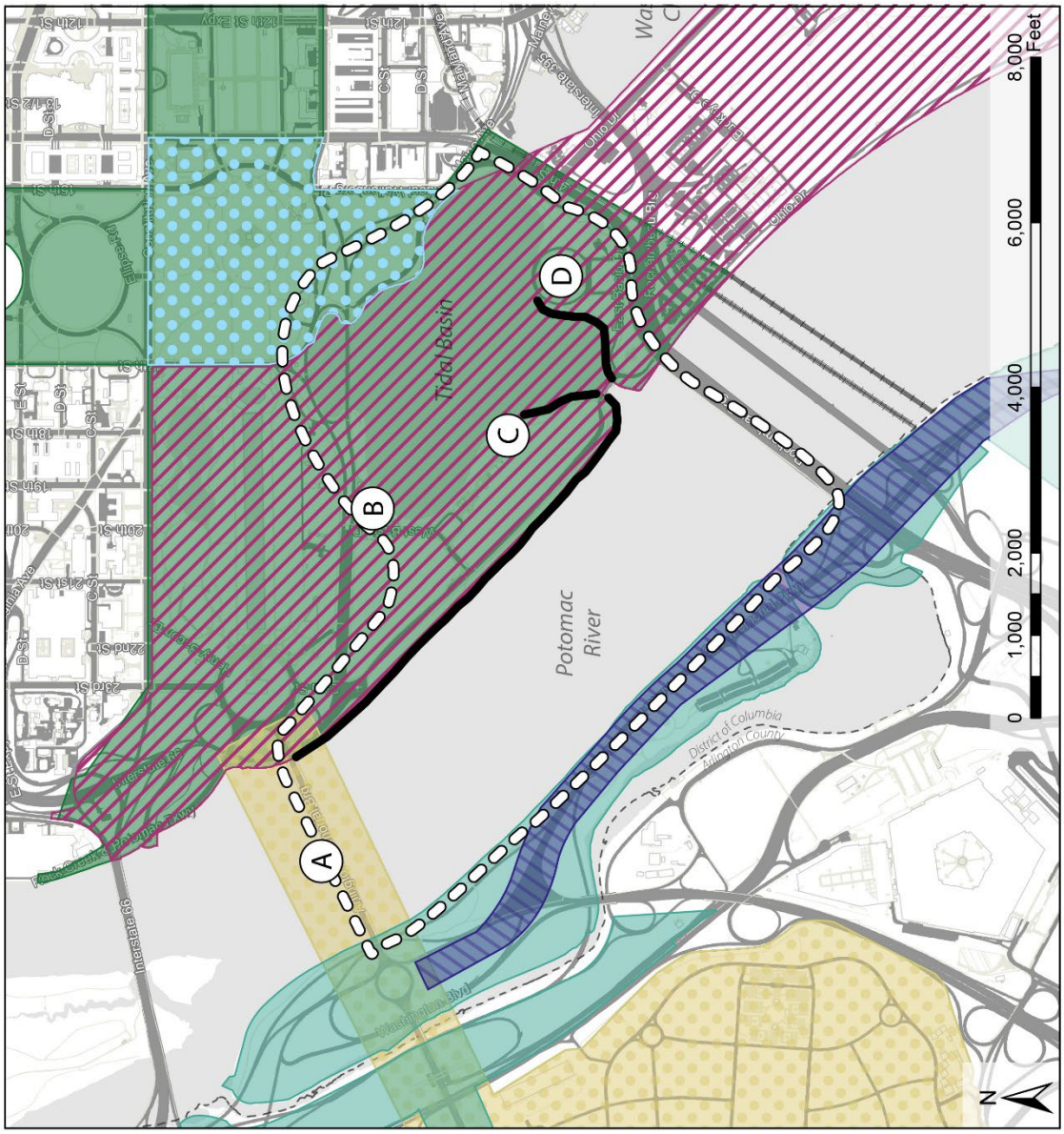

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	Megan Bass		Nansemond Indian Nation	administrator@nansemond.org
	Stephen Adkins	Chief	Chickahominy Indian Tribe	stephenradkins@aol.com and chiefstephenadkins@gmail.com
	Dana Adkins	Tribal Environmental Director	Chickahominy Indian Tribe	dana.adkins@chickahominytribe.org
	Gerald Stewart	Chief	Chickahominy Tribe Eastern Division	wasandson@cox.net
	Kenneth Branham	Chief	Monacan Indian Nation	TribalOffice@MonacanNation.com
	Rufus Elliot	Tribal Administrator	Monacan Indian Nation	tribaladmin@monacannation.com
	William "Bill" Harris	Chief	Catawba Indian Nation	bill.harris@catawbaindian.net
	Wenonah George Haire	THPO	Catawba Indian Nation	wenonah.haire@catawba.com
	John Johnson	Governor	Absentee Shawnee Tribe of Indians of Oklahoma	jjohnson@astribe.com
	Tonya Tipton	THPO	Shawnee Tribe	tonya@shawnee-tribe.com
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Agencies	Kirsten Kulis	NPS Liaison	Advisory Council on Historic Preservation	kkulis@achp.gov
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	Dan Fox	Historic Preservationist	US Commission of Fine Arts	dfox@cfa.gov
	Sarah Batcheler	Architect	US Commission of Fine Arts	flindstrom@cfa.gov
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	Diane Sullivan	Director, Urban Design and Plan Review	National Capital Planning Commission	diane.sullivan@ncpc.gov
	Lee Webb	Historic Preservation Specialist	National Capital Planning Commission	lee.webb@ncpc.gov
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	Andrew Lewis	Senior Historic Preservation Specialist	DC Historic Preservation Office	andrew.lewis@dc.gov
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	Kirby Vining	Chair	Committee of 100 on the Federal City	info@committeeof100.net

United States Department of the Interior

National Mall and Memorial Parks
National Park Service
National Capital Region
900 Ohio Drive, NW
Washington, DC 20024

IN REPLY REFER TO:

May 19, 2022

Anne Richardson
Chief
Rappahannock Tribe
5036 Indian Neck Road
Indian Neck, VA 23148

Re: Initiation of Section 106 Consultation, Rehabilitate Tidal Basin and West Potomac Park Seawalls

Dear Chief Richardson:

The National Park Service (NPS) is preparing a plan and corresponding Environmental Assessment (EA) to rehabilitate and reconstruct approximately 6,800 feet of the seawall in the Tidal Basin and West Potomac Park that are administered by National Mall and Memorial Parks (Park). The NPS understands the Rappahannock Tribe to have interest in the preservation of Native American cultural resources of significance in this region and is writing to formally initiate consultation in compliance with Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108) and its implementing regulations (36 CFR § 800).

Project Undertaking

To mitigate flooding and siltation issues in this area of the Potomac River, the US Army Corps of Engineers initiated a land reclamation project in the late nineteenth-century resulting in new parkland. Stone seawalls were constructed to line and contain the new parkland and prevent erosion. Portions of the original seawalls date to the 1870s, other sections have been repaired or moved over time, including a significant portion for the construction of the Jefferson Memorial in the late 1930s and the northern end of West Potomac Park. The seawalls are in a deteriorated condition and land settlement combined with sea level rise create continuous flooding in the Park areas.

The project is broken down into four locations: approximately 4,670 feet in West Potomac Park along the Potomac River, separated by wall type in the north and south, along with approximately 800 feet west of the Inlet Bridge on the Tidal Basin, and approximately 1,200 feet east of the Inlet Bridge on the Tidal Basin. The proposal is to rehabilitate and reconstruct the seawalls and adjacent infrastructure. The actual seawalls will be reconstructed to their historic functional height to protect West Potomac Park and the Tidal Basin between the Jefferson Memorial and FDR Memorial, while meeting the requirements of park visitation and addressing the estimated changes in future water levels. Repairs to the surrounding infrastructure may

include grading, stormwater control, pedestrian/multi-use paths, curbing, and replacement in-kind of any construction damage to the landscape and trees.

Section 106 and Historic Properties

To prepare for the Section 106 consultation process, the NPS has developed a graphic illustration of the draft Area of Potential Effects (APE) provided as Attachment A. The draft APE is intended as a basis for discussion and is subject to modification through the consultation process. The draft APE includes potential visual and physical effects, from the Virginia shoreline and from construction staging areas and the area within the Limits of Disturbance for construction of the project.

A preliminary list of historic resources within the draft APE includes National Mall Historic District, Washington Monument and Grounds Historic District, East and West Potomac Parks Historic District, Mount Vernon Memorial Highway Historic District, George Washington Memorial Parkway Historic District, and the Arlington National Cemetery Historic District, all of which are listed in the National Register of Historic Places (NRHP). Additional individually NRHP-listed resources include Arlington Memorial Bridge and Related Features, Martin Luther King, Jr., Memorial. Franklin Delano Roosevelt Memorial, and Thomas Jefferson Memorial.

The NPS will work with you and other consulting parties to finalize a formal determination of effect through the Section 106 consultation process. A list of potential consulting parties can be found in Attachment B. We look forward to working with you as we further develop concepts to rehabilitate, and reconstruct failing seawalls located in the Park.

Section 106 and NEPA Coordination

In accordance with the National Environmental Policy Act (NEPA), NPS will prepare an EA to analyze potential impacts of the proposed rehabilitation and reconstruction of the seawalls. NPS plans to coordinate the Section 106 and NEPA processes per the implementing regulations (36 CFR § 800.8) of the NHPA. The NPS will also develop an Assessment of Effect Report for this project as a separate, but parallel, process to the EA.

We look forward to beginning the Section 106 consultation process for this project. If you have any questions or have preliminary feedback related to the project, draft APE, historic properties, and potential consulting parties, please contact Catherine Dewey, Chief of Resource Management, at catherine_dewey@nps.gov or 202-510-1117.

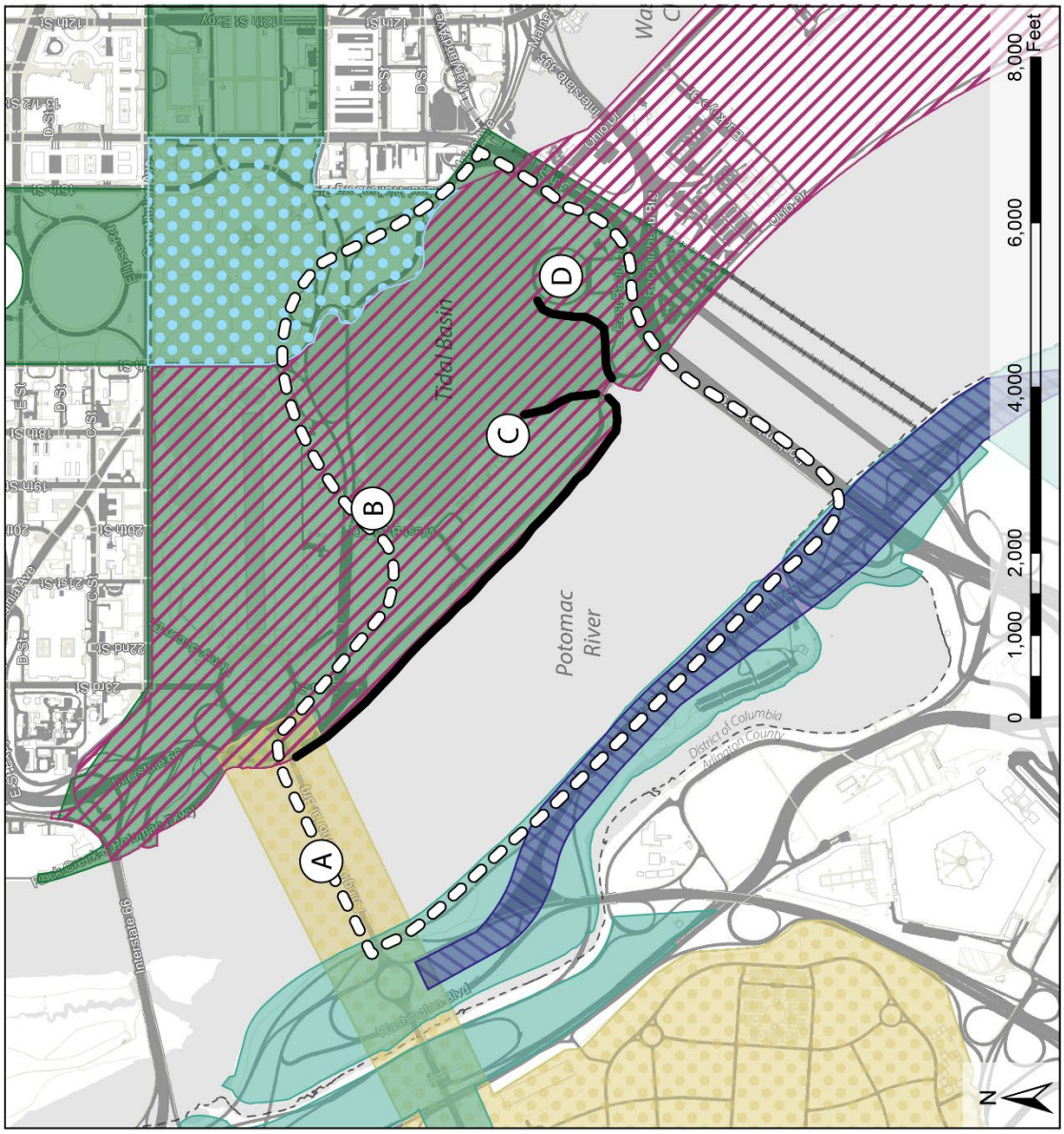
Sincerely,

Jeffrey P. Reinbold
Superintendent
National Mall and Memorial Parks

Attachments: A: Draft Area of Potential Effects Map
B: List of Potential Consulting Parties

cc: Tammy Stidham, NPS
Catherine Dewey, NPS

Attachment A: Draft Area of Potential Effects Map



Key

- Area of Potential Effects
- Washington Monument and Grounds Historic District
- East and West Potomac Parks Historic District
- National Mall Historic District
- Arlington National Cemetery Historic District
- George Washington Memorial Parkway
- Mount Vernon Memorial Highway Historic District

Individually Listed Resources

A. Arlington Memorial Bridge

B. Martin Luther King Jr., Memorial

C. Franklin Delano Roosevelt Memorial

D. Thomas Jefferson Memorial

- Poposed extent of seawall project

Attachment B: Potential Consulting Parties

	NAMA 318722 POTENTIAL CONSULTING PARTIES			
	NAME	**TITLE**	**AGENCY**	**EMAIL**
Tribes	Deborah Dotson	President	Delaware Nation	ec@delawarenation-nsn.gov
	Erin Thompson	Historic Preservation Director	Delaware Nation	ethompson@delawarenation-nsn.gov
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	John Johnson	Governor	Absentee Shawnee Tribe of Indians of Oklahoma	jjohnson@astribe.com
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	Benjamin Barnes	Chief	Shawnee Tribe	chief@shawnee-tribe.com

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United States Department of the Interior

National Mall and Memorial Parks
National Park Service
National Capital Region
900 Ohio Drive, NW
Washington, DC 20024

IN REPLY REFER TO:

May 19, 2022

Benjamin Barnes
Chief
Shawnee Tribe
29 South Highway 69A
Miami, OK 74354

Re: Initiation of Section 106 Consultation, Rehabilitate Tidal Basin and West Potomac Park Seawalls

Dear Chief Barnes:

The National Park Service (NPS) is preparing a plan and corresponding Environmental Assessment (EA) to rehabilitate and reconstruct approximately 6,800 feet of the seawall in the Tidal Basin and West Potomac Park that are administered by National Mall and Memorial Parks (Park). The NPS understands the Shawnee Tribe to have interest in the preservation of Native American cultural resources of significance in this region and is writing to formally initiate consultation in compliance with Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108) and its implementing regulations (36 CFR § 800).

Project Undertaking

To mitigate flooding and siltation issues in this area of the Potomac River, the US Army Corps of Engineers initiated a land reclamation project in the late nineteenth-century resulting in new parkland. Stone seawalls were constructed to line and contain the new parkland and prevent erosion. Portions of the original seawalls date to the 1870s, other sections have been repaired or moved over time, including a significant portion for the construction of the Jefferson Memorial in the late 1930s and the northern end of West Potomac Park. The seawalls are in a deteriorated condition and land settlement combined with sea level rise create continuous flooding in the Park areas.

The project is broken down into four locations: approximately 4,670 feet in West Potomac Park along the Potomac River, separated by wall type in the north and south, along with approximately 800 feet west of the Inlet Bridge on the Tidal Basin, and approximately 1,200 feet east of the Inlet Bridge on the Tidal Basin. The proposal is to rehabilitate and reconstruct the seawalls and adjacent infrastructure. The actual seawalls will be reconstructed to their historic functional height to protect West Potomac Park and the Tidal Basin between the Jefferson Memorial and FDR Memorial, while meeting the requirements of park visitation and addressing the estimated changes in future water levels. Repairs to the surrounding infrastructure may

include grading, stormwater control, pedestrian/multi-use paths, curbing, and replacement in-kind of any construction damage to the landscape and trees.

Section 106 and Historic Properties

To prepare for the Section 106 consultation process, the NPS has developed a graphic illustration of the draft Area of Potential Effects (APE) provided as Attachment A. The draft APE is intended as a basis for discussion and is subject to modification through the consultation process. The draft APE includes potential visual and physical effects, from the Virginia shoreline and from construction staging areas and the area within the Limits of Disturbance for construction of the project.

A preliminary list of historic resources within the draft APE includes National Mall Historic District, Washington Monument and Grounds Historic District, East and West Potomac Parks Historic District, Mount Vernon Memorial Highway Historic District, George Washington Memorial Parkway Historic District, and the Arlington National Cemetery Historic District, all of which are listed in the National Register of Historic Places (NRHP). Additional individually NRHP-listed resources include Arlington Memorial Bridge and Related Features, Martin Luther King, Jr., Memorial. Franklin Delano Roosevelt Memorial, and Thomas Jefferson Memorial.

The NPS will work with you and other consulting parties to finalize a formal determination of effect through the Section 106 consultation process. A list of potential consulting parties can be found in Attachment B. We look forward to working with you as we further develop concepts to rehabilitate, and reconstruct failing seawalls located in the Park.

Section 106 and NEPA Coordination

In accordance with the National Environmental Policy Act (NEPA), NPS will prepare an EA to analyze potential impacts of the proposed rehabilitation and reconstruction of the seawalls. NPS plans to coordinate the Section 106 and NEPA processes per the implementing regulations (36 CFR § 800.8) of the NHPA. The NPS will also develop an Assessment of Effect Report for this project as a separate, but parallel, process to the EA.

We look forward to beginning the Section 106 consultation process for this project. If you have any questions or have preliminary feedback related to the project, draft APE, historic properties, and potential consulting parties, please contact Catherine Dewey, Chief of Resource Management, at catherine_dewey@nps.gov or 202-510-1117.

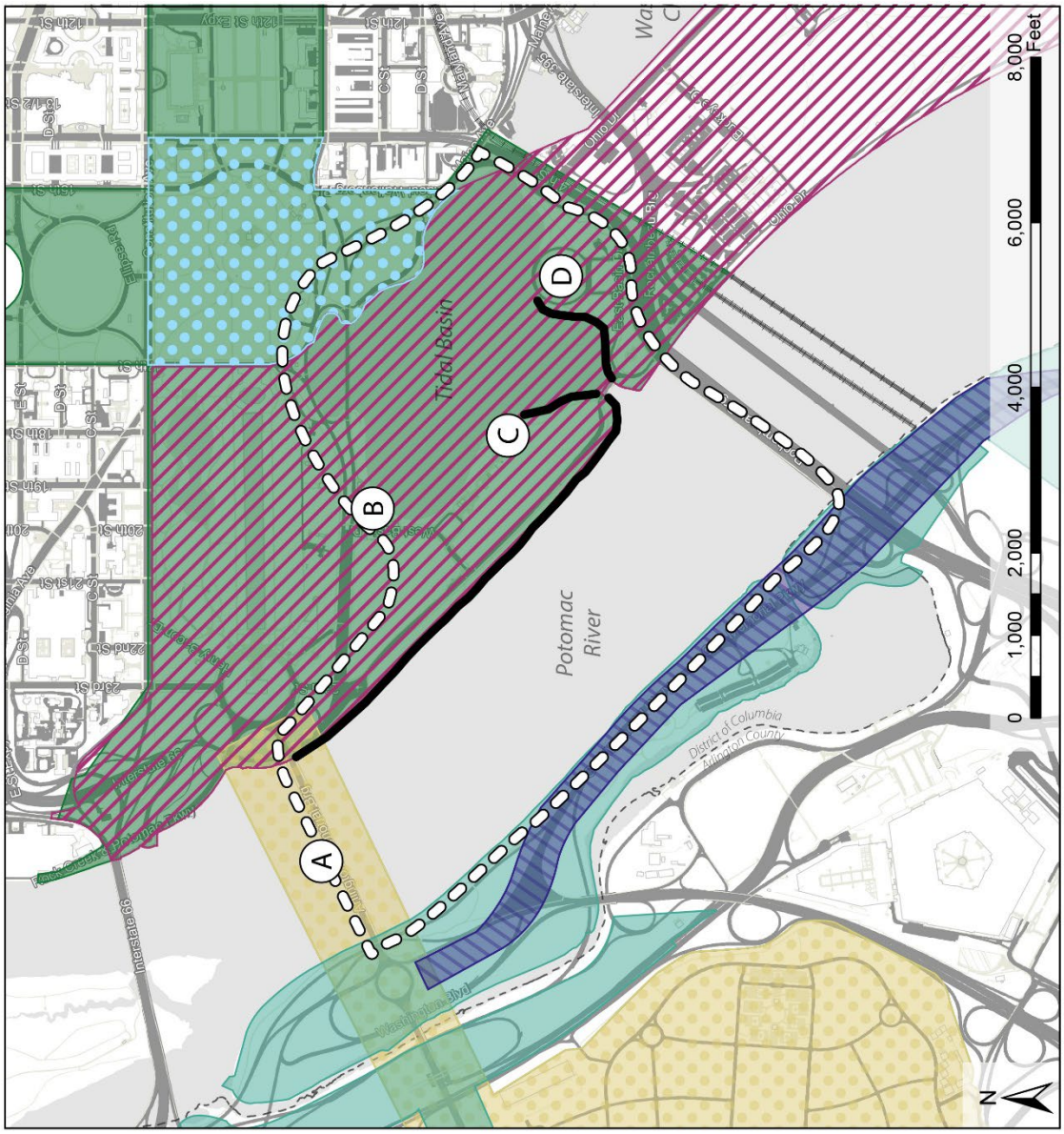
Sincerely,

Jeffrey P. Reinbold
Superintendent
National Mall and Memorial Parks

Attachments: A: Draft Area of Potential Effects Map
B: List of Potential Consulting Parties

cc: Tonya Tipton, Shawnee Tribe
Tammy Stidham, NPS
Catherine Dewey, NPS

Attachment A: Draft Area of Potential Effects Map



Key

- Area of Potential Effects
- Washington Monument and Grounds Historic District
- East and West Potomac Parks Historic District
- National Mall Historic District
- Arlington National Cemetery Historic District
- George Washington Memorial Parkway
- Mount Vernon Memorial Highway Historic District

Individually Listed Resources

A. Arlington Memorial Bridge

B. Martin Luther King Jr., Memorial

C. Franklin Delano Roosevelt Memorial

D. Thomas Jefferson Memorial

- Poposed extent of seawall project

Attachment B: Potential Consulting Parties

	NAMA 318722 POTENTIAL CONSULTING PARTIES			
	NAME	**TITLE**	**AGENCY**	**EMAIL**
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	Erin Thompson	Historic Preservation Director	Delaware Nation	ethompson@delawarenation-nsn.gov
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United States Department of the Interior

National Mall and Memorial Parks
National Park Service
National Capital Region
900 Ohio Drive, NW
Washington, DC 20024

IN REPLY REFER TO:

May 19, 2022

Frank Adams
Chief
Upper Mattaponi Indian Tribe
13476 King William Road
King William, VA 23086

Re: Initiation of Section 106 Consultation, Rehabilitate Tidal Basin and West Potomac Park Seawalls

Dear Chief Adams:

The National Park Service (NPS) is preparing a plan and corresponding Environmental Assessment (EA) to rehabilitate and reconstruct approximately 6,800 feet of the seawall in the Tidal Basin and West Potomac Park that are administered by National Mall and Memorial Parks (Park). The NPS understands the Upper Mattaponi Indian Tribe to have interest in the preservation of Native American cultural resources of significance in this region and is writing to formally initiate consultation in compliance with Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108) and its implementing regulations (36 CFR § 800).

Project Undertaking

To mitigate flooding and siltation issues in this area of the Potomac River, the US Army Corps of Engineers initiated a land reclamation project in the late nineteenth-century resulting in new parkland. Stone seawalls were constructed to line and contain the new parkland and prevent erosion. Portions of the original seawalls date to the 1870s, other sections have been repaired or moved over time, including a significant portion for the construction of the Jefferson Memorial in the late 1930s and the northern end of West Potomac Park. The seawalls are in a deteriorated condition and land settlement combined with sea level rise create continuous flooding in the Park areas.

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include grading, stormwater control, pedestrian/multi-use paths, curbing, and replacement in-kind of any construction damage to the landscape and trees.

Section 106 and Historic Properties

To prepare for the Section 106 consultation process, the NPS has developed a graphic illustration of the draft Area of Potential Effects (APE) provided as Attachment A. The draft APE is intended as a basis for discussion and is subject to modification through the consultation process. The draft APE includes potential visual and physical effects, from the Virginia shoreline and from construction staging areas and the area within the Limits of Disturbance for construction of the project.

A preliminary list of historic resources within the draft APE includes National Mall Historic District, Washington Monument and Grounds Historic District, East and West Potomac Parks Historic District, Mount Vernon Memorial Highway Historic District, George Washington Memorial Parkway Historic District, and the Arlington National Cemetery Historic District, all of which are listed in the National Register of Historic Places (NRHP). Additional individually NRHP-listed resources include Arlington Memorial Bridge and Related Features, Martin Luther King, Jr., Memorial. Franklin Delano Roosevelt Memorial, and Thomas Jefferson Memorial.

The NPS will work with you and other consulting parties to finalize a formal determination of effect through the Section 106 consultation process. A list of potential consulting parties can be found in Attachment B. We look forward to working with you as we further develop concepts to rehabilitate, and reconstruct failing seawalls located in the Park.

Section 106 and NEPA Coordination

In accordance with the National Environmental Policy Act (NEPA), NPS will prepare an EA to analyze potential impacts of the proposed rehabilitation and reconstruction of the seawalls. NPS plans to coordinate the Section 106 and NEPA processes per the implementing regulations (36 CFR § 800.8) of the NHPA. The NPS will also develop an Assessment of Effect Report for this project as a separate, but parallel, process to the EA.

We look forward to beginning the Section 106 consultation process for this project. If you have any questions or have preliminary feedback related to the project, draft APE, historic properties, and potential consulting parties, please contact Catherine Dewey, Chief of Resource Management, at catherine_dewey@nps.gov or 202-510-1117.

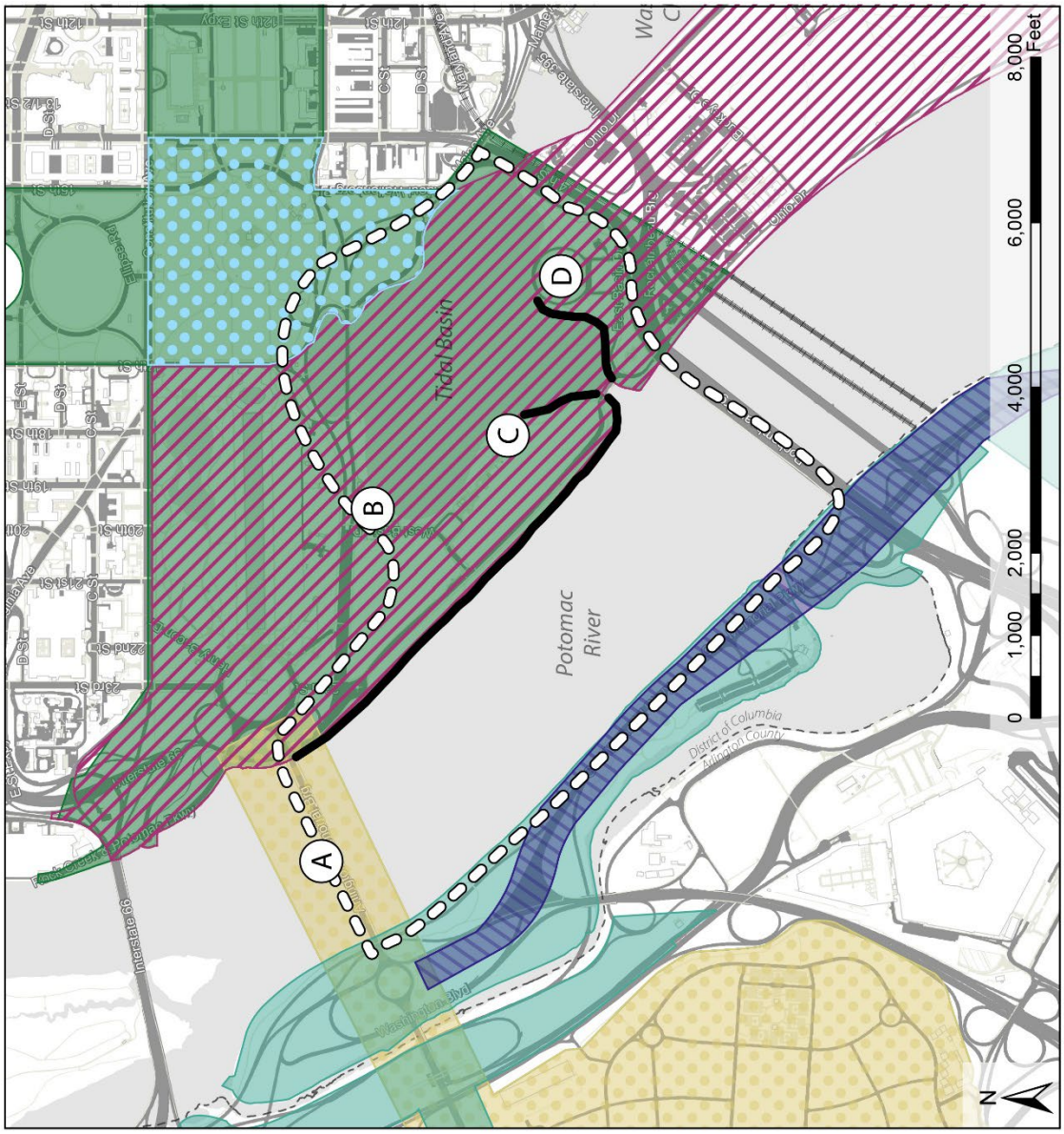
Sincerely,

Jeffrey P. Reinbold
Superintendent
National Mall and Memorial Parks

Attachments: A: Draft Area of Potential Effects Map
B: List of Potential Consulting Parties

cc: Reggie Tupponce, Upper Mattaponi Indian Tribe
Tammy Stidham, NPS
Catherine Dewey, NPS

Attachment A: Draft Area of Potential Effects Map



Key

- Area of Potential Effects
- Washington Monument and Grounds Historic District
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	Sarah Batcheler	Architect	US Commission of Fine Arts	flindstrom@cfa.gov
	Marcel Acosta	Executive Director	National Capital Planning Commission	marcel.acosta@ncpc.gov
	Diane Sullivan	Director, Urban Design and Plan Review	National Capital Planning Commission	diane.sullivan@ncpc.gov
	Lee Webb	Historic Preservation Specialist	National Capital Planning Commission	lee.webb@ncpc.gov
	David Maloney	State Historic Preservation Officer	DC Historic Preservation Office	david.maloney@dc.gov
	Andrew Lewis	Senior Historic Preservation Specialist	DC Historic Preservation Office	andrew.lewis@dc.gov
	Julie Langan	State Historic Preservation Officer	Virginia Department of Historic Resources	julie.langan@dhr.virginia.gov
	Tim Roberts	National Park Service Reviewer	Virginia Department of Historic Resources	tim.roberts@dhr.virginia.gov
	Genevieve LaRouche	Project Leader, Chesapeake Bay Field Office	US Fish and Wildlife Service	genevieve_larouche@fws.gov
	Jonathan Greene	Community Planner	Ward 2	jonathan.greene@dc.gov
ANCs	Joel Causey	Chair	ANC2A	2A@anc.dc.gov
Preservation Advocacy Groups	Rebecca Miller	Executive Director	DC Preservation League	rebecca@dcpreservation.org
	Catherine Townsend	President and CEO	Trust for the National Mall	ctownsend@nationalmall.org
	Teresa Durkin	Executive Vice President	Trust for the National Mall	tdurkin@nationalmall.org
	Laura Brower Hagood	Executive Director	Historical Society of Washington DC	lhagood@dchistory.com
	Betsy Merritt	Deputy General Council	National Trust for Historic Preservation	bmerritt@savingplaces.org
	Kirby Vining	Chair	Committee of 100 on the Federal City	info@committeeof100.net

	NAMA 318722 POTENTIAL CONSULTING PARTIES		
	NAME	TITLE	AGENCY
Tribes	Deborah Dotson	President	Delaware Nation
	Erin Thompson	Historic Preservation Director	Delaware Nation
	Chuck Hoskin, Jr.	Principal Chief	Cherokee Nation
	Robert Gray	Chief	Pamunkey Indian Tribe
	Frank Adams	Chief	Upper Mattaponi Indian Tribe
	Reggie Tupponce	Tribal Administrator	Upper Mattaponi Indian Tribe
	Anne Richardson	Chief	Rappahannock Tribe
	Kieth F. Anderson	Chief	Nansemond Indian Nation
	Megan Bass		Nansemond Indian Nation
	Stephen Adkins	Chief	Chickahominy Indian Tribe
	Dana Adkins	Tribal Environmental Director	Chickahominy Indian Tribe
	Gerald Stewart	Chief	Chickahominy Tribe Eastern Division
	Kenneth Branham	Chief	Monacan Indian Nation
	Rufus Elliot	Tribal Administrator	Monacan Indian Nation
	William "Bill" Harris	Chief	Catawba Indian Nation
	Wenonah George Haire	THPO	Catawba Indian Nation
	Caitlin Roger		Catabwa Indian Tribe
	John Johnson	Governor	Absentee Shawnee Tribe of Indians of Oklahoma
	Tonya Tipton	THPO	Shawnee Tribe
	Benjamin Barnes	Chief	Shawnee Tribe
	Kirsten Kulis	NPS Liaison	Advisory Council on Historic Preservation

Agencies	Thomas Luebke	Secretary	US Commission of Fine Arts
	Dan Fox	Historic Preservationist	US Commission of Fine Arts
	Sarah Batcheler	Architect	US Commission of Fine Arts
	Marcel Acosta	Executive Director	National Capital Planning Commission
	Diane Sullivan	Director, Urban Design and Plan Review	National Capital Planning Commission
	Lee Webb	Historic Preservation Specialist	National Capital Planning Commission
	David Maloney	State Historic Preservation Officer	DC Historic Preservation Office
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	Betsy Merritt	Deputy General Council	National Trust for Historic Preservation
	Kirby Vining	Chair	Committee of 100 on the Federal City

EMAIL	ADDRESS #1	ADDRESS #2	PHONE
ec@delawarenation-nsn.gov	PO Box 825	Anadarko, OK 73005	405-247-2448
ethompson@delawarenation-nsn.gov	PO Box 825	Anadarko, OK 73005	405-247-2448 Ext 1403
chuck-hoskin@cherokee.org	PO Box 984	Tahlequah, OK 74465	918-456-0671
pamunkeytribe@pamunkey.org	1054 Pocahontas Trail	King William, VA 23086	804-843-2353
wfrankadams@verizon.net	13476 King William Road	King William, VA 23086	804-769-0041
admin@umitribe.org	13476 King William Road	King William, VA 23086	804-769-0041
chiefannerich@aol.com	5036 Indian Neck Road	Indian Neck, VA 23148	804-769-0260
Chief@nansemond.org	1001 Pembroke Lane	Suffolk, VA 23434	757-619-0670
administrator@nansemond.org	1001 Pembroke Lane	Suffolk, VA 23434	757-277-4647
stephenradkins@aol.com and chiefstephenadkins@gmail.com	8200 Lott Cary Road	Providence Forge, VA 23140	807-829-5548; 804-240-2214
dana.adkins@chickahominytribe.org	8200 Lott Cary Road	Providence Forge, VA 23140	804-829-2027 Ext 1003
wasandson@cox.net	1191 Indian Hill Lane	Providence Forge, VA 23140	804-966-7815
TribalOffice@MonacanNation.com	111 High View Drive	Madison Heights, VA 24572	434-363-4878
tribaladmin@monacannation.com	111 High View Drive	Madison Heights, VA 24572	434-363-4879
bill.harris@catawbaindian.net	996 Avenue of the Nations	Rock Hill, SC 29730	803-366-4792
wenonah.haire@catawba.com	1536 Tom Steven Road	Rock Hill, SC 29730	803-328-2427 Ext 224
	1536 Tom Steven Road	Rock Hill, SC 29730	
jjohnson@astribe.com	2025 South Gordon Cooper Drive	Shawnee, OK 74801	405-275-4030
tonya@shawnee-tribe.com	29 South Highway 69 A	Miami, OK 74354	918-542-2441
chief@shawnee-tribe.com	29 South Highway 69 A	Miami, OK 74354	918-542-2441
kkulis@achp.gov	400 F Street, NW Suite 308	Washington, DC 20000	202-517-0217

tluebke@cfa.gov	401 F Street, NW Suite 312	Washington, DC 20001	202-504-2200
dfox@cfa.gov	402 F Street, NW Suite 312	Washington, DC 20002	202-504-2201
flindstrom@cfa.gov	402 F Street, NW Suite 312	Washington, DC 20002	202-504-2200
marcel.acosta@ncpc.gov	400 9th Street, NW North Lobby Suite 500	Washington, DC 20003	
diane.sullivan@ncpc.gov	400 9th Street, NW North Lobby Suite 500	Washington, DC 20003	202-482-7199
lee.webb@ncpc.gov	401 9th Street, NW North Lobby Suite 500	Washington, DC 20004	202-482-7200
david.maloney@dc.gov	1100 4th Street, SE Suite E650	Washington, DC 20004	202-442-8841
andrew.lewis@dc.gov	1100 4th Street, SE Suite E650	Washington, DC 20024	202-442-8841
julie.langan@dhr.virginia.gov	2801 Kensington Avenue	Richmond, VA 23221	804-482-6446
tim.roberts@dhr.virginia.gov	2801 Kensington Avenue	Richmond, VA 23221	804-482-6446
genevieve_larouche@fws.gov	1849 C Street, NW	Washington, DC 20240	
jonathan.greene@dc.gov	1100 4th Street, SE Suite E650	Washington, DC 20024	202-442-8816
2A@anc.dc.gov	1200 23rd Street, NW	Washington, DC 20037	202-462-8692
rebecca@dcpreservation.org	1221 Connecticut Avenue, NW Suite 5A	Washington, DC 20036	202-783-5144
ctownsend@nationalmall.org	1300 Pennsylvania Avenue, NW, Suite 370	Washington, DC 20004	202-407-9408
tdurkin@nationalmall.org	1300 Pennsylvania Avenue, NW, Suite 370	Washington, DC 20004	202-407-9408
lhagood@dchistory.com	801 K Street, NW	Washington, DC 20001	202-516-1363 Ext 304
bmerritt@savingplaces.org	2600 Virginia Avenue, NW Suite 1100	Washington, DC 20037	202-588-6000
info@committeeof100.net	945 G Street, NW	Washington, DC 20001	202-681-0225

WEBSITE
https://www.delawarenation-nsn.gov/historic-preservation-office/#Section106
https://www.delawarenation-nsn.gov/historic-preservation-office/#Section106
http://cherokee.org
https://pamunkey.org/
https://www.achp.gov/

https://www.cfa.gov
https://www.cfa.gov
https://www.cfa.gov
https://www.ncpc.gov/
https://www.ncpc.gov/
https://planning.dc.gov/page/historic-preservation-office
https://planning.dc.gov/page/historic-preservation-office
https://planning.dc.gov/page/about-ward-1
http://anc1d.org
https://www.dcpreservation.org
https://nationalmall.org/
https://nationalmall.org/
http://www.dchistory.org
https://savingplaces.org/
http://committeeof100.net

NATIONAL PARK SERVICE NATIONAL MALL AND MEMORIAL PARKS

National Historic Preservation Act

Section 106

Consulting Parties Meeting #1

August 2, 2022

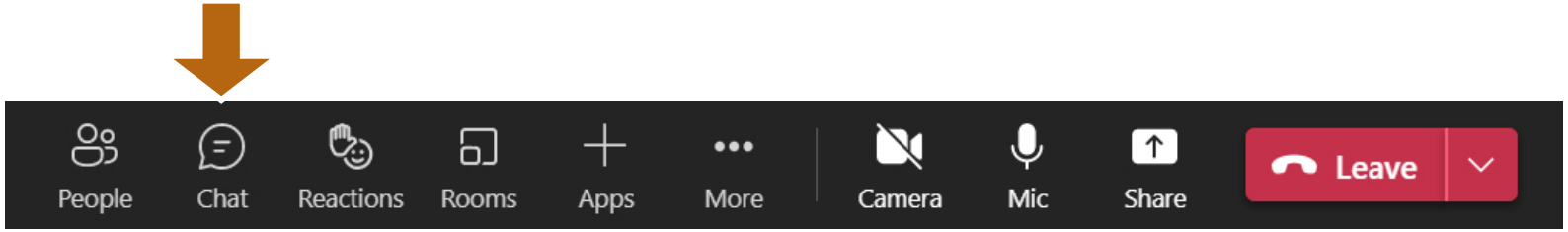
NAMA 318722

VIRTUAL MEETING OVERVIEW

- This meeting will be **recorded**
- Type your questions into the Meeting Chat
- Questions will be answered at the end of the presentation as time allows
- Questions or comments submitted as part of this meeting will **not** be considered formal comments on the project
  - Formal comments must be submitted online or postmarked by September 12, 2022

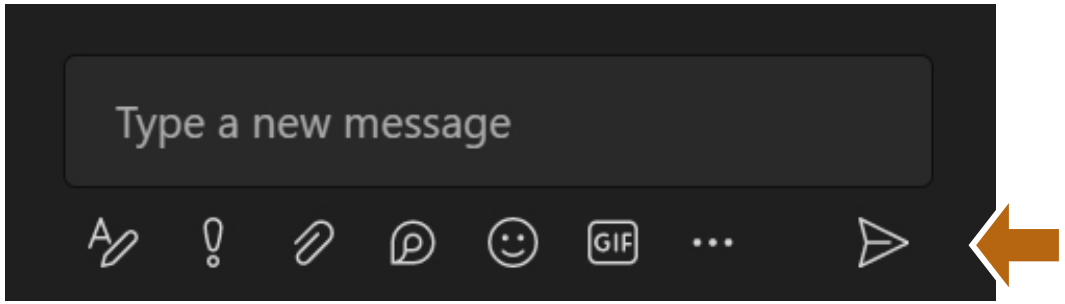
HOW TO ASK A QUESTION

1. Click on the “Chat” icon at the top of your screen.



2. The Meeting Chat panel will open on the right side of the screen.

3. Enter your question into the text box and select **Send**.



AGENDA

1. Introductions
2. Project Undertaking
3. History of Seawall
4. Existing Conditions
5. National Historic Preservation Act and Section 106 Process
6. Identification of Historic Properties
7. Preliminary Concepts
8. Discussion, Questions, and Comments
9. Next Steps

01

INTRODUCTIONS

INTRODUCTIONS

- NPS National Capital Region
- NPS National Mall and Memorial Parks
- JV Team:
  - HDR
  - Moffatt & Nichol
  - EHT Traceries
  - InterAgency
  - Annapolis Landscape Architects
- Consulting Parties

02

PROJECT UNDERTAKING

PROJECT UNDERTAKING

To rehabilitate approximately 6,800 feet of seawall in Tidal Basin and West Potomac Park to its historic functional height. Their deteriorated condition, combined with land settlement and sea level rise, have created regular flooding in the Project Area, affecting park visitation and the landscape itself.

PROJECT AREA

03

HISTORY OF SEAWALL

HISTORY OF SEAWALLS

1791 L'Enfant Plan (Library of Congress (LOC))

- Not historically part of L'Enfant's Plan for the City of Washington.

- Land reclamation was part of larger national movement to sanitize, expand, and beautify polluted, dense, and urban landscapes in the late 19th century.

- Vital sanitary measure
- Flood control device
- Enhanced river navigation
- Created new acreage for urban development

POTOMAC FLATS

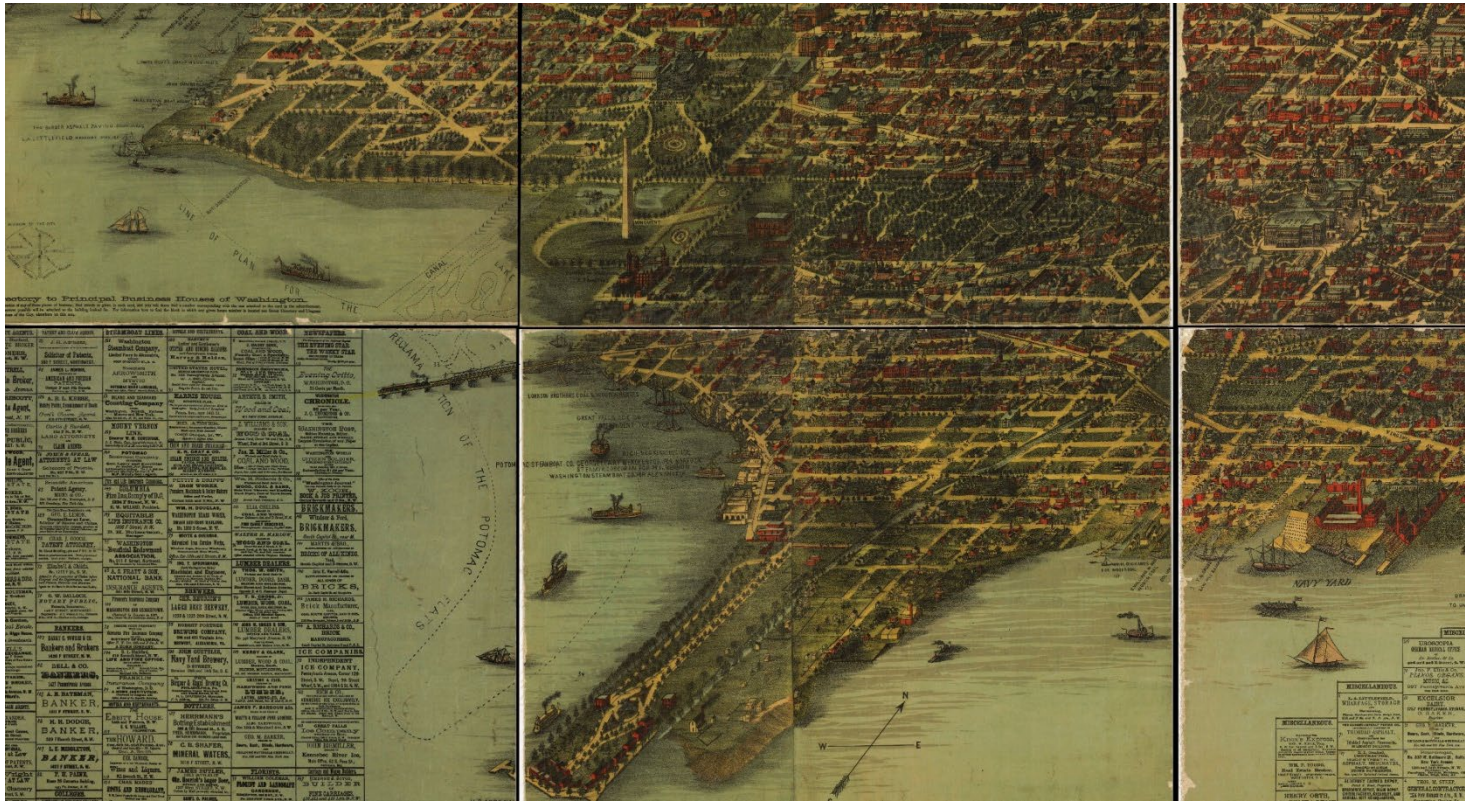
1861 Boschke Map (LOC)

For much of the early 19th century an increased number of open sewers and river-side ports made the flats susceptible to:

- Flooding
- Sedimentation
- Pollution

- As early as 1866 plans began to dredge and reclaim 166 acres around Long Bridge.

POTOMAC FLATS



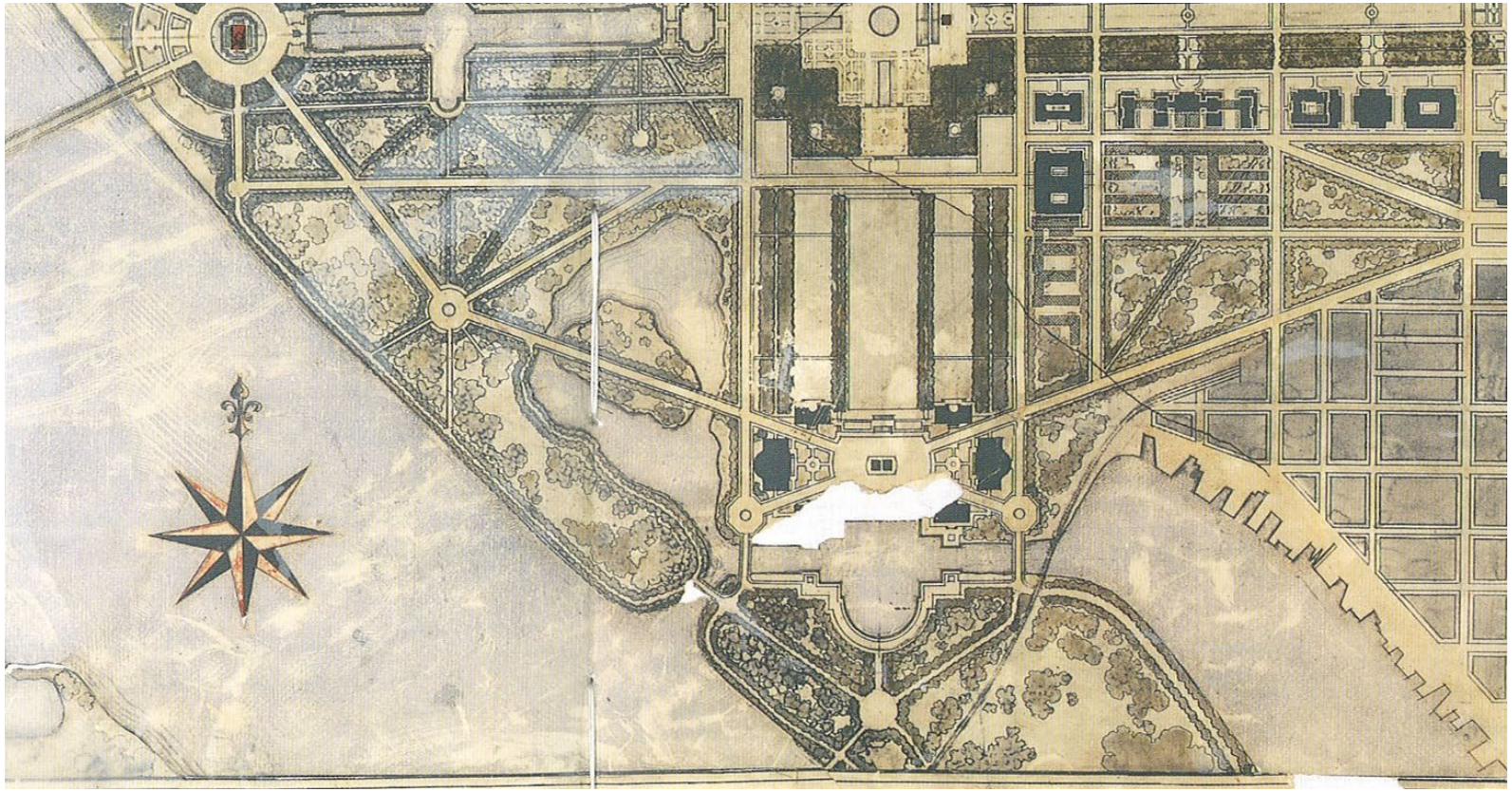
1884 Sachse Map (LOC)

1870s: Army Corps of Engineers (ACOE) begin dredging Potomac River for shipping channels.

1875: Sylvanus Thayer Abert first proposed filling in Potomac Flats to reclaim land.

1879: Major W. J. Twining proposed to close Washington Channel at upper end and create four basins.

TIDAL BASINS



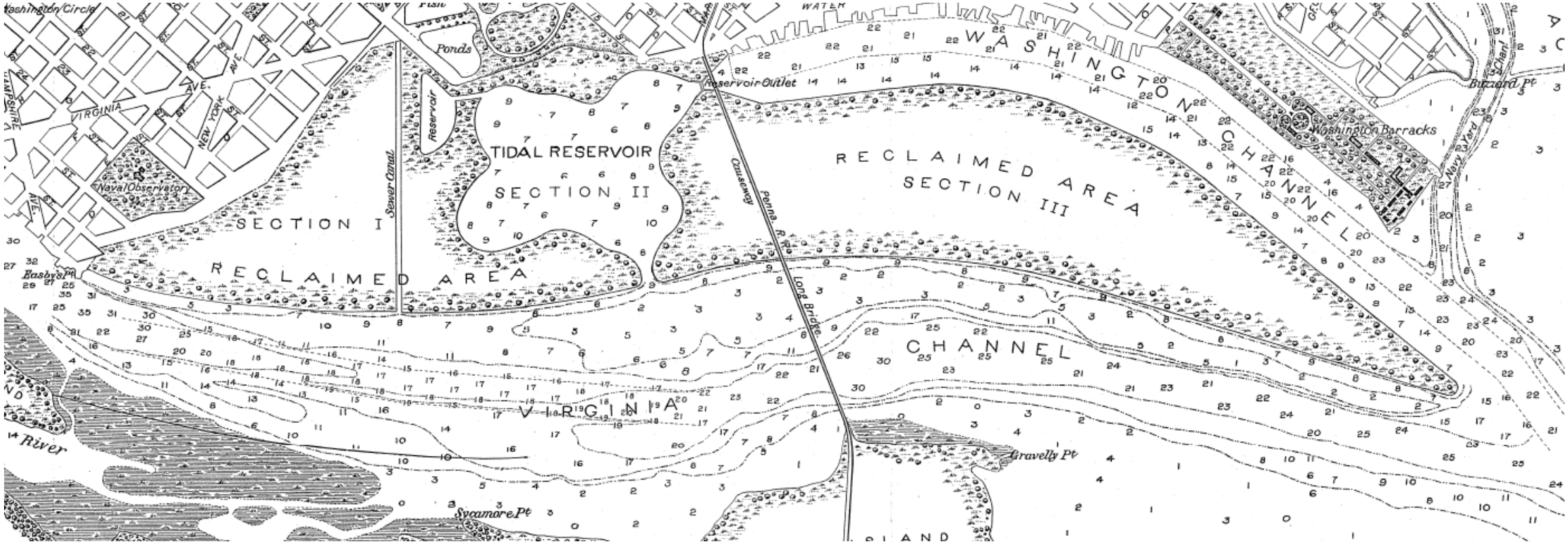
1901 Sachse Map (LOC)

Design went through many iterations.

Between 1882 and 1896, ACOE dredged more than 12 million cubic yards to create more than 600 acres of new land.

Formally declared a public park in 1897.

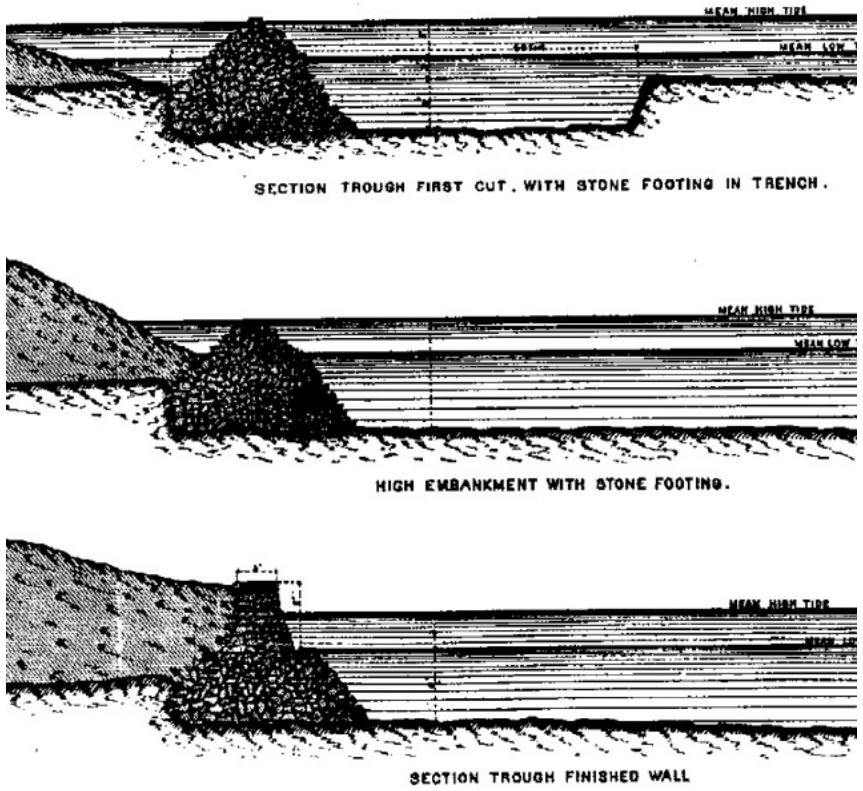
RECLAMATION EFFORT



Progress map 1896 (ACOE)

1896

WALLS

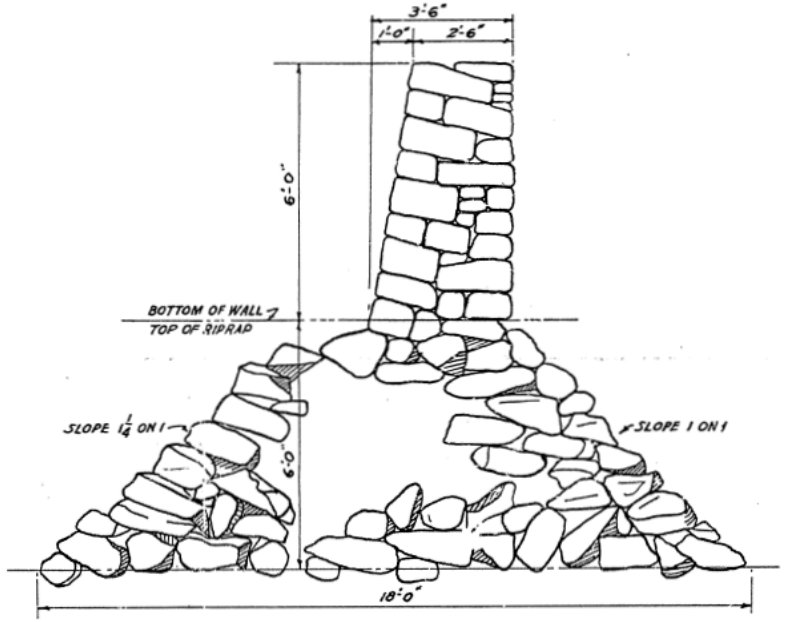


c. 1885 Hains' Diagram (NPS)

Most foundations constructed by late-1880s.

Walls capped in early 1890s:

- Rip-rap foundation
- Stone walls 6' high, 4' thick at base, 2 ½' thick at top



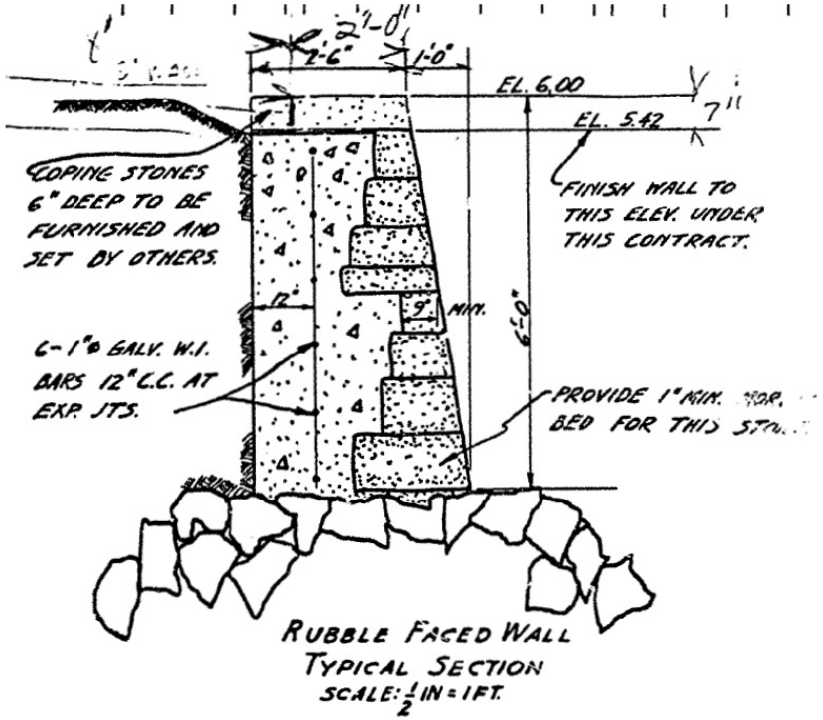
Original Seawall Design Cross Section (NPS 1940)

FOUR DISTINCT SECTIONS

TIDAL BASIN EAST

- Late 1930s: Tidal Basin adjusted for Jefferson Memorial
- 1940: New seawall alignment completed
- 1942: Railing extended around Tidal Basin
- Railing removed at unknown date

TIDAL BASIN EAST



Typical 1940s Tidal Basin East Seawall section

(NPS)

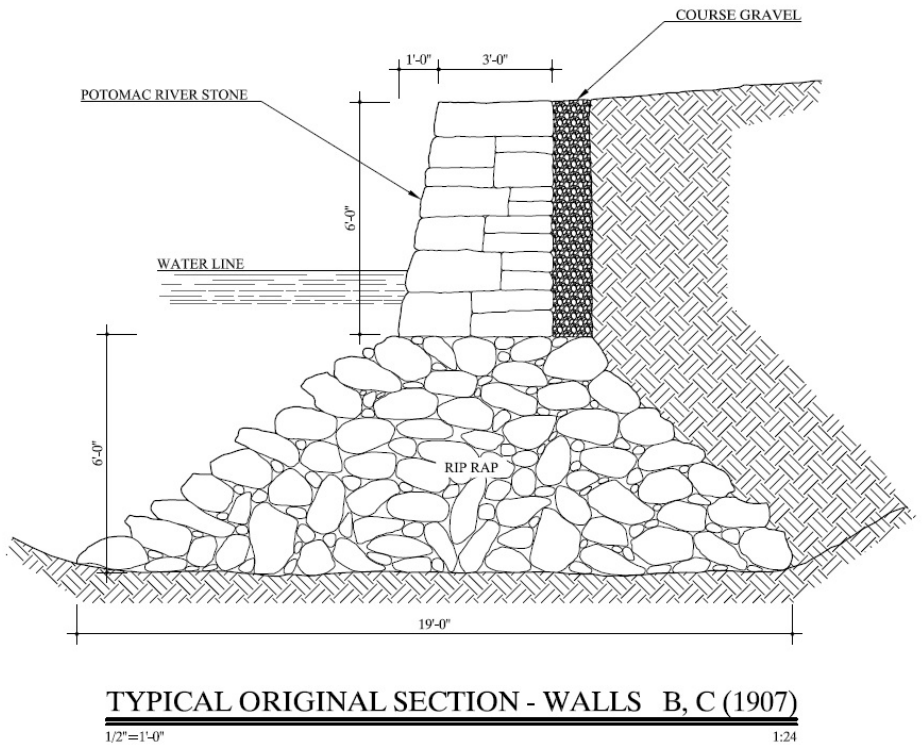
TIDAL BASIN EAST CONSTRUCTION C. 1939

HISTORIC SEAWALL HEIGHT

TIDAL BASIN WEST

- 1909: Walls reconstructed due to construction of Inlet Bridge
- 1941: Seawall coping added – 8” thick concrete coping
- 1942: Railing extended around Tidal Basin
- Railing removed at unknown date

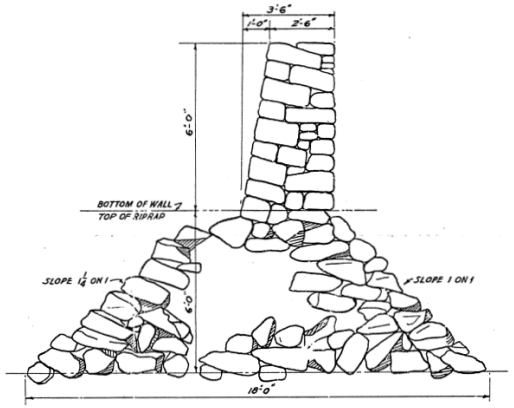
TIDAL BASIN WEST



Section from Cultural Landscape Report (NPS)

WEST POTOMAC PARK SOUTH

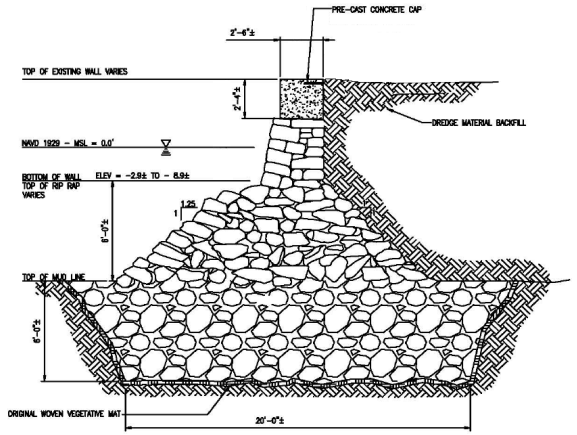
- 1884: Foundations completed
- 1890-1891: Top of wall completed
- Riprap and other materials continued to be added as late as the 1990s



(NPS 1940)

WEST POTOMAC PARK NORTH

- 1957: Section rebuilt by PEPCO
- Unknown how much of the historic foundation remains



Assumed Concrete Repair (Dewberry 2011)

04

EXISTING CONDITIONS

EXISTING CONDITIONS

EXISTING CONDITIONS

EXISTING CONDITIONS

EXISTING CONDITIONS

05

NATIONAL HISTORIC PRESERVATION ACT AND SECTION 106 PROCESS

SECTION 106

Federal Agencies must:

- Consider and determine the direct AND indirect effects of a proposed undertaking on historic properties
- Consult with State Historic Preservation Officers (SHPOs), Tribes, and other consulting parties
- Identification of historic properties within the Area of Potential Effect
- Avoid, minimize, or mitigate adverse effects to historic properties
- See: 36 CFR Part 800 (Protection of Historic Properties)

CONSULTING PARTY INVOLVEMENT

Consulting Parties are:

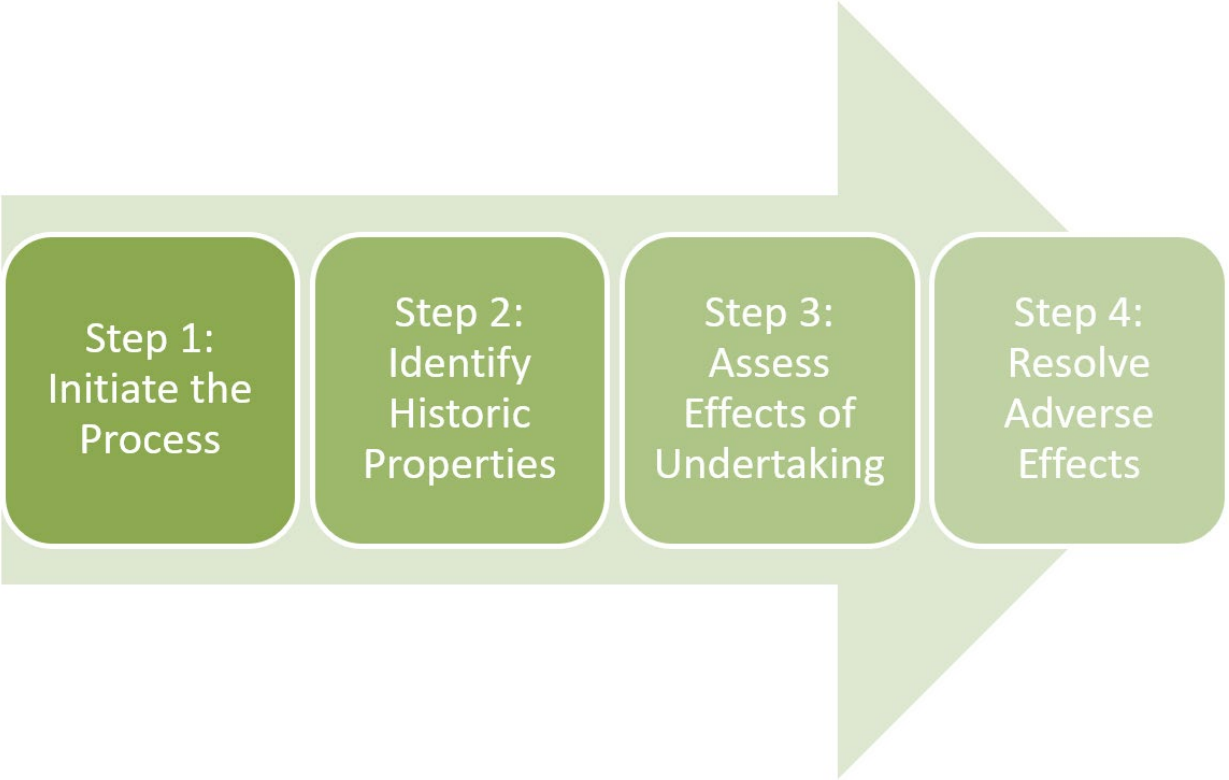
- Applicants for federal assistance/approvals
- SHPOs
- Federally recognized Indian tribes/Tribal Historic Preservation Officers (THPOs)
- Local governments
- Advisory Council on Historic Preservation
- Other individuals/organizations with interest due to the nature of their legal or economic relation to the project or affected properties, or their concern with the project's effects on historic properties

Potential roles of the consulting parties:

- Discuss views
- Help identify historic properties
- Review pertinent historic preservation information provided by NPS
- Help develop and consider possible solutions to avoid, minimize, or mitigate adverse effects to historic properties
- Implement mitigation measures

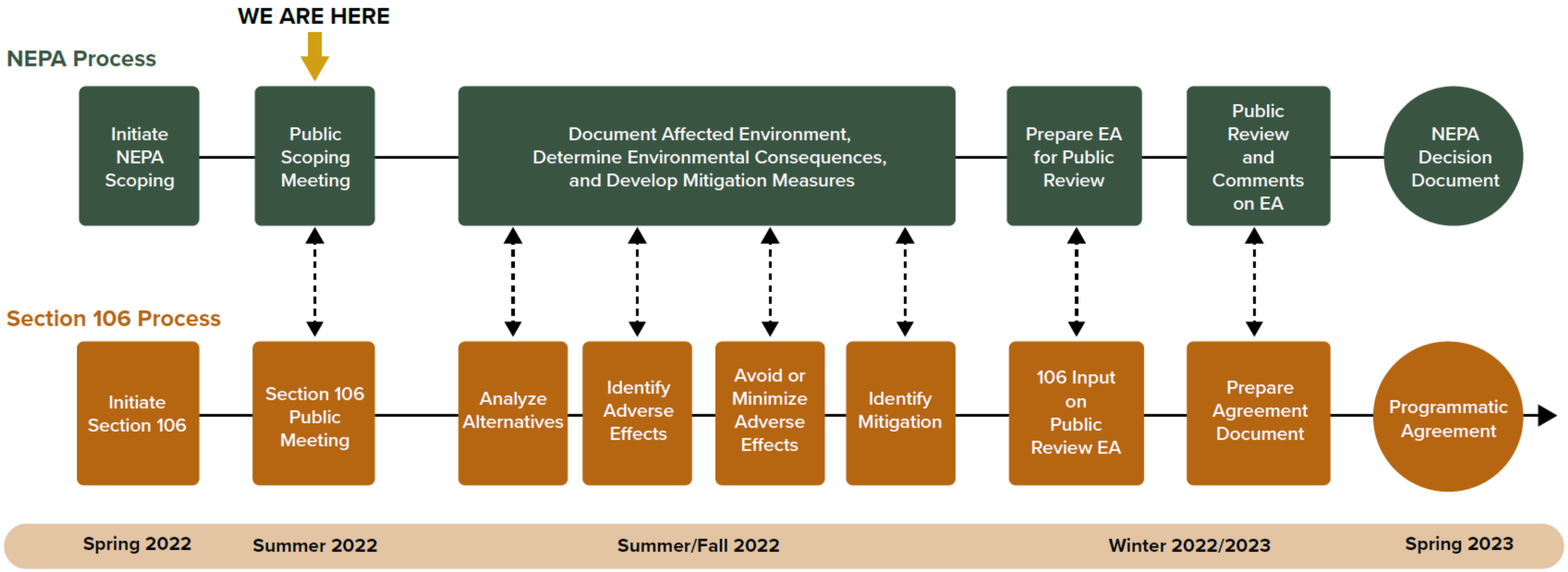
CONSULTING PARTIES

- NPS National Capital Region
- NPS National Mall and Memorial Parks
- DC Historic Preservation Office (DC SHPO)
- Virginia Department of Historic Resources (VA SHPO)
- THPOs
- National Capital Planning Commission
- Commission of Fine Arts
- Advisory Council on Historic Preservation
- DC Preservation League
- Committee of 100
- Trust for the National Mall
- National Trust for Historic Preservation
- Historical Society of Washington
- Others



Section 106 Consultation

NEPA+SECTION 106: A COORDINATED APPROACH



06

IDENTIFICATION OF HISTORIC PROPERTIES

Key

- Area of Potential Effects
- Washington Monument and Grounds Historic District
- East and West Potomac Parks Historic District
- National Mall Historic District
- Arlington National Cemetery Historic District
- George Washington Memorial Parkway
- Mount Vernon Memorial Highway Historic District

Individually Listed Resources

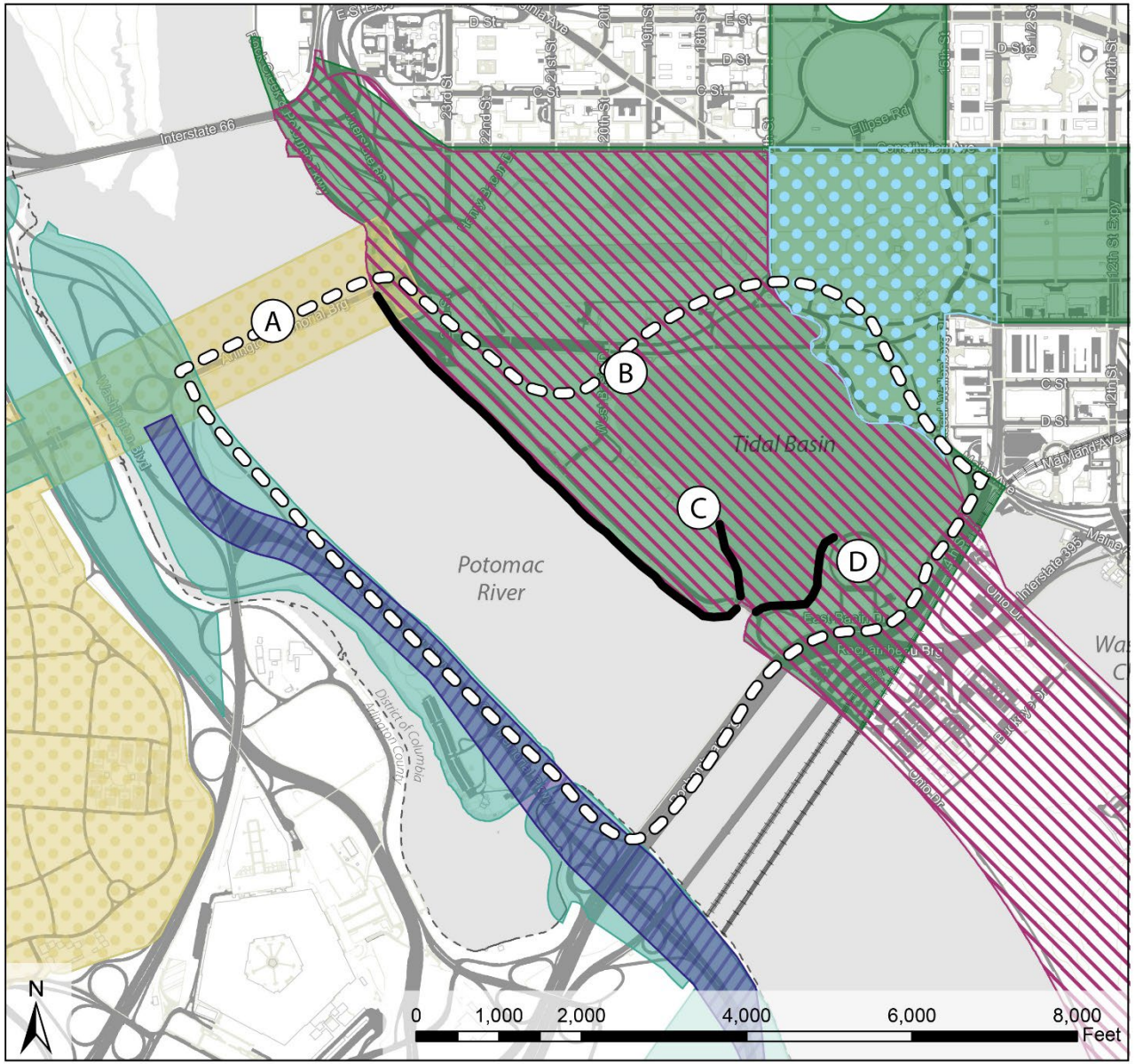
A. Arlington Memorial Bridge

B. Martin Luther King Jr., Memorial

C. Franklin Delano Roosevelt Memorial

D. Thomas Jefferson Memorial

Poposed extent of seawall project



DRAFT AREA OF POTENTIAL EFFECTS

East and West Potomac Parks Historic District

- Listed NRHP 1973; revised 2001
- Criteria A & C
- POS: 1882 – 1997
- Contributing resources:
  - Stone seawalls
  - Japanese cherry trees

Undated (NPS)

1941 (LOC)

NATIONAL MALL AND WASHINGTON MONUMENT AND GROUNDS HDS

1919 (LOC)

National Mall HD:

- NRHP HD Listed 1966; Expanded 2016
- POS: 1791 to present under Criterion A
- POS: 1791 to 1965 under Criteria C & D
- 60 Contributing Resources:
  - Tidal Basin and walls
  - Japanese cherry trees

Washington Monument and Grounds HD:

- NRHP HD Listed 1981; Expanded 2016
- POS: 1848 – 1889
- 22 Contributing Resources:
  - Tidal Basin cherry trees

GEORGE WASHINGTON MEMORIAL PARKWAY AND MOUNT VERNON MEMORIAL HIGHWAY HD

GWMP:

- NRHP listed 1995; VLR listed 1991
- POS: 1930 – 1966
- Constructed 1932 (parts of MVMH) – 1965
- Part of the McMillan Commission, first proposed in 1902

MVMH HD:

- NRHP listed 1981; VLR listed 1981
- POS: 1929 – 1932
- Constructed 1929 – 1932
- First parkway project undertaken by US Government

1994 HAER (LOC)

ARLINGTON NATIONAL CEMETERY HD AND ARLINGTON MEMORIAL BRIDGE

1934 (LOC)

Arlington National Cemetery:

- NRHP HD Listed 1966; Expanded 2014
- Criteria A, B, and C
- POS: 1864 – Present

Arlington Memorial Bridge:

- NRHP Listed 1979
- POS: 1923 – 1932
- Constructed 1926 – 1932
- McKim, Mead, and White
- Renovated 2018 – 2020

MLK/FDR/JEFFERSON MEMORIALS

Martin Luther King, Jr. Memorial:

- Dedicated 2011
- Master Lei Yixin, Sculptor
- ROMA Design Group

Franklin Delano Roosevelt Memorial:

- Dedicated 1997
- Lawrence Halrpin, Robert Marquis, and various sculptors

Thomas Jefferson Memorial:

- 1937 – 1943
- John Russell Pope, Architect
- Rudolph Evans, Sculptor

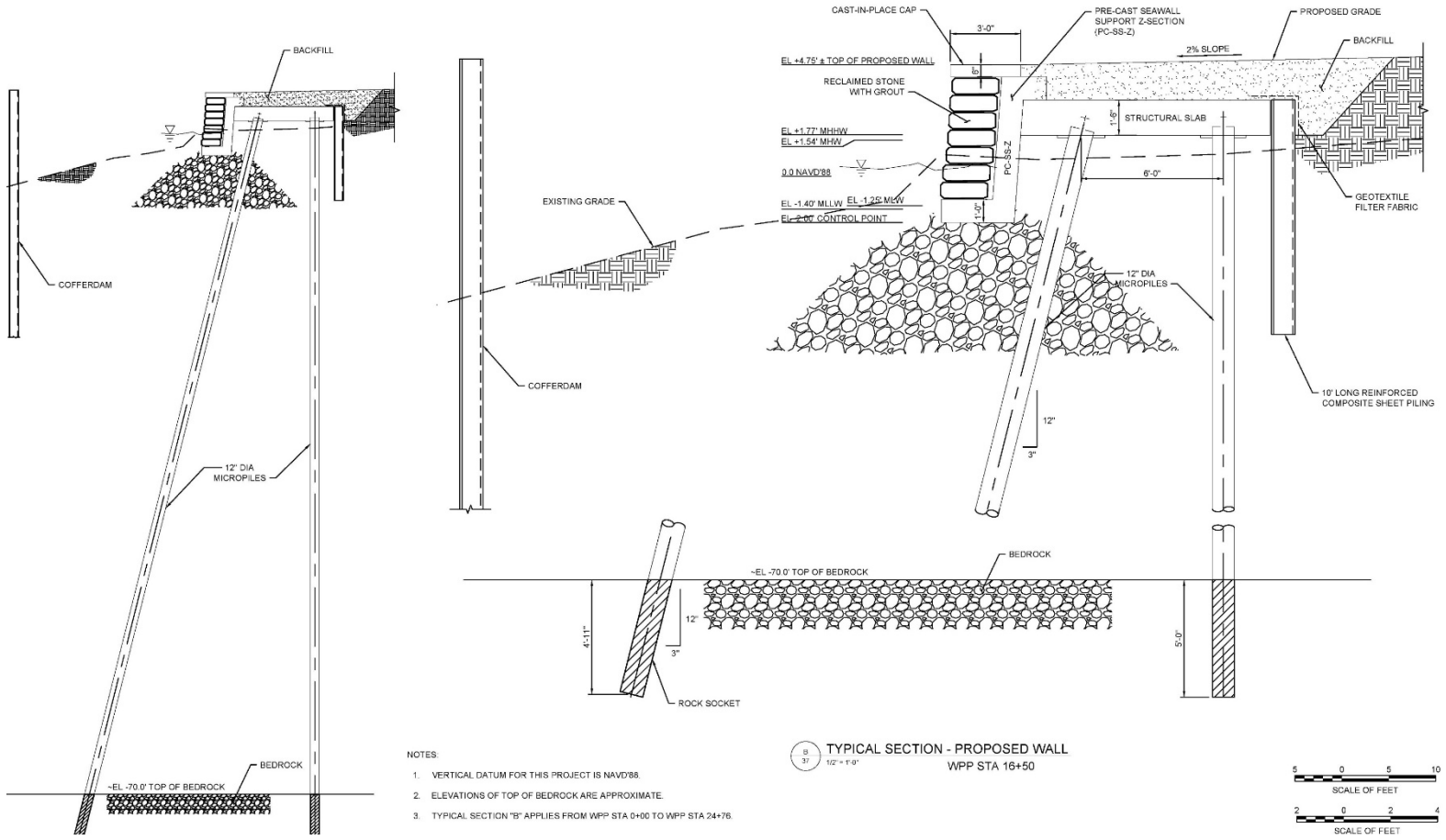
All National Memorials are listed in NRHP upon their creation.

c. 1941 (LOC)

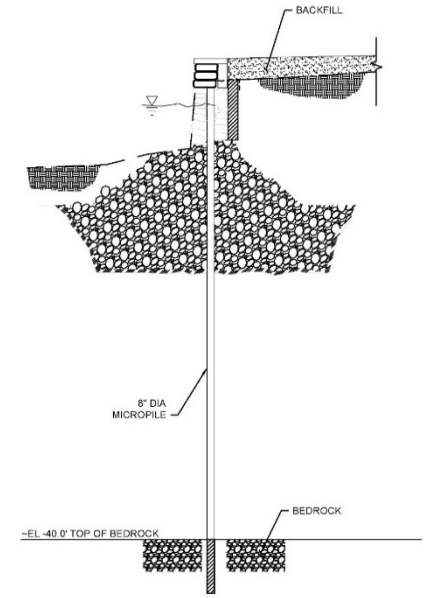
07

PRELIMINARY CONCEPTS

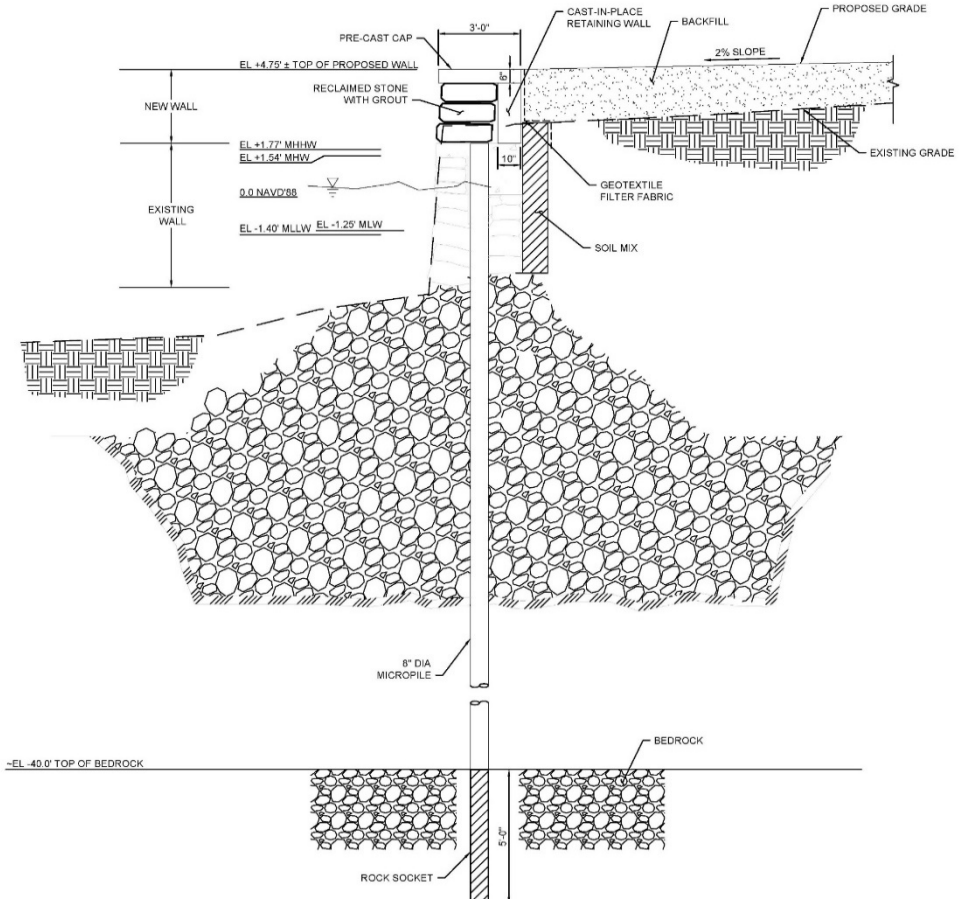
INITIAL SECTION: TIDAL BASIN & WPP SOUTH



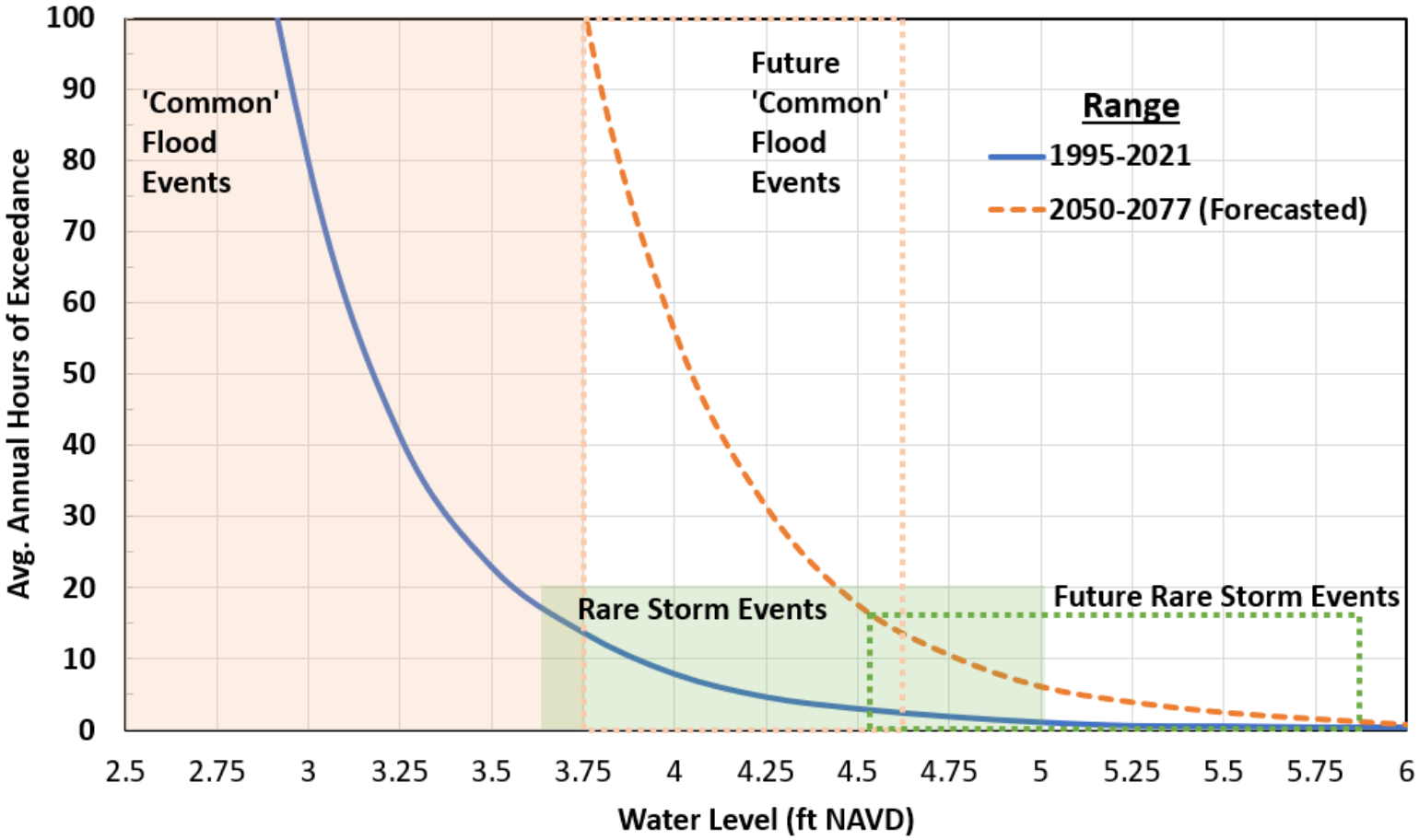
INITIAL SECTION: WPP NORTH



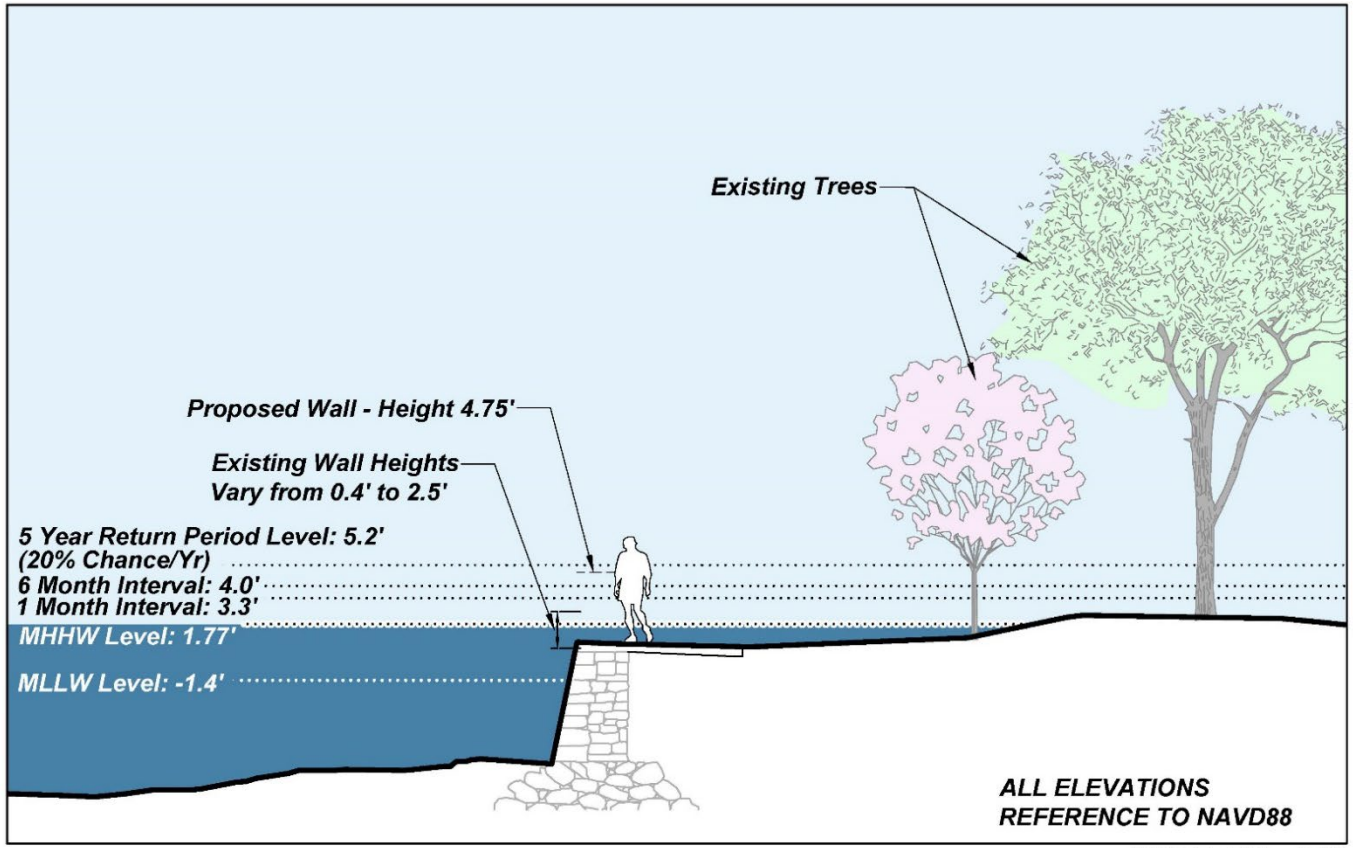
TYPICAL SECTION - PROPOSED WALL
WPP STA 28+00



ESTABLISHING WALL HEIGHT



TIDAL BASIN EAST

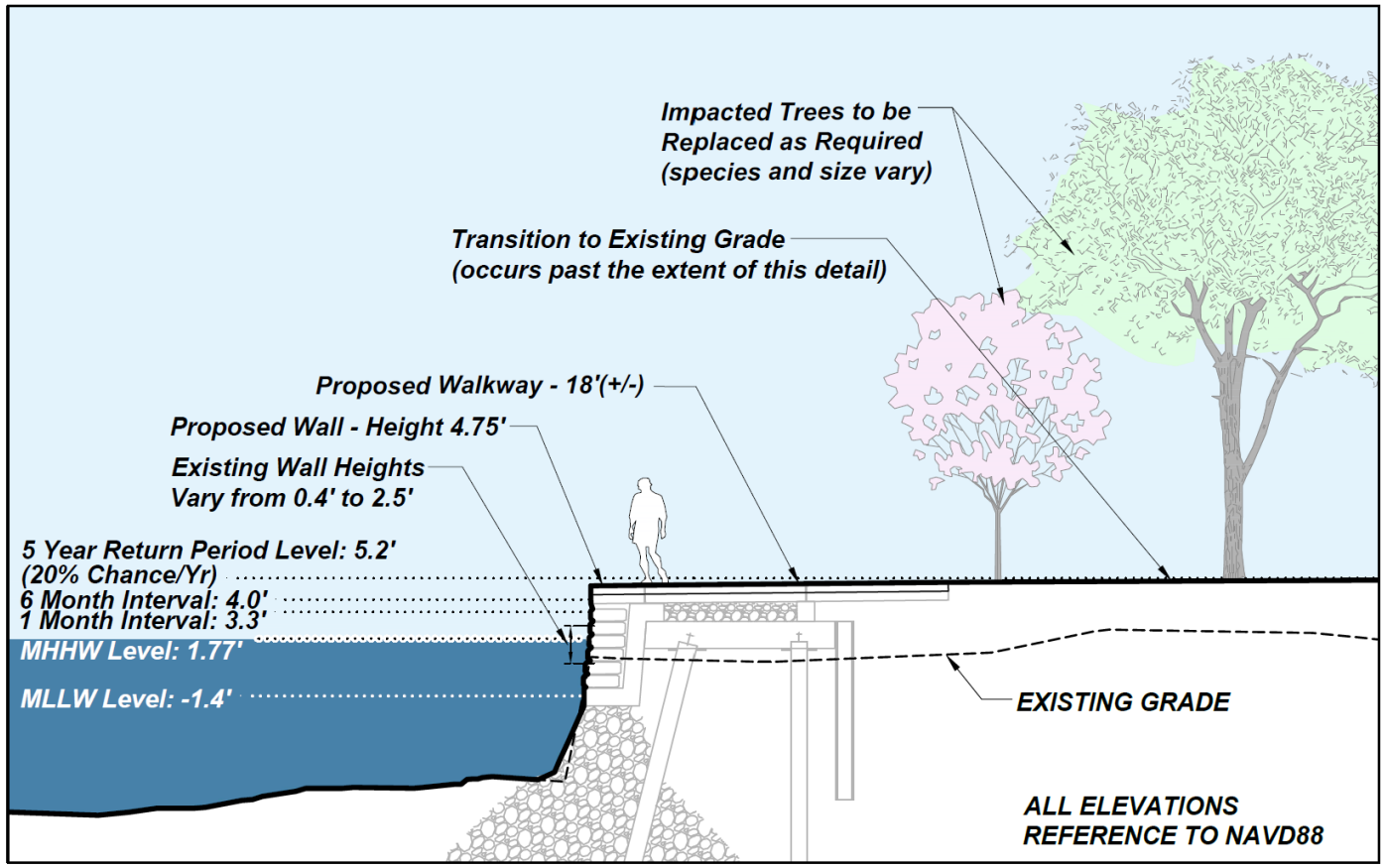


SCALE: 1/8" = 1'-0"
SECTION 1

EXISTING CONDITIONS (TYPICAL)
Tidal Basin - East
(Visualization for Planning Purposes Only)

**Mean Higher High Waters (MHHW) | Mean Lower Low Waters (MLLW)*

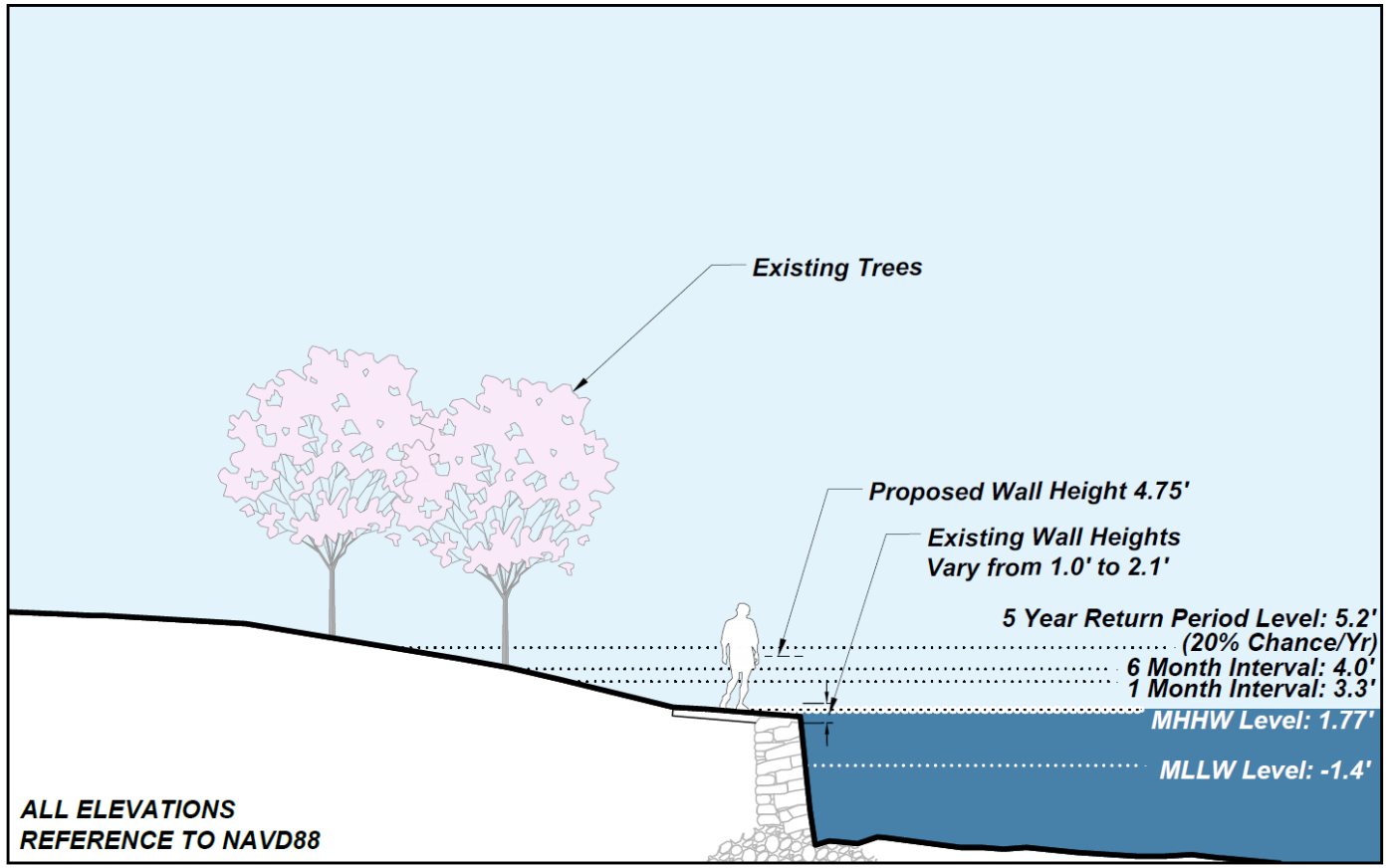
TIDAL BASIN EAST



SCALE: 1/8" = 1'-0"
SECTION 2

PROPOSED CONDITIONS (TYPICAL)
Tidal Basin - East
(Visualization for Planning Purposes Only)

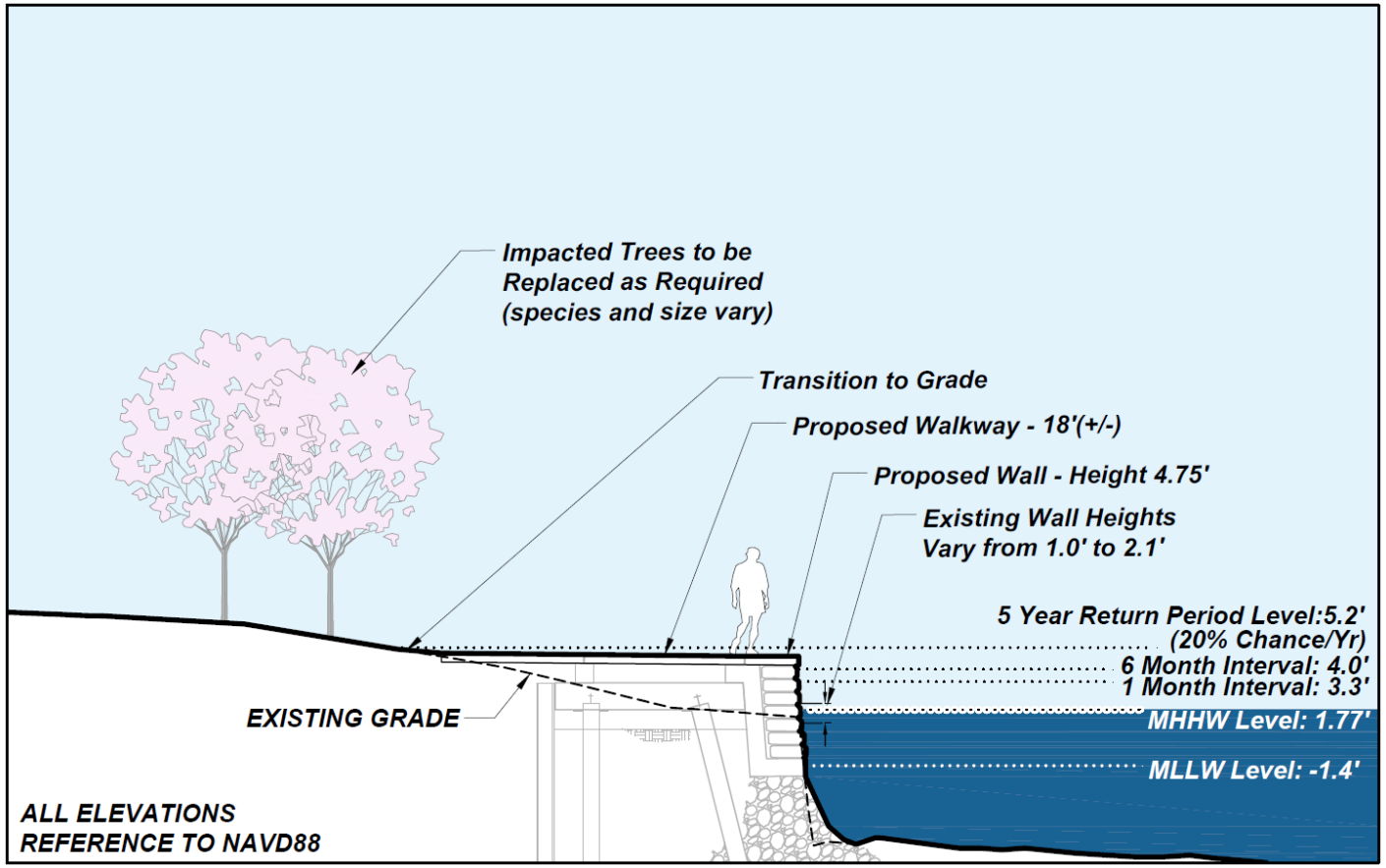
TIDAL BASIN WEST



SCALE: 1/8" = 1'-0"
SECTION 3

EXISTING CONDITIONS (TYPICAL)
Tidal Basin - West
(Visualization for Planning Purposes Only)

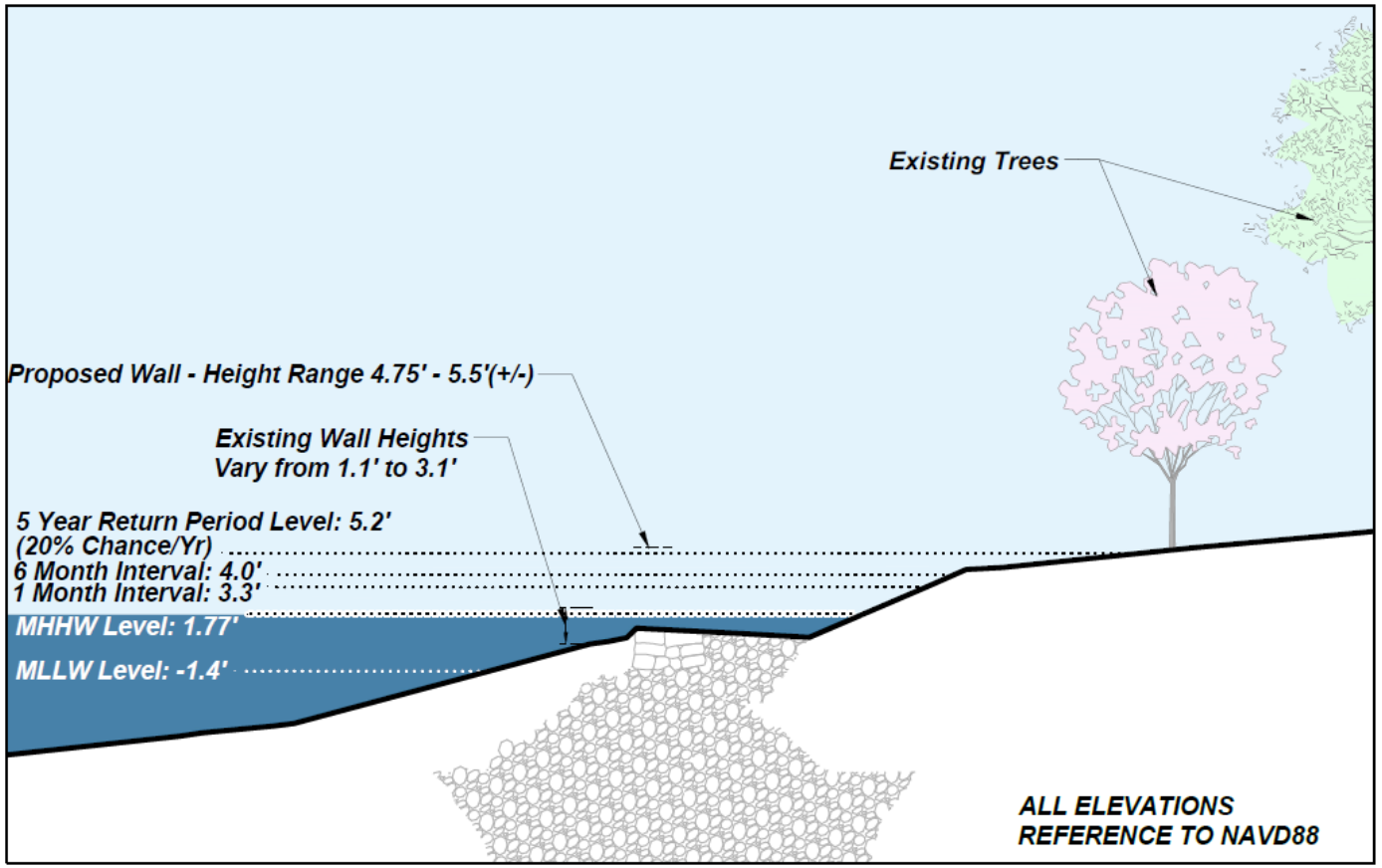
TIDAL BASIN WEST



SCALE: 1/8" = 1'-0"
SECTION 4

PROPOSED CONDITIONS (TYPICAL)
Tidal Basin - West
(Visualization for Planning Purposes Only)

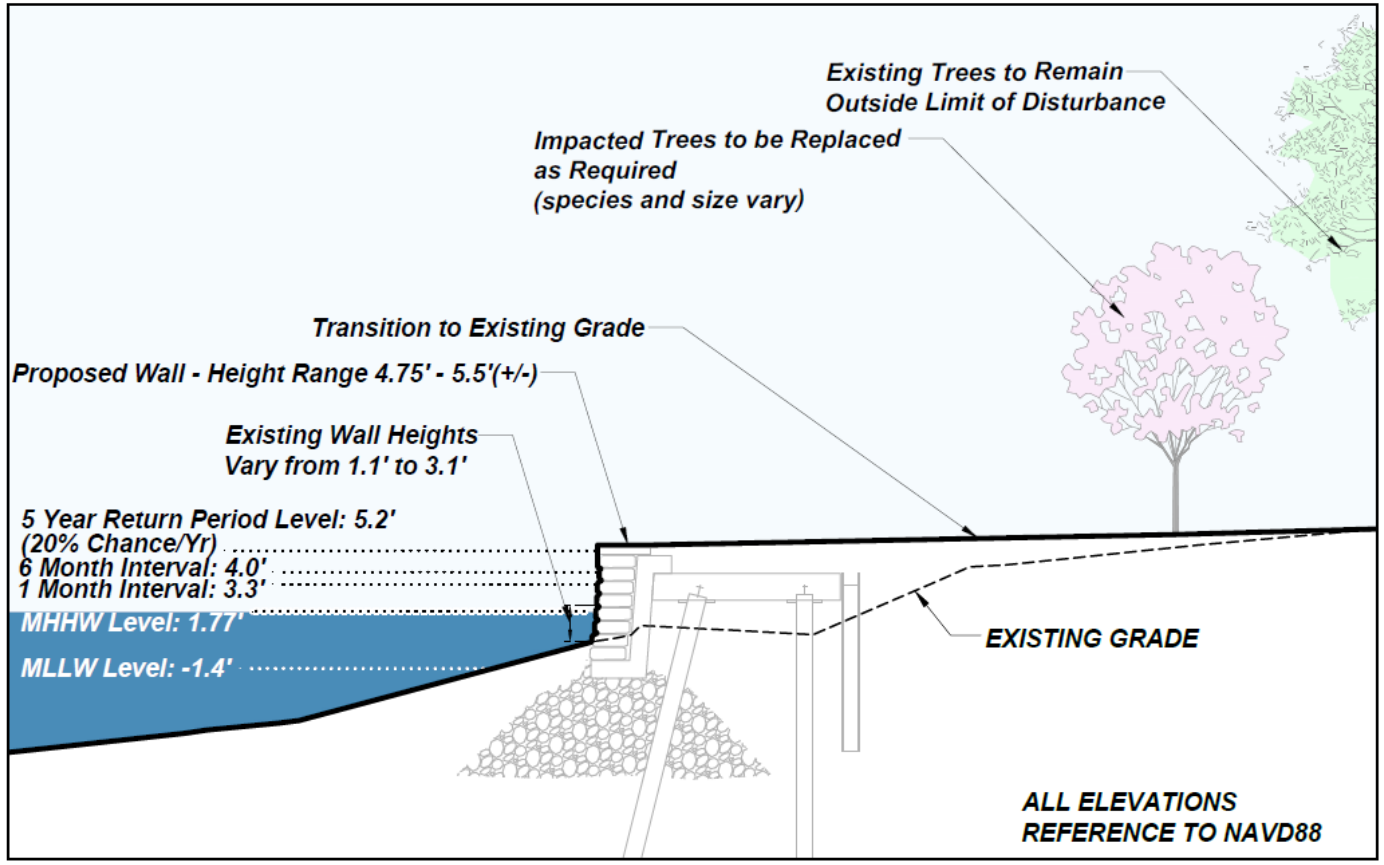
WEST POTOMAC PARK SOUTH



SCALE: 1/8" = 1'-0"
SECTION 7

EXISTING CONDITIONS (TYPICAL)
West Potomac Park - South
(Visualization for Planning Purposes Only)

WEST POTOMAC PARK SOUTH

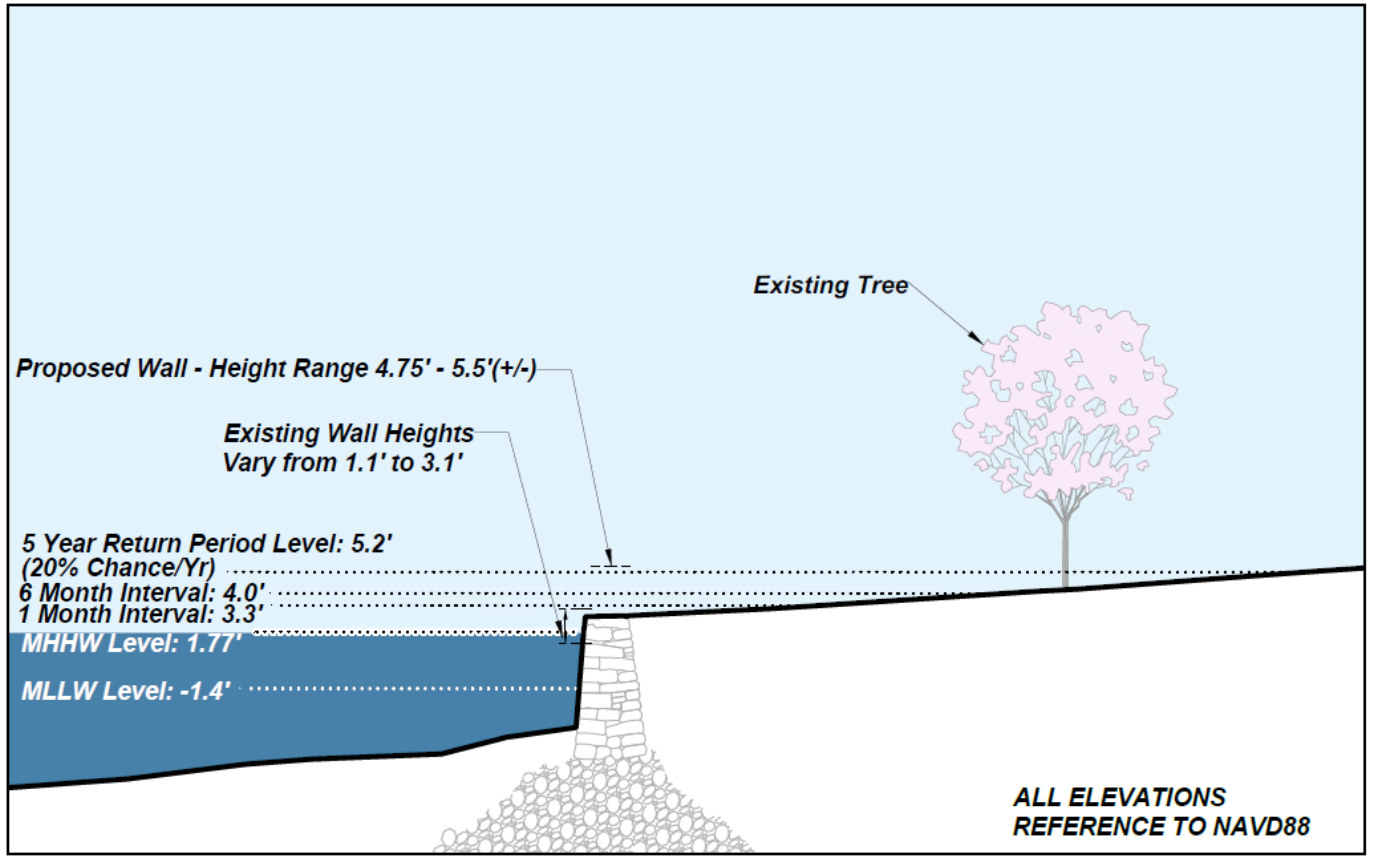


SCALE: 1/8" = 1'-0"
SECTION 8

PROPOSED CONDITIONS (TYPICAL)
West Potomac Park - South
(Visualization for Planning Purposes Only)

**Hydraulic analysis ongoing*

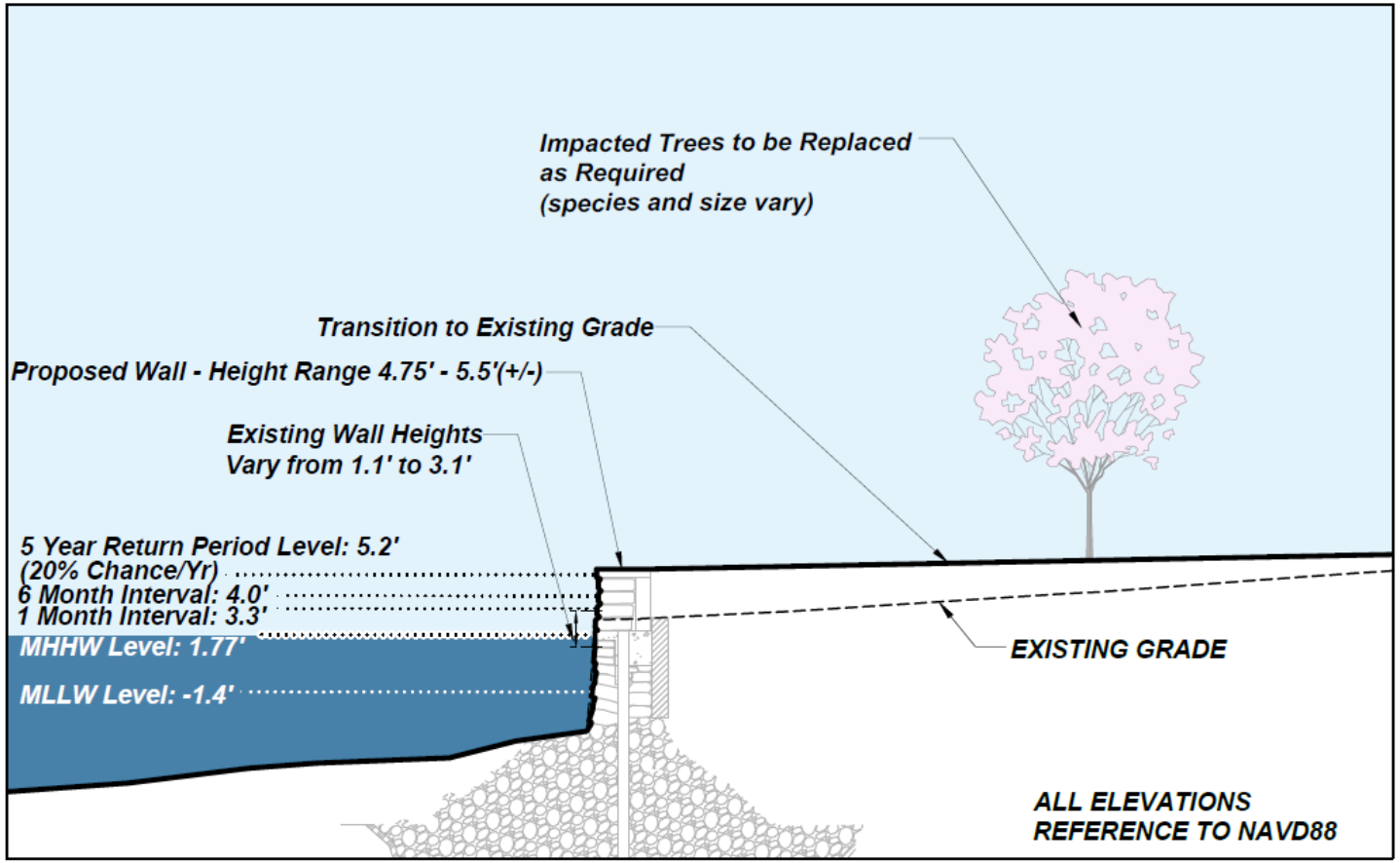
WEST POTOMAC PARK NORTH



SCALE: 1/8" = 1'-0"
SECTION 5

EXISTING CONDITIONS (TYPICAL)
West Potomac Park - North
(Visualization for Planning Purposes Only)

WEST POTOMAC PARK NORTH



SCALE: 1/8" = 1'-0"
SECTION 6

PROPOSED CONDITIONS (TYPICAL)
West Potomac Park - North
(Visualization for Planning Purposes Only)

08

DISCUSSION, QUESTIONS, AND COMMENTS

CONSULTING PARTY COMMENTS

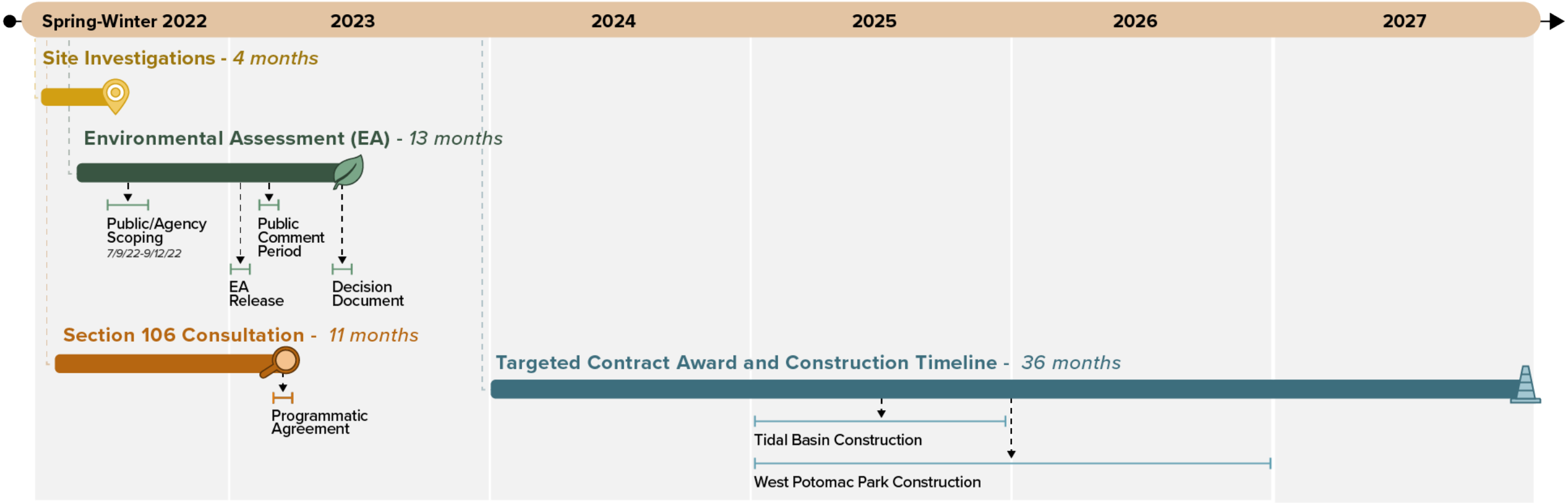
- Consulting party comments are requested by September 12, 2022
- Comments can be provided in multiple ways:
  - At this meeting
  - Submit at the National Parks Service Seawall Rehabilitation Project Website *https://parkplanning.nps.gov/SeawallRehabilitation*
  - Correspondence addressed to:

    Jeffrey Reinbold
    Superintendent
    NPS – National Mall and Memorial Parks
    900 Ohio Drive, SW
    Washington, DC 20024

09

NEXT STEPS

NEXT STEPS


Spring-Winter 2022
2023
2024
2025
2026
2027
Site Investigations - 4 months
Environmental Assessment (EA) - 13 months
Public/Agency Scoping
7/9/22-9/12/22
Public Comment Period
EA Release
Decision Document
Section 106 Consultation - 11 months
Programmatic Agreement
Targeted Contract Award and Construction Timeline - 36 months
Tidal Basin Construction
West Potomac Park Construction

THANK YOU!

HDR MN NPS JV

SECTION 106 MEETING NOTES - NAMA 318722 PHASE 1

Project: National Mall & Memorial Parks, NAMA 318722 Seawall Rehabilitation

Subject: Section 106 Consulting Parties Meeting #1

Date: Tuesday, August 02, 2022

Location: Teams Meeting – Some in-person in DC

Attendees:

Kent Brogger	Catherine Dewey	Tammy Stidham
Margaret Boshek	Doug Chapin	Jason Jimenez-Pisani
Emily Tuttle	Tamara Bradley	Joel Gorder
Sean Keannealy	Brent Nagen	Lee Webb
Amanda Tyrrell	Yue Li	Jonathan Connolly
Meghan Robinson	Daniel Fox	Megan Bailey
Caridad de la Vega	Laura Hughes	Erin Paden
Tanya Gossett	Thomas Luebke	David Maloney
Kim Daileader	Christopher Cody	Allison Young
Catherine Townsend	Dana Adkins	Julie McGilvray
David Maloney	Andrea Limauro	Sarah Batcheler
Andrew Lewis	Shaleigh Howells	Andrea Limauro
	Peter May	18***96

Approximately 30 Attendees

1. Catherine – Introduction
    a. Native American connections to the area
2. Catherine – meeting is being recorded
    a. Use chat for questions
    b. Comments made in Teams are not formal comments
    c. Formal Consulting Party Comments must be submitted by September 12, 2022
3. Kim – Introduced JV Team
4. Catherine – Consulting Parties Introduction
5. Presentation
6. Catherine – Contracted by 2023 with 36 months for construction

Attendee Questions

7. Tom – the biggest impact will be the slope back down to the edge and some tree impacts
    a. Tom – top will be concrete or granite?
        i. Catherine – concrete
    b. Margaret – TBE has settled, reestablishing the historical upland slope will allow water to escape and prevent ponding

8. Andy – appreciate the history of the seawall
    a. Difference of appearance in each section (coping in some areas, some not)
    b. Is the idea to create a single appearance or recreate each section?
        i. Margaret – WBB and TB have historic Potomac River stone, plan to maintain
        ii. Margaret – walkways increased to 18' is under consideration
        iii. Margaret – WPP – keep as grass
        iv. Margaret – WPP-N concrete cap with stone/stone façade was originally a repair, but is historic now, can only be seen from the river itself
            1. Andy – having four individual section photos with a response to each individual section would be helpful
            2. Margaret – photos from boat in each section are being taken noting each walls individual characteristics
9. Sarah – good job minimizing impact, repair is obviously needed
    a. Sarah – height originally 6' above mean high water mark, proposing visible height at 4.75?
        i. Margaret – wall was originally 6' above mean tide level
        ii. Marg – water approx. 1.5' higher now
    b. Sarah – what happens at the Plaza in front of Jefferson Memorial?
        i. Margaret – the Jefferson Memorial area is a separate system done within last 20 years, we will be tying into but not changing anything
        ii. Margaret – Jefferson is 5.75-5.8 currently, we will be below that
        iii. Margaret – water ponding in Jefferson Memorial unable to escape
10. David – the presentation was a straightforward, rational way to address the problem
    a. David - Relative heights of the walls, seeing how the Jefferson Plaza wall will tie into TB wall would be helpful
        i. Margaret – Jefferson has granite steps, two steps will be taken up in the new seawall
        ii. Margaret - our foundation will abut, not tie into Jefferson
    b. David – also ties into inlet bridge, how that will look in elevation?
        i. Margaret – abutment between two systems
        ii. Margaret - watertight to prevent soil migration
        iii. Margaret – N end of TBW – still under consideration
    c. David – graph of flood levels and water levels should be presented in horizontal rather than vertical
        i. Margaret – trying to show lessening effects by the curve going down
11. Tom – Widening the path on the TBW?
    a. Kim – under discussion
    b. Tom – wider you make it affects more trees, balancing tree loss with accessibility – does it need to be 18'?
        i. Margaret – under consideration, planning for ADA, pedestrian and others use, for permitting and access looking at 18'
    c. Tom – area is most remote with less people
        i. Margaret – circular route, but it is unknown where most people get on/off the path
        ii. Margaret - two walking pathways in TBW, still assessing
    d. David (via chat) – To Tom's point about the sidewalk width around the basin, it might be useful to show photos of similar walks at various widths around the Mall reflecting pool, etc. for comparison purposes
12. Tom – is perimeter security for Jefferson being considered and/or still an issue? Don't want to build something and have to rip it up because something was missed.

    a. Catherine – working on TB master plan, still considering perimeter security
    b. Peter – this item will taken up in TB master plan
    c. Tom – the seawall repair is an important, needful investment, wants to make sure all projects that tie in are considered
13. Lee – when will this be submitted to Commissions, CFA and NCPC?
    a. Lee – wouldn't require a commission review, as there is only one option
    b. Catherine – will review
14. Andy (via chat) – This may have already been addressed, but will the NPS be providing a copy of this presentation or will it be posted on PEPC?
    a. Tammy – presentation is on PEPC and was attached to meeting invite
15. Shaleigh (Cultural Resource Director for the Pamunkey Indian Tribe) – long term mitigation issues, what does funding look like, with delayed maintenance?
    a. Catherine – don't have a plan for that yet
    b. Catherine – EPP is next in plan
    c. B1 – no plan for TB yet, master plan will dictate further phases
        i. B1 – the rehabilitated seawall will eliminate the frequency of problem flooding
16. Shaleigh - how are we addressing flooding for the next 100 years and climate change issues?
    a. Margaret - seas levels have risen 1.5 feet over 100 years
    b. Margaret - using available USACE information and water level gauges have been installed in TB
    c. Margaret – we have good data with Washington channel gauge in place for about 100 years
    d. Margaret – 4.75 height will not stop all events
        i. Margaret – resilient design
        ii. Margaret – if water comes up, it runs off with no ponding

September 12, 2022

Mr. Jeffrey P. Reinhold, Superintendent
National Park Service
National Mall and Memorial Parks
National Capital Region
900 Ohio Drive, NW
Washington, DC 20024

RE: Additional Comments regarding the Rehabilitation of the Historic Seawalls in the Tidal Basin and West Potomac Park

Dear Mr. Reinhold:

Thank you for hosting the first consulting parties meeting for the above-referenced undertaking on August 2, 2022. We were pleased to participate in the meeting and offer some comments to follow up on those provided in our letter dated June 15, 2022. We are writing to reiterate the verbal comments made during the meeting and to continue the review of this undertaking in accordance with Section 106 of the National Historic Preservation Act.

As previously noted, the undertaking consists of rehabilitating the historic seawalls around certain portions of the Tidal Basin and along the Potomac River's eastern shoreline from the Inlet Bridge north to the Arlington Memorial Bridge. During the consulting parties meeting, I asked how the NPS proposes to address the visible differences between various segments of the seawalls that resulted primarily from inconsistent construction methods and/or later alterations. The NPS responded that its intention was to replicate the historic conditions in each segment as closely as possible but acknowledged that some visible alterations would be required – not the least of which would be a significant, but essential increase in overall height.

Noticeable differences from the historic conditions and the likely requirement for total disassembly and reconstruction in most, if not every segment will almost certainly result in adverse effects on the historic seawalls but we agree that this work is essential and that replicating the historic conditions as closely as possible may be one of the best ways to minimize the adverse effects. To that end, we look forward to receiving the detailed, section-by-section photographic log of the seawalls that the NPS indicated was being prepared. The photographic log will better document the existing conditions and serve as a useful tool to minimize adverse effects when compared against typical sections illustrating original construction methods, later alterations and the proposed rehabilitation approaches. Comparing these various factors will allow informed decisions to be made about how and where historic conditions can be replicated as much as possible.

We also look forward to evaluating the effects of the undertaking by reviewing detailed site plans and similar documents that compare historic, existing and proposed conditions as they relate to walkway dimensions and locations, planting plans, and physical connections to notable features such as the Inlet Bridge. Specifically, a variety of comparative renderings should be developed for review. These should illustrate comparative views at specific locations as well as broad views across the basin and the river.

If you should have any questions or comments regarding any of these matters, please contact me at andrew.lewis@dc.gov or 202-442-8841. Otherwise, we look forward to receiving responses to the comments in our June 15, 2022 letter and to continuing consultation with all parties to complete the Section 106 review of this undertaking.

Sincerely,

C. Andrew Lewis
Senior Historic Preservation Officer
DC State Historic Preservation Office

22-0619

September 12, 2022

Mr. Jeffrey P. Reinhold, Superintendent
National Park Service
National Mall and Memorial Parks
National Capital Region
900 Ohio Drive, NW
Washington, DC 20024

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C. Andrew Lewis
Senior Historic Preservation Officer
DC State Historic Preservation Office

22-0619

	NAMA 318722 POTENTIAL CONSULTING PARTIES			
	NAME	TITLE	AGENCY	EMAIL
Tribes	Deborah Dotson	President	Delaware Nation	ddotson@delawarenation-nsn.gov
	Carissa Speck	Historic Preservation Director	Delaware Nation	cspeck@delawarenation-nsn.gov
	Chuck Hoskin, Jr.	Principal Chief	Cherokee Nation	chuck-hoskin@cherokee.org
	Robert Gray	Chief	Pamunkey Indian Tribe	pamunkeytribe@pamunkey.org
	Frank Adams	Chief	Upper Mattaponi Indian Tribe	wfrankadams@verizon.net
	Reggie Tupponce	Tribal Administrator	Upper Mattaponi Indian Tribe	admin@umitribe.org
	Anne Richardson	Chief	Rappahannock Tribe	chiefannerich@aol.com
	Earl Bass	Chief	Nansemond Indian Nation	earllbass@gmail.com and Chief@nansemond.org
	Megan Bass		Nansemond Indian Nation	administrator@nansemond.org
	Stephen Adkins	Chief	Chickahominy Indian Tribe	stephenradkins@aol.com and chiefstephenadkins@gmail.com
	Dana Adkins	Tribal Environmental Director	Chickahominy Indian Tribe	dana.adkins@chickahominytribe.org
	Gerald Stewart	Chief	Chickahominy Tribe Eastern Division	wasandson@cox.net
	Kenneth Branham	Chief	Monacan Indian Nation	TribalOffice@MonacanNation.com
	Rufus Elliot	Tribal Administrator	Monacan Indian Nation	tribaladmin@monacannation.com

	William "Bill" Harris	Chief	Catawba Indian Nation	bill.harris@catawbaindian.net
	Wenonah George Haire	THPO	Catawba Indian Nation	wenonah.haire@catawba.com
	John Johnson	Governor	Absentee Shawnee Tribe of Indians of Oklahoma	jjohnson@astribe.com
	Tonya Tipton	THPO	Shawnee Tribe	tonya@shawnee-tribe.com
	Benjamin Barnes	Chief	Shawnee Tribe	chief@shawnee-tribe.com
Agencies	Kirsten Kulis	NPS Liaison	Advisory Council on Historic Preservation	kkulis@achp.gov
	Thomas Luebke	Secretary	US Commission of Fine Arts	tluebke@cfa.gov
	Dan Fox	Historic Preservationist	US Commission of Fine Arts	dfox@cfa.gov
	Sarah Batcheler	Architect	US Commission of Fine Arts	flindstrom@cfa.gov
	Marcel Acosta	Executive Director	National Capital Planning Commission	marcel.acosta@ncpc.gov
	Diane Sullivan	Director, Urban Design and Plan Review	National Capital Planning Commission	diane.sullivan@ncpc.gov
	Lee Webb	Historic Preservation Specialist	National Capital Planning Commission	lee.webb@ncpc.gov
	David Maloney	State Historic Preservation Officer	DC Historic Preservation Office	david.maloney@dc.gov
	Andrew Lewis	Senior Historic Preservation Specialist	DC Historic Preservation Office	andrew.lewis@dc.gov
	Julie Langan	State Historic Preservation Officer	Virginia Department of Historic Resources	julie.langan@dhr.virginia.gov
	Tim Roberts	National Park Service Reviewer	Virginia Department of Historic Resources	tim.roberts@dhr.virginia.gov
	Genevieve LaRouche	Project Leader, Chesapeake Bay Field Office	US Fish and Wildlife Service	genevieve_larouche@fws.gov

	Jonathan Greene	Community Planner	Ward 2	jonathan.greene@dc.gov
ANCs	Joel Causey	Chair	ANC2A	2A@anc.dc.gov
Preservation Advocacy Groups	Rebecca Miller	Executive Director	DC Preservation League	rebecca@dcpreservation.org
	Catherine Townsend	President and CEO	Trust for the National Mall	ctownsend@nationalmall.org
	Teresa Durkin	Executive Vice President	Trust for the National Mall	tdurkin@nationalmall.org
	Laura Brower Hagood	Executive Director	Historical Society of Washington DC	lhagood@dchistory.com
	Betsy Merritt	Deputy General Council	National Trust for Historic Preservation	bmerritt@savingplaces.org
	Kirby Vining	Chair	Committee of 100 on the Federal City	info@committeeof100.net
	Mary Dolan	Co-Founder and Executive Director	FDR Memorial Legacy Committee	mary@fdrmemoriallegacy.com

REHABILITATE TIDAL BASIN AND WEST POTOMAC PARK SEAWALL

National Park Service, National Mall and Memorial Parks

Consulting Party Meeting #2

December 15, 2022

INTRODUCTION

Let us begin by acknowledging that we are in the territory of many Indigenous peoples that have known the Potomac Valley and its lands and waters as their homeland for thousands of years to the present day, including Algonquin, Iroquois, and Siouan peoples.

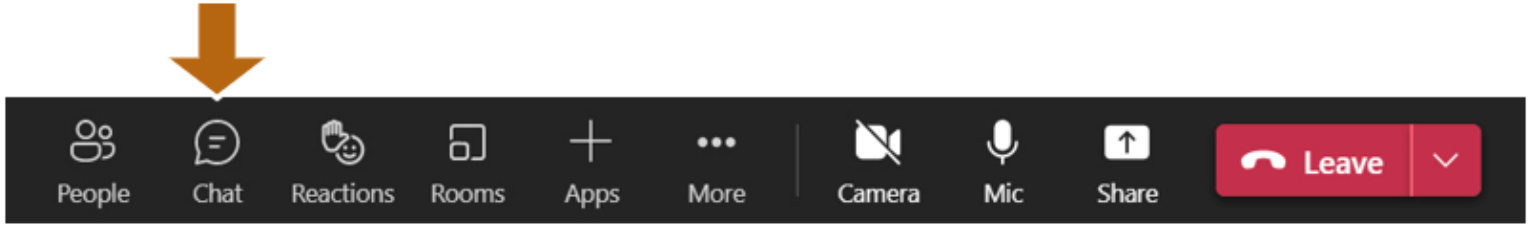
We are just beginning our engagement with traditionally associated Native American communities to identify all of the different connections with these lands held by many Native Nations. Together we recognize the Native Nations' past, present, and future unbroken and unbreakable connections to these lands. We honor the resilience and perseverance of these Nations even as colonizers claimed this land as their own.

VIRTUAL MEETING OVERVIEW

- This meeting will be **recorded**
- Type your questions into the Meeting Chat
- Questions will be answered at the end of the presentation as time allows
- Questions or comments submitted as part of this meeting will **not** be considered formal comments on the project
  - Formal comments must be submitted online or postmarked by January 6th, 2023

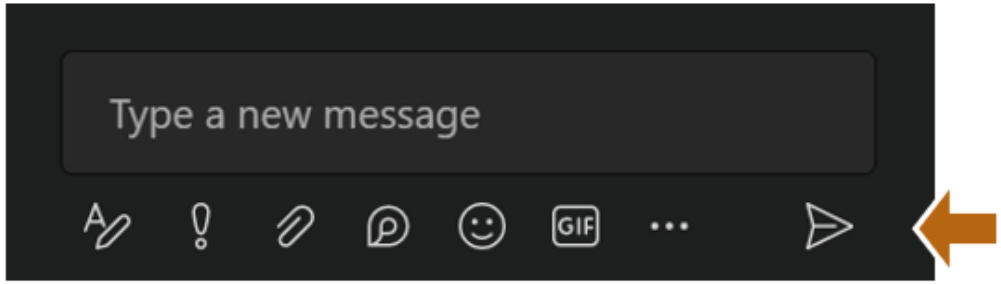
HOW TO ASK A QUESTION

1. Click on the “Chat” icon at the top of your screen.



2. The Meeting Chat panel will open on the right side of the screen.

3. Enter your question into the text box and select **Send**.



AGENDA

1. Project Updates
   - Section 106
   - Seawall Elevations
   - Seawall Character
   - Tidal Basin
   - West Potomac Park
2. Determination Of Effect
3. Avoidance, Minimization, And Mitigation Measures
4. Schedule
5. Questions & Answers

GOALS OF THIS MEETING

1. Informational Update
2. Collect Comments On Assessment Of Effects And Memorandum Of Agreement

PLEASE HOLD QUESTIONS TO THE END

01

PROJECT UPDATES

Section 106

NATIONAL HISTORIC PRESERVATION ACT

STEP 1:
Initiate the Process

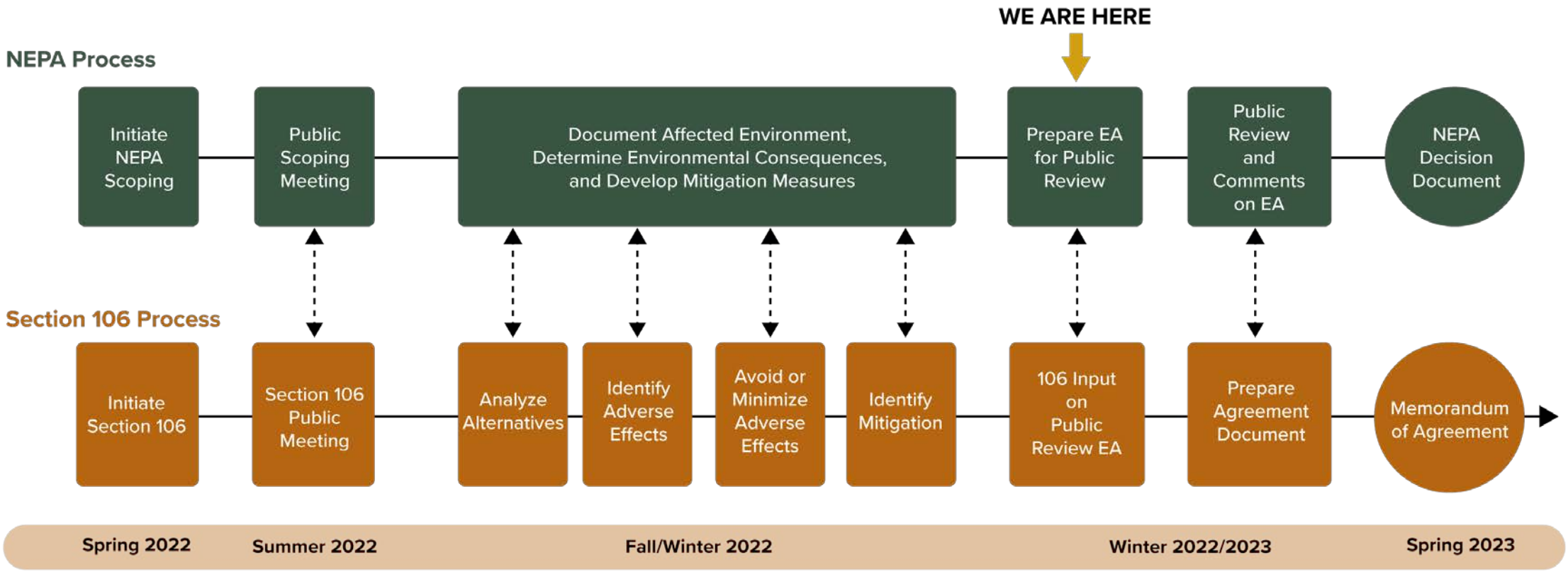
STEP 2:
Identify Historic Properties

STEP 3:
Assess Effects of Undertaking

STEP 4:
Resolve Adverse Effects

SECTION 106 CONSULTATION

NEPA+SECTION 106: A COORDINATED APPROACH



AREA OF POTENTIAL EFFECTS

Key

- Area of Potential Effects
- Washington Monument and Grounds Historic District
- East and West Potomac Parks Historic District
- National Mall Historic District
- Arlington National Cemetery Historic District
- George Washington Memorial Parkway
- Mount Vernon Memorial Highway Historic District

Individually Listed Resources

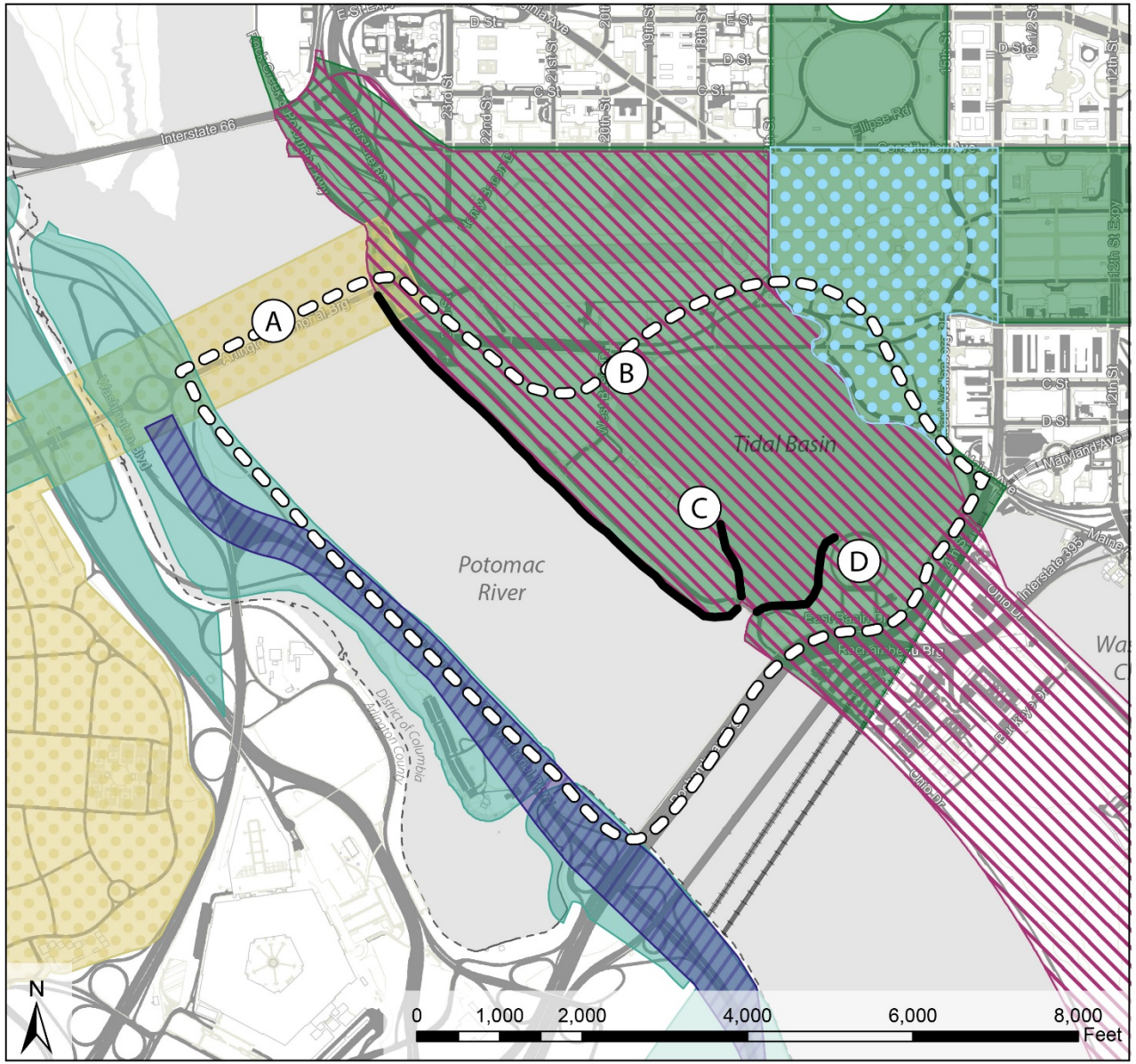
A. Arlington Memorial Bridge

B. Martin Luther King Jr., Memorial

C. Franklin Delano Roosevelt Memorial

D. Thomas Jefferson Memorial

Poposed extent of seawall project



Contributing Resources

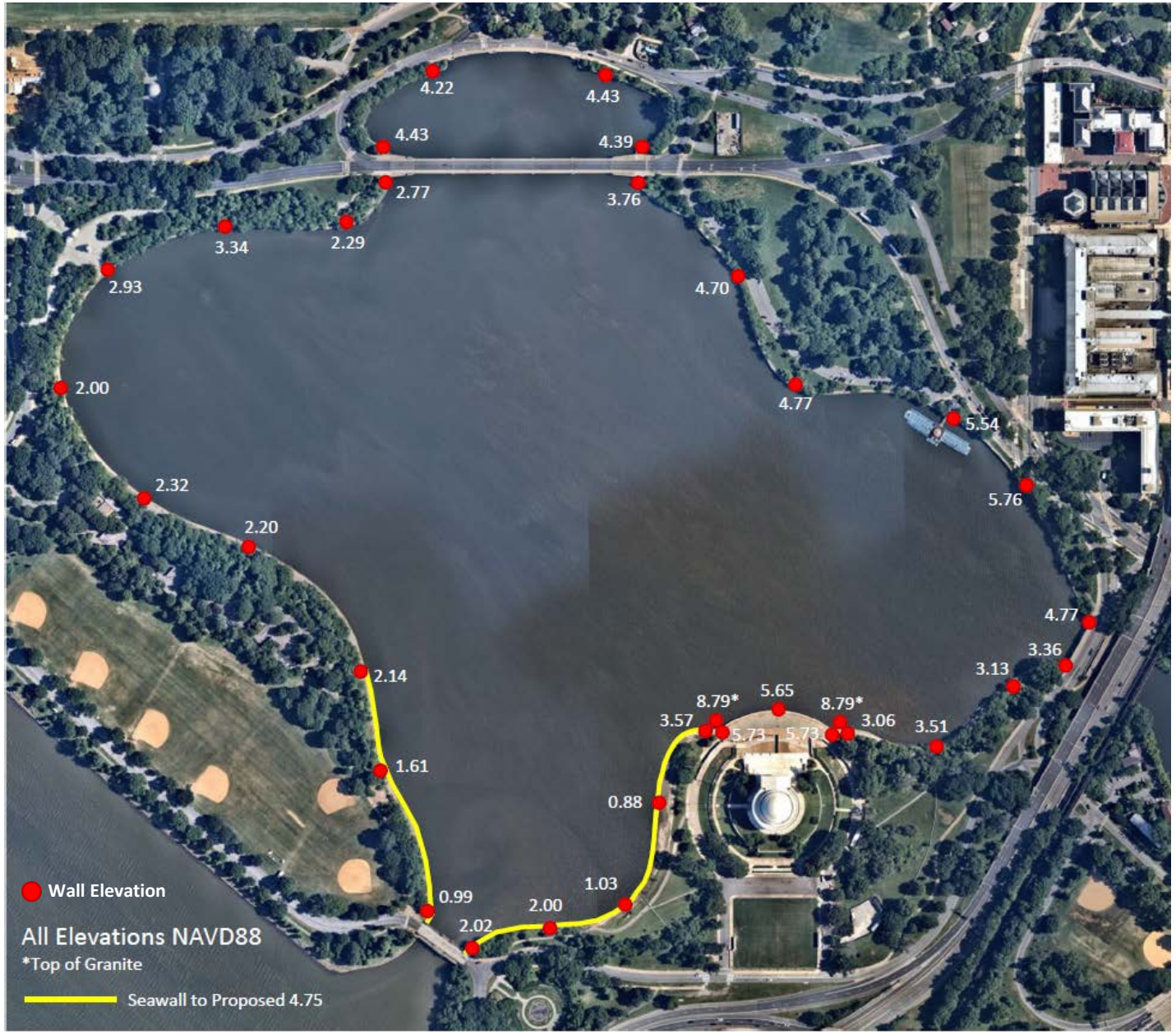
Contributing Resources	Individually Listed	National Mall/ Wash. Monument Grounds HD	East and West Potomac Parks HD	Arlington National Cemetery HD	GW Mem. Parkway HD	Mount Vernon Mem. Highway HD
Tidal Basin		X	X			
Stone Seawalls		X	X			
Japanese Cherry Trees		X	X			
Other Contributing Vegetation		X	X		X	X
Inlet Bridge		X	X			
Views around the Tidal Basin		X	X			
Arlington Memorial Bridge	X	X	X	X		
Survey Lodge		X				
Sacrifice and Valor		X		X		
John Ericsson Monument		X	X			
Ohio Drive		X	X			
First Airmail Flight Marker		X				
Japanese Pagoda		X	X			
Franklin Delano Roosevelt Memorial	X	X				
Martin Luther King Jr. Memorial	X	X				
West Potomac Park Reservation No. 332		X	X			
Independence Avenue Extension		X	X			
First Cherry Tree Planting Plaque		X				
Japanese Lantern		X				
Kutz Bridge		X	X			
Commodore John Paul Jones Statue		X	X			
Outlet Bridge		X	X			
Thomas Jefferson Memorial	X	X	X			
George Mason Memorial		X				
Number 4 Fountain		X	X			
View Lincoln Memorial to Arlington House		X		X		
View from Lincoln Memorial to Ericsson Memorial		X		X		
Views from Virginia shoreline to National Mall					X	X

01

PROJECT UPDATES

Seawall Elevations

WALL ELEVATIONS
EXISTING VS. PROPOSED



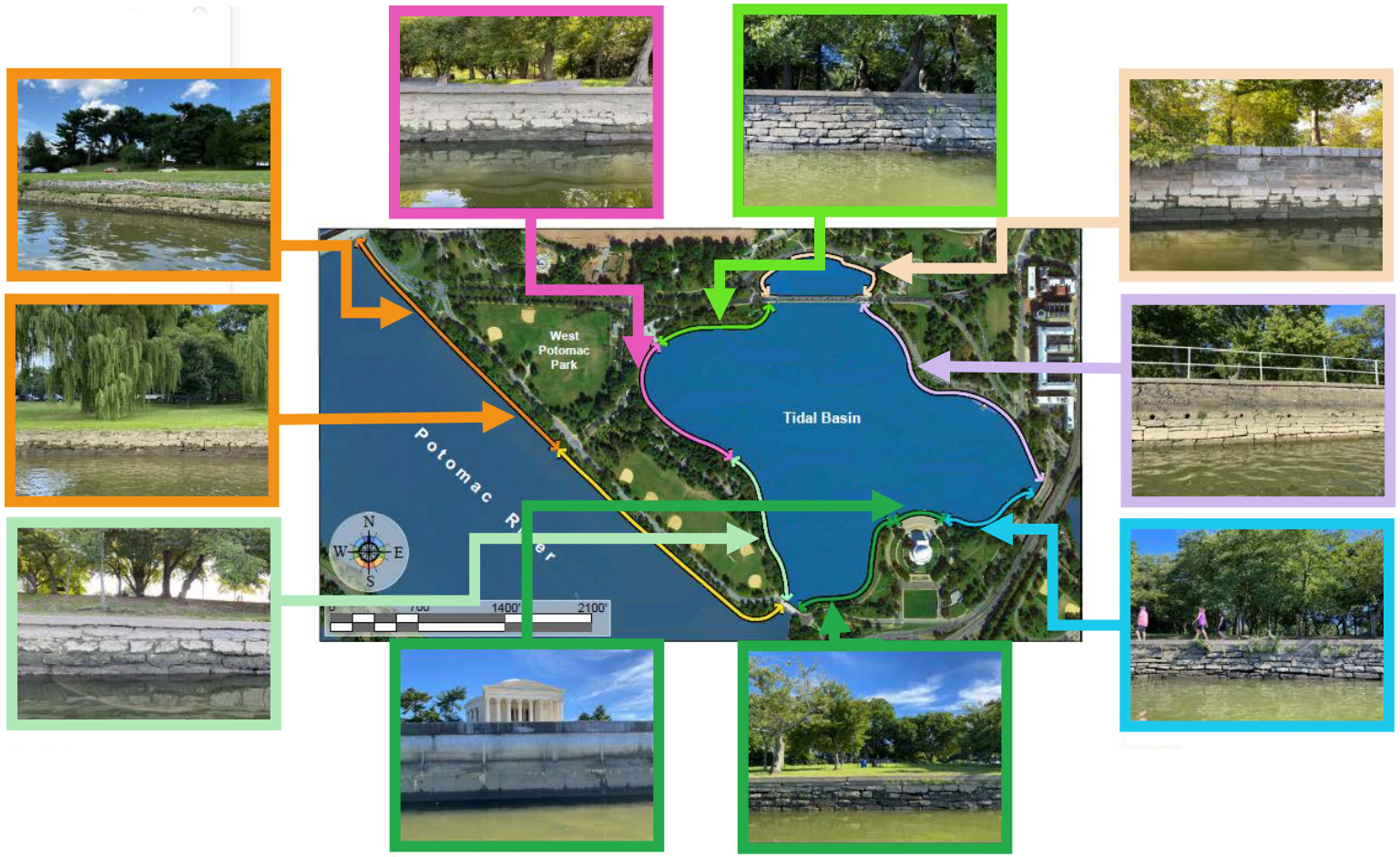
WALL ELEVATIONS – EXISTING VS. PROPOSED

01

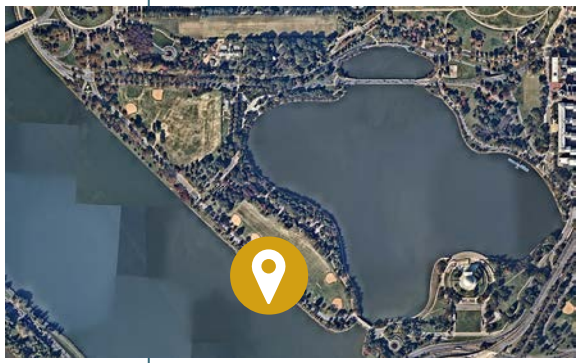
PROJECT UPDATES

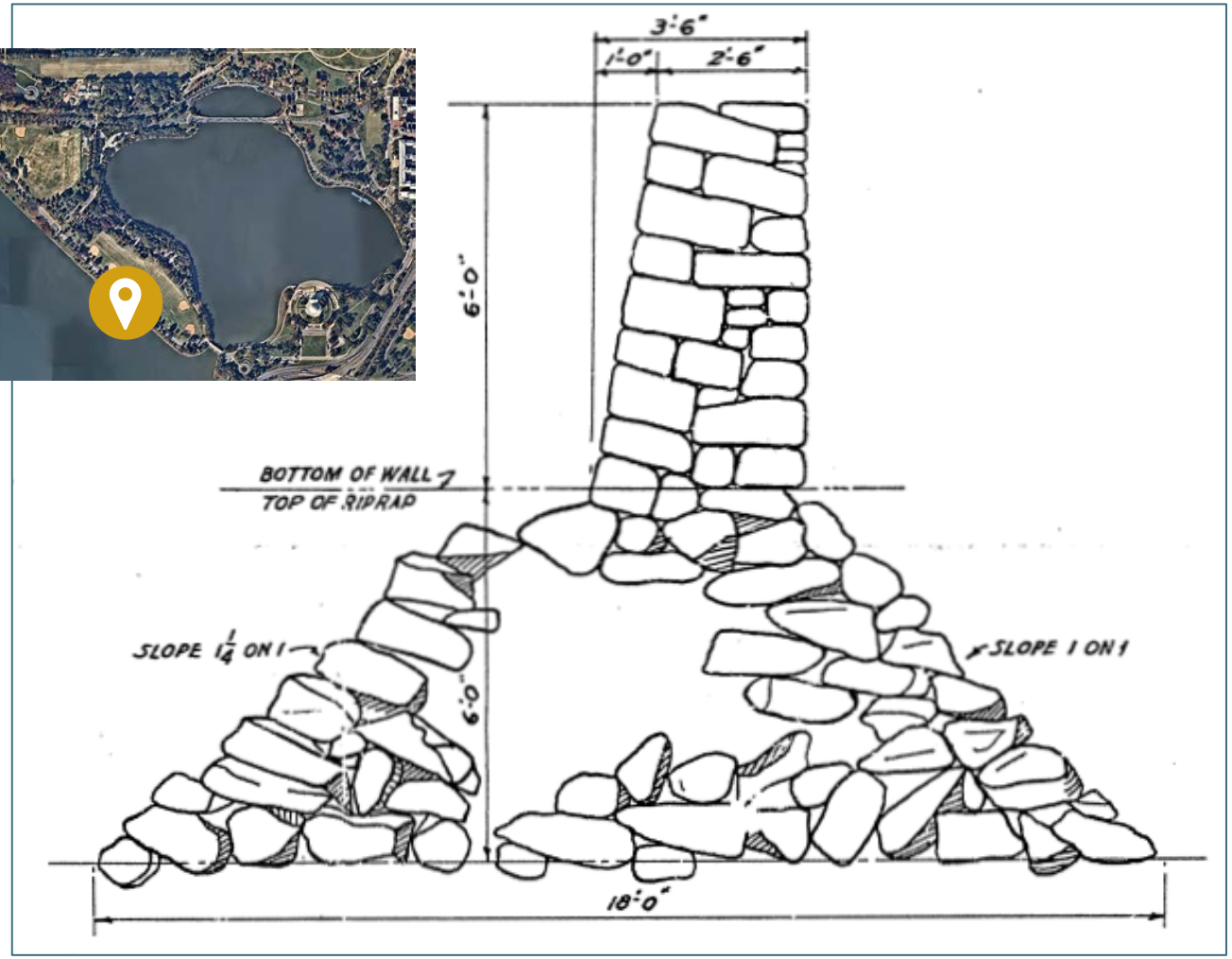
Seawall Character

TIDAL BASIN AND WEST POTOMAC PARK WALL AREA IMAGE DIAGRAMS



DRY STACKED STONE, SPLIT FACE – 1893 - 1896
HISTORIC DESIGN AND EXISTING CONDITION PHOTOS



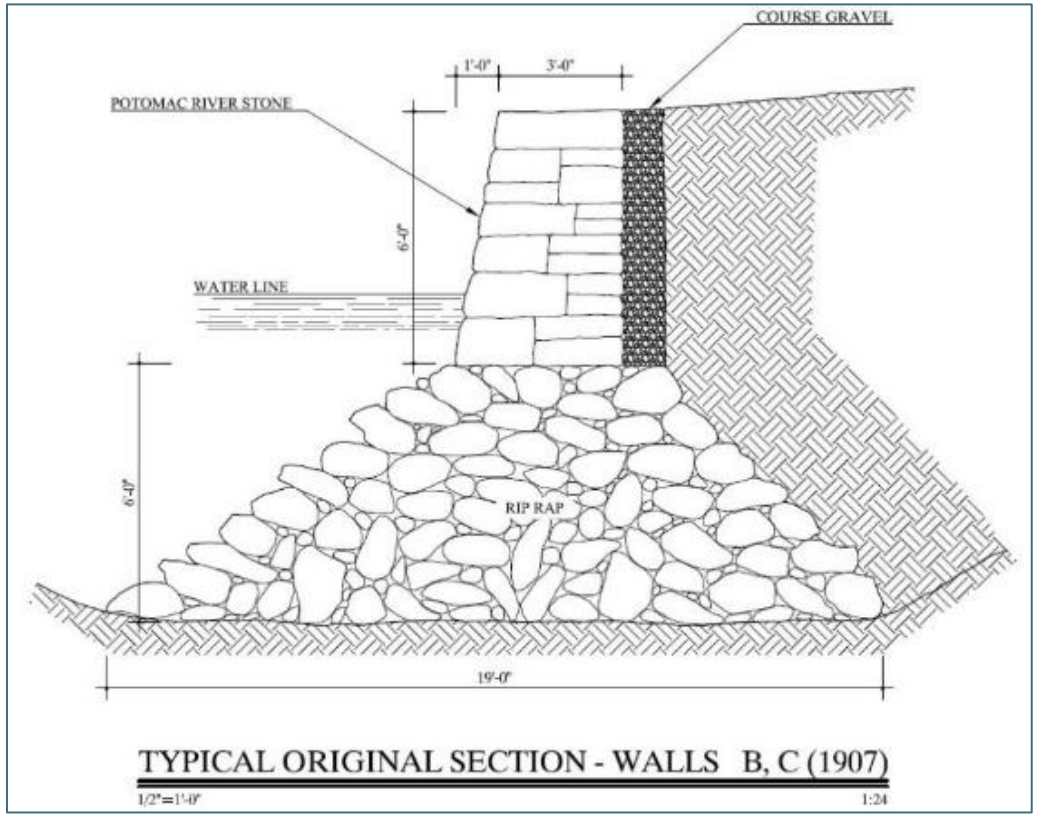


Original Seawall Design Cross Section (NPS 1940)

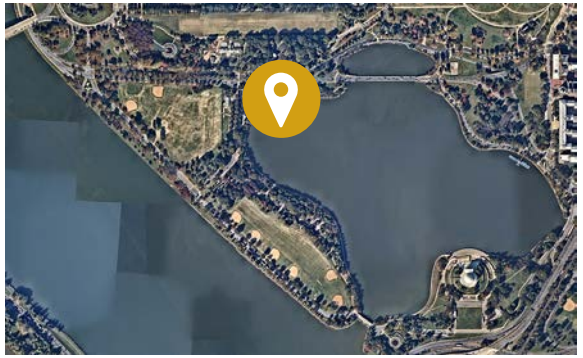
West Potomac Park South – Looking Northeast

West Potomac Park South – Looking Northeast

MORTARED UPPER STONES – 1896+
HISTORIC DESIGN AND EXISTING CONDITION PHOTOS



Original 1907 Design Cross Section
(NPS Cultural Landscape Report, June 2020)



Tidal Basin West (NIC) – Looking North

3FT PORTLAND CEMENT CONCRETE – 1902
EXISTING CONDITION PHOTOS

Tidal Basin North (NIC) – Looking East

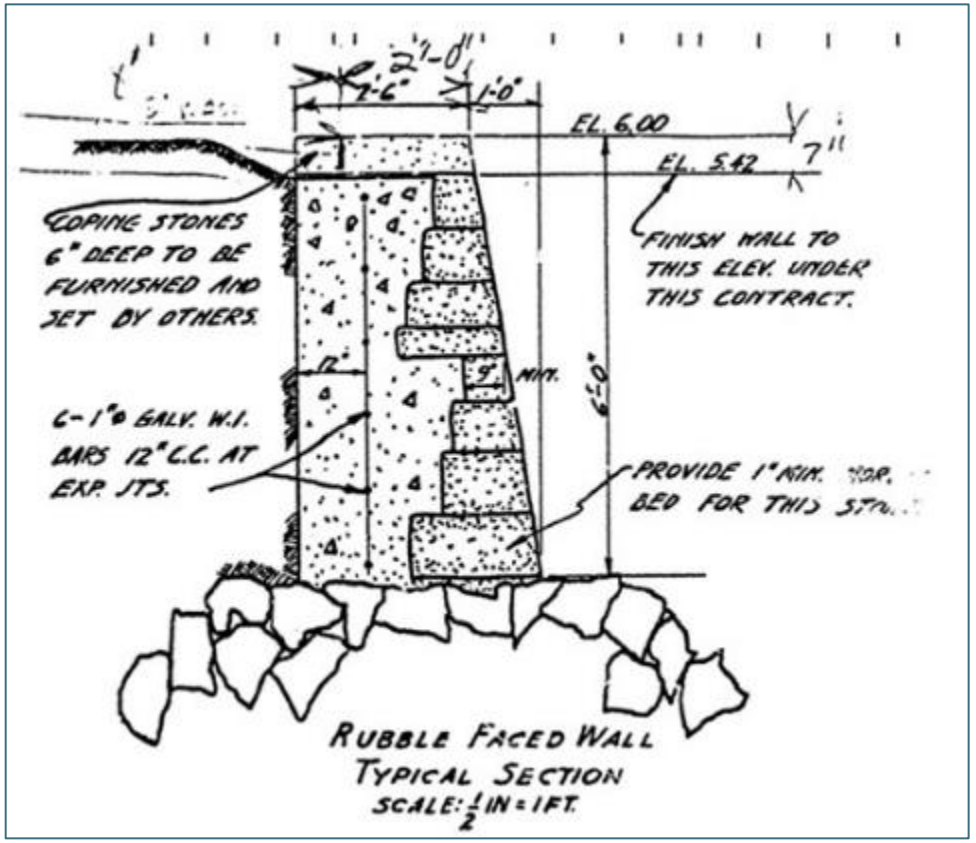
Tidal Basin North (NIC) – Looking North

CONCRETE PAVING – 1915
EXISTING CONDITION PHOTOS

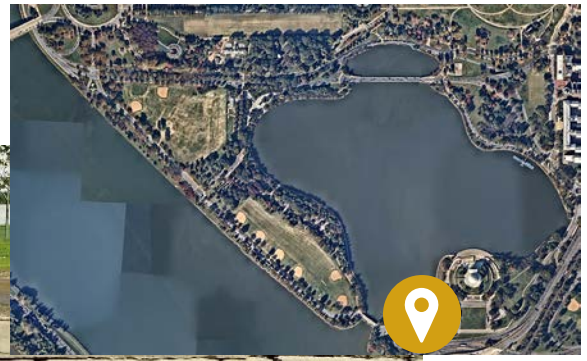
Tidal Basin West– Looking North

Tidal Basin West (NIC) – Looking Northwest

JFM CONCRETE BACKED WALL - 1941
HISTORIC DESIGN AND EXISTING CONDITION PHOTOS



Typical 1940s Tidal Basin East Seawall section



Tidal Basin East – Looking East

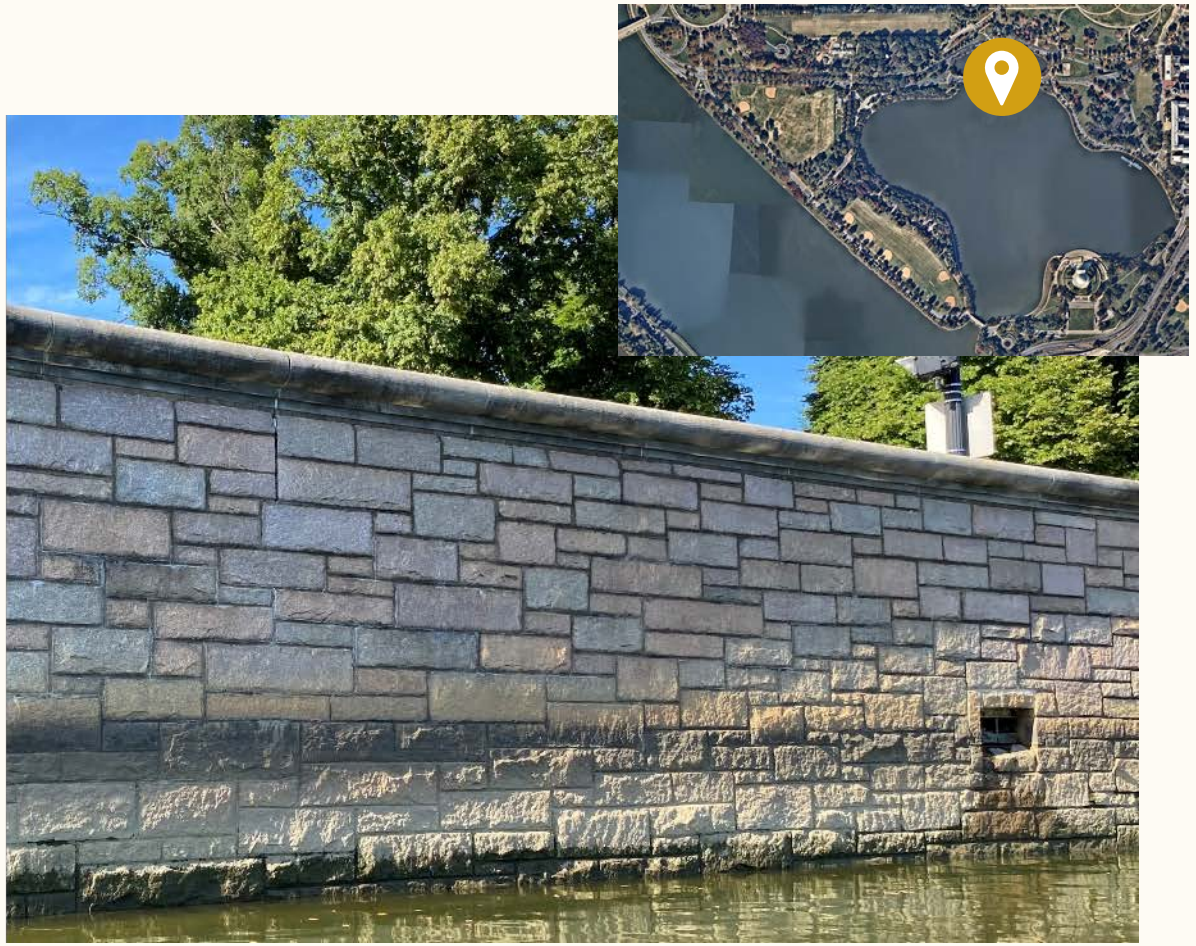
NON-RECTANGULAR, DRESSED, COLORED STONE – 1943
EXISTING CONDITION PHOTOS

Tidal Basin Lagoon (NIC) – Looking West

Tidal Basin Lagoon (NIC) – Looking East

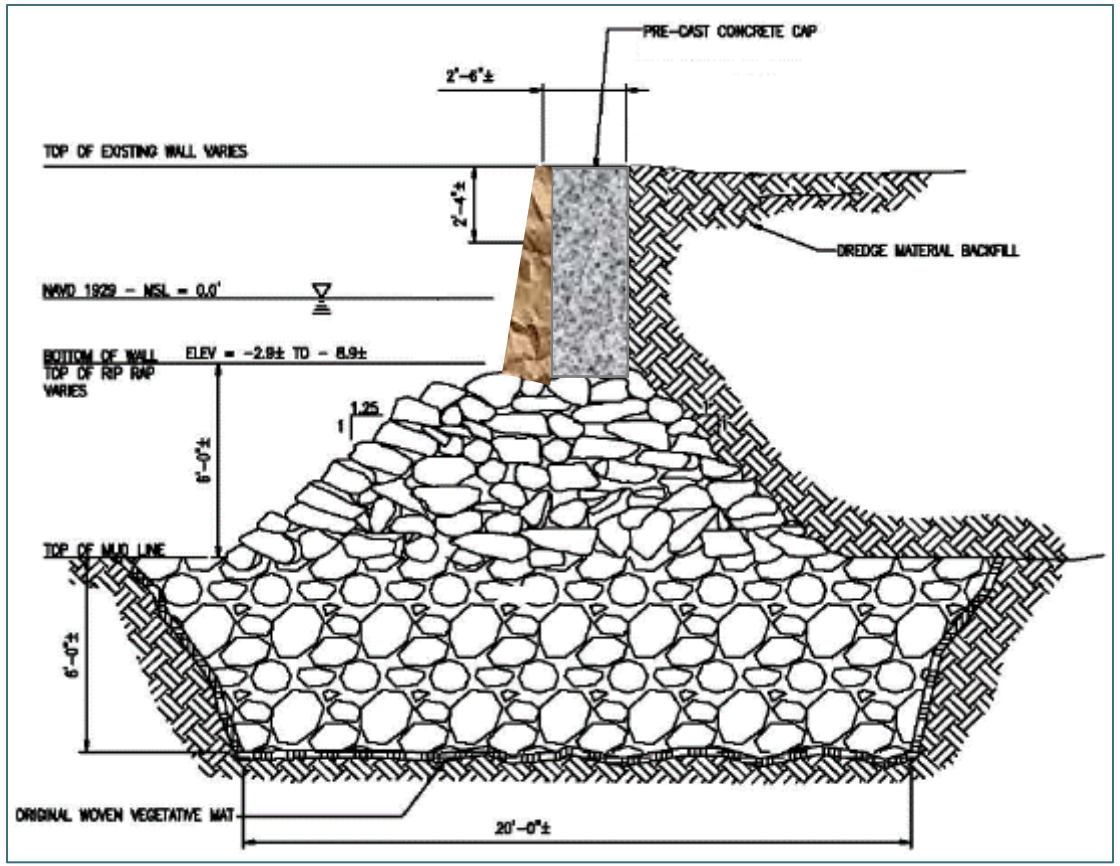
CONCRETE STONE VENEER – 1943
EXISTING CONDITION PHOTOS

Kutz Bridge (NIC) – Looking North

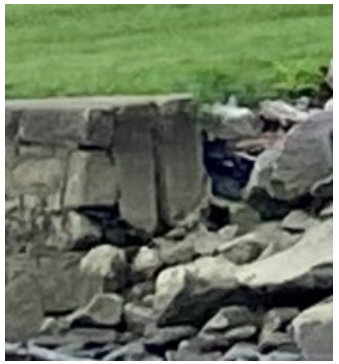


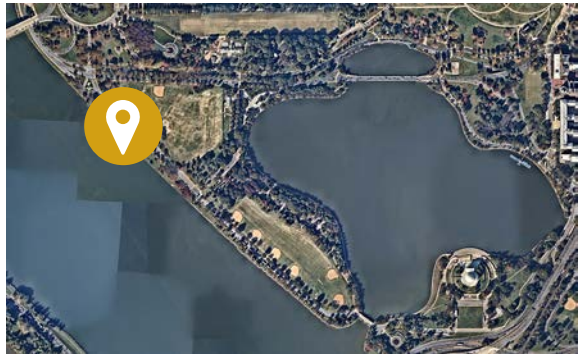
Independence Ave SW (NIC) – Looking North

WPP-N CIP CONCRETE, STONE VENEER – 1958
HISTORIC DESIGN AND EXISTING CONDITION PHOTOS



Assumed Concrete Repair (Dewberry 2011)





The top 6.5' of the wall

West Potomac Park North – Looking North

SEAWALL CHARACTERIZATION










SEAWALL CHARACTERIZATION

WEST POTOMAC PARK SOUTH

- MOSTLY-RECTANGULAR STONES – RATIO 1:1 – 6:1
- UNIFORM COLOR
- MINOR PINNING/CHINKING – SMALL STONES PLACED INTO VOIDS TO HOLD LARGER STONES
- GOOD COURSING – CONTINOUS HORIZONTAL JOINTS
- ROUGH & SMOOTH EXPOSED FACES
- POSSIBLE TOOLED/CHISELED SIDES (CUT) – SOME ROUGH OR SPLIT FACES
- SMALL TO MEDIUM HEIGHT ~ 4” – 6” (AVG)
- NO MORTAR – STONES WELL DEFINED

SEAWALL CHARACTERIZATION

Tidal Basin West

- Mostly-rectangular stones – ratio 1:1 – 4:1
- Uniform color?
- Minor pinning/chinking
- Good coursing – continuous horizontal joints
- Rough & smooth exposed face
- Tooled/chiseled sides (cut)
- Medium to large height ~ 6” – 10” (avg)
- Aged mortar to face of stone – medium sized joints (<1”)

SEAWALL CHARACTERIZATION

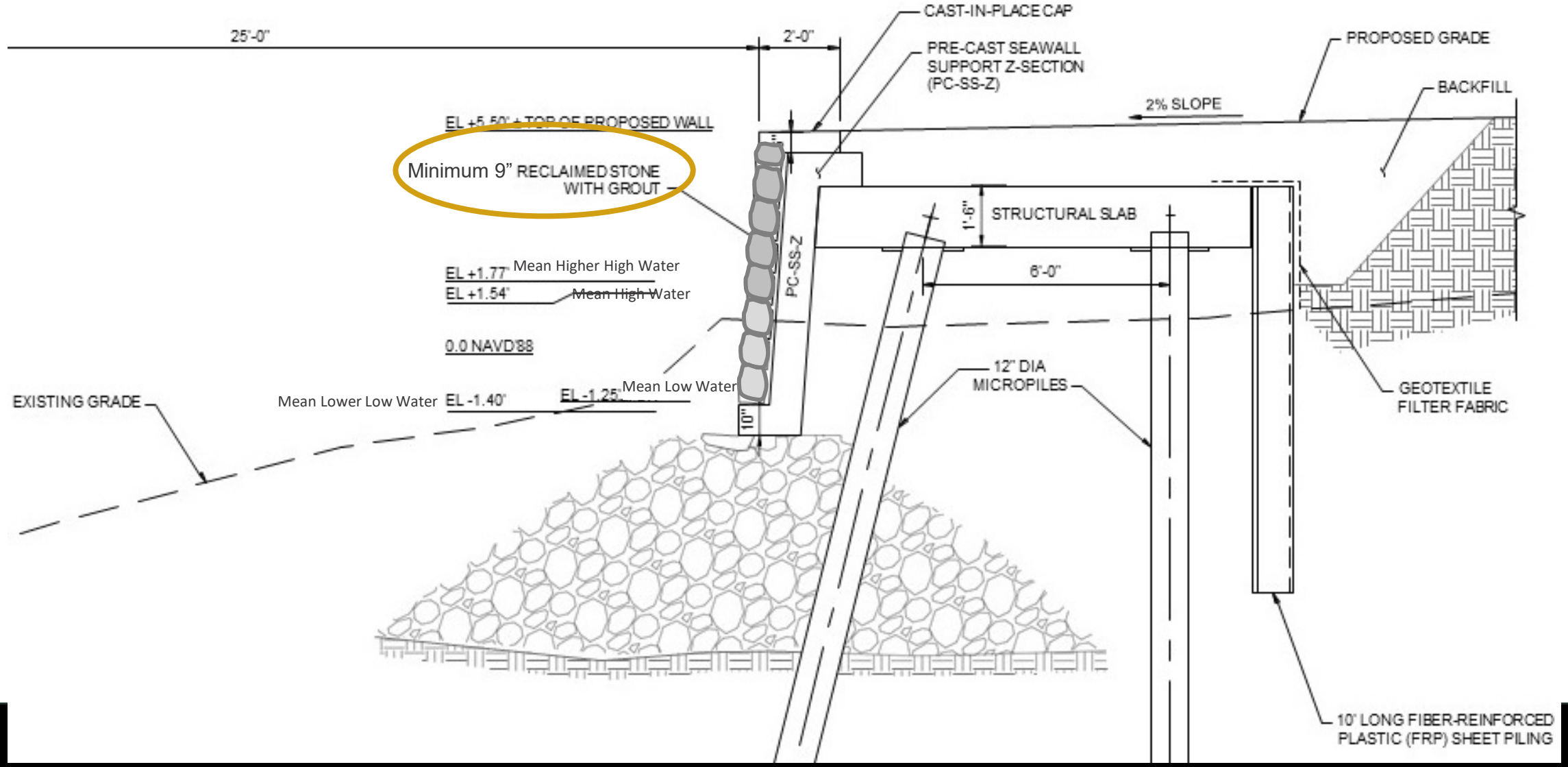
Tidal Basin East

- Rectangular stones – ratio 1:1 – 8:1
- Uniform color
- Minor to moderate pinning/chinking
- Minor to good coursing – continuous horizontal joints
- Very rough & smooth exposed face
- Some tooled/chiseled sides (cut) – some rough sides
- Small to large height ~ 3” – 10”
- Aged/degraded mortar leaves large gaps around veneer stones (>1”)

ACCEPTABLE SEAWALL CHARACTER

- Rectangular Stone Shape
- Reuse as much Historic Stone as Possible
  - Large Stone Variability
  - Moderate Pinning/Chinking
- Good Horizontal Coursing
- Less than 1" Joint Gaps Around Stones with Recessed Mortar
- Uniform Color
- Rough & Smooth Stone Faces

TYPICAL SCHEMATIC DESIGN SECTION

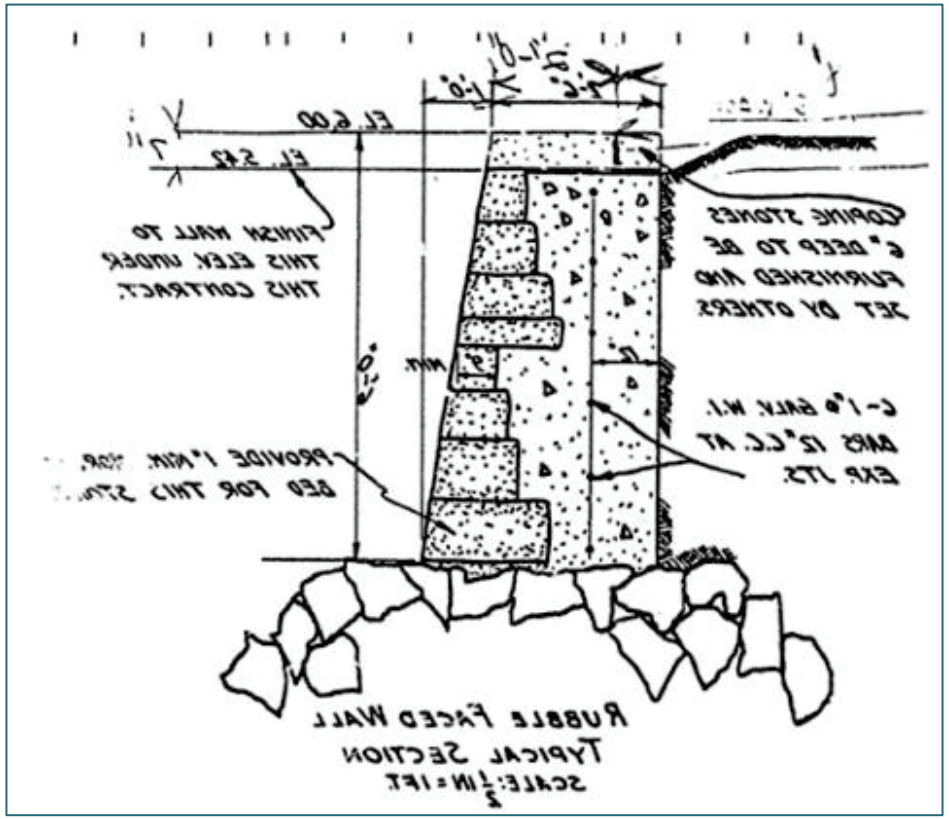


01

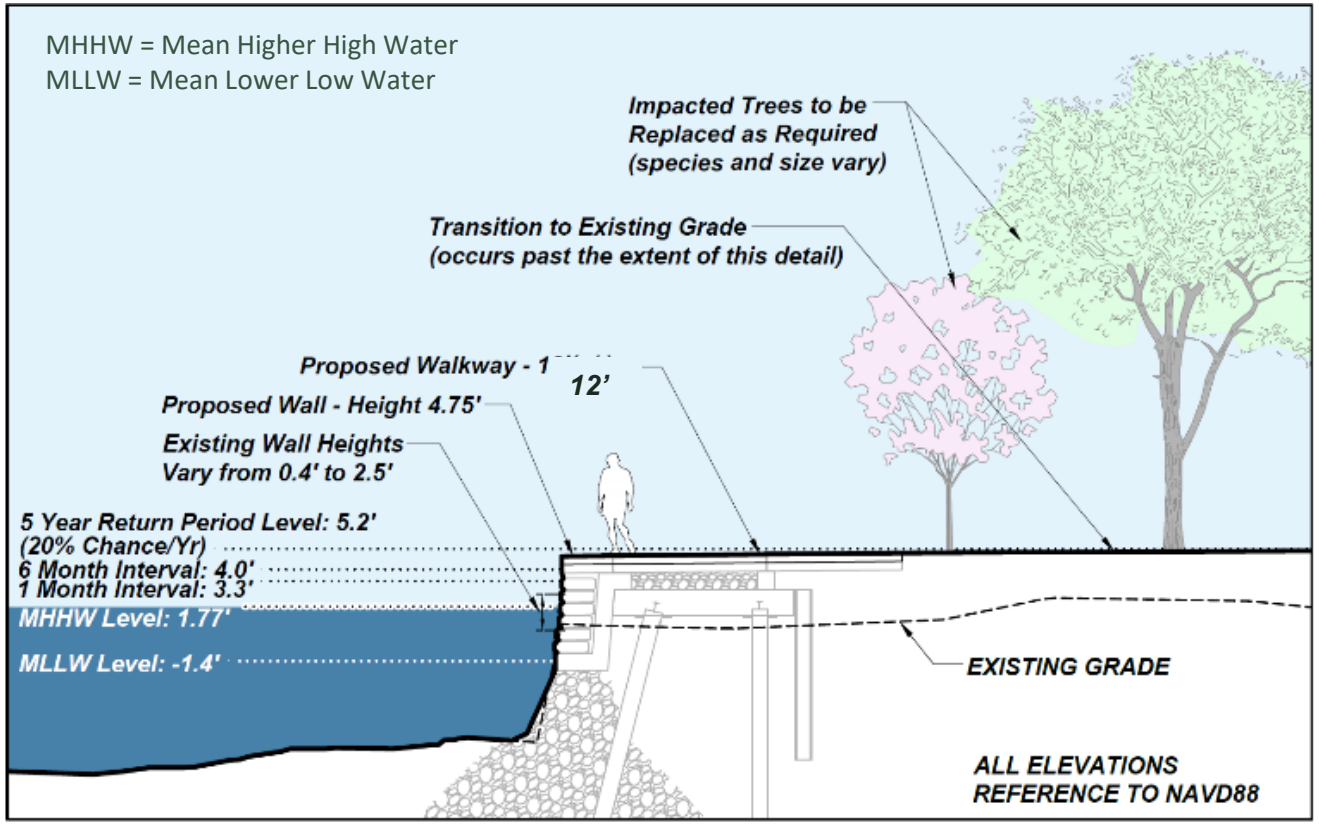
PROJECT UPDATES

Tidal Basin

TIDAL BASIN EAST – PROPOSED

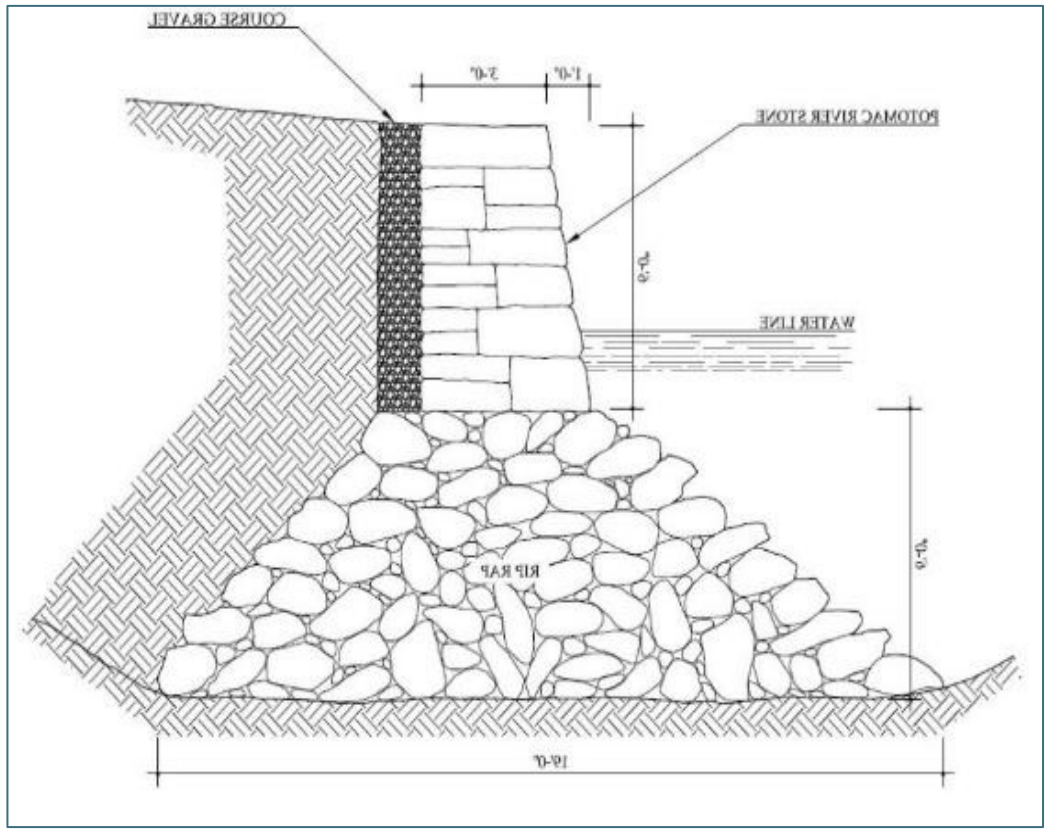


EXISTING CONDITIONS
(Typical 1940s Tidal Basin East Seawall section)

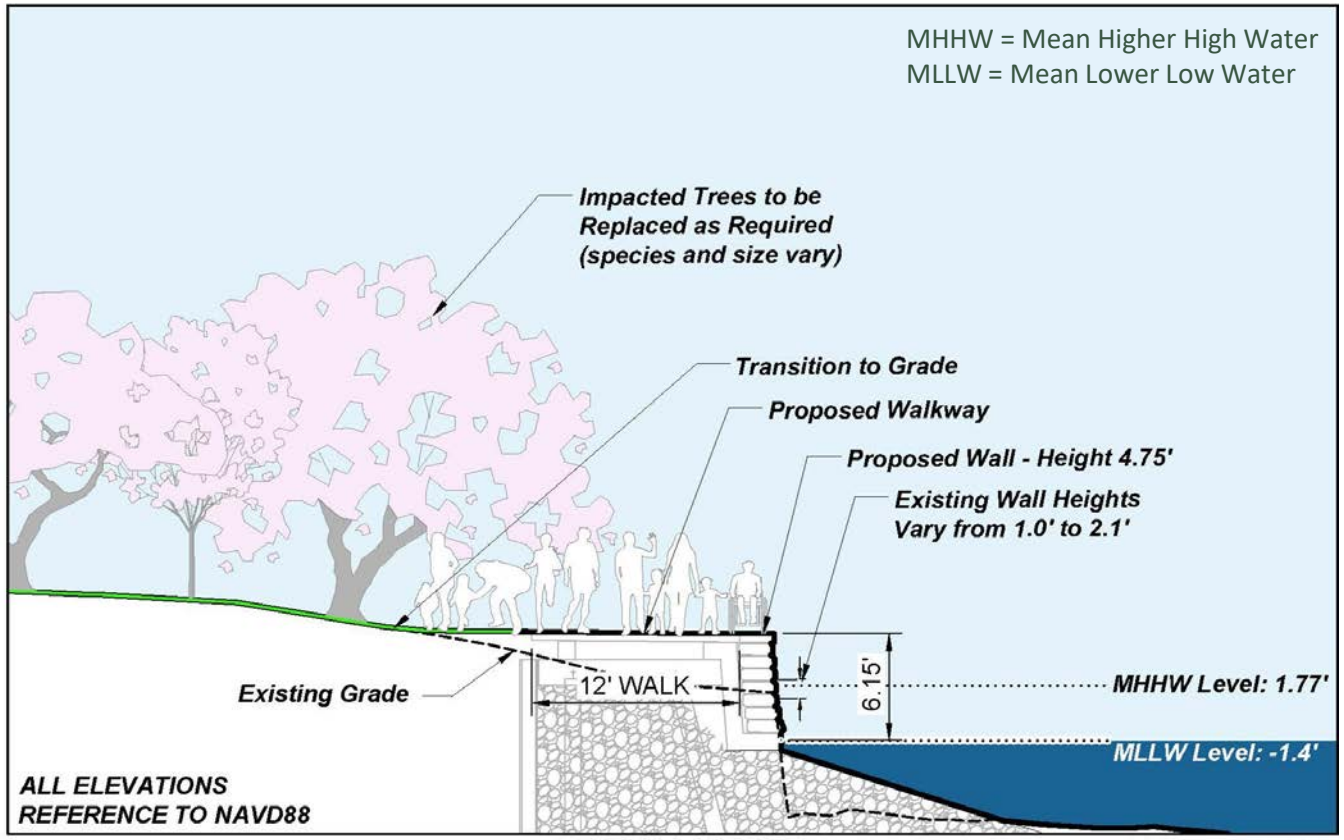


PROPOSED CONDITIONS (TYPICAL)
Tidal Basin - East
(Visualization for Planning Purposes Only)

TIDAL BASIN WEST - PROPOSED



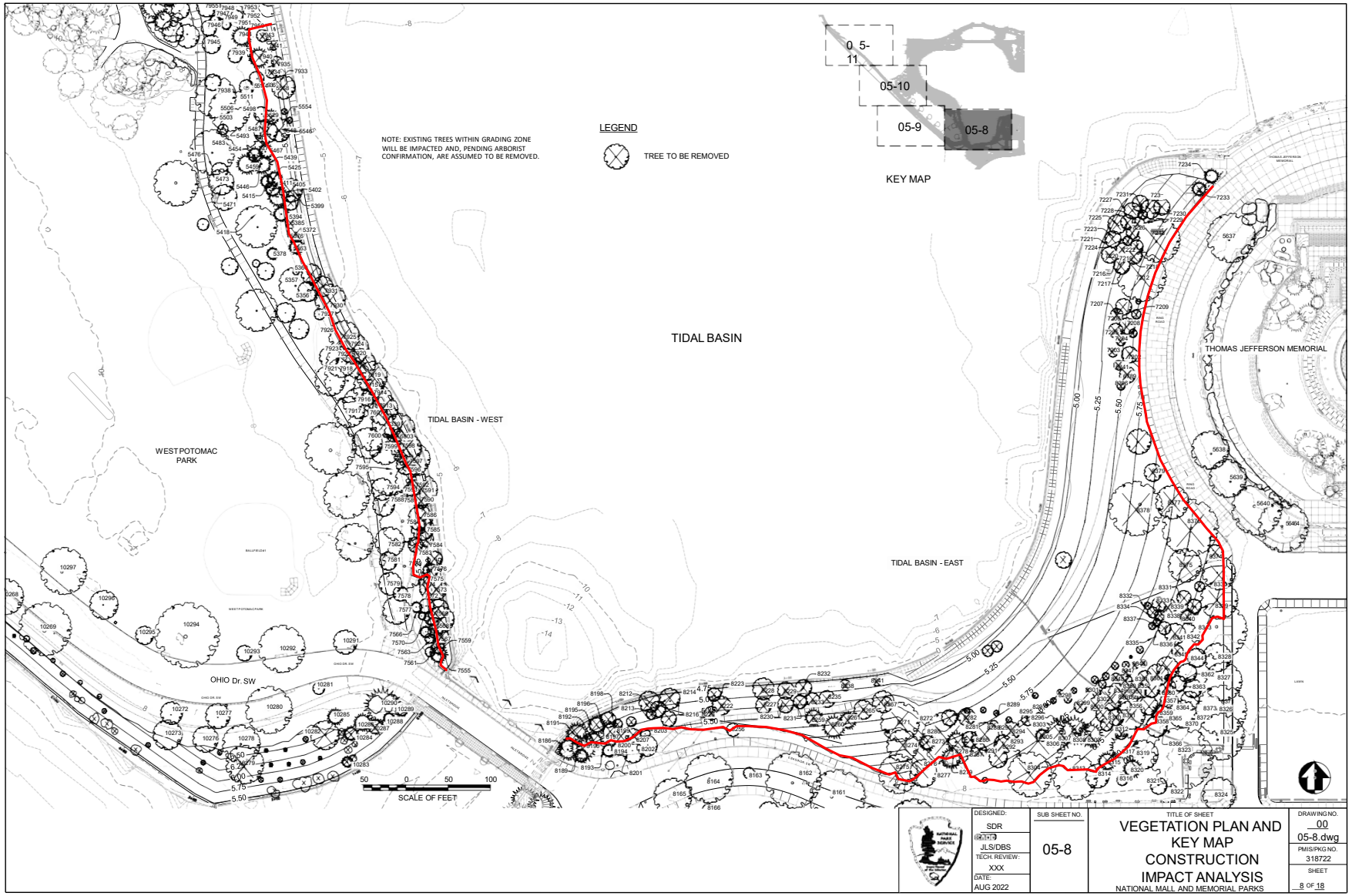
EXISTING CONDITIONS
(Original 1907 Tidal Basin West Seawall section)



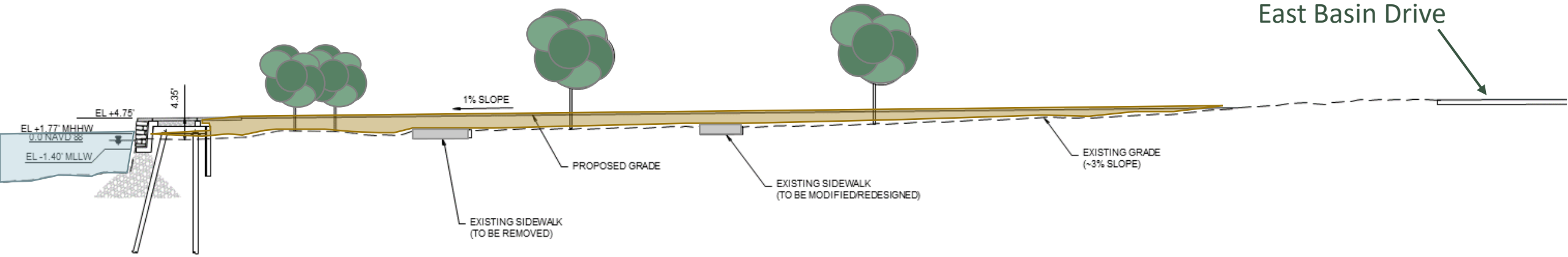
12' WALKWAY
PROPOSED CONDITIONS (TYPICAL)
Tidal Basin - West
(Visualization for Planning Purposes Only)

SCALE: 1/8" = 1'-0"

TIDAL BASIN - LIMITS OF GRADING



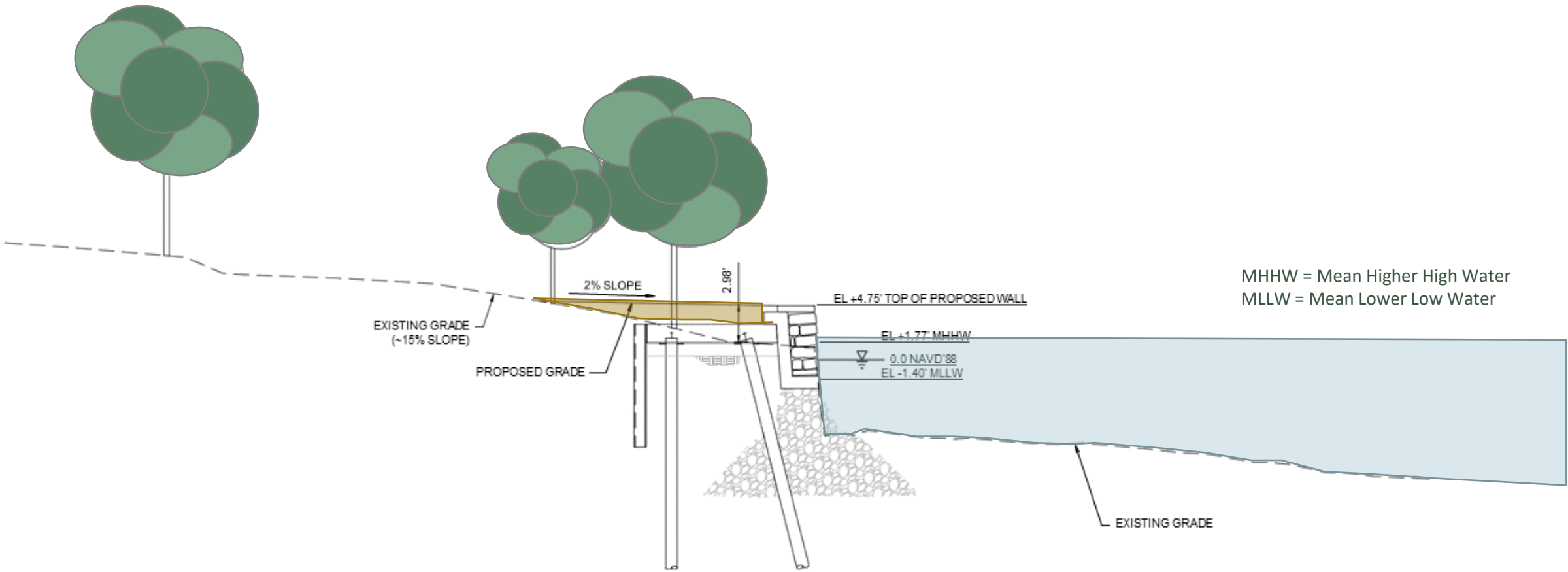
TIDAL BASIN EAST – INLAND GRADING*



*Cross sectional view of grading/fill to maintain 1% slope to top of wall

MHHW = Mean Higher High Water
MLLW = Mean Lower Low Water

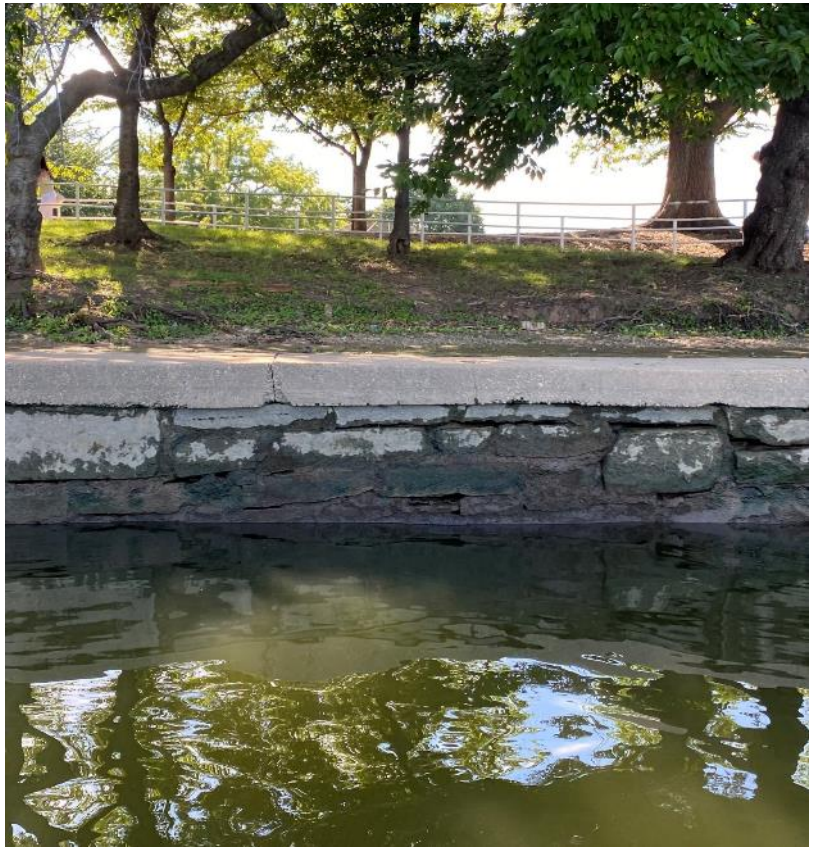
TIDAL BASIN WEST – INLAND GRADING*



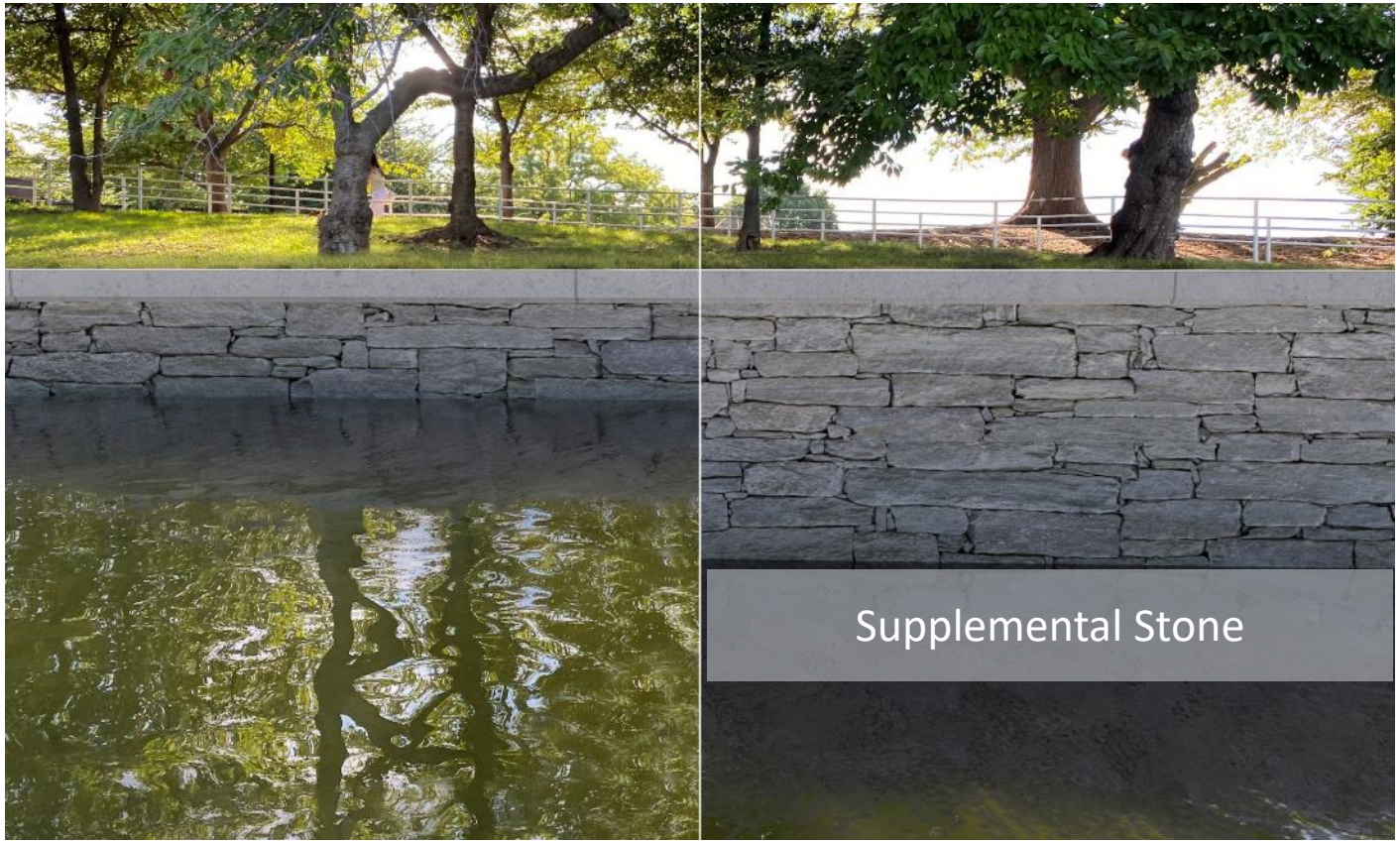
MHHW = Mean Higher High Water
MLLW = Mean Lower Low Water

*Cross sectional view of grading/fill to maintain 2% slope to top of wall

TIDAL BASIN WEST - RENDERING



EXISTING



PROPOSED AT HIGH TIDE

PROPOSED AT LOW TIDE

TIDAL BASIN EAST - RENDERING

VIEW OF TIDAL BASIN EAST

EXISTING

PROPOSED

TIDAL BASIN EAST - RENDERING

TIDAL BASIN EAST - RENDERING

TIDAL BASIN EAST TRANSITION - RENDERING

VIEW OF WEST STEPS OF JEFFERSON MEMORIAL PLAZA

EXISTING

PROPOSED

TIDAL BASIN WEST TRANSITION - RENDERING

VIEW FROM FDR MEMORIAL WALKWAY TO INLET BRIDGE

EXISTING

PROPOSED

TIDAL BASIN EAST & WEST - RENDERING

VIEW FROM MLK MEMORIAL TO TIDAL BASIN EAST AND TIDAL BASIN WEST

TIDAL BASIN EAST & WEST - RENDERING

VIEW FROM PADDLE BOAT AREA TO TIDAL BASIN EAST AND TIDAL BASIN WEST

VEGETATION

- Cherry trees are contributing resources to the Historic District and Cultural Landscape
- Some date back to 1912, though they are contributing regardless of their age
- Factors leading to the decline of cherry trees include regular flooding and soil compaction

Tidal Basin West – Looking North

Tidal Basin East – Looking West

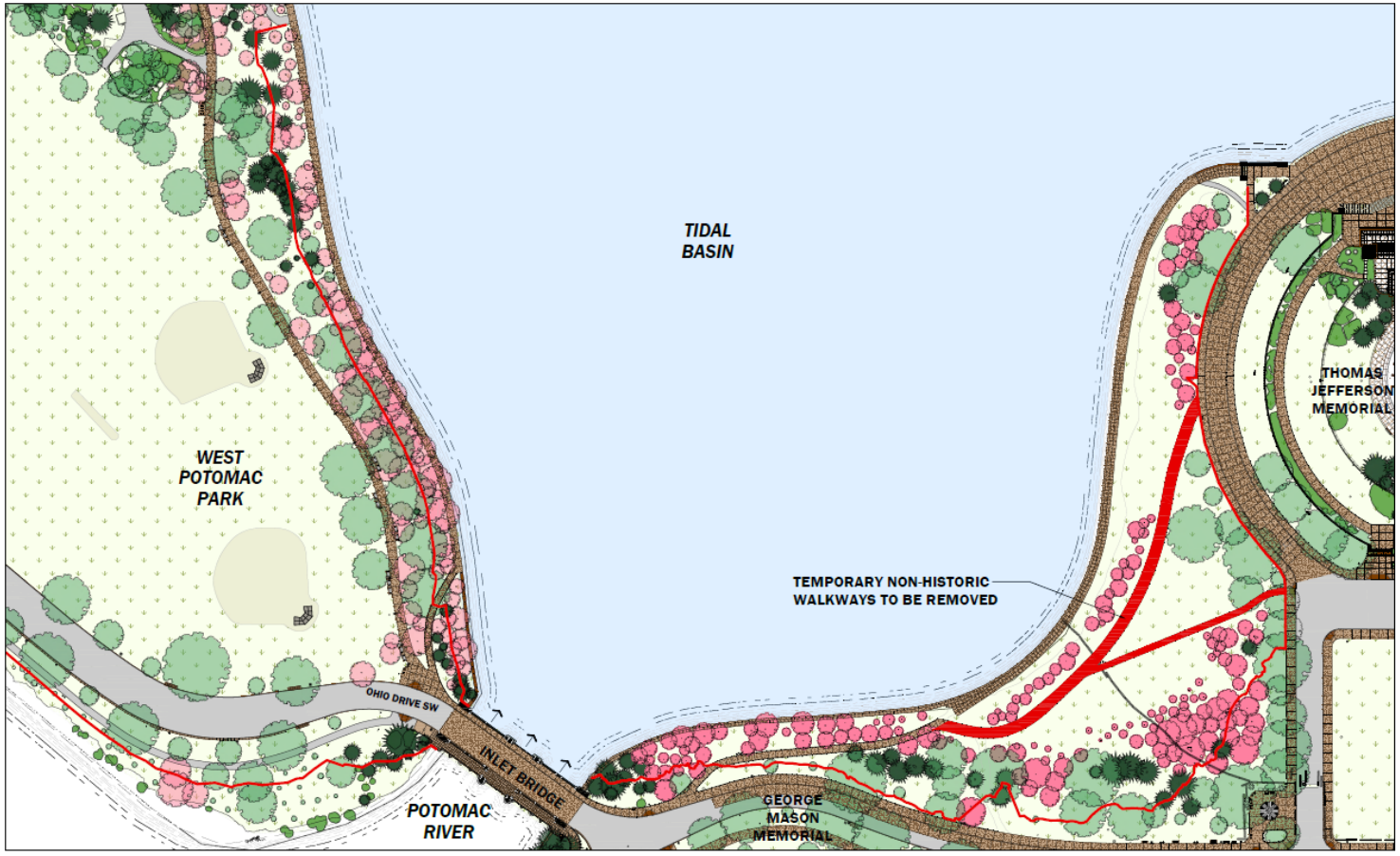
Tidal Basin East– Looking East from Inlet Bridge

Tidal Basin West – Looking South

EXISTING VEGETATION PLAN – TIDAL BASIN

ESTIMATED # OF TREES TO BE REMOVED

Section	Cherry	Deciduous	Evergreen	Unknown	Total
TB - East	108	29	26	5	168
TB - West	49	3	12	2	66
TOTAL	157	32	38	7	234



EXISTING CONDITIONS
CULTURAL LANDSCAPE REPORT TIDAL BASIN JUNE 2020

PROPOSED PLANTING PLAN – TIDAL BASIN

ESTIMATED # OF TREES TO BE PLANTED

Section	Cherry	Deciduous	Evergreen	Unknown	**Total**
TB - East	145	45	35	0	**225**
TB - West	64	6	16	0	**86**
TOTAL	209	51	51	0	**311**

CONCEPT DESIGN PROPOSED CONDITIONS
TIDAL BASIN

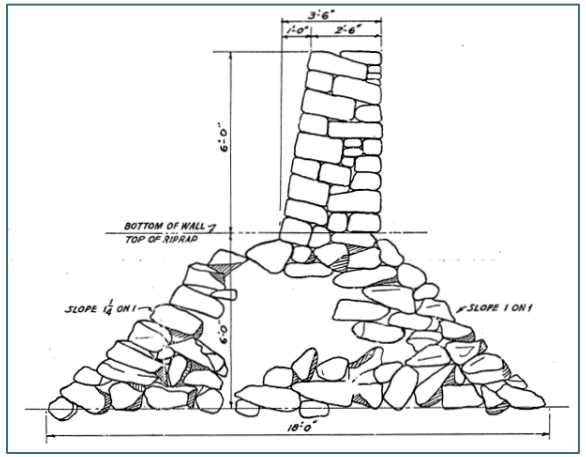
*Concept will develop further, and full tree assessment will be conducted by project team and NPS arborist

01

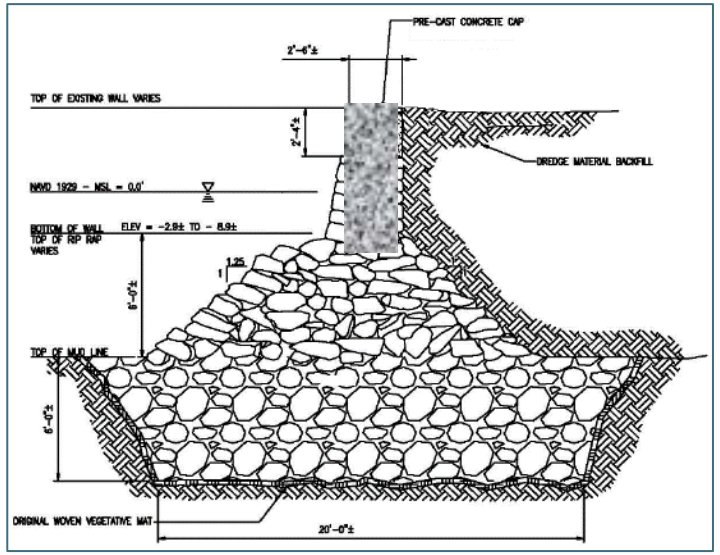
PROJECT UPDATES

West Potomac Park

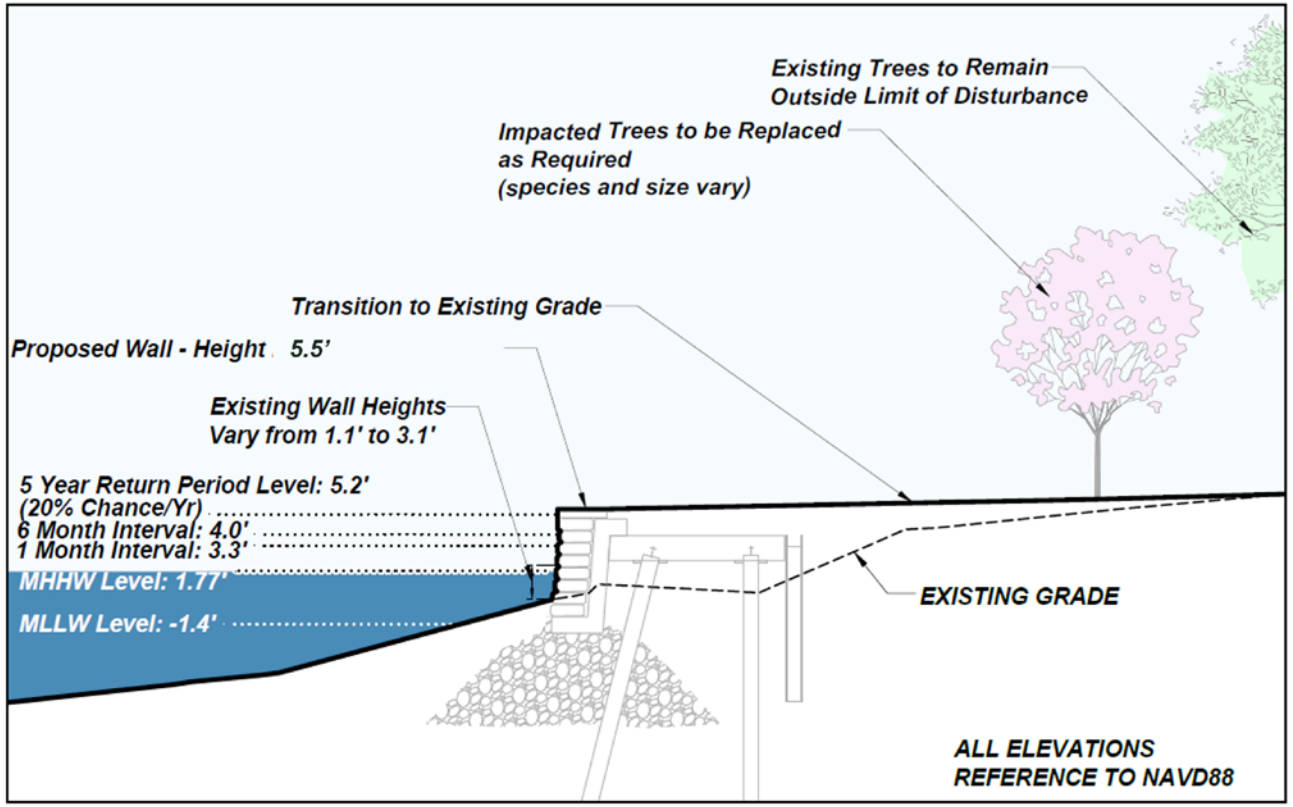
WEST POTOMAC PARK - PROPOSED



EXISTING CONDITIONS (Original Section: WPP South)



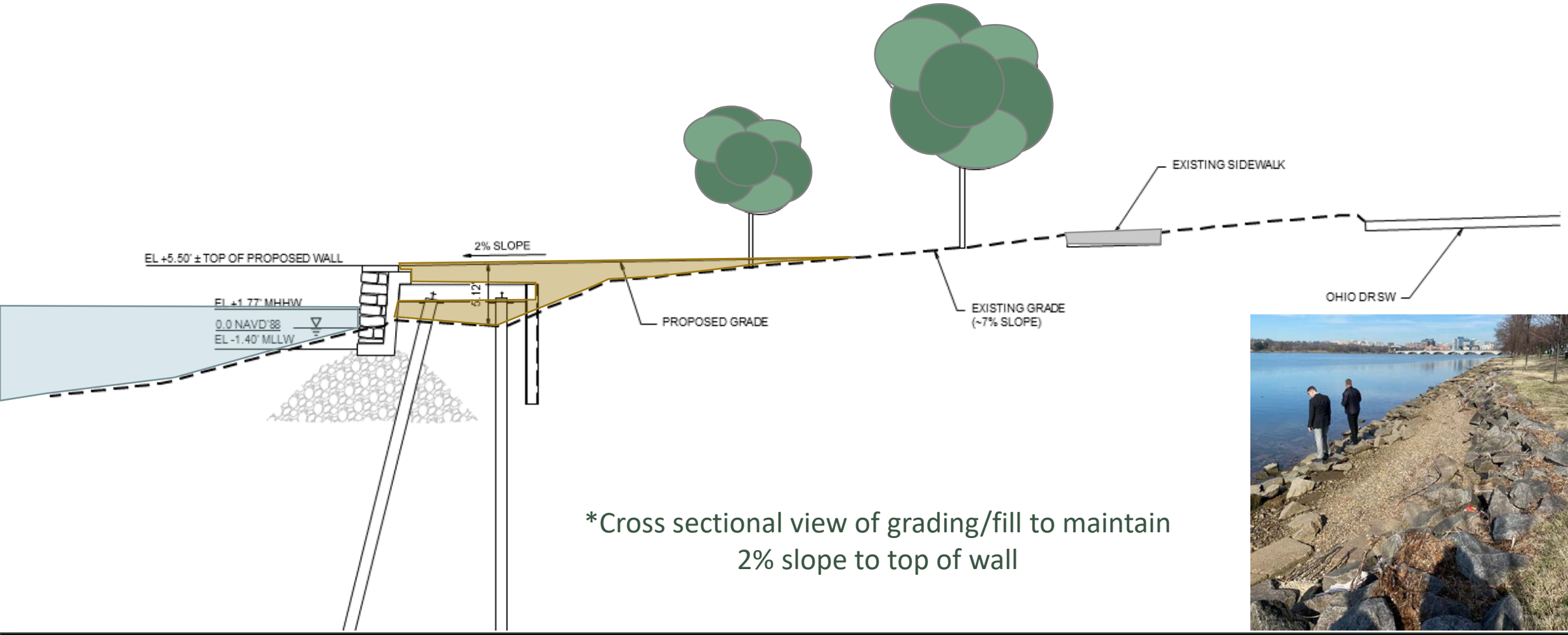
EXISTING CONDITIONS (Assumed Concrete Repair: WPP North)



SCALE: 1/8" = 1'-0"
SECTION 8

PROPOSED CONDITIONS (TYPICAL)
West Potomac Park
(Visualization for Planning Purposes Only)

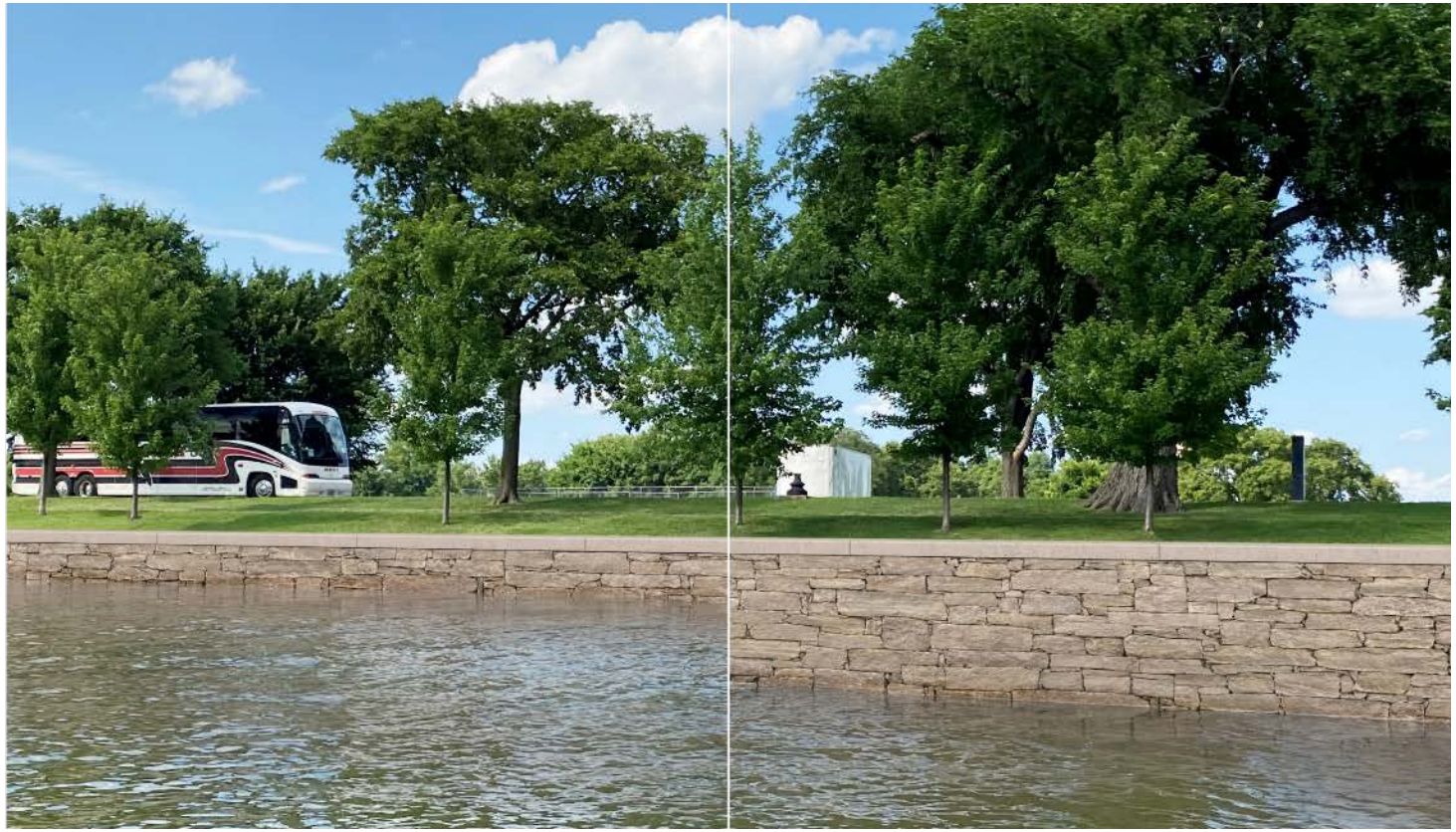
WEST POTOMAC PARK- INLAND GRADING



*Cross sectional view of grading/fill to maintain 2% slope to top of wall

WEST POTOMAC PARK- RENDERING

EXISTING



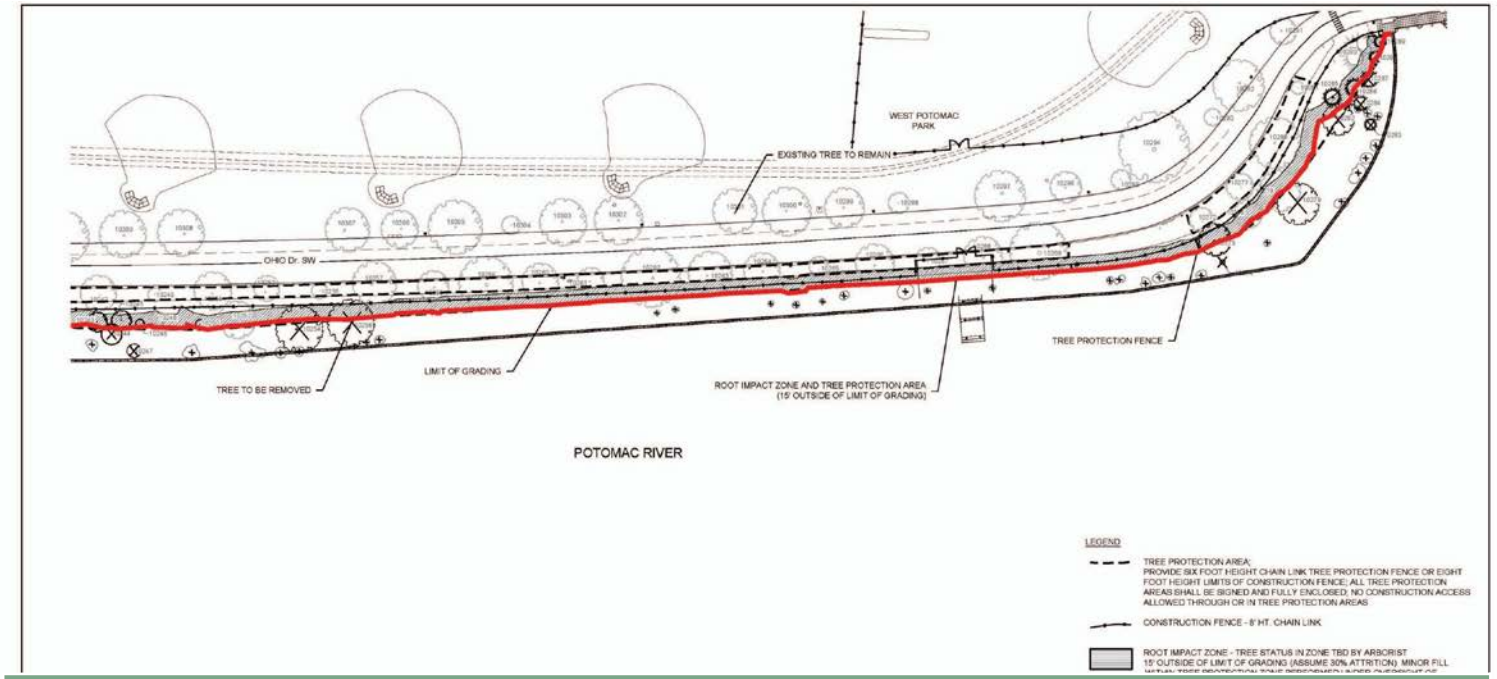
PROPOSED AT HIGH TIDE

PROPOSED AT LOW TIDE

WEST POTOMAC PARK - RENDERING

VIEW FROM VIRGINIA SHORELINE TO WEST POTOMAC PARK

EXISTING VEGETATION PLAN – WPP (1 of 3)

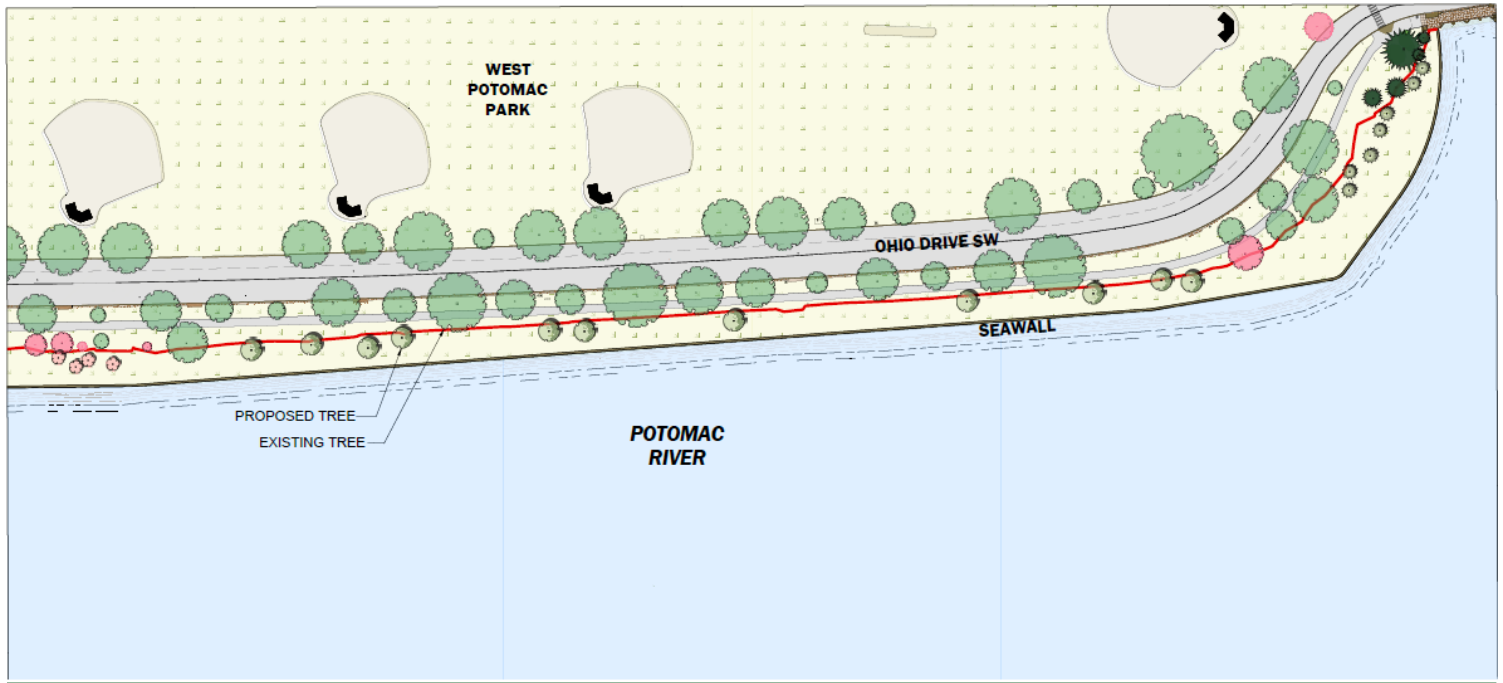


TREES TO BE REMOVED IN THIS SECTION				
Cherry	Deciduous	Evergreen	Unknown	**Total**
2	4	4	1	**11**

Totals for West Potomac Park

TYPE	# REMOVED	# PLANTED
Cherry	22	36
Deciduous	13	25
Evergreen	4	9
Unknown	1	0
TOTAL	**40**	**70**

PROPOSED PLANTING PLAN – WPP (1 of 3)



TREES TO BE PLANTED IN THIS SECTION				
Cherry	Deciduous	Evergreen	Unknown	**Total**
4	11	9	0	**24**

CONCEPT DESIGN PROPOSED CONDITIONS
WEST POTOMAC PARK (SOUTHEAST SECTION)

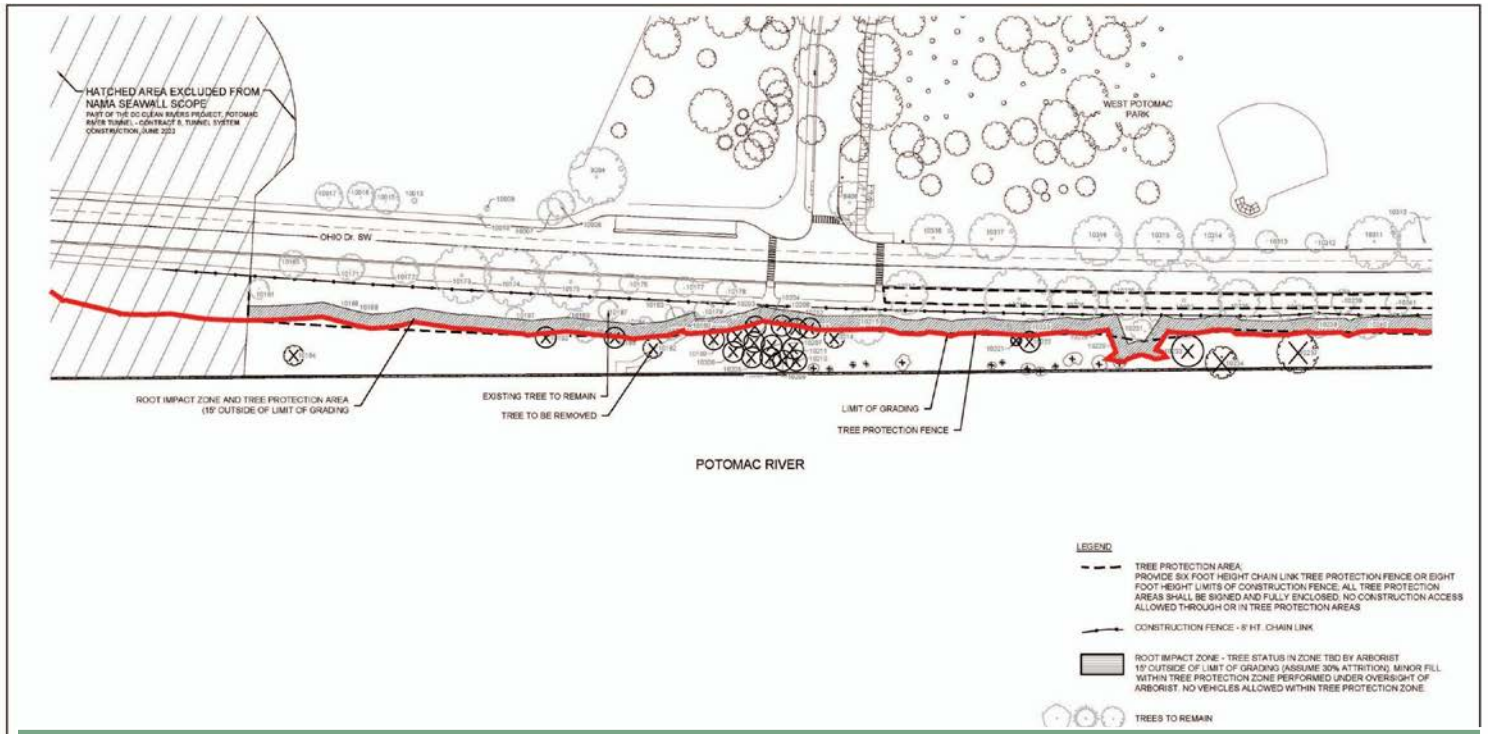
SCALE OF FEET

Totals for West Potomac Park

TYPE	# REMOVED	# PLANTED
Cherry	22	36
Deciduous	13	25
Evergreen	4	9
Unknown	1	0
TOTAL	**40**	**70**

*Concept will develop further, and full tree assessment will be conducted by project team and NPS arborist

EXISTING VEGETATION PLAN – WPP (2 of 3)

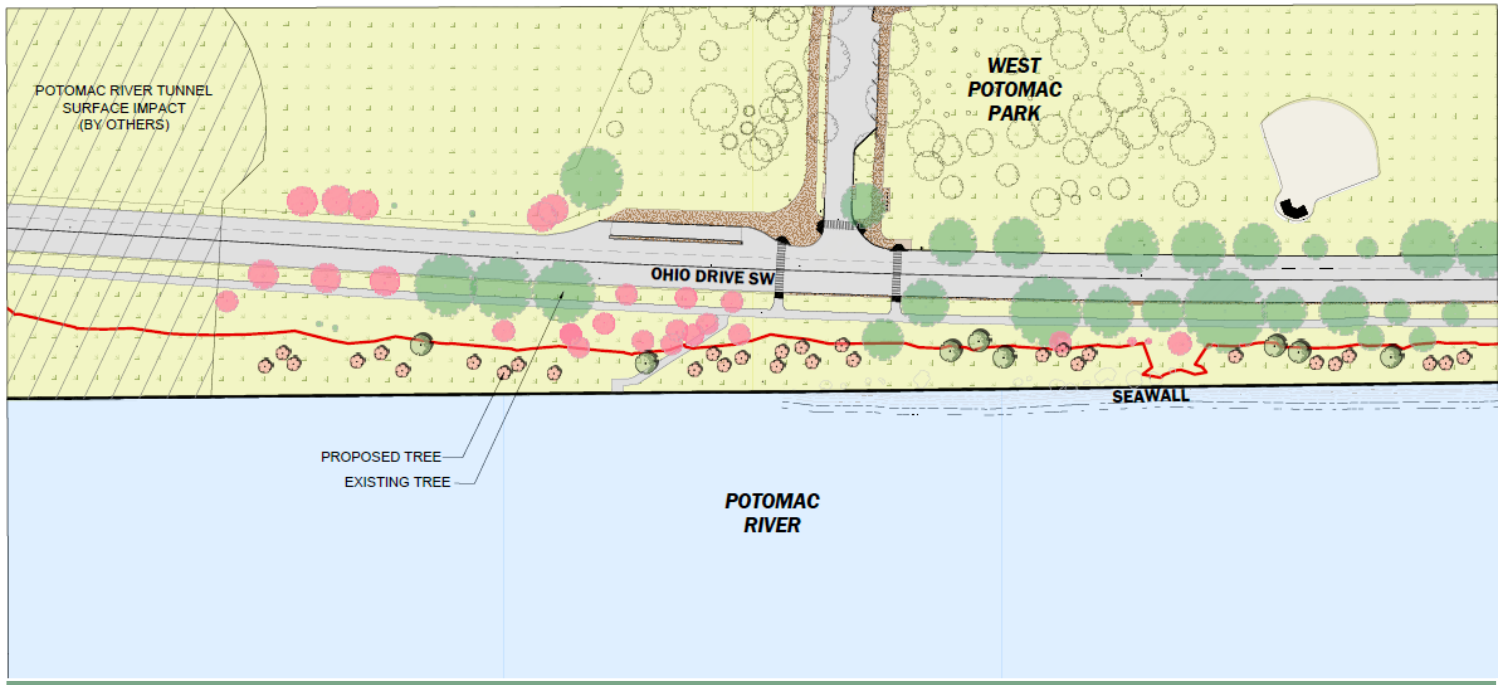


TREES TO BE REMOVED IN THIS SECTION				
Cherry	Deciduous	Evergreen	Unknown	**Total**
19	5	0	0	**24**

Totals for West Potomac Park

TYPE	# REMOVED	# PLANTED
Cherry	22	36
Deciduous	13	25
Evergreen	4	9
Unknown	1	0
TOTAL	**40**	**70**

PROPOSED PLANTING PLAN – WPP (2 of 3)



TREES TO BE PLANTED IN THIS SECTION				
Cherry	Deciduous	Evergreen	Unknown	**Total**
31	8	0	0	**39**

CONCEPT DESIGN PROPOSED CONDITIONS
WEST POTOMAC PARK (MIDDLE SECTION)

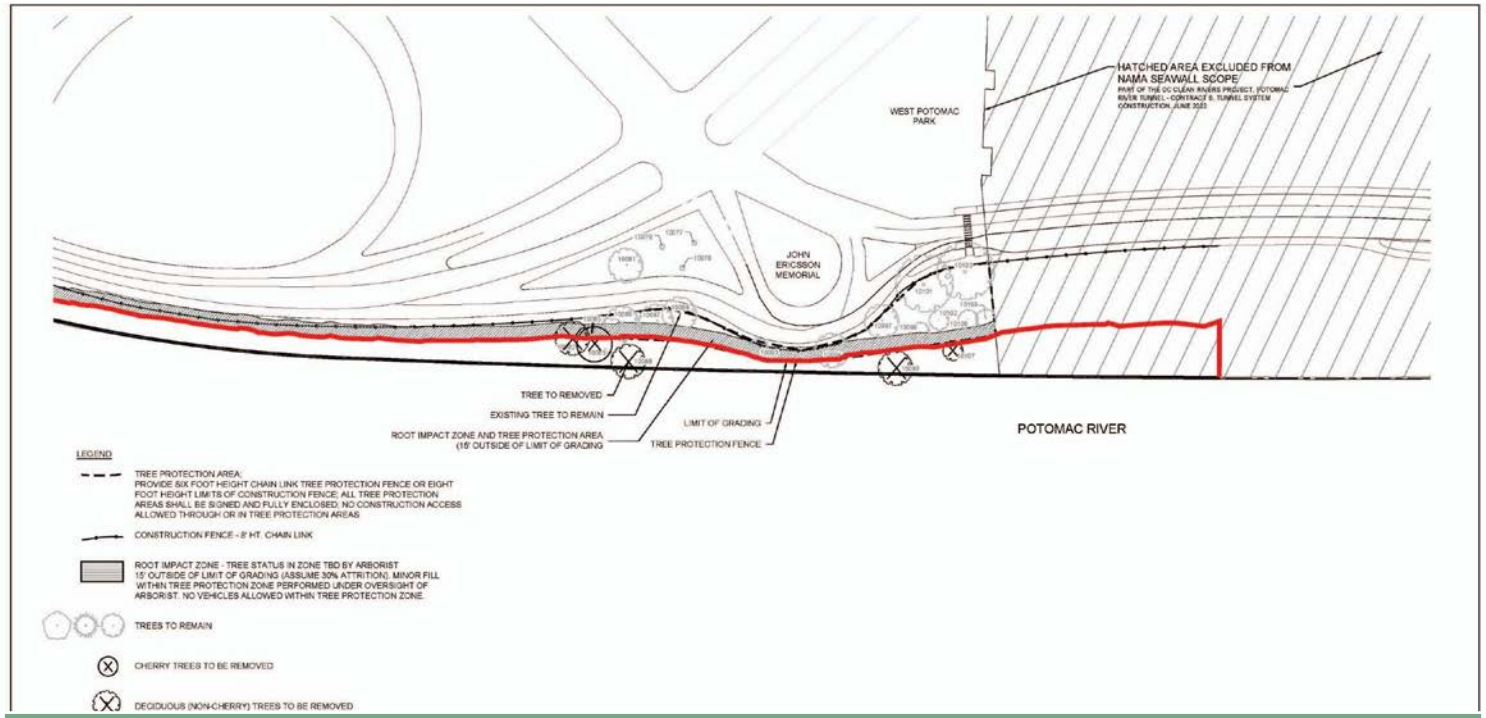
50 0 50 100
SCALE OF FEET

Totals for West Potomac Park

TYPE	# REMOVED	# PLANTED
Cherry	22	36
Deciduous	13	25
Evergreen	4	9
Unknown	1	0
TOTAL	**40**	**70**

*Concept will develop further, and full tree assessment will be conducted by project team and NPS arborist

EXISTING VEGETATION PLAN – WPP (3 of 3)

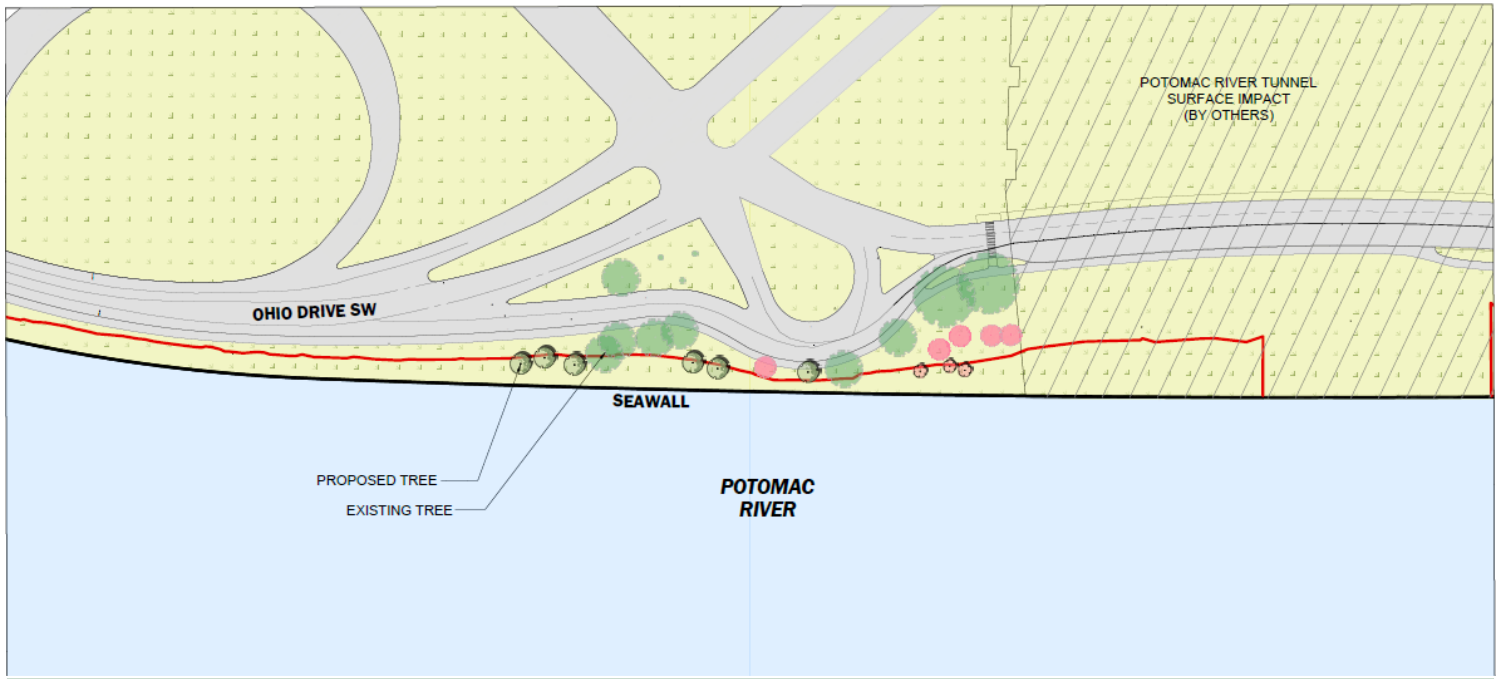


TREES TO BE REMOVED IN THIS SECTION				
Cherry	Deciduous	Evergreen	Unknown	**Total**
1	4	0	0	**5**

Totals for West Potomac Park

TYPE	# REMOVED	# PLANTED
Cherry	22	36
Deciduous	13	25
Evergreen	4	9
Unknown	1	0
TOTAL	**40**	**70**

PROPOSED PLANTING PLAN – WPP (3 of 3)



TREES TO BE PLANTED IN THIS SECTION				
Cherry	Deciduous	Evergreen	Unknown	**Total**
1	6	0	0	**7**

CONCEPT DESIGN PROPOSED CONDITIONS
WEST POTOMAC PARK (NORTHWEST SECTION)

50 0 50 100
SCALE OF FEET

Totals for West Potomac Park

TYPE	# REMOVED	# PLANTED
Cherry	22	36
Deciduous	13	25
Evergreen	4	9
Unknown	1	0
TOTAL	**40**	**70**

*Concept will develop further, and full tree assessment will be conducted by project team and NPS arborist

02

DETERMINATION OF EFFECT

DETERMINATION OF EFFECT

	Adverse Effects	Temporary Construction Adverse Effect	Temporary Visual Adverse Effects
National Mall/Wash Monument Grounds HD	X	X	X
East and West Potomac Parks HD	X	X	X
Arlington National Cemetery HD			X
GW Memorial Parkway HD			X
Mount Vernon Memorial Highway HD			X
Arlington Memorial Bridge			X
MLK Jr. Memorial			X
FDR Memorial		X	X
Thomas Jefferson Memorial		X	X

ADVERSE EFFECTS

1. Alteration and loss of historic fabric;
2. Loss of contributing trees and vegetation (including Japanese cherry trees); and,
3. Temporary effects to views/viewsheds and visitor access and experience during construction.

03

AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

AVOIDANCE MEASURES

1. Horizontal alignment of the seawalls will not be altered, avoiding changes to the shape of the Tidal Basin and West Potomac Park.
2. Rehabilitating the seawalls to their historic functional height will restore historic viewsheds, avoiding visual adverse effects.
3. Trees and vegetation to remain will be protected throughout construction to avoid damage.

MINIMIZATION MEASURES

1. Design and construction to follow the Secretary of the Interior’s Standards.
2. Design and construction will ensure the historic ashlar pattern of stacked stone is retained, minimizing visual effects.
3. Maximum amount of historic stone possible will be reused to minimize the loss of historic fabric and will be concentrated at the most visible portion of walls to minimize visual effects.
4. Signage and sensitive construction fencing will minimize temporary visitor experience and viewshed effects.

MITIGATION MEASURES

1. Interpretive signage at the Tidal Basin on the history and significance of the seawalls.
2. Comprehensive plan for the Tidal Basin.
3. Trees and vegetation will be replaced in kind (Japanese cherry trees), or with a more acceptable/suitable species as determined by a cultural landscape architect.

04

SCHEDULE

SCHEDULE

- Memorandum of Agreement
  - **Provide comments by January 6, 2023**

- Environmental Assessment Schedule
  - December 2022/January 2023 – Drafting
  - February 2023/March 2023 – Public Comment Period
  - April 2023 – Decision Document

- Anticipated Start of Construction: Fall 2024

05

QUESTIONS & ANSWERS

END OF PRESENTATION

COMMONWEALTH of VIRGINIA

Department of Historic Resources

2801 Kensington Avenue, Richmond, Virginia 23221

Travis A. Voyles
Acting Secretary of Natural and Historic Resources

Julie V. Langan
Director
Tel: (804) 482-6446
Fax: (804) 367-2391
www.dhr.virginia.gov

January 11, 2023

Jeffrey P. Reinbold
Superintendent
National Mall and Memorial Parks
900 Ohio Drive, NW
Washington, DC 20024

RE: *Rehabilitate Tidal Basin and West Potomac Park Seawalls*
Washington, D.C.
DHR File No. 2022-4077

Dear Superintendent Reinbold:

The Virginia Department of Historic Resources (DHR) has received for review and comment the draft documents titled, *Memorandum of Agreement Among the National Park Service, the National Capital Planning Commission, and the District of Columbia Historic Preservation Office Regarding the Rehabilitation of Tidal Basin and West Potomac Park Seawalls* (MOA) and *Rehabilitation of Tidal Basin and West Potomac Park Seawalls Section 106 Assessment of Effects* for the above referenced project.

DHR understands the project to consist of the rehabilitation and reconstruction of approximately 6,800 feet of seawall in the Tidal Basin and West Potomac Park that are administered by National Mall and Memorial Parks. The National Park Service (NPS) has defined the project area of potential effects and includes cultural resources in Virginia. The NPS will be preparing an Environmental Assessment (EA) to comply with the National Environmental Policy Act and has prepared an Assessment of Effect Report for this project as a separate, but parallel, process to the EA to comply with Section 106 of the National Historic Preservation Act. The NPS has determined that this project will result in adverse effects to historic properties in the District of Columbia and have temporary adverse effects to resources, within view of the project, in Virginia. The MOA was drafted to mitigate adverse effects resulting from this project.

Due to temporary adverse effects to historic properties in Virginia, DHR requests to be a concurring party: a "whereas clause" has been added to that effect to the draft, which is attached to this letter.

Additionally, DHR has made other edits and comments on the draft. Please let us know if you have any questions regarding our edits or comments.

DHR looks forward to continuing consultation for this project. If you have any questions regarding these comments, please contact me at 804-482-8089 or via email, jonathan.connolly@dhr.virginia.gov

Sincerely,

Jonathan D. Connolly, Project Review Archaeologist
Review and Compliance Division

U.S. COMMISSION OF FINE ARTS

ESTABLISHED BY CONGRESS 17 MAY 1910

401 F STREET NW SUITE 312 WASHINGTON DC 20001-2728 202-504-2200 FAX 202-504-2195 WWW.CFA.GOV

6 January 2023

Dear Mr. Reinbold:

The Commission of Fine Arts staff appreciates the opportunity to provide comments on the Section 106 process for the Rehabilitation of the Tidal Basin and West Potomac Park Seawalls Project located in Washington, D.C., an undertaking of the National Park Service (NPS). We understand this 6,800-foot-long seawall reconstruction project will address a well-documented problem around the Tidal Basin and a portion along the Potomac River: the subsiding and partially collapsed existing seawall which is a safety concern by allowing flooding in some areas. We agree that comprehensive repair of the seawall, constructed using varied techniques over many decades beginning in the late 1880s, is an urgent priority.

The Commission of Fine Arts (CFA) is an independent federal agency whose primary role is the design review of projects for structures, parks, monuments, and memorials erected by federal or District of Columbia government in Washington, D.C.

After reviewing the project materials and participating in several consultation meetings, we believe this proposal will generally be beneficial to this area by addressing safety and flooding concerns and improving the visitor experience. However, we are concerned about two aspects of the proposal: impacts to existing vegetation in the historic landscape and views of existing memorials. The proposal includes the removal of approximately 300 mature trees from this historic landscape, and it appears that more than half of these will be Japanese cherry trees. These cherry trees were a gift from the Japanese government to the United States in the early 20th century; their characteristic blossoming has become a cultural symbol of renewal and friendship, with millions of visitors annually coming to view them at the Tidal Basin, as well as a contributing feature of the public landscape and the image of Washington as the national capital city. We urge that everything should be done to protect as many of them as possible.

In addition, there are approximately ten large specimen trees proposed to be removed on the Tidal Basin-East portion of the project, but their condition has not been provided. The removal of large specimen trees in this area should be avoided since they contribute to the historic setting of the memorials in this area. As with the cherry trees, it is not clear if their removal is proposed because they are in poor condition or because of the regrading associated with the seawall project. Again, we would recommend NPS provide more detailed description of the reasons for removing these large trees in the MOA and what has been done to avoid and minimize impacts to them.

In its adverse effect determination letter to the District of Columbia State Historic Preservation Office (DC SHPO) dated 9 December 2022, NPS outlines the methods it will use to avoid, minimize, and mitigate impacts associated with this proposal. We understand that some tree removal is necessary as a result of this project; however, what is unclear is the documentation describing what has been undertaken to avoid and minimize

removing approximately 300 trees, and if this is the absolute least number of trees to be removed. Therefore, we recommend NPS provide a more detailed description and/or plan in the memorandum of agreement (MOA) that clearly describes what measures have been implemented to avoid and minimize impacting the trees, especially the Japanese cherry trees.

Washington, D.C., is a city of monumental vistas, and one of the most iconic views is that of the Jefferson Memorial situated within the Tidal Basin landscape. The monumental image of this city should be protected from unnecessary actions and projects that might significantly alter these views. We encourage NPS to continue coordinating with the review agencies, the DC SHPO, and others to ensure the integrity of these important sites.

Thank you for allowing us to provide these comments as part of the Section 106 consultation process. We appreciate your time and look forward to working with NPS in the future on this important project. Please include Daniel Fox (dfox@cfa.gov) and Carlton Hart (chart@cfa.gov) in future communications on this project.

Sincerely,

Thomas Luebke, FAIA
Secretary

Jeffrey Reinbold, Superintendent
National Mall & Memorial Parks
National Park Service
1100 Ohio Drive, SW
Washington, DC 20242

PEPC Project ID: 107662, DocumentID: 125412
Correspondence: 1

Author Information

Keep Private:	No
Name:	
Organization:	
Organization Type:	I-Unaffiliated Individual
Address:	
	N/A, UN N/A USA
E-mail:	

Correspondence Information

Status:New	Park Correspondence Log:
Date Sent: Dec 16, 2022	Date Received: Dec 16, 2022
Number of Signatures: 1	Form Letter: No
Notes:	

Correspondence Text

I recommend the park service let natural processes occur and retreat from coastal areas. This would be a good demonstration to others to do the same, and to promote action to combat climate change by ending fossil fuel consumption.

This proposed project may last a few years or not, but wont stop the tides, surges and ocean rise predicted in the future. Let's accept the seas are rising and will be flooding and retreat.

PEPC Project ID: 107662, DocumentID: 125412
Correspondence: 2

Author Information

Keep Private:	No
Name:	Thomas Luebke
Organization:	U.S. Commission of Fine Arts (Official Rep.)
Organization Type:	I-Unaffiliated Individual
Address:	401 F Street, NW Suite 312 Washington, DC 20001-2728 USA
E-mail:	tluebke@cfa.gov; chart@cfa.gov; dfox@cfa.gov

Correspondence Information

Status:New	Park Correspondence Log:
Date Sent: Jan 6, 2023	Date Received: Jan 6, 2023
Number of Signatures: 1	Form Letter: No
Notes:	

Correspondence Text

Dear Mr. Reinbold:
The Commission of Fine Arts staff appreciates the opportunity to provide comments on the Section 106 process for the Rehabilitation of the Tidal Basin and West Potomac Park Seawalls Project located in Washington, D.C., an undertaking of the National Park Service (NPS). We understand this 6,800-foot-long seawall reconstruction project will address a well-documented problem around the Tidal Basin and a portion along the Potomac River: the subsiding and partially collapsed existing seawall which is a safety concern by allowing flooding in some areas. We agree that comprehensive repair of the seawall, constructed using varied techniques over many decades beginning in the late 1880s, is an urgent priority.
The Commission of Fine Arts (CFA) is an independent federal agency whose primary role is the design review of projects for structures, parks, monuments, and memorials erected by federal or District of Columbia government in Washington, D.C.

After reviewing the project materials and participating in several consultation meetings, we believe this proposal will generally be beneficial to this area by addressing safety and flooding concerns and improving the visitor experience. However, we are concerned about two aspects of the proposal: impacts to existing vegetation in the historic landscape and views of existing memorials. The proposal includes the removal of approximately 300 mature trees from this historic landscape, and it appears that more than half of these will be Japanese cherry trees. These cherry trees were a gift from the Japanese government to the United States in the early 20th century; their characteristic blossoming has become a cultural symbol of renewal and friendship, with millions of visitors annually coming to view them at the Tidal Basin, as well as a contributing feature of the public landscape and the image of Washington as the national capital city. We urge that everything should be done to protect as many of them as possible.

In addition, there are approximately ten large specimen trees proposed to be removed on the Tidal

Basin-East portion of the project, but their condition has not been provided. The removal of large specimen trees in this area should be avoided since they contribute to the historic setting of the memorials in this area. As with the cherry trees, it is not clear if their removal is proposed because they are in poor condition or because of the regrading associated with the seawall project. Again, we would recommend NPS provide more detailed description of the reasons for removing these large trees in the MOA and what has been done to avoid and minimize impacts to them.

In its adverse effect determination letter to the District of Columbia State Historic Preservation Office (DC SHPO) dated 9 December 2022, NPS outlines the methods it will use to avoid, minimize, and mitigate impacts associated with this proposal. We understand that some tree removal is necessary as a result of this project; however, what is unclear is the documentation describing what has been undertaken to avoid and minimize removing approximately 300 trees, and if this is the absolute least number of trees to be removed. Therefore, we recommend NPS provide a more detailed description and/or plan in the memorandum of agreement (MOA) that clearly describes what measures have been implemented to avoid and minimize impacting the trees, especially the Japanese cherry trees.

Washington, D.C., is a city of monumental vistas, and one of the most iconic views is that of the Jefferson Memorial situated within the Tidal Basin landscape. The monumental image of this city should be protected from unnecessary actions and projects that might significantly alter these views. We encourage NPS to continue coordinating with the review agencies, the DC SHPO, and others to ensure the integrity of these important sites.

Thank you for allowing us to provide these comments as part of the Section 106 consultation process. We appreciate your time and look forward to working with NPS in the future on this important project. Please include Daniel Fox (dfox@cfa.gov) and Carlton Hart (chart@cfa.gov) in future communications on this project.

Sincerely,

Thomas Luebke, FAIA, Secretary

PEPC Project ID: 107662, DocumentID: 125412
Correspondence: 3

Author Information

Keep Private:	No
Name:	Mary E Dolan
Organization:	FDR Memorial Legacy Committee (Official Rep.)
Organization Type:	I-Unaffiliated Individual
Address:	1629 K Street NW, Suite 300 Washington, DC 20006 USA
E-mail:	mary@fdrmemoriallegacy.com

Correspondence Information

Status:New	Park Correspondence Log:
Date Sent: Jan 6, 2023	Date Received: Jan 6, 2023
Number of Signatures: 1	Form Letter: No
Notes:	

Correspondence Text

The following comments are offered as amended language, technical edits, and general comments or questions regarding the Memorandum of Agreement (MOA), to which the FDR Memorial Legacy Committee (FDR Committee) would appreciate a response. We are the citizen led organization supporting the FDR Memorial with the mission to promote education about the Memorial, to improve inclusion and accessibility so all visitors can experience the Memorial, and to preserve the Memorial for future generations. Our organization is borne out of the successful disability led campaign in the 1990s for disability representation at the Memorial.

A. Is the Commission of Fine Arts (CFA) not a recognized signatory, and if not, why not a concurring party?

B. On Page 1:
In the second WHEREAS clause, the full name of the FDR Memorial should be spelled out with the abbreviation contained within parenthesis following. In addition, "near" isn't an adequate description relative to the proximity of the Seawall. Please state the number of feet between the rehabilitated Seawall and the FDR Memorial boundary as a more accurate location for the end of the Seawall project improvement.

Please provide for review the complete Exhibit A documentation to ensure a clearer understanding of the exhibit's reference.

The third WHEREAS clause ends as an incomplete sentence.

In the fifth WHERAS clause, recommend changing "some flood protection" to a more accurate "reducing flood risk."

The sixth WHEREAS clause does not list CFA as a "consulting party."

The seventh WHEREAS clause states that NPS has prepared an Environmental Assessment (EA), but no such EA has been presented to the consulting parties for review prior to receiving this draft MOA for comment. The FDR Committee requests review of the EA prior to the final drafting of the MOA.

The eighth WHEREAS clause includes a reference to Appendix A which is not included with the MOA.

C. On Page 2:
The second WHEREAS clause states CFA as a "consulting party" for the first time with a reference to invitation to be a concurring party. Please confirm CFA status.

The seventh WHEREAS clause states that the NPS invited those "with a demonstrated interest in the Undertaking and the public to participate as Consulting Parties in the Section 106 process via meetings virtually on August 2, 2022…" The FDR Committee received no such invitation. The FDR Committee was also not listed as an interested party in the AOE report. The FDR Committee requests to be included in all future notifications regarding the Tidal Basin.

The eighth WHEREAS clause references consulting parties establishing the Area of Potential Effect (APE). The FDR Committee was not involved in that APE determination or concurrence.

Assume "VVDHR" actually refers to Virginia Department of Historic Resources? (VDHR).

Can't confirm what is in Exhibit B until it is provided as an attachment.

D. On Page 3:
The second WHEREAS clause should include reference to The Secretary of the Interior's Standards for Rehabilitation & Guidelines on Flood Adaptation for Rehabilitating Historic Buildings. That is the NPS promulgated guidance used for structural adaptation for purposes of reducing flood risk.

The fourth WHEREAS clause references comments from the public scoping meeting. We are not able to locate a copy of those comments to review. Are they available to the public? Also, spell out Environmental Assessment (EA).

Stipulation 2. refers to other Federal Agencies. The U.S. Army Corps of Engineers is involved with the redesign and rehabilitation or replacement of the flood gates into and out of the Tidal Basin. Were they invited as consulting parties?

On Page 5:
Under Minimization #3 replace access with "...full access as consistent with that established by the Americans with Disabilities Act." (i.e. Refers to a site, facility, work environment, service, or program that is easy to approach, enter, operate, participate in, and/or use safely and with dignity by a person with a disability.)

Under Mitigation D.1 it would be of great educational value to include information consistent with the historic context of the seawall as a means to protect the Park from flooding due to high tides and storm events and now, sea level rise… all exacerbated by climate change.

Under Mitigation D.2 the term "accessibility" should be added as one of the elements to address in the Comprehensive Plan for the Tidal Basin.

From: Stidham, Tammy
To: Doug Chapin; Gorder, Joel S; Kim Daileader
Subject: Fwd: [EXTERNAL] Rehabilitation of the Tidal Basin and West Potomac Park Seawalls
Date: Thursday, January 26, 2023 10:43:54 AM

Please see below

Tammy Stidham
Deputy Associate Regional Director - Lands and Planning
National Park Service
1100 Ohio Drive SW
Washington, DC 20242
voice - (202)619-7474
mobile - (202)438-0028
tammy_stidham@nps.gov

From: Dewey, Catherine <Catherine_Dewey@nps.gov>
Sent: Thursday, January 26, 2023 10:37:55 AM
To: de la Vega, Caridad <caridad_de_la_vega@nps.gov>; Stidham, Tammy <Tammy_Stidham@nps.gov>
Subject: FW: [EXTERNAL] Rehabilitation of the Tidal Basin and West Potomac Park Seawalls

FYI

From: Caitlin Rogers <Caitlin.Rogers@catawba.com>
Sent: Thursday, January 26, 2023 10:33 AM
To: Dewey, Catherine <Catherine_Dewey@nps.gov>
Subject: [EXTERNAL] Rehabilitation of the Tidal Basin and West Potomac Park Seawalls

Ms. Dewey,

The Catawba THPO have no concerns with the Draft assessment and MOA for the rehabilitation of the Tidal Basin and West Potomac Park Seawalls. If you need anything else please let me know.

Hawuh (Thank you),

Caitlin Rogers
Catawba Indian Nation
Tribal Historic Preservation Office
1536 Tom Steven Road
Rock Hill, SC 29730

803-328-2427 ext. 226
*** Please note that my email has changed to Caitlin.Rogers@catawba.com ***

Please Note: We CANNOT accept Section 106 forms via e-mail, unless requested. Please send us hard copies. Thank you for your understanding

From: Stidham, Tammy
To: Doug Chapin; Kim Daileader
Cc: Dewey, Catherine; Gorder, Joel S
Subject: Fw: [EXTERNAL] Section 106 Consultation - Rehabilitation of the Tidal Basin and West Potomac Park Seawalls - Section 106 consulting parties meeting
Date: Wednesday, January 25, 2023 3:04:21 PM

See email below. Please update EA and AoE to reflect that we received the below response.

Tammy Stidham
Deputy Associate Regional Director - Lands and Planning
National Park Service
1100 Ohio Drive SW
Washington, DC 20242
voice - (202)619-7474
mobile - (202)438-0028
tammy_stidham@nps.gov

From: Laserfiche Notification <donotreply@laserfiche.com>
Sent: Tuesday, January 24, 2023 1:13 PM
To: Stidham, Tammy <Tammy_Stidham@nps.gov>
Subject: [EXTERNAL] Section 106 Consultation - Rehabilitation of the Tidal Basin and West Potomac Park Seawalls - Section 106 consulting parties meeting

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

This email is in response to Rehabilitation of the Tidal Basin and West Potomac Park Seawalls - Section 106 consulting parties meeting. The project is out of the Shawnee Tribe's area of interest. If you have any questions, you may contact me via email at Section106@shawnee-tribe.com.
Thank you for giving us the opportunity to comment on this project.
Sincerely,

Erin Paden
TRIBAL HISTORIC PRESERVATION SPECIALIST
Office: (918) 542-2441, x140
Email: epaden@shawnee-tribe.com
29 S Hwy 69A
Miami, OK 74354
shawnee-tribe.com

MEMORANDUM OF AGREEMENT
AMONG
THE NATIONAL PARK SERVICE,
THE NATIONAL CAPITAL PLANNING COMMISSION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING
THE REHABILITATION OF TIDAL BASIN AND WEST POTOMAC PARK SEAWALLS

This Memorandum of Agreement (MOA) is made as of the ___ day of _____, by and among the National Park Service (NPS), the National Capital Planning Commission (NCPC), the District of Columbia State Historic Preservation Office (DC SHPO), and the Advisory Council on Historic Preservation (ACHP) (all referred to collectively herein as "Signatories"), pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended (NHPA), 54 U.S.C.§ 306108, and its implementing regulations 36 C.F.R. Part 800 regarding implementation of the Rehabilitation of Tidal Basin and West Potomac Park Seawalls (Undertaking); and

WHEREAS, National Mall and Memorial Parks, which administers more than 1,000 acres of park land within the District of Columbia, including fourteen units of the national park system, as well as more than 150 reservations, circles, fountains, squares, triangles, and park spaces, also came to be administered by the NPS under Executive Order 6166; and

WHEREAS, the NPS is charged in its administration of the units of the national park system to meet the directives of other laws, regulations, and policies including the NPS Organic Act as codified in Title 54 USC § 100101(a) to "conserve the scenery, natural and historic objects, and wild life in the System units and to provide for the enjoyment of the scenery, natural and historic objects, and wild life in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations"; and

WHEREAS, the Tidal Basin and West Potomac Park (Park) are part of the National Mall and Memorial Parks, owned by the Unites States government and administered by the NPS; and

WHEREAS, the Undertaking includes the Tidal Basin seawall from the Inlet Bridge to the Thomas Jefferson Memorial and from the Inlet Bridge to the Franklin Delano Roosevelt Memorial, as well as the full length of the West Potomac seawall. See **Exhibit A**; and

WHEREAS, the original seawalls were constructed from the late 1800s to early 1900s to retain the material that was dredged from the Potomac River to create West Potomac Park. In the years since their construction, the seawalls have significantly settled and been compromised. The seawalls were constructed on soft soils, and previous studies have determined that portions of the seawall have settled as much as five feet since the initial construction. See **Exhibit B**. Existing top-of-wall elevations range from +0.88 feet to +3.57 feet within the Tidal Basin project area and from 0.00 feet to +3.20 feet along West Potomac Park. As a result of this settlement and sea level rise, portions of the seawalls are overtopped twice daily during normal tidal conditions. Greater lengths of the seawall and areas of the Park are submerged during and after extreme weather events; and

WHEREAS, the West Potomac Park South seawalls are the oldest in the project area. The foundations were completed in 1884 and the top of the seawall completed in 1891; however, riprap and other fill like concrete and asphalt, have been periodically added to stabilize the wall or shoreline through the 1990s. The newest section of the wall is the West Potomac Park North portion, which dates to 1957. The Potomac Electric Power Company rebuilt this section of the wall with a concrete cap. Excavation of the soil behind the wall in this area revealed it was a cast-in-place concrete wall with a stone veneer. It is unknown if any of the original seawall stones remain. It is likely the historic foundations are still in place; and

WHEREAS, the Tidal Basin West wall was reconstructed in 1907-1909, when the Inlet Bridge was constructed by the US Army Corps of Engineers. In 1941, an eight-inch-thick concrete coping was added to the top. The Tidal Basin East seawall dates to the early 1940s, when a section of the Tidal Basin itself was adjusted to make room for the construction of the Thomas Jefferson Memorial. The new seawall is composed of a concrete wall with a veneer of reused stones. The new wall was blended into the adjacent drystacked stone wall so well that the transition point is almost imperceptible; and

WHEREAS, the Tidal Basin seawalls were constructed at an elevation of six-feet above "mean low tide" which is now referred to as "mean low water". The current mean low water near the Tidal Basin is -1.25-feet relative to NAVS88. Using the same sux-feet vertical wall height and flood protection from history, then a wall height of +4.75-feet NAVD88 will provide the same functionality as historically applied thus defining "historic functional height". See **Exhibit C**; and

WHEREAS, the Undertaking will be designed to restore the historic functional height of approximately 6,800 linear feet of seawalls within the Park, restore the cultural landscapes, improve visitor experience along the shorelines, stabilize and eliminate settlement of the seawalls, minimize soil erosion and safety hazards, and implement other improvements that will make the Park resilient to flooding during normal tidal events and minor flood stage events as well as adaptable to changing climate patterns. The Undertaking is primarily needed because the existing structural deficiencies of the seawalls negatively impact visitor experience, public safety, and cultural resources; and

WHEREAS, the Undertaking is subject to review under Section 106 of the NHPA and NPS will be the Federal agency responsible for compliance; and

WHEREAS, the Undertaking is also subject to review under National Environmental Policy Act (NEPA) (42 U.S.C. § 4231 et seq), and in accordance with NEPA, NPS has prepared an Environmental Assessment (EA); and

WHEREAS, in accordance with 36 C.F.R. § 800.3, NPS initiated Section 106 consultation with DC SHPO and Virginia State Historic Preservation Office (VA SHPO) on May 19, 2022. Both letters can be found in **Appendix A**; and

WHEREAS, the NCPC is a Consulting Party in the Section 106 process pursuant to 36 CFR § 800.3(f)(1), has approval authority over Federal projects located within the District of Columbia and has approval authority over all land transfers and physical alterations to Federal property pursuant to the National Capital Planning Act (40 U.S.C. § 8722(b)(1) and (d)), NCPC has elected to fulfill its Section 106 responsibilities by participating in this consultation and is a Signatory to this MOA pursuant to 36 CFR § 800.6(c)(2); and

WHEREAS, the NPS and NCPC have agreed that NPS will be the lead Federal agency pursuant to 36 C.F.R. § 800.2(a)(2) for the Undertaking to fulfill their collective Section 106 responsibilities; and

WHEREAS, the U.S. Commission of Fine Arts (CFA) has a statutory obligation under the Shipstead-Luce Act of 1930 (Public Law 71-231) to regulate height, exterior design, and construction of private and semiprivate buildings in certain areas of the National Capitol within which the Undertaking falls. CFA has design review authority over new structures erected in the District under the direction of the Federal government (Executive Order 1862) and plans for parks which "in any essential way affect the appearance of the City of Washington, or the District of Columbia" (Executive Order 3524). CFA is a Consulting Party in the Section 106 process pursuant to 36 CFR § 800.3(f)(1); and

WHEREAS, given the Undertaking's potential for temporary effects to historic properties in the Commonwealth of Virginia, the VA SHPO is a Consulting Party in the Section 106 process pursuant to 36 CFR § 800.3(f)(1) and is invited to concur with this MOA pursuant to 36 CFR § 800.6(c)(3); and

WHEREAS, in letters dated May 19, 2022, the NPS informed the Federally recognized Indian Tribes that have a government-to-government relationship with the United States and an interest in the area affected by the Undertaking, pursuant to 36 C.F.R. § 800.2(c)(2), about the Undertaking and invited them to be a

Consulting Party. The Federally recognized Indian Tribes include the Absentee Shawnee Tribe of Indians of Oklahoma Nation, Catawba Indian Nation, Cherokee Nation, Chickahominy Indian Tribe, Chickahominy Tribe Eastern Division, Delaware Nation, Monacan Indian Nation, Nansemond Indian Nation, Pamunkey Indian Tribe, Rappahannock Tribe, Shawnee Tribe, and Upper Mattaponi Indian Tribe (collectively referred to as "Indian Tribes" in this MOA). The NPS invites each of these Indian Tribes to concur with this MOA pursuant to 36 C.F.R. § 800.6(c)(3). All the letters sent to Indian Tribes can be found in **Appendix A**; and

WHEREAS, the Catawba Indian Nation, Cherokee Nation, Shawnee Tribe, and Delaware Nation accepted NPS's invitation via mail or e-mail to consult in the Section 106 process by attending the August 2, 2022, consulting party meeting; and

WHEREAS, the Indian Tribes that did not respond to the invitation continue to be included in the Section 106 process and were invited to the second Consulting Party meeting on December 15, 2022. The NPS will continue to consult with Indian Tribes throughout the process; and

WHEREAS, the NPS will notify the Indian Tribes in the event that any pre-historic resources are discovered and are considered potentially eligible for the National Register of Historic Places. Notification of any pre-historic resources will also be given should additional phases of archaeological investigation be necessary or in a Post Review Discovery; and,

WHEREAS, in accordance with 36 C.F.R. § 800.2(a)(4), the NPS invited individuals and organizations with a demonstrated interest in the Undertaking and the public to participate as Consulting Parties in the Section 106 process via meetings virtually held on August 2, 2022, and December 15, 2022, respectively. The full list of Consulting Parties invited is provided in **Appendix A** along with presentation materials from both consulting party meetings; and,

WHEREAS, the NPS in consultation with ACHP, DC SHPO, VA SHPO, and the Consulting Parties, established the Area of Potential Effects (APE), as defined under 36 C.F.R. § 800.16(d). The APE is included in **Appendix A**; and

WHEREAS, the NPS identified ten (10) historic properties within the APE, including the National Mall Historic District (HD), the East and West Potomac Parks HD, the Washington Monument and Memorial Grounds HD, the Arlington National Cemetery HD, the George Washington Memorial Parkway, Mount Vernon Memorial Highway HD, the L'Enfant Plan of the City of Washington, the Martin Luther King, Jr. Memorial, the Franklin Delano Roosevelt Memorial, and the Thomas Jefferson Memorial and Grounds. A detailed list of historic properties within the APE, including contributing elements of historic districts, can be found in **Appendix A**; and

WHEREAS, the NPS prepared an Assessment of Effects (AOE) Report and determined that the rehabilitation of the seawall will have an adverse effect on historic properties due to the alteration and removal of historic fabric (most notably original stones and other materials used to construct the seawalls); the removal of trees (including Japanese cherry trees) and other vegetation; and construction-related activities that may cause temporary adverse effects on the above-mentioned HDs. The AOE Report can be found in **Appendix A**; and

WHEREAS, to the maximum extent feasible, the proposed project design for the rehabilitation of the seawalls within the project area will be consistent with *The Secretary's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings, Guidelines on Flood Adaption for Rehabilitating Historic Buildings,* and *Guidelines for the Treatment of Cultural Landscapes*; will retain the existing horizontal alignment of the seawalls to avoid changing the shape of the Tidal Basin and West Potomac Park; will require the seawalls to be reconstructed to their historical functional height to minimize adverse effects on views and viewsheds; will reuse as much historic stone as possible in the most visible portions of the new seawalls to minimize adverse effects that would result from the introduction of new materials; to retain as much of the historic vegetation as possible

and create an associated planting plan that will restore any historic vegetation removed during this process; and

WHEREAS, the NPS has completed schematic design and the preferred solution is a pile supported concrete slab (relieving platform) which independently supports a concrete wall to eliminate additional loading and potential settlement of the compressible soils below the structure. See **Exhibit D**. The original stones will be salvaged, resized, and stacked to recreate the walls to ensure a consistent look and feel as the remaining historic walls. See **Exhibit E**. Riprap would be placed along the bottom of the pile-supported platform along West Potomac Park to reduce the erosive effects of wave action. The rehabilitated seawalls would have a structural service life of approximately 100 years.; and

WHEREAS, the NPS intends to contract with a Design/Build (DB) Contractor to complete the design and construct the Undertaking. The DB Contractor cannot change or eliminate the following requirements: 1) Top of proposed seawall elevations, 2) Installation of the rehabilitated wall along the historic wall alignments, 3) Salvage and re-use of existing historic ashlar seawall stone, and 4) Relieving platform concept must not impose additional loads on subsurface soils beneath sidewalk; and

WHEREAS, the existing stone masonry seawall would be removed and reconstructed along the historic alignment and to the historic functional height of the original seawalls, which placed the top of the seawalls approximately six feet above mean low water. The top of wall elevation for the rehabilitated seawall would need to be raised above original construction elevations to achieve the historic functional height. he proposed top of wall elevation would be elevation +4.75 feet within the Tidal Basin and would be +5.50 feet along West Potomac Park. The higher elevation in West Potomac Park is necessary to account for wind and wave conditions along the Potomac River. To the extent possible, the stones of the historic wall would be salvaged and reused in the rehabilitation of these seawalls. Extant stones would be cut for maximum use of historic stone. Additional stones would be sourced based on color, size, and texture for consistency with the historic material. See **Exhibit E**; and

WHEREAS, the NPS conducted two Section 106 meetings to provide opportunities for the Consulting Parties to comment on the Undertaking, the delineation of the APE, the identification of historic properties, the assessment of effects on historic properties, and potential resolution strategies; and

WHEREAS, the NPS has sought and considered the views of the public on this Undertaking as evidenced by a public notice and public scoping comment period held July 19, 2022, through September 12, 2022; an EA, published March 6, 2023 as part of NPS's NEPA compliance and describing potential impacts to cultural resources, and requested, received, and replied to the public's comments as documented in the Finding of No Significant Impact; and

WHEREAS, in accordance with 36 CFR § 800.6(a)(1), the NPS notified the ACHP of its determination of an adverse effect with specified documentation on December 12, 2022, and on December 14, 2022, the ACHP chose to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii); and

NOW, THEREFORE, the NPS, ACHP, DC SHPO, and NCPC agree that the Undertaking will be implemented in accordance with the following stipulations to account for the effects of the undertaking on historic properties.

STIPULATIONS

The NPS will ensure that the following measures are carried out:

I. GENERAL

A. TIME AND NOTIFICATIONS

1. All time designations are in calendar days unless otherwise stipulated. If a review period ends on a Saturday, Sunday, or Federal holiday, the review period will be extended until the first following business day.
2. All communication and notifications required by this MOA will be sent by email or other electronic means.

B. ROLES AND RESPONSIBILITIES

1. NPS

   a. Pursuant to 36 C.F.R. § 800.2(a)(2), NPS has the responsibility to ensure the provisions of this MOA are carried out.

   b. The NPS is responsible for all government-to-government consultation with Federally recognized Native American tribes.

   c. The NPS is responsible for coordinating Federal agencies' compliance with the Native American Graves Protection and Repatriation Act (NAGPRA) within its jurisdictional areas.

   d. The NPS is responsible for enforcing the applicable provisions of the Archaeological Resources Protection Act (ARPA) (16 U.S.C. § 470aa et seq.), including but not limited to the issuance of permits, and investigation of any damages resulting from prohibited activities.

II. PROFESSIONAL QUALIFICATIONS STANDARDS

NPS will ensure that all historic preservation work performed in accordance with this MOA is accomplished by or under the direct supervision of a person or persons who meet(s) or exceed(s) the pertinent qualifications in *The Secretary of the Interior's Historic Preservation Qualification* Standards (62 Federal Register § 33708) as amended on June 20, 1997.

III. RESOLUTION OF ADVERSE EFFECTS

A. *Design Review:* The NPS will continue to consult as final designs are developed by the DB Contractor. The NPS shall provide the proposed design documentation to the Signatories and consulting parties for consideration and consultation. The determinations of effect related to any changes made in the development of the final plans will be considered as part of the review. The NPS shall review the proposed design documentation focusing on any changes from the preliminary concepts and make a determination as to whether the proposed design may result in new adverse effects that have not already been resolved and/or the intensification of known adverse effects on historic properties.

1. Determination of No Adverse Effect: If the NPS determines there is no new adverse effect or intensification of known adverse effects on historic properties, it will notify the Signatories in writing, provide sufficient project documentation to support its determination, and request concurrence or comment. The NPS shall simultaneously provide the project documentation and determination to the Consulting Parties through one of the following: provide information via email, develop a project specific website, or post the information to the NPS PEPC website.

   a. The Signatories and Consulting Parties shall have thirty (30) days from receipt/posting of an adequately documented submission to review and comment on the determination. The DC SHPO shall have an additional fifteen (15) days to review and comment to take into account the comments of Consulting Parties and other Signatories. If there are no objections to the determination, the NPS may move forward with the project.

b. The NPS will consult with the Signatories to determine if a Consulting Parties meeting(s) is required, the NPS shall meet with the Signatories and Consulting Parties within thirty (30) calendar days of the request to review the design.

c. If any Signatory responds that it does not concur with the determination of "No Adverse Effect," the NPS will consult with the Signatories to attempt to resolve the disagreement in accordance with Stipulation VI.A. If the Consulting Parties respond that they do not concur with the determination of "No Adverse Effect," the NPS will notify the Signatories, consider the Consulting Party comments, and consult with all parties to resolve the disagreement. Any disagreement with a Consulting Party that cannot be resolved shall be addressed in accordance with Stipulation VI.A of this MOA.

d. If the disagreement cannot be resolved, NPS will refer its determination to the ACHP per 36 C.F.R. 800.5(c)(3)(i) to determine whether the adverse effect criteria have been correctly applied. If the ACHP determines that the project will have "No Adverse Effect," the NPS may proceed with its project accordingly. If the ACHP determines that the project may result in an "Adverse Effect," NPS will consider whether further consultation is required under Stipulation VI.A.

2. Determination of Adverse Effect: If NPS determines that the project will result in any "Adverse Effects," or intensified or cumulative "Adverse Effects," it will notify the Signatories in writing, provide sufficient documentation to support its determination; share the determination via email, post each project submittal and determination to a specific project website, or post the information to NPS's PEPC website for Consulting Party review, and consult further with the Signatories and Consulting Parties to seek alternatives or modifications to the Plan to avoid, minimize, and/or mitigate those additional "Adverse Effect(s)."

a. The Signatories and Consulting Parties shall have thirty (30) days from receipt/posting of an adequately documented submission to review and comment on the determination. The DC SHPO shall have an additional fifteen (15) days to review and comment to take into account the comments of Consulting Parties and other Signatories. A Consulting Parties meeting, if required, will occur during or after the review periods.

b. The NPS will consult with the DC SHPO to determine if a Consulting Parties meeting(s) is required in accordance with Stipulation III.A.1.b and will allow for sufficient time for consultation as appropriate. If all parties agree that avoidance is possible, NPS will modify its plans accordingly, document the finding with the DC SHPO, and implement the project in the manner that avoids the "Adverse Effect(s)."

c. If avoidance is not possible, the NPS shall consult further with the Signatories and the Consulting Parties to identify ways to minimize or mitigate the "Adverse Effect(s)" and to amend this MOA as necessary.

B. *Avoidance Measures that will be incorporated into the Final Design*

1. The horizontal alignment of the seawalls will be maintained to ensure the shape of the Tidal Basin will not be altered and to avoid any adverse effects that would result from altering the location of the historic seawalls.

2. Trees and vegetation within the construction area that are to remain will be protected throughout construction to avoid additional adverse effects that would relate to vegetation loss.

C. *Minimization Measures that will be incorporated into the Final Design*

1. Construction of the new walls will be as consistent as possible with the *Secretary of the Interior's Standards for the Treatment of Historic Properties*.

2. The maximum practicable amount of original stone from the historic stacked stone walls will be reused in the most visible portions of the new walls to minimize adverse visual effects that would result from the use of all new stone.
3. New stone will be placed on the lower levels of the new walls where tides will limit its visibility.
4. The new seawalls will be constructed using an ashlar pattern based upon the most common stacking patterns and other construction details of the historic seawalls. This will further minimize adverse visual effects by maintaining some visual consistency between the historic and new seawalls.
5. During construction, NPS will minimize temporary adverse effects to visitor experience with sensitive fencing and signage directing visitors around the construction. After construction, full access, consistent with Americans with Disabilities Act and Architectural Barriers Act Standards, to the resources will be restored.

D. Mitigation Measures

1. The NPS will install one interpretive sign at the Tidal Basin educating the public on the history and significance of the Tidal Basin and the seawalls. Within twelve (12) months after execution of this MOA, the NPS will develop and provide drafts of the interpretive signage materials to the DC SHPO and NCPC for comment and approval prior to finalization. The sign will be consistent with NPS standards for waysides.
2. The NPS will complete a comprehensive plan / EA for the Tidal Basin. The intent of this effort is to provide direction for the long-term management and rehabilitation of the Tidal Basin cultural landscape based upon the vision of the National Mall Plan and other planning documents. The Plan/EA will evaluate concepts to rehabilitate the cultural landscape and protect/enhance area aquatic environments while accommodating and meeting very high levels of visitor use in an attractive, convenient, high quality, energy efficient and sustainable manner. The Plan will consider the following elements: multi-modal circulation and transportation; connectivity; conservation; tree preservation; protection of aquatic resources; climate change and sea level rise resilience; accessibility; memorials and cultural landscape protection; security; visitor experience, enjoyment, recreation, and services; seawall solutions and facilities; and flexible public spaces to accommodate a wide variety of national celebrations, First Amendment gatherings and other permitted activities.
3. To mitigate the loss of approximately 300 trees from the project area during the rehabilitation efforts, an estimated 381 trees will be replaced in kind, or with a more acceptable/suitable species that has the same visual qualities as the trees to be removed for the location, soil conditions, and the National Mall and Memorial Parks as determined appropriate by an interdisciplinary team led by the National Capital Region historical landscape architect. Trees would be replaced based on diameter at breast height (DBH) of trees removed, with an overall increase in total DBH at the site, as per NCPC policy:
    a. Trees less than 10-inches in diameter would be replaced one tree for every one tree removed (1:1);
    b. Trees 10-inches in diameter or greater would be replaced using the following formula: Tree Diameter (in inches) x Species Rating (as percentage) Condition Rating (as percentage) = Score.
    c. Trees would be replaced at the following rate based on the score: 1-4.9 = one tree, 5-9.9 = two trees, 10-14.9 = three trees, 15-19.9 = four trees, 20-24.9 = five trees, and 25+ = six trees.

d. The replanting of additional, appropriate vegetation in the newly graded landscape will mitigate the adverse effects from the loss of contributing vegetation and provide a more receptive environment for the vegetation to thrive.

IV. POST-REVIEW DISCOVERIES

A. If newly identified historic properties are discovered or unanticipated effects on known historic properties are identified during construction, the NPS will comply with 36 C.F.R. § 800.13 by consulting with DC SHPO and, if applicable, Native American Tribes that may attach religious and/or cultural significance to the affected property; and by developing and implementing avoidance, minimization, or mitigation measures with the concurrence of DC SHPO and, if applicable, Native American Tribes.

1. NPS will immediately cease all ground disturbing and/or construction activities within a fifty (50)-foot radius of the discovery. NPS will not resume ground disturbing and/or construction activities until the specified Section 106 process required by this MOA is complete.
2. NPS will inform the Signatories of the discovery within forty-eight (48) hours and, together with the Signatories, will determine the projected path forward to comply with Section 106 within fourteen (14) calendar days.
3. The Signatories will review the plan documents and provide written comments to NPS within seven (7) calendar days.
4. NPS will consider the written comments to the fullest reasonable extent. Should NPS object to any comments made by the Signatories, NPS will provide a written explanation of their objection and will consult with the Signatories to resolve the objection. If no agreement is reached within thirty (30) calendar days following receipt of a written explanation, NPS will request the ACHP to review the dispute in accordance with Stipulation VI.A.
5. If no Signatory provides written comments within the agreed upon time, NPS may proceed with the submitted plan.

B. <u>Treatment of Human Remains</u>: In the event that human remains, burials, or funerary objects are discovered during construction, NPS will immediately halt subsurface construction disturbance in the area of the discovery and in the surrounding area where additional remains can reasonably be expected to occur and will immediately notify DC SHPO and the District Chief Medical Examiner (CME) of the discovery under DC Code Section 5-1406 and other applicable laws and regulations.

1. If the CME determines that the human remains are not subject to a criminal investigation by Federal or local authorities, NPS will comply with the applicable Federal or local laws and regulations governing the discovery and disposition of human remains and consider the ACHP's Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects (2007).
2. For actions involving Native American human remains or burials, the appropriate Native American Tribes and the DC SHPO will be consulted to determine a treatment plan for the avoidance, recovery, or reburial of the remains.
3. The NPS will ensure compliance with applicable laws in accordance with provisions of NAGPRA, as amended (Public Law 101-601, 25 U.S.C. 3001 et seq) and regulations of the Secretary of the Interior at 43 C.F.R. § 10.

V. CONFIDENTIALITY

A. If disclosure of locational information could result in the disturbance of a cultural resource, all Signatories to this MOA will ensure shared data, including data concerning the precise location and

nature of historic properties, archeological sites, and properties of religious and cultural significance, are protected from public disclosure to the greatest extent permitted by law, in accordance with 36 C.F.R. § 800.11(c), Section 304 of the NHPA, Section 9 of the Archeological Resource Protection Act (ARPA) of 1979, and Executive Order on Sacred Sites 13007 C.F.R. 61-104 dated May 24, 1996.

B. NPS standard policies, Director's Orders #28 and 28A and NPS management policies will be followed. In accordance with ARPA, the Superintendent of each park is the arbiter for what information can and cannot be released publicly.

C. Consulting Parties and members of the public are not entitled to receive information protected from public disclosure.

VI. DISPUTE RESOLUTION

A. Should any Signatory or Consulting Party to this MOA object at any time to any actions proposed or the manner in which the terms of the MOA are implemented, NPS will consult with such Signatory or Consulting Party to resolve the objection. If NPS determines that such objection cannot be resolved within thirty (30) calendar days, NPS will:

1. Forward all documentation relevant to the dispute, including NPS's proposed resolution, to the ACHP with a copy to the Signatories and Consulting Parties to this MOA and request that ACHP provide NPS with its comments on the resolution of the objection within thirty (30) calendar days of receiving the documentation.
2. If the ACHP does not provide comment regarding the dispute within the thirty (30) calendar-day time period, NPS will make a final decision on the dispute and proceed accordingly.
3. NPS will document its decision in a written response to the objection that takes into account any timely comments regarding the dispute from the Signatories and Consulting Parties and provide the ACHP and all parties with a copy of such written response.
4. NPS may then proceed according to its decision.
5. The Signatories remain responsible for carrying out all other actions subject to the terms of the MOA that are not the subject of the dispute.

VII. ADOPTABILITY

In the event that a Federal agency other than NPS or NCPC intends to provide financial assistance, permits, licenses, approvals or other assistance that meets the definition of undertaking at 36 CFR 800.16(y) and relates to the Undertaking, such Federal agency may become a Signatory to this MOA as a means of satisfying its Section 106 responsibilities. To become a Signatory to this MOA, the agency official must provide written notice to the Signatories that the agency agrees to the terms of the MOA, specifying the extent of the agency's involvement with the project, the agency's intent to participate in the MOA, and identifying NPS as the lead Federal agency for its undertaking. The participation of the agency is subject to approval by the Signatories, who must respond to the written notice within thirty (30) calendar days. If no responses are provided, the approval will be considered implicit.

VIII. AMENDMENTS

Any Signatory to this MOA may request that it be amended. The Signatories will consult for no more than thirty (30) calendar days (or another time period agreed upon by all Signatories) to consider such amendment. The amendment will be effective on the date a copy, signed by all the Signatories, is filed with the ACHP.

IX. TERMINATION AND WITHDRAWAL

If any Signatory to this MOA determines that the terms of the MOA will not or cannot be carried out, that Signatory will immediately notify the other Signatories in writing and consult with them to seek resolution or amendment pursuant to Stipulation VIII of the MOA. If within sixty (60) days a resolution or Amendment cannot be reached, any Signatory may terminate the MOA upon written notification to the other Signatories. Once the MOA is terminated, and prior to work continuing on the Undertaking, NPS must either (a) execute a new MOA pursuant to 36 C.F.R. § 800.6 or (b) request, take into account, and respond to the comments of the ACHP under 36 C.F.R. § 800.7. NPS will notify the Signatories as to the course of action it will pursue.

X. SIGNATURES AND EFFECTIVE DATE

This MOA may be executed in counterparts, with a separate page for each signatory. This MOA will become effective immediately upon execution by all Signatories.

XI. ELECTRONIC COPIES

Within one (1) week of the last signature on this MOA, the NPS shall provide each signatory with one high quality, legible, full color, electronic copy of this fully-executed MOA and all of its exhibits and attachments fully integrated into one, single document. Internet links shall not be used as a means to provide copies of attachments since links to web-based information often change. If the electronic copy is too large to send by e-mail, NPS shall provide each signatory with a copy of this MOA as described above, on a compact disc or other suitable, electronic means.

XII. DURATION

This MOA will expire if its terms are not carried out within ten (10) years from the date of its execution. Six (6) months prior to expiration, the NPS may consult with the Signatories to reconsider the terms of this MOA and amend it in accordance with Stipulation VIII above.

Execution and implementation of this MOA evidence that the NPS has considered the effects of this Undertaking on historic properties and satisfied its responsibilities under Section 106 of the NHPA and its implementing regulations.

SIGNATURES AND EXHIBITS FOLLOW ON SEPERATE PAGES

MEMORANDUM OF AGREEMENT
AMONG
THE NATIONAL PARK SERVICE,
THE NATIONAL CAPITAL PLANNING COMMISSION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING
THE REHABILITATION OF TIDAL BASIN AND WEST POTOMAC PARK SEAWALLS

NATIONAL PARK SERVICE

_____

BY: Jeffrey P. Reinbold Date

Superintendent

National Mall and Memorial Parks

MEMORANDUM OF AGREEMENT
AMONG
THE NATIONAL PARK SERVICE,
THE NATIONAL CAPITAL PLANNING COMMISSION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING
THE REHABILITATION OF TIDAL BASIN AND WEST POTOMAC PARK SEAWALLS

DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE

_____

BY: David Maloney Date

DC State Historic Preservation Officer

MEMORANDUM OF AGREEMENT
AMONG
THE NATIONAL PARK SERVICE,
THE NATIONAL CAPITAL PLANNING COMMISSION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING
THE REHABILITATION OF TIDAL BASIN AND WEST POTOMAC PARK SEAWALLS

NATIONAL CAPITAL PLANNING COMMISSION

_____

BY: Marcel Acosta Date

Executive Director

MEMORANDUM OF AGREEMENT
AMONG
THE NATIONAL PARK SERVICE,
THE NATIONAL CAPITAL PLANNING COMMISSION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING
THE REHABILITATION OF TIDAL BASIN AND WEST POTOMAC PARK SEAWALLS

ADVISORY COUNCIL ON HISTORIC PRESERVATION

_____

BY: Date

MEMORANDUM OF AGREEMENT
AMONG
THE NATIONAL PARK SERVICE,
THE NATIONAL CAPITAL PLANNING COMMISSION,
THE DISTRICT OF COLUMBIA STATE HISTORIC PRESERVATION OFFICE,
AND
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING
THE REHABILITATION OF TIDAL BASIN AND WEST POTOMAC PARK SEAWALLS

CONCURRING PARTIES

EXHIBIT A: Seawalls to be rehabilitated by this project

EXHIBIT B: Existing elevations of Seawalls

The functionality of the walls within this project, deemed to be Phase 1, are influenced by sea level rise, have experienced either significant settlement, deterioration, or both, and directly impact visitor experience and safety.

EXHIBIT C: Diagram to illustrate Historic Functional Height

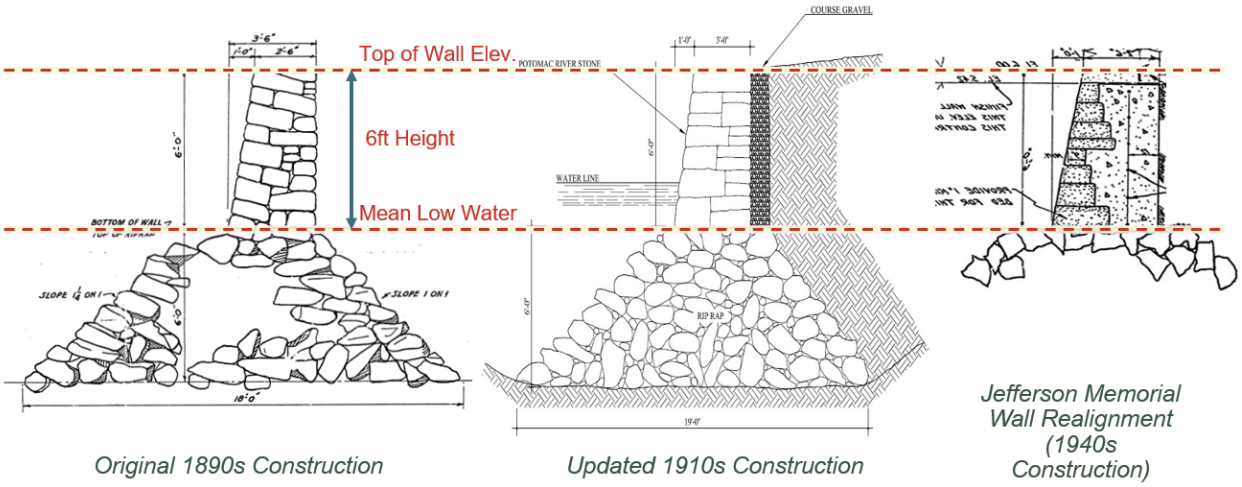
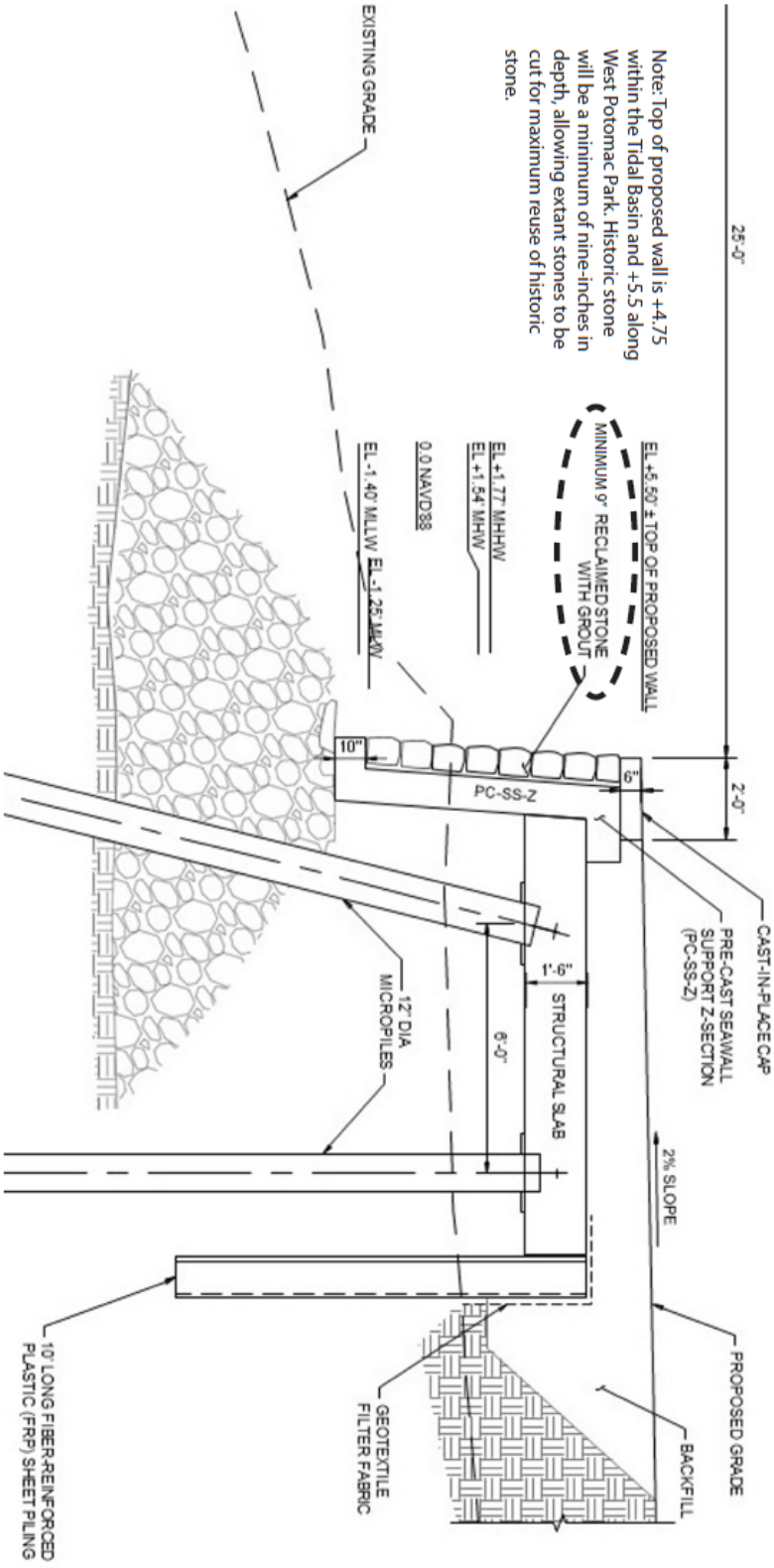
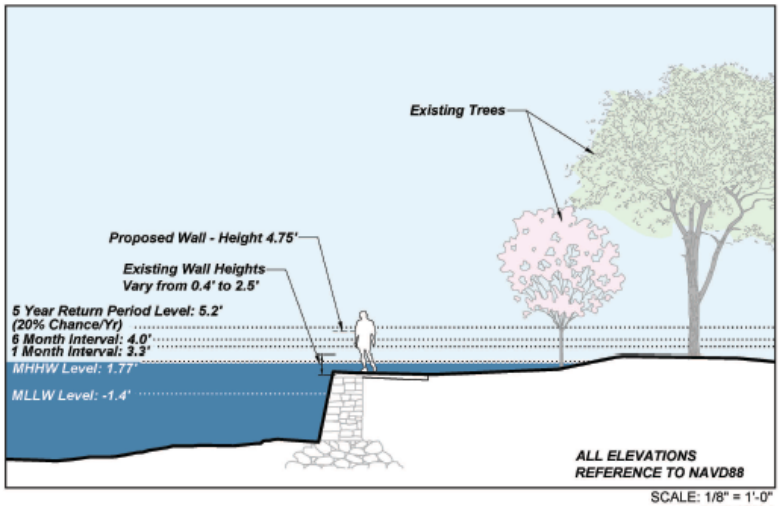


EXHIBIT D: Preferred Alternative



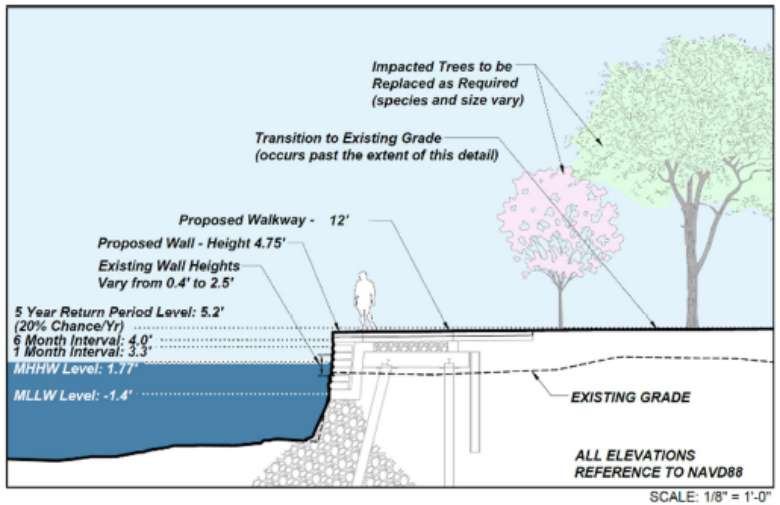
The above cross section shows the proposed seawall. Two, twelve-inch micropiles placed six feet apart will support a one-foot-six-inch concrete structural slab that will relieve the weight of the new 2% slopped land from the top of the extant fill. The wall face will be supported by a Z hanger with the dry stacked stone on top of the bottom of the hanger. The dry stacked stone will be a minimum of nine inches thick.

Tidal Basin East Cross Section



SCALE: 1/8" = 1'-0"
SECTION 1

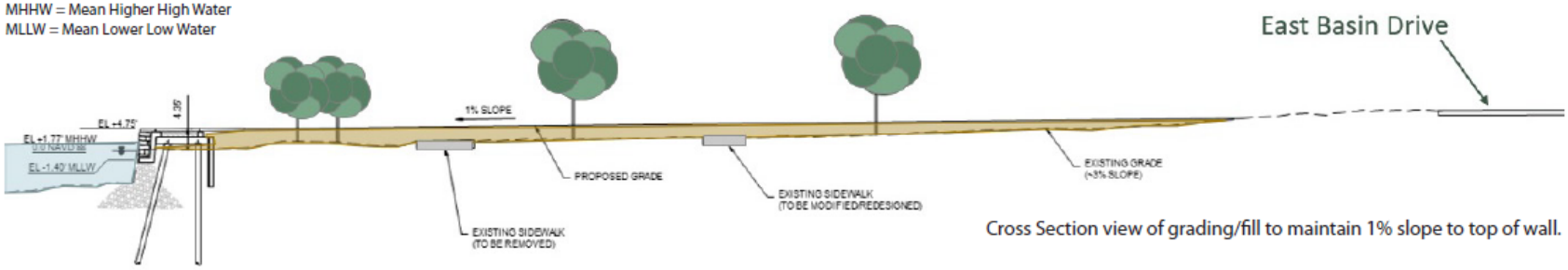
EXISTING CONDITIONS (TYPICAL)
Tidal Basin - East
(Visualization for Planning Purposes Only)



SCALE: 1/8" = 1'-0"
SECTION 2

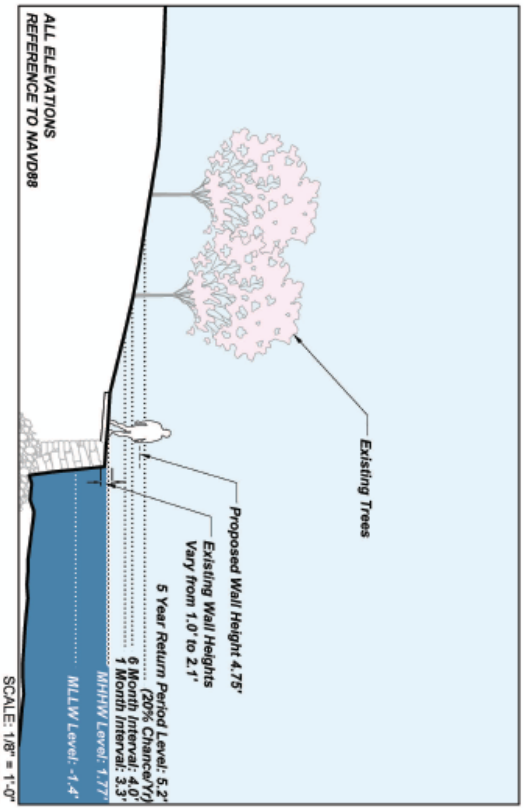
PROPOSED CONDITIONS (TYPICAL)
Tidal Basin - East
(Visualization for Planning Purposes Only)

MHHW = Mean Higher High Water
MLLW = Mean Lower Low Water

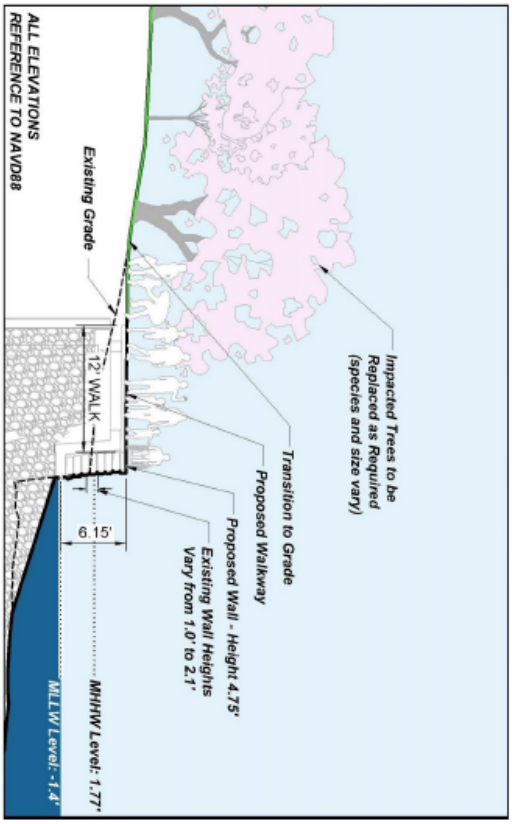


Cross Section view of grading/fill to maintain 1% slope to top of wall.

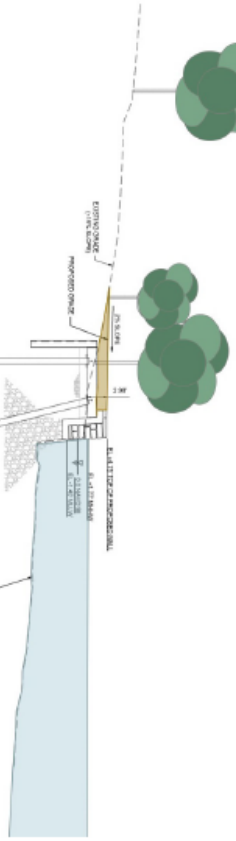
Tidal Basin West Cross Section



EXISTING CONDITIONS (TYPICAL)
Tidal Basin - West
(Visualization for Planning Purposes Only)



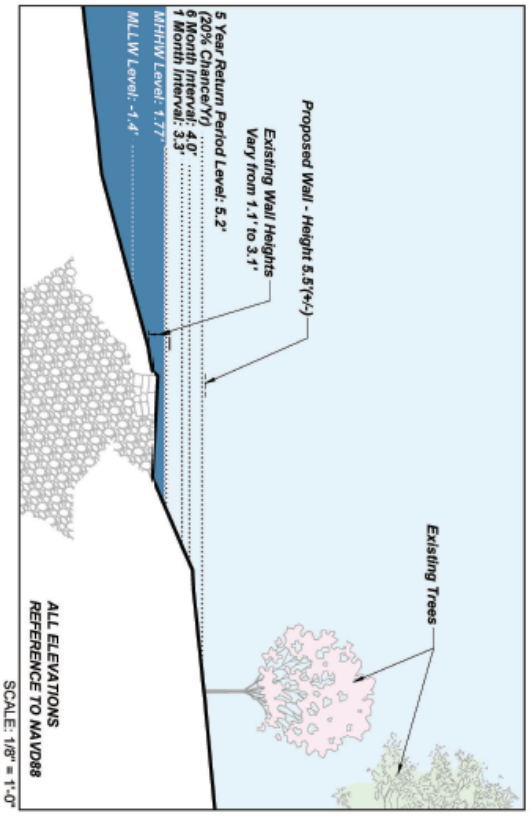
12' WALKWAY
PROPOSED CONDITIONS (TYPICAL)
Tidal Basin - West
(Visualization for Planning Purposes Only)



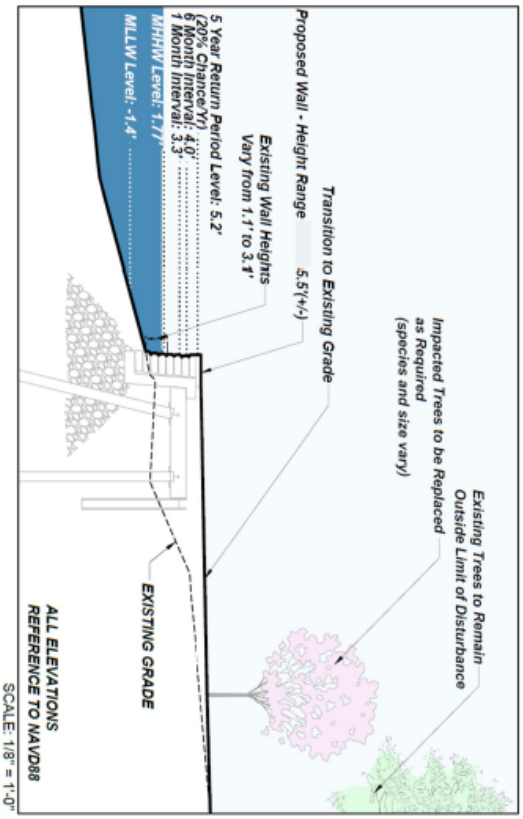
Cross Section view of grading/fill to maintain 2% slope to top of wall.

MHHW = Mean Higher High Water
MLLW = Mean Lower Low Water

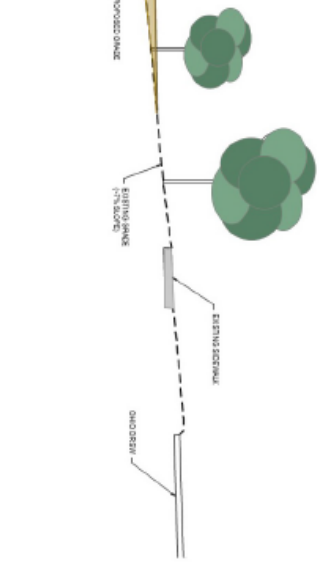
West Potomac Park Cross Section



EXISTING CONDITIONS (TYPICAL)
West Potomac Park
(Visualization for Planning Purposes Only)



PROPOSED CONDITIONS (TYPICAL)
West Potomac Park
(Visualization for Planning Purposes Only)



MHHW = Mean Higher High Water
MLLW = Mean Lower Low Water

EXHIBIT E: Seawall Character

There are a variety of seawall faces throughout the Tidal Basin and West Potomac Parks. Conditions vary from those with dry stacked stone with no mortar, to mortared or parged wall faces. Some of the walls are topped by concrete caps, other portions by stone caps. Newer portions of the seawalls have stone of varying size, cut and color, while older sections have stone of a more uniform size and color.

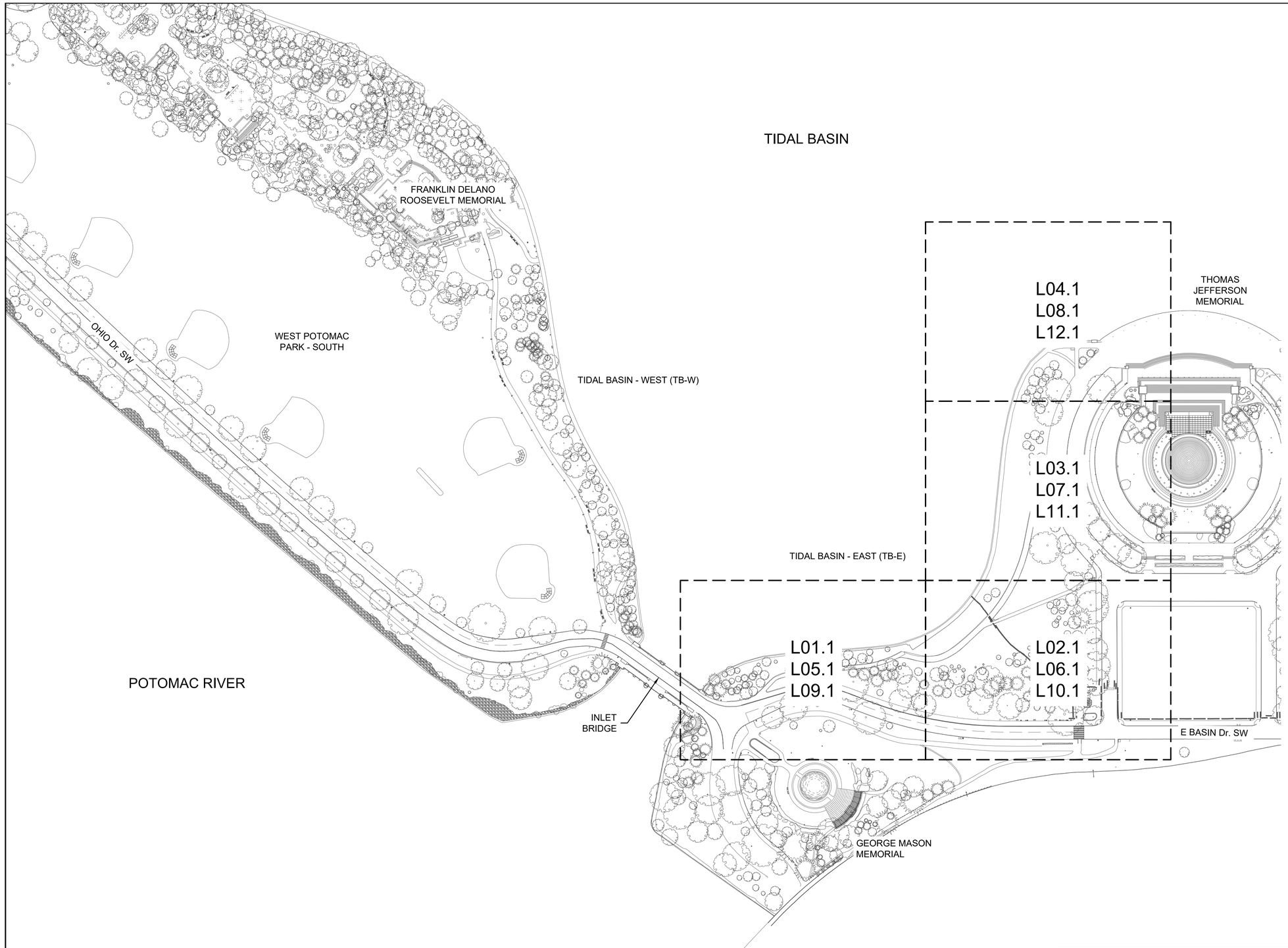
Acceptable Aesthetics for Proposed Seawalls

Looks #1, #3, and #5 are preferred for the following reasons: #1 Allows for the maximum reuse of historic stone; #3 Utilizes even coursing and stone size with rough and smooth face; #5 Is aesthetically pleasing with uniform stone color, medium gaps, and using both rough and smooth stone face. These three are preferred as they have variation in stone sizing, allowing for maximum reuse of stones, even coursing, and even coloring. The two not chosen have mortar to the edge of the wall face, and use stone of varying color and non-rectangular shape which contrasts with the historic dry stacked stone look.

Rehabilitation of Tidal Basin and West Potomac Park Seawalls

Section 106 Assessment of Effects Report

Appendix B: Action Alternative Drawings



L01.1 TO L04.1 ENLARGED EXISTING VEGETATION PLAN
L05.1 TO L08.1 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN
L09.1 TO L12.1 ENLARGED PROPOSED TREE PLANTING PLAN

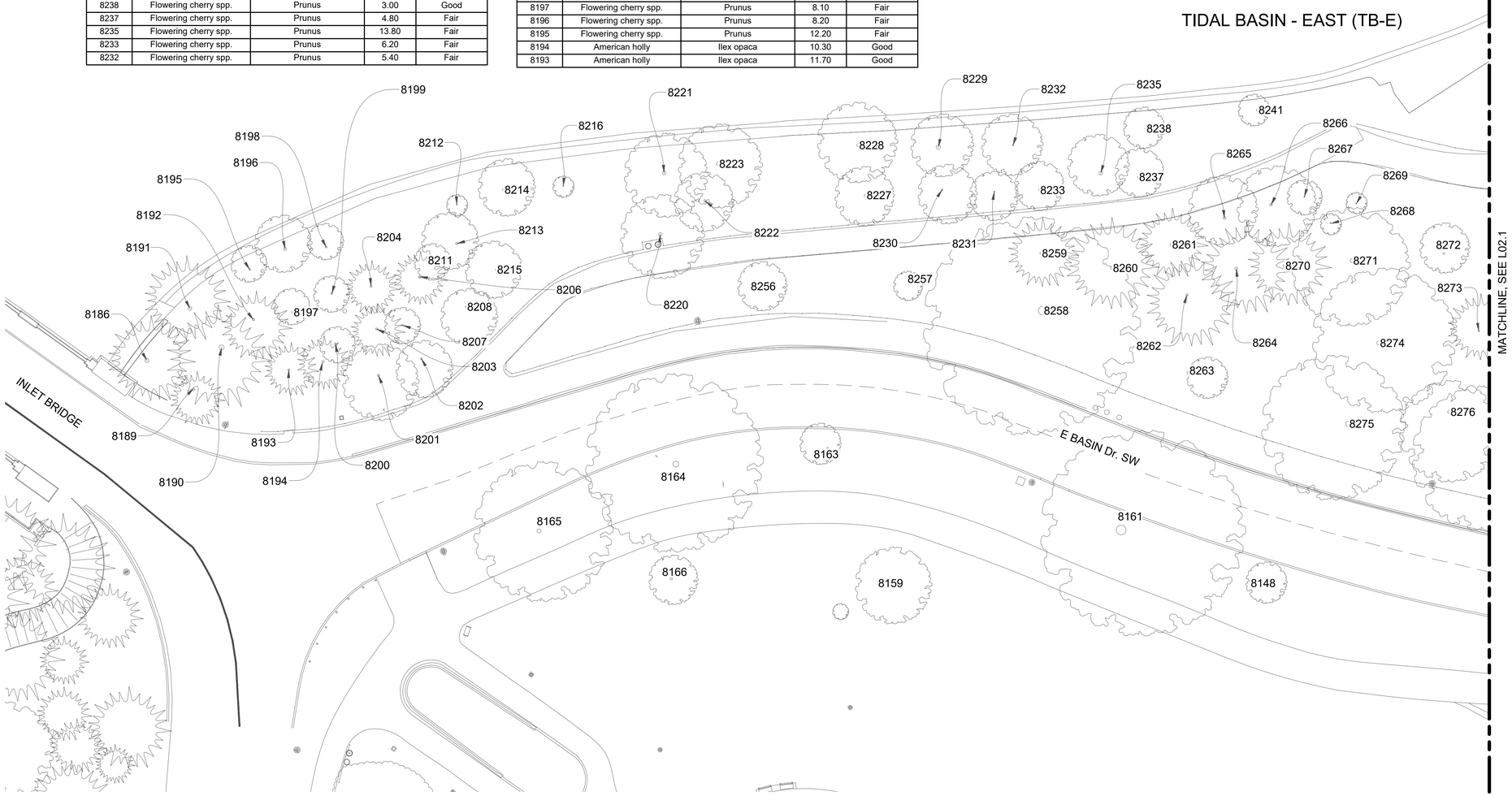
	DESIGNED: SAM CADD OAS TECH. REVIEW: RVS DATE: FEB 2023	SUB SHEET NO. L00.1	TITLE OF SHEET TIDAL BASIN - EAST OVERALL VEGETATION PLAN & KEY MAP NATIONAL MALL AND MEMORIAL PARKS	DRAWING NO. 802 / 177531 PMIS/PKG NO. 318722 SHEET 50 OF 226

NPS GIS TREE INVENTORY 2014

TREE #	COMMON NAME	SCIENTIFIC NAME	DBH	CONDITION
8276	Flowering cherry spp.	Prunus	10.60	Fair
8275	American elm	Ulmus americana	19.50	Fair
8274	Sugar maple	Acer saccharum	16.70	Fair
8273	American holly	Ilex opaca	11.90	Good
8272	Flowering cherry spp.	Prunus	4.00	Fair
8271	Sugar maple	Acer saccharum	16.80	Good
8270	American holly	Ilex opaca	14.10	Good
8269	Flowering cherry spp.	Prunus	2.40	Poor
8268	Flowering cherry spp.	Prunus	5.10	Fair
8267	Flowering cherry spp.	Prunus	4.00	Good
8266	Flowering cherry spp.	Prunus	10.30	Fair
8265	Flowering cherry spp.	Prunus	9.10	Fair
8264	American holly	Ilex opaca	21.80	Good
8263	American elm	Ulmus americana	3.80	Fair
8262	American holly	Ilex opaca	21.30	Good
8261	American holly	Ilex opaca	14.40	Good
8260	American holly	Ilex opaca	13.90	Good
8259	American holly	Ilex opaca	13.90	Good
8258	American elm	Ulmus americana	43.40	Fair
8257	American elm	Ulmus americana	2.30	Fair
8256	American elm	Ulmus americana	3.30	Poor
8241	Flowering cherry spp.	Prunus	11.80	Poor
8238	Flowering cherry spp.	Prunus	3.00	Good
8237	Flowering cherry spp.	Prunus	4.80	Fair
8235	Flowering cherry spp.	Prunus	13.80	Fair
8233	Flowering cherry spp.	Prunus	6.20	Fair
8232	Flowering cherry spp.	Prunus	5.40	Fair
8231	Flowering cherry spp.	Prunus	4.20	Fair
8230	Flowering cherry spp.	Prunus	5.30	Good
8229	Flowering cherry spp.	Prunus	26.00	Fair
8228	Flowering cherry spp.	Prunus	19.00	Fair
8227	Flowering cherry spp.	Prunus	9.10	Fair
8223	Flowering cherry spp.	Prunus	13.50	Fair
8222	Flowering cherry spp.	Prunus	5.20	Fair
8221	Flowering cherry spp.	Prunus	20.00	Fair
8220	Flowering cherry spp.	Prunus	10.00	Fair
8216	Flowering cherry spp.	Prunus	2.90	Good
8215	Flowering cherry spp.	Prunus	5.90	Fair
8214	Flowering cherry spp.	Prunus	22.80	Fair
8213	Flowering cherry spp.	Prunus	8.30	Fair
8212	Flowering cherry spp.	Prunus	2.20	Good
8211	Flowering cherry spp.	Prunus	6.00	Poor
8208	Flowering cherry spp.	Prunus	5.50	Fair
8207	Flowering cherry spp.	Prunus	6.60	Fair
8206	American holly	Ilex opaca	9.30	Good
8204	American holly	Ilex opaca	9.50	Good
8203	American holly	Ilex opaca	7.10	Good
8202	American elm	Ulmus americana	5.10	Good
8201	Flowering cherry spp.	Prunus	7.30	Good
8200	Flowering cherry spp.	Prunus	12.00	Poor
8199	Flowering cherry spp.	Prunus	6.10	Good
8198	Flowering cherry spp.	Prunus	8.60	Fair
8197	Flowering cherry spp.	Prunus	8.10	Fair
8196	Flowering cherry spp.	Prunus	8.20	Fair
8195	Flowering cherry spp.	Prunus	12.20	Fair
8194	American holly	Ilex opaca	10.30	Good
8193	American holly	Ilex opaca	11.70	Good
8192	American holly	Ilex opaca	15.90	Good
8191	American holly	Ilex opaca	21.40	Good
8190	Flowering cherry spp.	Prunus	23.30	Good
8189	American holly	Ilex opaca	6.60	Good
8186	Eastern white pine	Pinus strobus	18.20	Good
8166	Saucer magnolia	Magnolia x soulangeana	7.10	Fair
8165	American elm	Ulmus americana	15.60	Good
8164	American elm	Ulmus americana	23.10	-
8163	American elm	Ulmus americana	5.30	Fair
8161	American elm	Ulmus americana	40.70	Fair
8159	Saucer magnolia	Magnolia x soulangeana	10.30	Good
8148	American elm	Ulmus americana	3.30	Poor

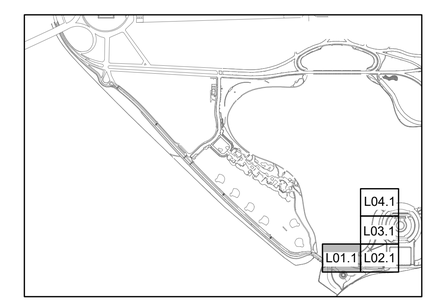
NOTE:

1. CONTRACTOR TO FIELD VERIFY TREE LOCATIONS WITH COMPLETE TREE SURVEY AND ASSESSMENT PER SPECIFICATION SECTION 01 56 36 TREE PROTECTION.



PLANT KEY

- DECIDUOUS TREE
- FLOWERING CHERRY TREE
- EVERGREEN TREE
- SHRUB



KEY MAP

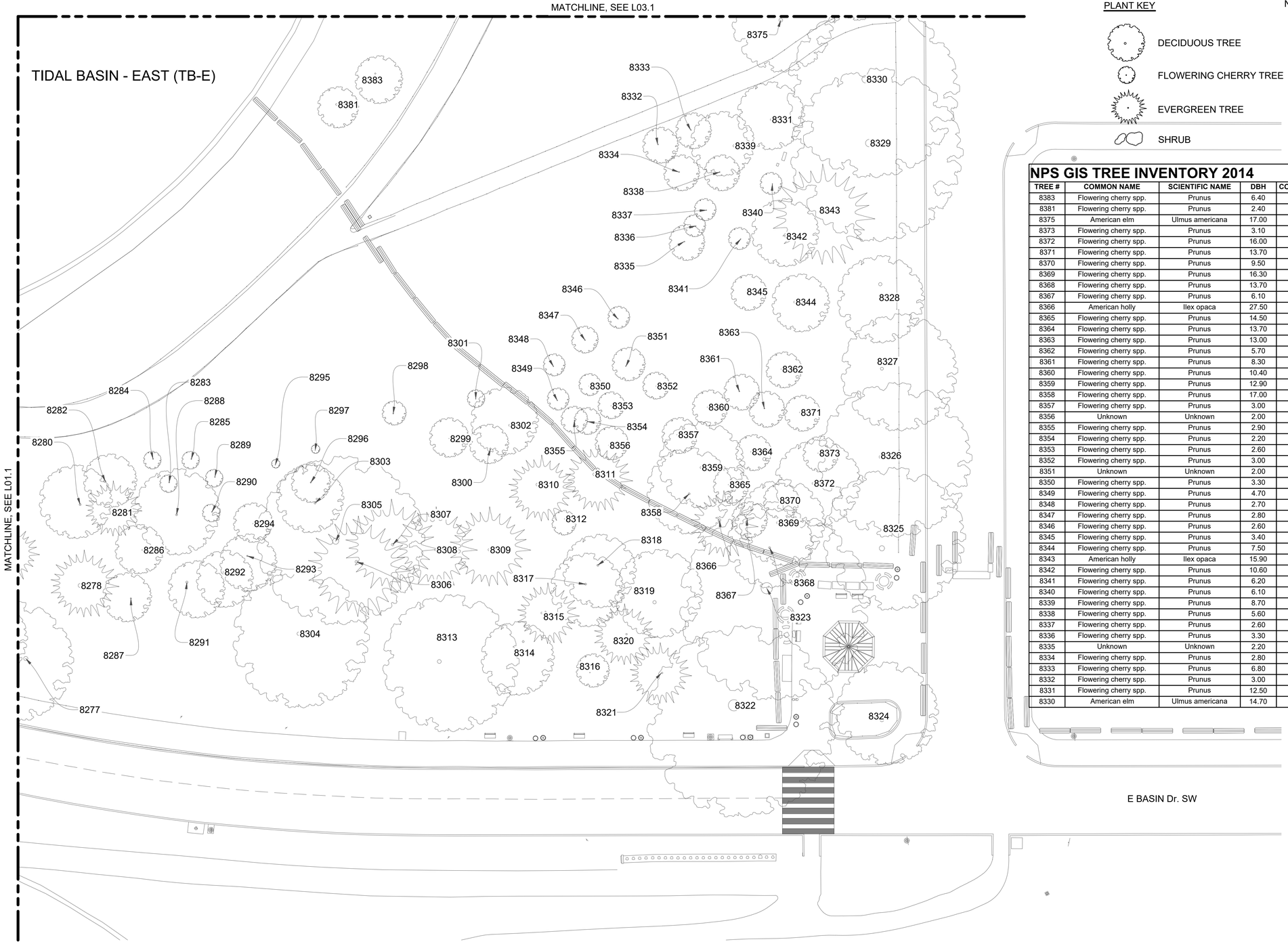
20 0 20 40

SCALE OF FEET

L01.1 / L00.1 ENLARGED EXISTING VEGETATION PLAN 1

1" = 20'

DESIGNED: SAM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD OAS	L01.1	TIDAL BASIN - EAST ENLARGED EXISTING VEGETATION PLAN 1	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	51 OF 226



PLANT KEY

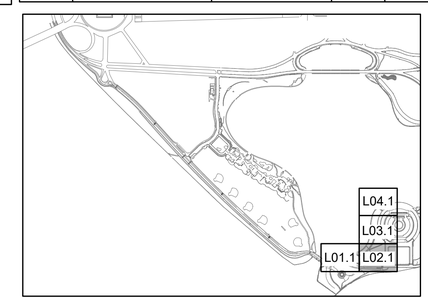
- DECIDUOUS TREE
- FLOWERING CHERRY TREE
- EVERGREEN TREE
- SHRUB

NOTE:

1. CONTRACTOR TO FIELD VERIFY TREE LOCATIONS WITH COMPLETE TREE SURVEY AND ASSESSMENT PER SPECIFICATION SECTION 01 56 36 TREE PROTECTION.

NPS GIS TREE INVENTORY 2014

TREE #	COMMON NAME	SCIENTIFIC NAME	DBH	CONDITION
8383	Flowering cherry spp.	Prunus	6.40	Fair
8381	Flowering cherry spp.	Prunus	2.40	Poor
8375	American elm	Ulmus americana	17.00	Fair
8373	Flowering cherry spp.	Prunus	3.10	Fair
8372	Flowering cherry spp.	Prunus	16.00	Good
8371	Flowering cherry spp.	Prunus	13.70	Poor
8370	Flowering cherry spp.	Prunus	9.50	Fair
8369	Flowering cherry spp.	Prunus	16.30	Fair
8368	Flowering cherry spp.	Prunus	13.70	Fair
8367	Flowering cherry spp.	Prunus	6.10	Fair
8366	American holly	Ilex opaca	27.50	Good
8365	Flowering cherry spp.	Prunus	14.50	Good
8364	Flowering cherry spp.	Prunus	13.70	Fair
8363	Flowering cherry spp.	Prunus	13.00	Poor
8362	Flowering cherry spp.	Prunus	5.70	Fair
8361	Flowering cherry spp.	Prunus	8.30	Poor
8360	Flowering cherry spp.	Prunus	10.40	Fair
8359	Flowering cherry spp.	Prunus	12.90	Fair
8358	Flowering cherry spp.	Prunus	17.00	Fair
8357	Flowering cherry spp.	Prunus	3.00	Fair
8356	Unknown	Unknown	2.00	Dead
8355	Flowering cherry spp.	Prunus	2.90	Fair
8354	Flowering cherry spp.	Prunus	2.20	Fair
8353	Flowering cherry spp.	Prunus	2.60	Fair
8352	Flowering cherry spp.	Prunus	3.00	Fair
8351	Unknown	Unknown	2.00	Dead
8350	Flowering cherry spp.	Prunus	3.30	Fair
8349	Flowering cherry spp.	Prunus	4.70	Poor
8348	Flowering cherry spp.	Prunus	2.70	Fair
8347	Flowering cherry spp.	Prunus	2.80	Poor
8346	Flowering cherry spp.	Prunus	2.60	Fair
8345	Flowering cherry spp.	Prunus	3.40	Good
8344	Flowering cherry spp.	Prunus	7.50	Good
8343	American holly	Ilex opaca	15.90	Good
8342	Flowering cherry spp.	Prunus	10.60	Fair
8341	Flowering cherry spp.	Prunus	6.20	Fair
8340	Flowering cherry spp.	Prunus	6.10	Poor
8339	Flowering cherry spp.	Prunus	8.70	Fair
8338	Flowering cherry spp.	Prunus	5.60	Fair
8337	Flowering cherry spp.	Prunus	2.60	Poor
8336	Flowering cherry spp.	Prunus	3.30	Fair
8335	Unknown	Unknown	2.20	Dead
8334	Flowering cherry spp.	Prunus	2.80	Fair
8333	Flowering cherry spp.	Prunus	6.80	Fair
8332	Flowering cherry spp.	Prunus	3.00	Fair
8331	Flowering cherry spp.	Prunus	12.50	Fair
8330	American elm	Ulmus americana	14.70	Fair
8330	American elm	Ulmus americana	14.70	Fair
8329	American elm	Ulmus americana	19.40	Fair
8328	American elm	Ulmus americana	18.30	Poor
8327	American elm	Ulmus americana	15.80	Fair
8326	American elm	Ulmus americana	23.30	Fair
8325	American elm	Ulmus americana	21.40	Fair
8324	American elm	Ulmus americana	17.30	Poor
8323	American elm	Ulmus americana	52.30	Good
8322	American elm	Ulmus americana	17.00	Fair
8321	American holly	Ilex opaca	17.00	Good
8320	American holly	Ilex opaca	15.10	Good
8319	Crabapple	Malus	18.30	Fair
8318	Hawthorn spp.	Crataegus	11.70	Fair
8317	Hawthorn spp.	Crataegus	12.80	-
8316	American elm	Ulmus americana	3.40	Poor
8315	American holly	Ilex opaca	15.80	Good
8314	American holly	Ilex opaca	21.20	Fair
8313	American elm	Ulmus americana	17.30	Good
8312	Unknown	Unknown	10.30	Fair
8311	American holly	Ilex opaca	14.20	Fair
8310	American holly	Ilex opaca	15.50	Fair
8309	American holly	Ilex opaca	19.20	Fair
8308	American holly	Ilex opaca	17.00	Fair
8307	American holly	Ilex opaca	19.70	Fair
8306	American holly	Ilex opaca	13.40	Fair
8305	American elm	Ulmus americana	41.30	Fair
8304	American elm	Ulmus americana	17.70	Fair
8303	Flowering cherry spp.	Prunus	11.70	Fair
8302	Flowering cherry spp.	Prunus	12.10	Good
8301	Flowering cherry spp.	Prunus	4.30	Fair
8300	Flowering cherry spp.	Prunus	7.90	Fair
8299	Flowering cherry spp.	Prunus	3.60	Good
8298	Flowering cherry spp.	Prunus	2.50	Good
8297	Flowering cherry spp.	Prunus	2.30	-
8296	Flowering cherry spp.	Prunus	2.50	Dead
8295	Flowering cherry spp.	Prunus	2.80	Fair
8294	Flowering cherry spp.	Prunus	3.30	Fair
8293	Flowering cherry spp.	Prunus	5.90	Good
8292	Flowering cherry spp.	Prunus	6.20	Good
8291	Flowering cherry spp.	Prunus	10.80	Fair
8290	Flowering cherry spp.	Prunus	3.80	Fair
8289	Flowering cherry spp.	Prunus	2.50	Fair
8288	Flowering cherry spp.	Prunus	10.50	Good
8287	Flowering cherry spp.	Prunus	9.00	Fair
8286	Flowering cherry spp.	Prunus	8.00	Fair
8285	Flowering cherry spp.	Prunus	2.40	Fair
8284	Flowering cherry spp.	Prunus	2.00	Fair
8283	Flowering cherry spp.	Prunus	14.70	Poor
8282	Flowering cherry spp.	Prunus	9.00	Fair
8281	American holly	Ilex opaca	21.70	Fair
8280	Sugar maple	Acer saccharum	34.90	Fair
8278	Unknown	Unknown	10.00	Fair
8277	American elm	Ulmus americana	15.90	Good



KEY MAP

20 0 20 40

SCALE OF FEET

L02.1 / L00.1 ENLARGED EXISTING VEGETATION PLAN 2

1" = 20'

DESIGNED: SAM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
CADD OAS	L02.1	TIDAL BASIN - EAST ENLARGED EXISTING VEGETATION PLAN 2	802 / 177531
TECH. REVIEW: RVS			PMIS/PKG NO. 318722
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 52 OF 226

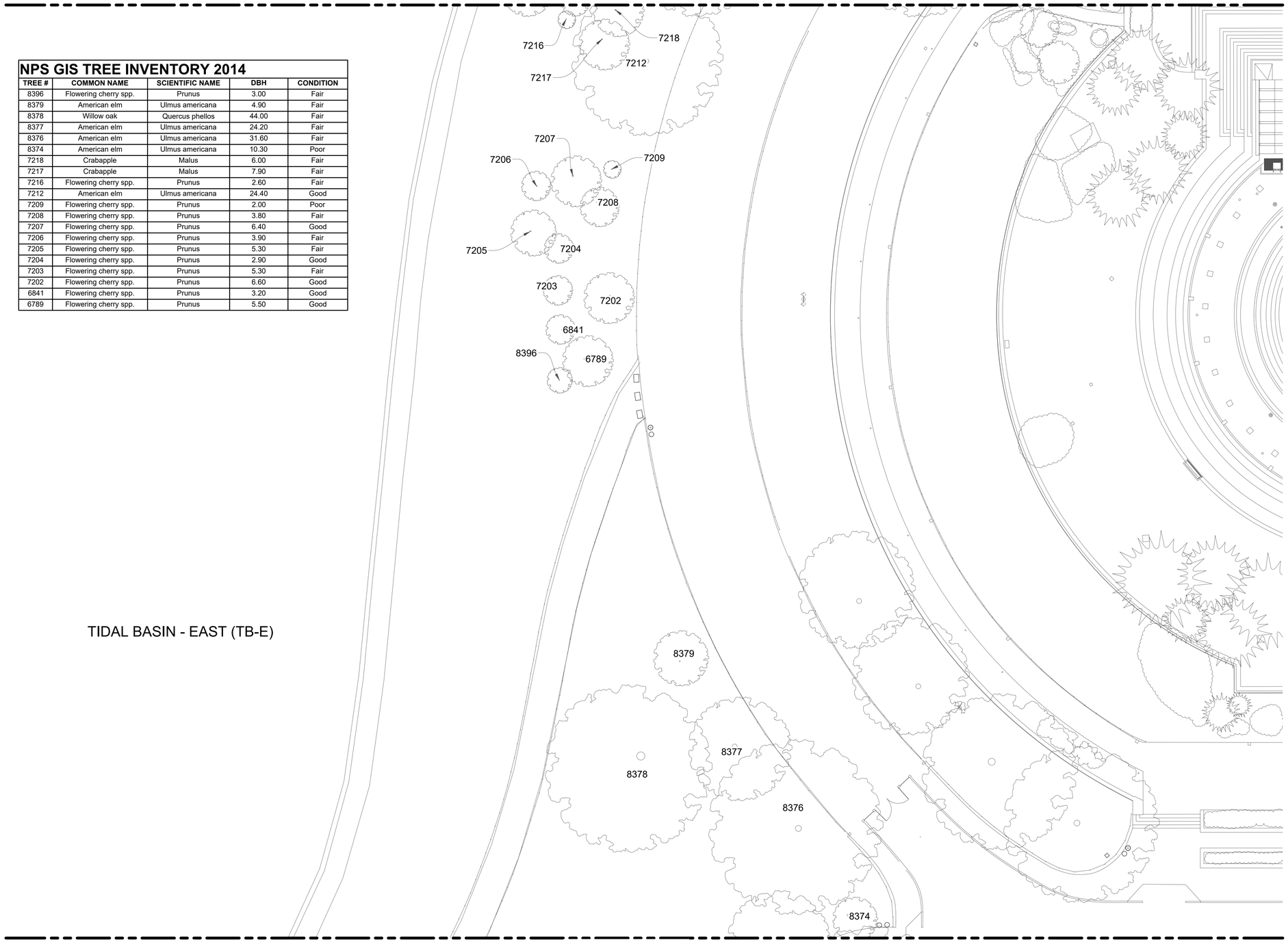
MATCHLINE, SEE L04.1

NOTE:

1. CONTRACTOR TO FIELD VERIFY TREE LOCATIONS WITH COMPLETE TREE SURVEY AND ASSESSMENT PER SPECIFICATION SECTION 01 56 36 TREE PROTECTION.

NPS GIS TREE INVENTORY 2014

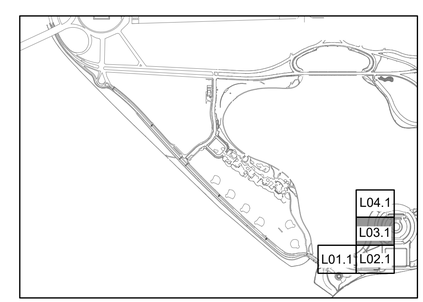
TREE #	COMMON NAME	SCIENTIFIC NAME	DBH	CONDITION
8396	Flowering cherry spp.	Prunus	3.00	Fair
8379	American elm	Ulmus americana	4.90	Fair
8378	Willow oak	Quercus phellos	44.00	Fair
8377	American elm	Ulmus americana	24.20	Fair
8376	American elm	Ulmus americana	31.60	Fair
8374	American elm	Ulmus americana	10.30	Poor
7218	Crabapple	Malus	6.00	Fair
7217	Crabapple	Malus	7.90	Fair
7216	Flowering cherry spp.	Prunus	2.60	Fair
7212	American elm	Ulmus americana	24.40	Good
7209	Flowering cherry spp.	Prunus	2.00	Poor
7208	Flowering cherry spp.	Prunus	3.80	Fair
7207	Flowering cherry spp.	Prunus	6.40	Good
7206	Flowering cherry spp.	Prunus	3.90	Fair
7205	Flowering cherry spp.	Prunus	5.30	Fair
7204	Flowering cherry spp.	Prunus	2.90	Good
7203	Flowering cherry spp.	Prunus	5.30	Fair
7202	Flowering cherry spp.	Prunus	6.60	Good
6841	Flowering cherry spp.	Prunus	3.20	Good
6789	Flowering cherry spp.	Prunus	5.50	Good



MATCHLINE, SEE L02.1

PLANT KEY

- DECIDUOUS TREE
- FLOWERING CHERRY TREE
- EVERGREEN TREE
- SHRUB



KEY MAP

20 0 20 40

SCALE OF FEET

L03.1 / L00.1 ENLARGED EXISTING VEGETATION PLAN 3

1" = 20'

DESIGNED: SAM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD OAS	L03.1	TIDAL BASIN - EAST ENLARGED EXISTING VEGETATION PLAN 3	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	53 OF 226

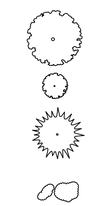
NOTE:

1. CONTRACTOR TO FIELD VERIFY TREE LOCATIONS WITH COMPLETE TREE SURVEY AND ASSESSMENT PER SPECIFICATION SECTION 01 56 36 TREE PROTECTION.

NPS GIS TREE INVENTORY 2014

TREE #	COMMON NAME	SCIENTIFIC NAME	DBH	CONDITION
7234	Eastern white pine	Pinus strobus	6.00	Good
7233	Eastern white pine	Pinus strobus	6.50	Good
7232	Crabapple	Malus	10.20	Fair
7231	Flowering cherry spp.	Prunus	2.40	Fair
7230	Crabapple	Malus	9.20	Fair
7228	Flowering cherry spp.	Prunus	3.50	Fair
7227	Flowering cherry spp.	Prunus	6.50	Fair
7226	Flowering cherry spp.	Prunus	4.50	Fair
7225	Flowering cherry spp.	Prunus	7.40	Fair
7224	Flowering cherry spp.	Prunus	5.30	Fair
7223	Flowering cherry spp.	Prunus	7.90	Fair
7222	Flowering cherry spp.	Prunus	4.20	Fair
7221	Flowering cherry spp.	Prunus	7.90	Fair
7220	Crabapple	Malus	10.80	Fair
7219	Flowering cherry spp.	Prunus	3.20	Fair
7213	American elm	Ulmus americana	24.40	Fair

PLANT KEY

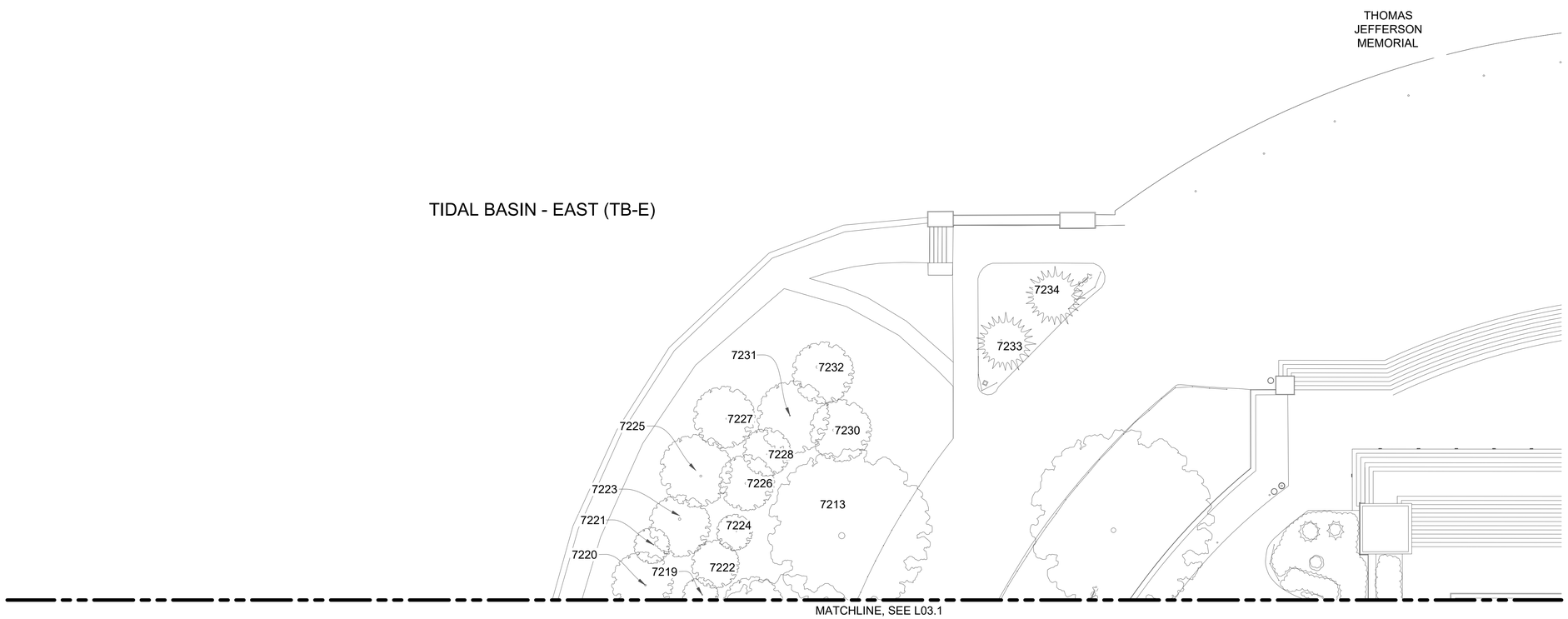


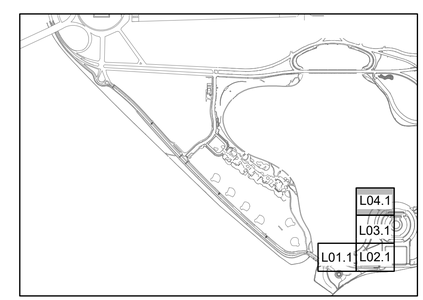
DECIDUOUS TREE

FLOWERING CHERRY TREE

EVERGREEN TREE

SHRUB





KEY MAP

20 0 20 40

SCALE OF FEET

L04.1 / L00.1 ENLARGED EXISTING VEGETATION PLAN 4

1" = 20'

DESIGNED: SAM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD OAS	L04.1	TIDAL BASIN - EAST ENLARGED EXISTING VEGETATION PLAN 4	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	54 OF 226

LEGEND

TREE PROTECTION AREA;
PROVIDE SIX FOOT HEIGHT CHAIN LINK TREE PROTECTION FENCE OR EIGHT FOOT HEIGHT LIMITS OF CONSTRUCTION FENCE; ALL TREE PROTECTION AREAS SHALL BE SIGNED AND FULLY ENCLOSED; NO CONSTRUCTION ACCESS ALLOWED THROUGH OR IN TREE PROTECTION AREAS

CONSTRUCTION FENCE - 8' HT. CHAIN LINK

ROOT IMPACT ZONE - TREE STATUS IN ZONE TBD BY ARBORIST
15' OUTSIDE OF LIMIT OF GRADING (ASSUME 30% ATTRITION). ALL WORK WITHIN TREE PROTECTION ZONE PERFORMED UNDER OVERSIGHT OF ARBORIST. NO VEHICLES ALLOWED WITHIN TREE PROTECTION ZONE.

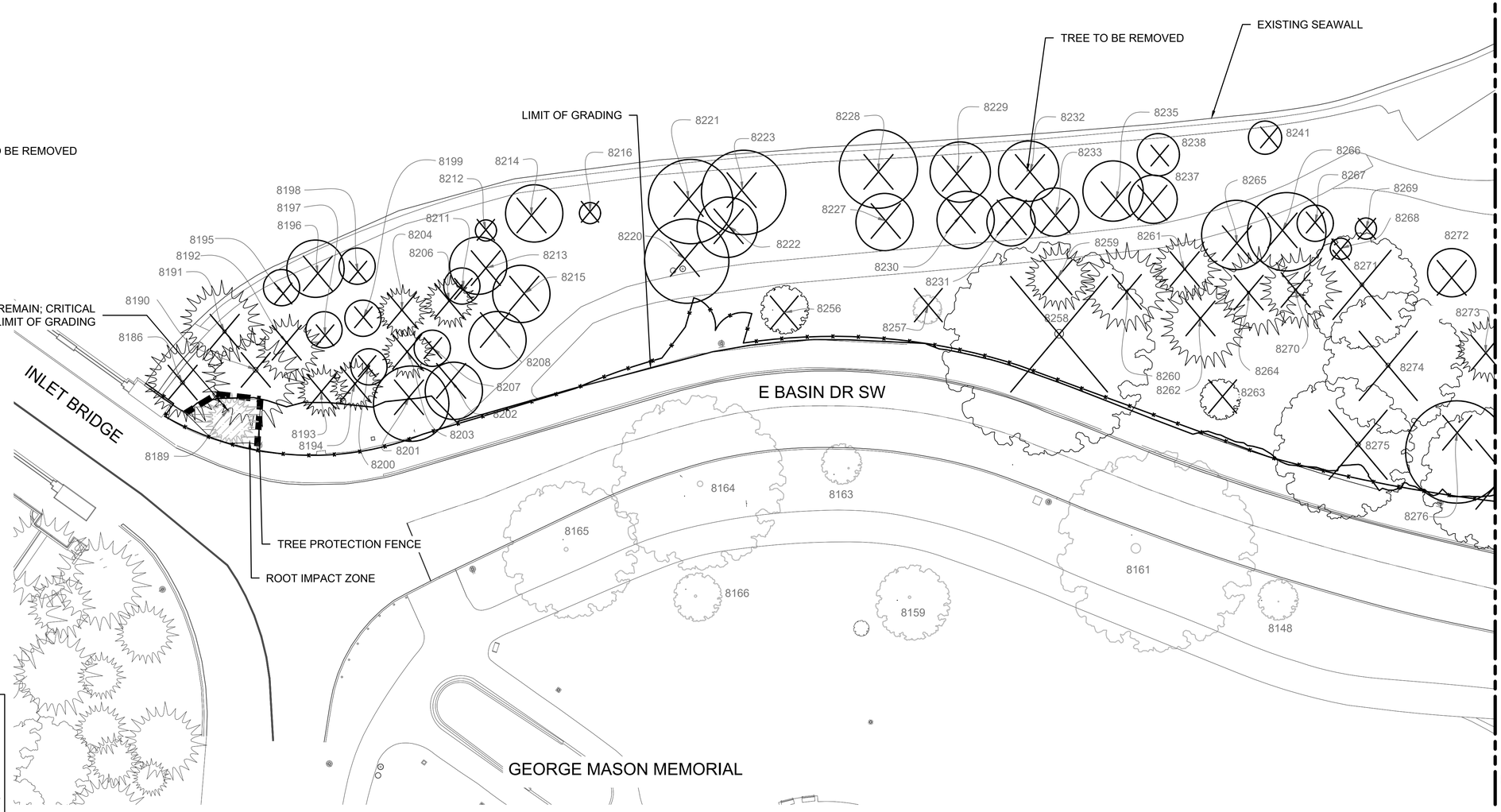
TREES WITH CRITICAL ROOT ZONE
WITHIN 15' OF LIMIT OF GRADING

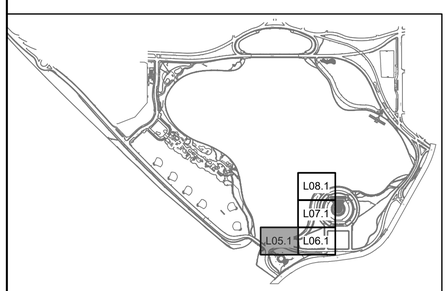
TREES TO REMAIN

CHERRY TREES TO BE REMOVED

DECIDUOUS (NON-CHERRY) TREES TO BE REMOVED

EVERGREEN TREES TO BE REMOVED





KEY MAP

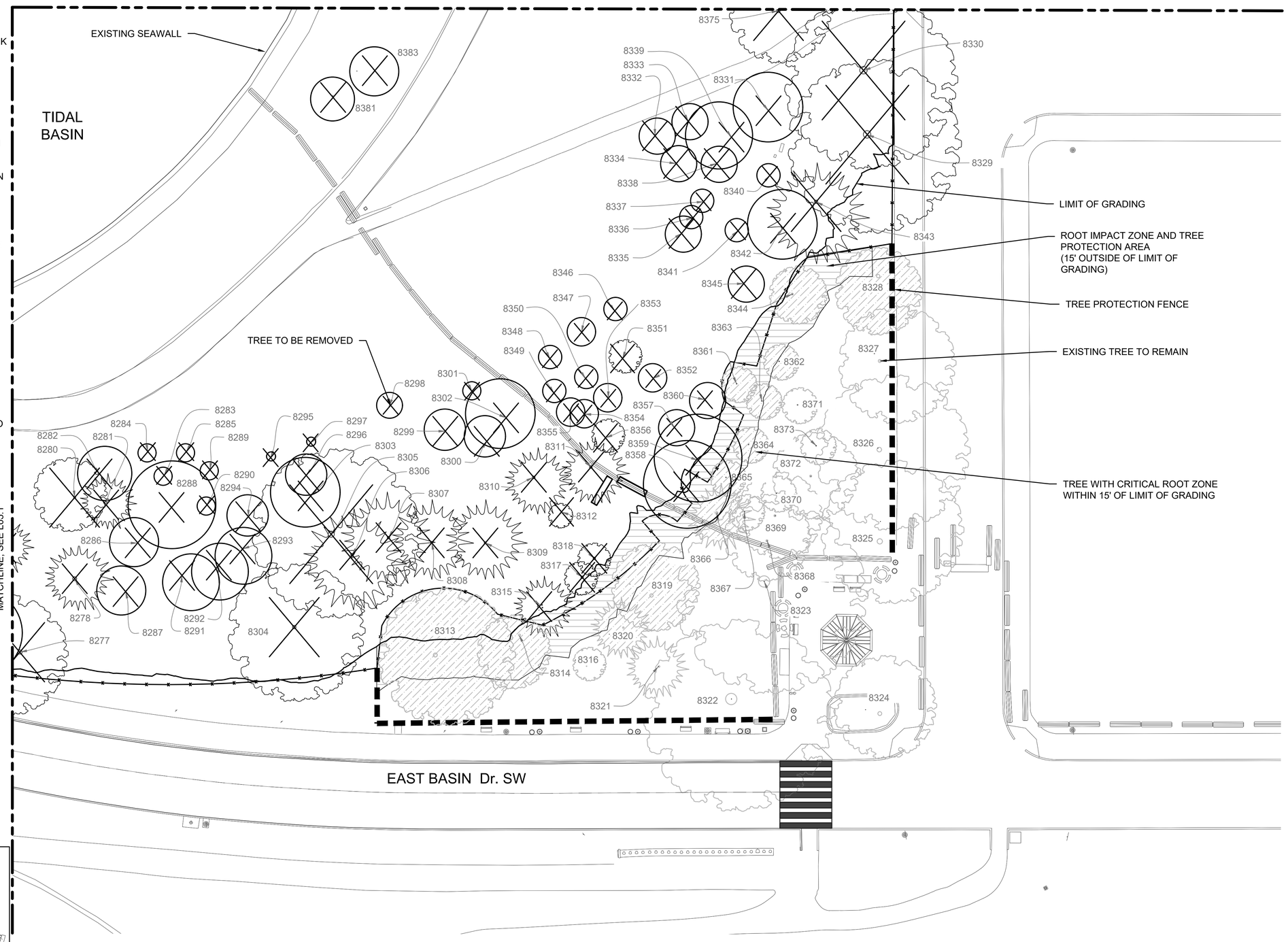
L05.1 / L00.1 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 1
1" = 20'

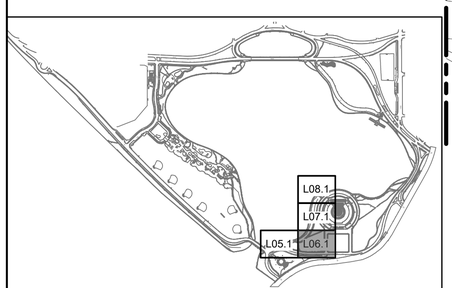
20 0 20 40
SCALE OF FEET

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.	
CADD JLS/DBS	L05.1	TIDAL BASIN - EAST ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 1	802 / 177531	
TECH. REVIEW: RVS			PMIS/PKG NO. 318722	
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 55 OF 226	

LEGEND

- TREE PROTECTION AREA; PROVIDE SIX FOOT HEIGHT CHAIN LINK TREE PROTECTION FENCE OR EIGHT FOOT HEIGHT LIMITS OF CONSTRUCTION FENCE; ALL TREE PROTECTION AREAS SHALL BE SIGNED AND FULLY ENCLOSED; NO CONSTRUCTION ACCESS ALLOWED THROUGH OR IN TREE PROTECTION AREAS
- CONSTRUCTION FENCE - 8' HT. CHAIN LINK
- ROOT IMPACT ZONE - TREE STATUS IN ZONE TBD BY ARBORIST 15' OUTSIDE OF LIMIT OF GRADING (ASSUME 30% ATTRITION). ALL WORK WITHIN TREE PROTECTION ZONE PERFORMED UNDER OVERSIGHT OF ARBORIST. NO VEHICLES ALLOWED WITHIN TREE PROTECTION ZONE.
- TREES WITH CRITICAL ROOT ZONE WITHIN 15' OF LIMIT OF GRADING
- TREES TO REMAIN
- CHERRY TREES TO BE REMOVED
- DECIDUOUS (NON-CHERRY) TREES TO BE REMOVED
- EVERGREEN TREES TO BE REMOVED





KEY MAP

L06.1 / L00.1 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 2

1" = 20'

20 0 20 40

SCALE OF FEET

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
CADD JLS/DBS	L06.1	TIDAL BASIN - EAST ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 2	802 / 177531
TECH. REVIEW: RVS			PMIS/PKG NO. 318722
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 56 OF 226

LEGEND

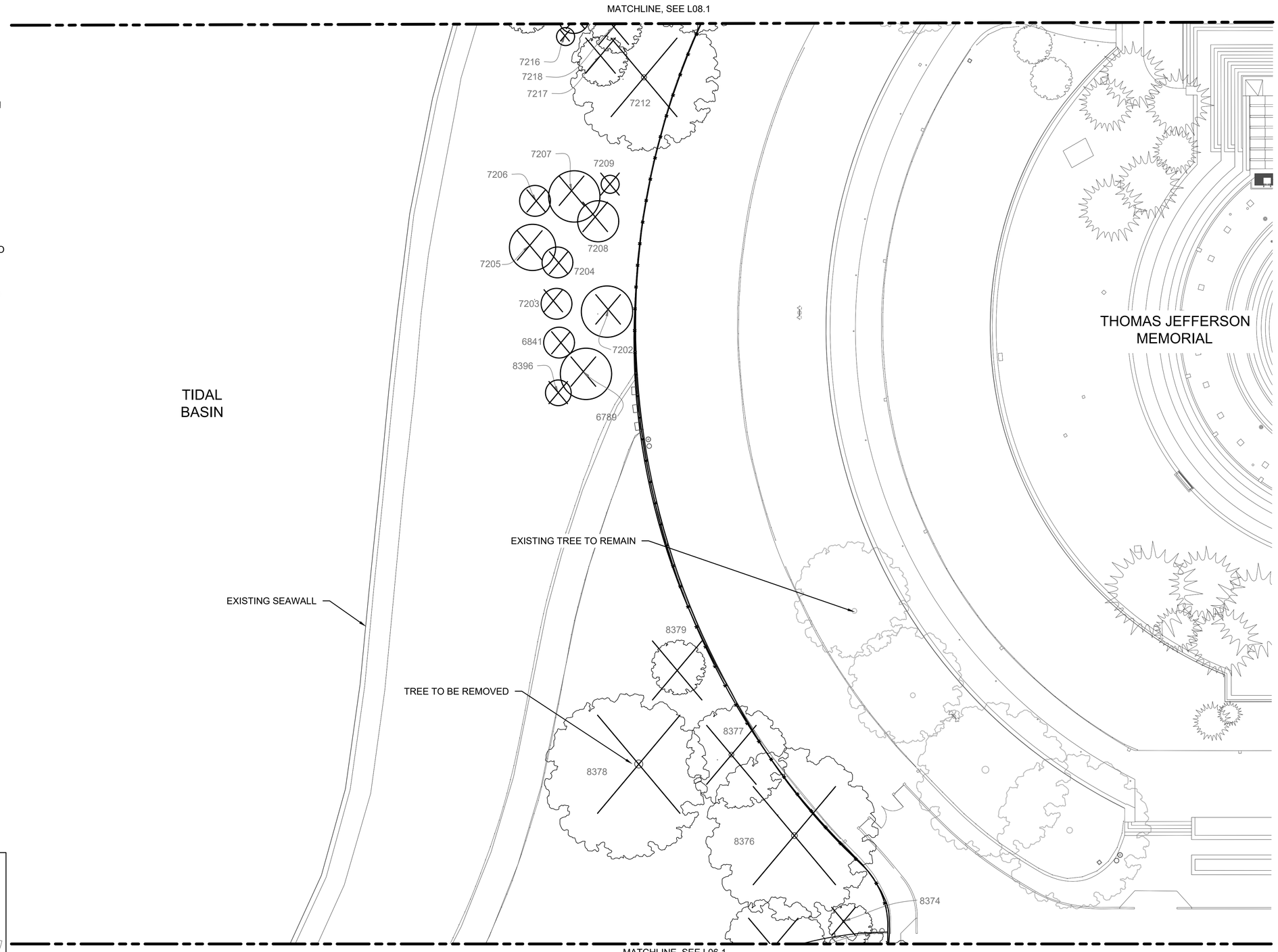
CONSTRUCTION FENCE - 8' HT. CHAIN LINK

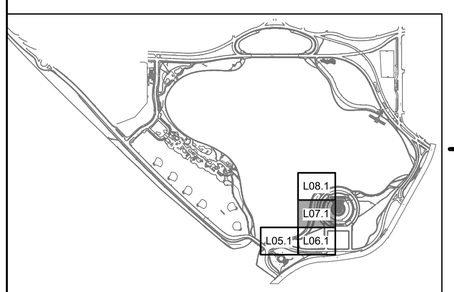
TREES TO REMAIN

CHERRY TREES TO BE REMOVED

DECIDUOUS (NON-CHERRY) TREES TO BE REMOVED

EVERGREEN TREES TO BE REMOVED





KEY MAP

L07.1 / L00.1 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 3

1" = 20'

20 0 20 40

SCALE OF FEET

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD JLS/DBS	L07.1	TIDAL BASIN - EAST ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 3	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	57 OF 226

LEGEND

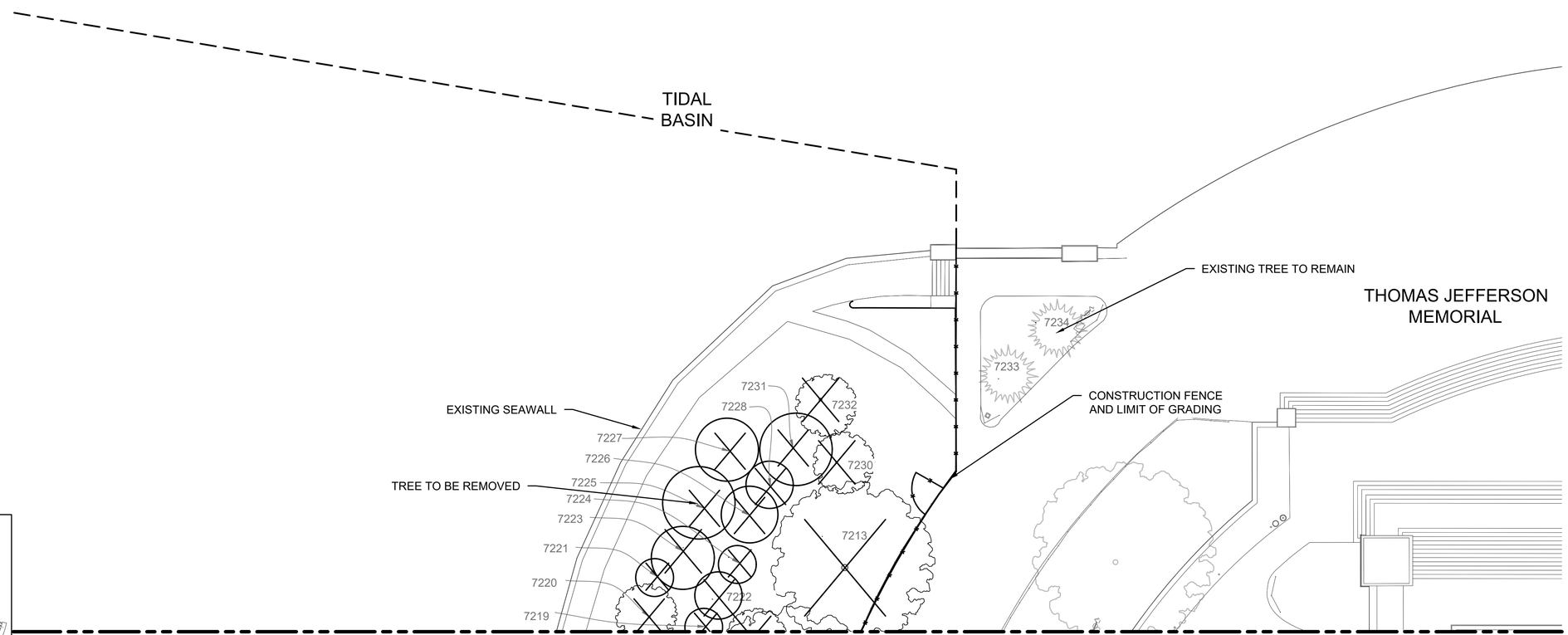
CONSTRUCTION FENCE - 8' HT. CHAIN LINK

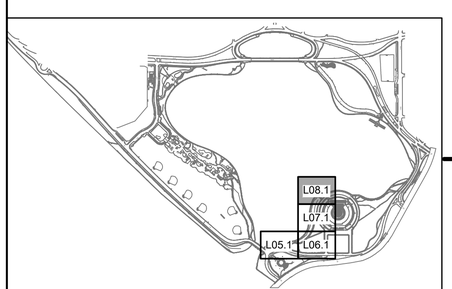
TREES TO REMAIN

CHERRY TREES TO BE REMOVED

DECIDUOUS (NON-CHERRY) TREES TO BE REMOVED

EVERGREEN TREES TO BE REMOVED





KEY MAP

L08.1 / L00.1 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 4

1" = 20'

20 0 20 40

SCALE OF FEET

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD JLS/DBS	L08.1	TIDAL BASIN - EAST ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 4	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET 58 OF 226
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	

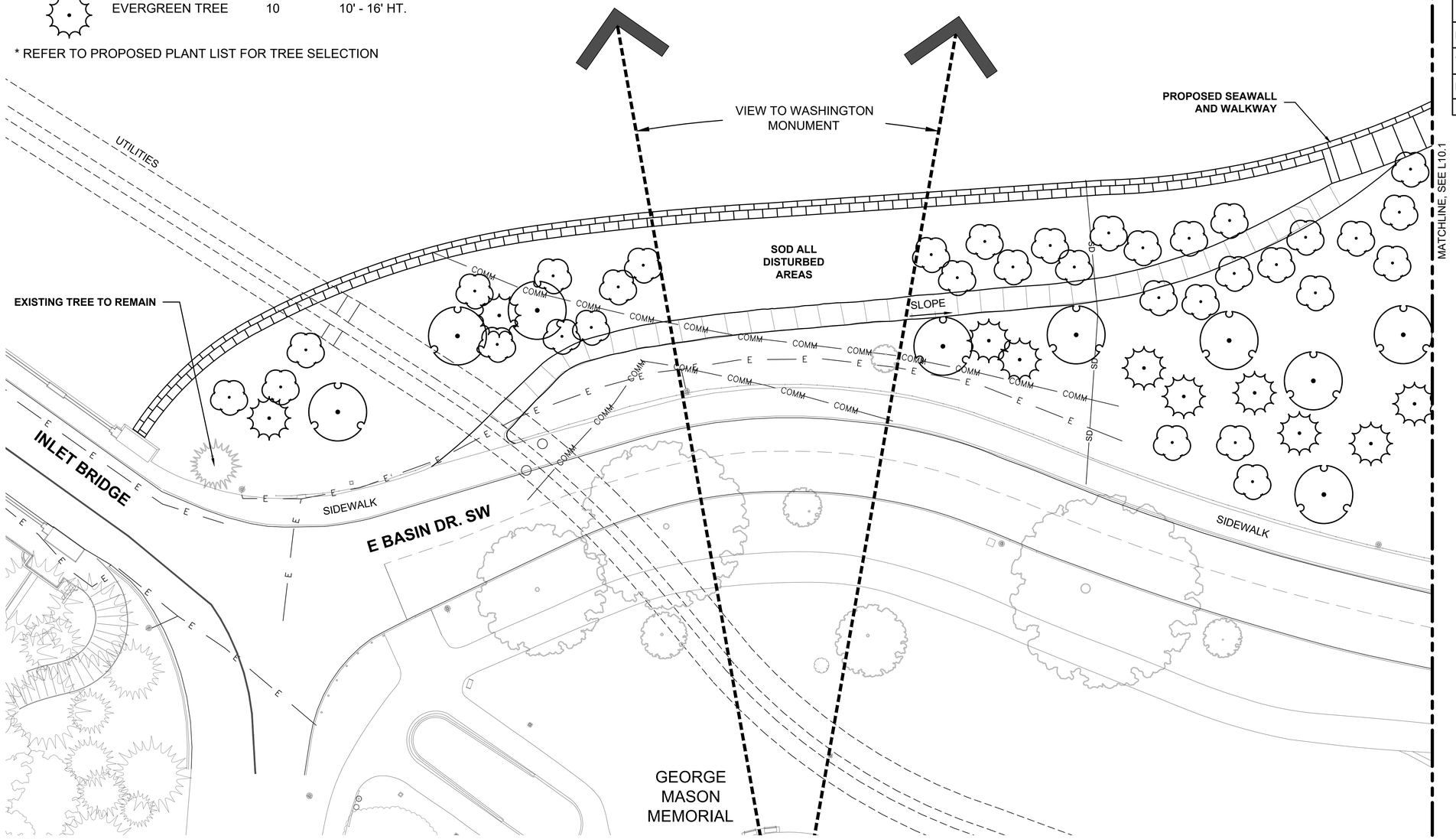
MITIGATION PLANT SCHEDULE (THIS SHEET)

SYMBOL	TREE TYPE *	QUANTITY	SIZE
	DECIDUOUS TREE	9	3"- 6" CAL.
	CHERRY TREE	33	2" - 3.5" CAL.
	EVERGREEN TREE	10	10' - 16' HT.

* REFER TO PROPOSED PLANT LIST FOR TREE SELECTION

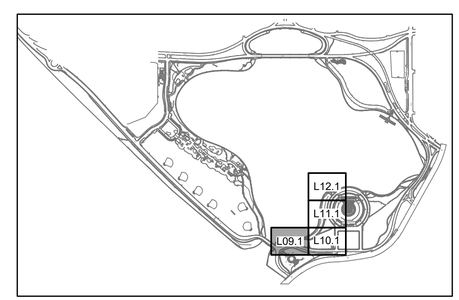
LEGEND

TREES TO REMAIN



TIDAL BASIN EAST - SUMMARY					
	DECIDUOUS	UNKNOWN	CHERRY	EVERGREEN	TOTAL
REMOVED	29	5	108	26	168
TREE MITIGATION REQUIRED:			225		
PROPOSED	45	0	145	35	225
SEE SHEET L14.1 FOR DETAILED TREE MITIGATION CALCULATIONS					

ALL NEW TREE PLANTINGS TO BE A MINIMUM OF 18' FROM THE FACE OF THE WALL



KEY MAP

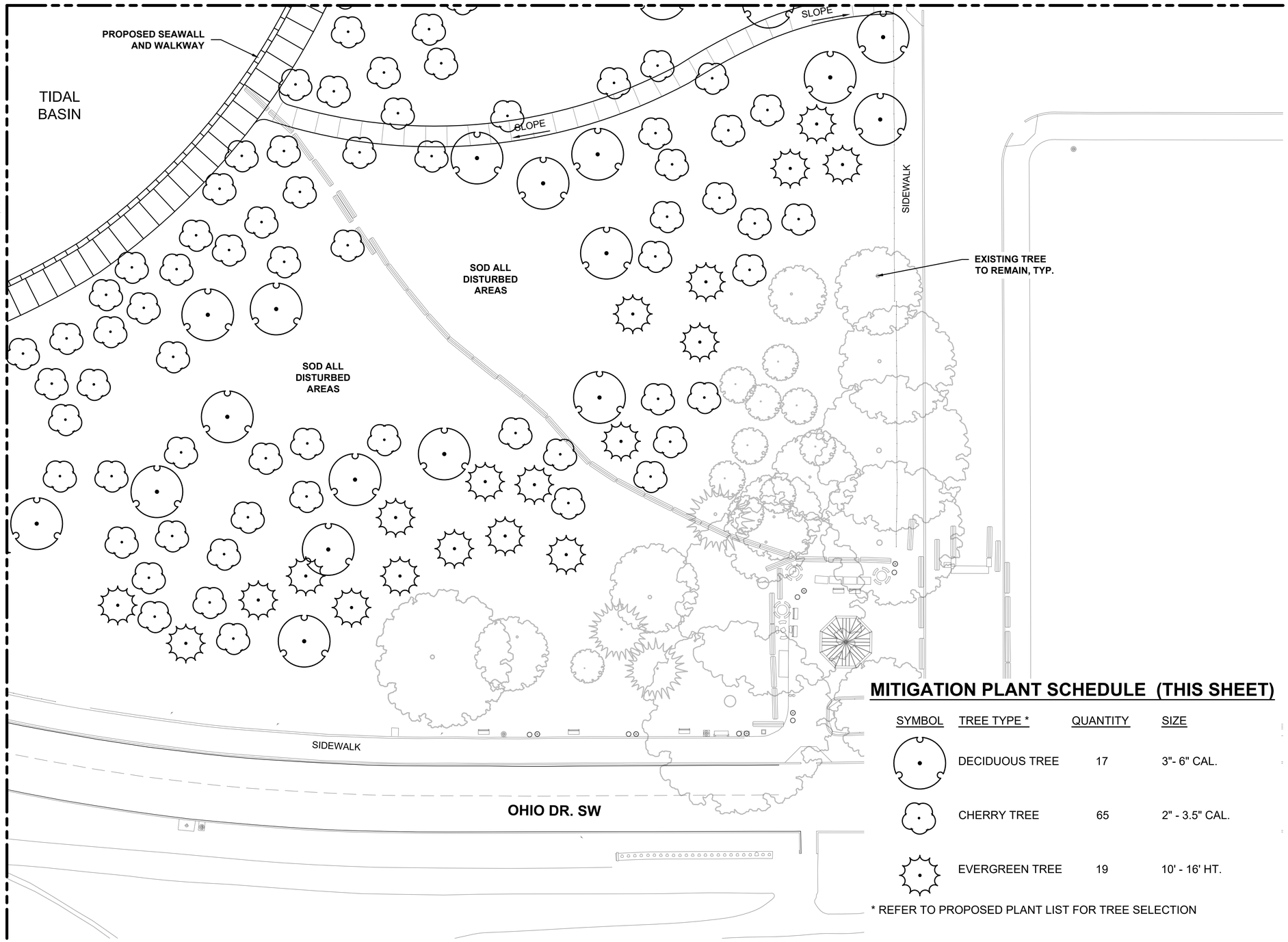
20 0 20 40

SCALE OF FEET

NOTES:
1. TREE CHOICES FOR MITIGATION, SEE SHEET L13.1
2. TREE MITIGATION CALCULATIONS, SEE SHEET L14.1
3. TREE PLANTING DETAILS, SEE SHEET L15.1

L09.1 / L00.1 ENLARGED PROPOSED TREE PLANTING PLAN 1
1" = 20'

DESIGNED: SDR CADD JLS/DBS TECH. REVIEW: RVS DATE: FEB 2023	SUB SHEET NO. L09.1	TITLE OF SHEET TIDAL BASIN - EAST ENLARGED PROPOSED TREE PLANTING PLAN 1 NATIONAL MALL AND MEMORIAL PARKS	DRAWING NO. 802 / 177531 PMIS/PKG NO. 318722 SHEET 59 OF 226



LEGEND

TREES TO REMAIN

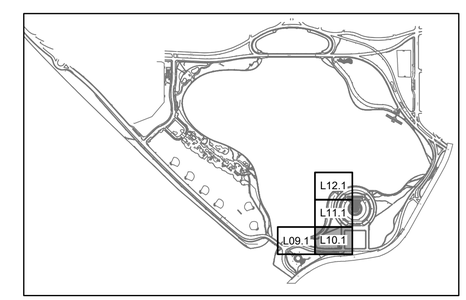
TIDAL BASIN EAST - SUMMARY					
	DECIDUOUS	UNKNOWN	CHERRY	EVERGREEN	TOTAL
REMOVED	29	5	108	26	168
TREE MITIGATION REQUIRED:			225		
PROPOSED	45	0	145	35	225
SEE SHEET L14.1 FOR DETAILED TREE MITIGATION CALCULATIONS					

ALL NEW TREE PLANTINGS TO BE A MINIMUM OF 18' FROM THE FACE OF THE WALL

MITIGATION PLANT SCHEDULE (THIS SHEET)

SYMBOL	TREE TYPE *	QUANTITY	SIZE
	DECIDUOUS TREE	17	3"- 6" CAL.
	CHERRY TREE	65	2" - 3.5" CAL.
	EVERGREEN TREE	19	10' - 16' HT.

* REFER TO PROPOSED PLANT LIST FOR TREE SELECTION



KEY MAP

20 0 20 40

SCALE OF FEET

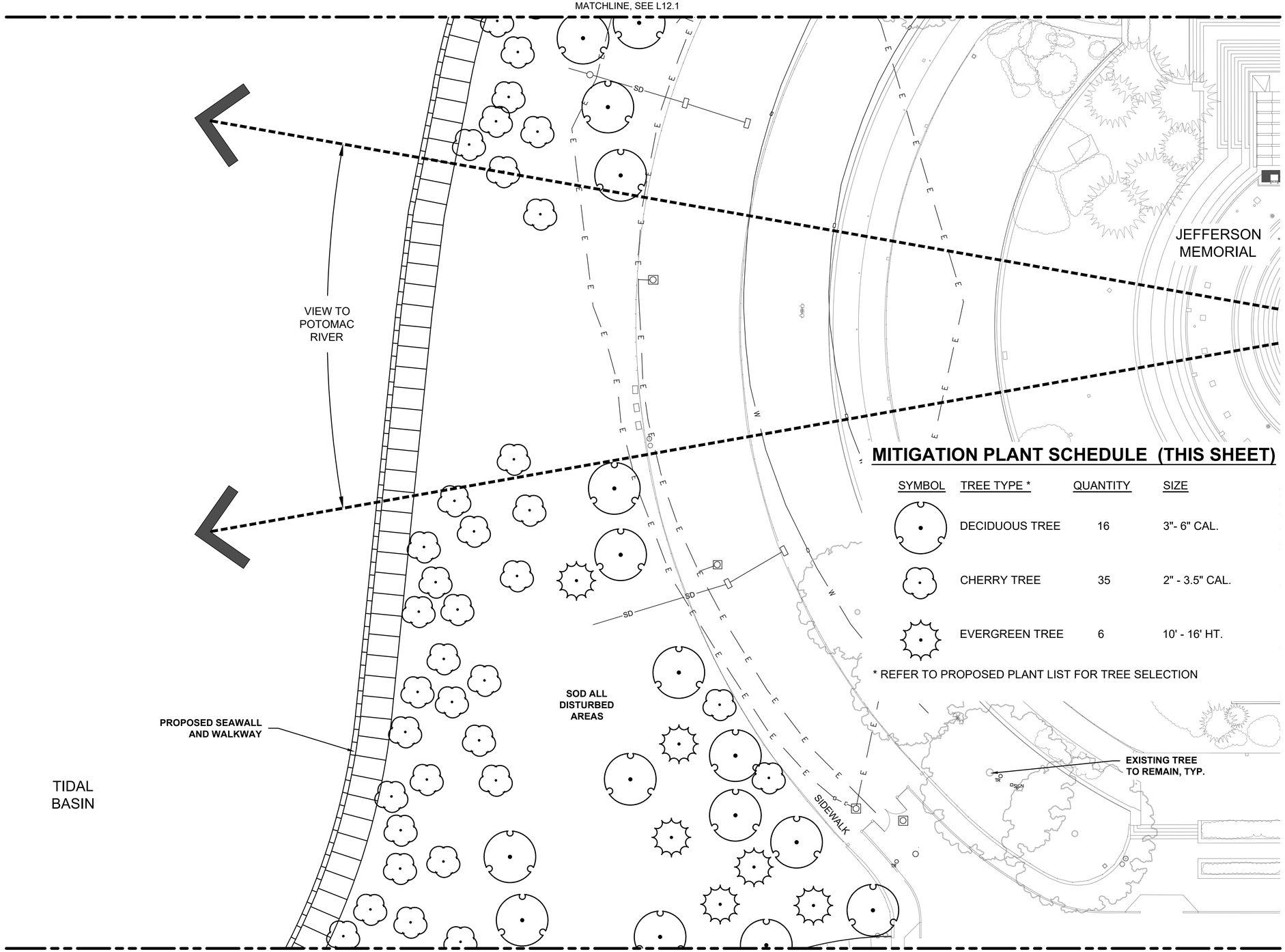
NOTES:
1. TREE CHOICES FOR MITIGATION, SEE SHEET L13.1
2. TREE MITIGATION CALCULATIONS, SEE SHEET L14.1
3. TREE PLANTING DETAILS, SEE SHEET L15.1

L10.1 / L00.1 ENLARGED PROPOSED TREE PLANTING PLAN 2

1" = 20'

DESIGNED: SDR CADD JLS/DBS TECH. REVIEW: RVS DATE: FEB 2023	SUB SHEET NO. L10.1	TITLE OF SHEET TIDAL BASIN - EAST ENLARGED PROPOSED TREE PLANTING PLAN 2 NATIONAL MALL AND MEMORIAL PARKS	DRAWING NO. 802 / 177531 PMIS/PKG NO. 318722 SHEET 60 OF 226

MATCHLINE, SEE L12.1



MATCHLINE, SEE L10.1

LEGEND

TREES TO REMAIN

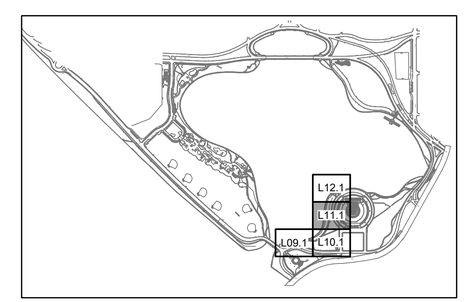
TIDAL BASIN EAST - SUMMARY					
	DECIDUOUS	UNKNOWN	CHERRY	EVERGREEN	TOTAL
REMOVED	29	5	108	26	168
TREE MITIGATION REQUIRED:			225		
PROPOSED	45	0	145	35	225
SEE SHEET L14.1 FOR DETAILED TREE MITIGATION CALCULATIONS					

ALL NEW TREE PLANTINGS TO BE A MINIMUM OF 18' FROM THE FACE OF THE WALL

MITIGATION PLANT SCHEDULE (THIS SHEET)

SYMBOL	TREE TYPE *	QUANTITY	SIZE
	DECIDUOUS TREE	16	3"- 6" CAL.
	CHERRY TREE	35	2" - 3.5" CAL.
	EVERGREEN TREE	6	10' - 16' HT.

* REFER TO PROPOSED PLANT LIST FOR TREE SELECTION



KEY MAP

20 0 20 40

SCALE OF FEET

NOTES:
1. TREE CHOICES FOR MITIGATION, SEE SHEET L13.1
2. TREE MITIGATION CALCULATIONS, SEE SHEET L14.1
3. TREE PLANTING DETAILS, SEE SHEET L15.1

L11.1 / L00.1 ENLARGED PROPOSED TREE PLANTING PLAN 3
1" = 20'

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD JLS/DBS	L11.1	TIDAL BASIN - EAST ENLARGED PROPOSED TREE PLANTING PLAN 3	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	61 OF 226

MITIGATION PLANT SCHEDULE (THIS SHEET)

SYMBOL	TREE TYPE *	QUANTITY	SIZE
	DECIDUOUS TREE	3	3"- 6" CAL.
	CHERRY TREE	12	2" - 3.5" CAL.
	EVERGREEN TREE	0	10' - 16' HT.

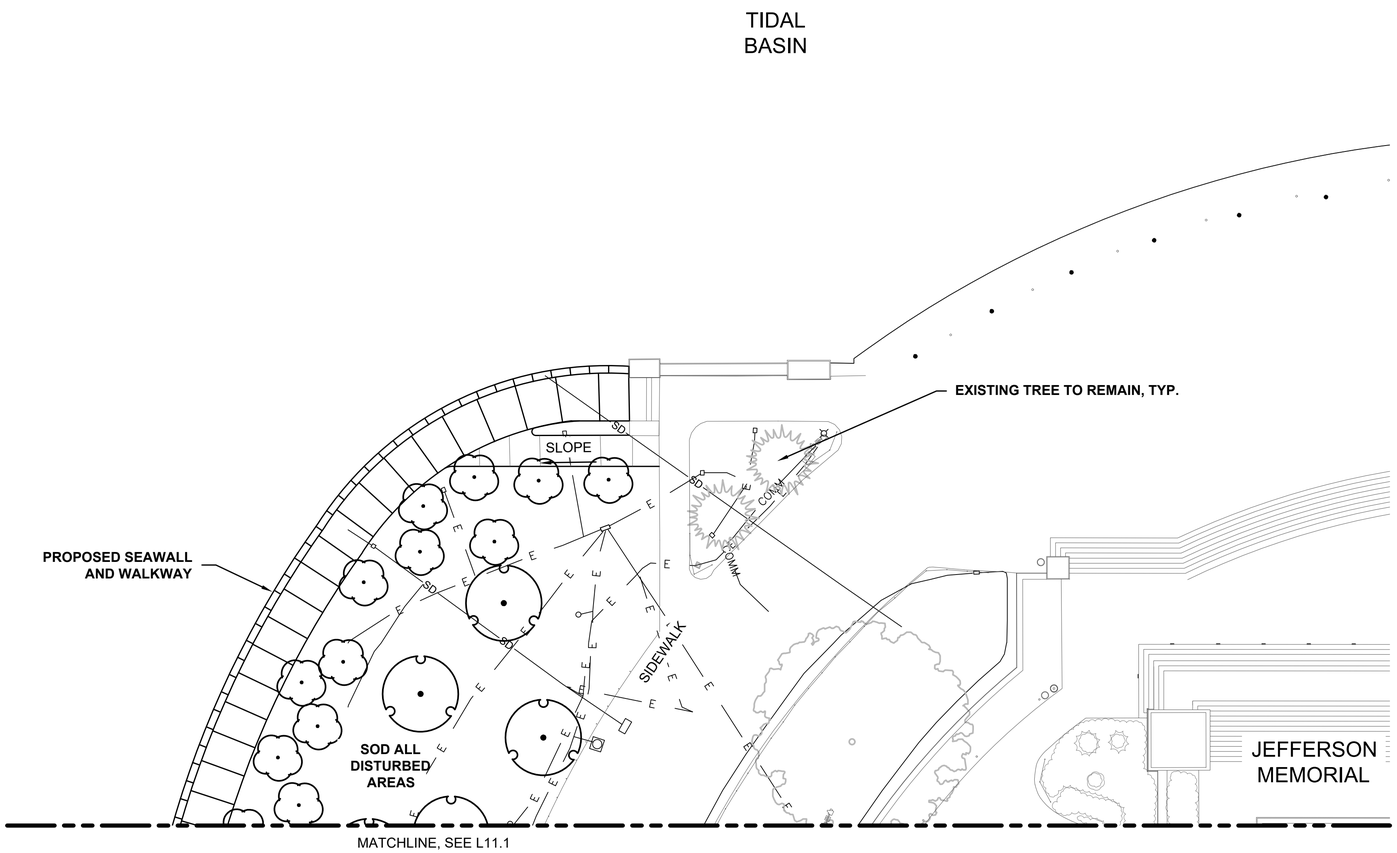
* REFER TO PROPOSED PLANT LIST FOR TREE SELECTION

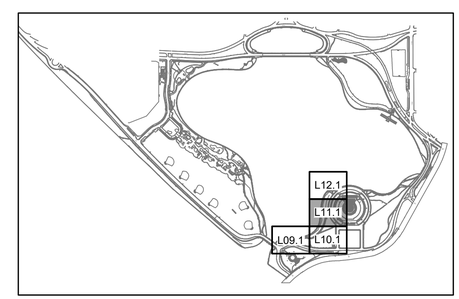
LEGEND

TREES TO REMAIN

TIDAL BASIN EAST - SUMMARY					
	DECIDUOUS	UNKNOWN	CHERRY	EVERGREEN	TOTAL
REMOVED	29	5	108	26	168
TREE MITIGATION REQUIRED:			225		
PROPOSED	45	0	145	35	225
SEE SHEET L14.1 FOR DETAILED TREE MITIGATION CALCULATIONS					

ALL NEW TREE PLANTINGS TO BE A MINIMUM OF 18' FROM THE FACE OF THE WALL





KEY MAP

20 0 20 40

SCALE OF FEET

NOTES:
1. TREE CHOICES FOR MITIGATION, SEE SHEET L13.1
2. TREE MITIGATION CALCULATIONS, SEE SHEET L14.1
3. TREE PLANTING DETAILS, SEE SHEET L15.1

L12.1 / L00.1 ENLARGED PROPOSED TREE PLANTING PLAN 4
1" = 20'

DESIGNED: SDR CADD JLS/DBS TECH. REVIEW: RVS DATE: FEB 2023	SUB SHEET NO. L12.1	TITLE OF SHEET TIDAL BASIN - EAST ENLARGED PROPOSED TREE PLANTING PLAN 4 NATIONAL MALL AND MEMORIAL PARKS	DRAWING NO. 802 / 177531 PMIS/PKG NO. 318722 SHEET 62 OF 226

PROPOSED TREE LIST - CULTIVATION AND LANDSCAPE CHARACTERISTICS

COMMON NAME	BOTANICAL NAME	NPS approved for use	Edible Part	Mature Height	Mature Width	Native to US	Native to Mid-Atlantic	Drought Tolerant	Pest Tolerant	Heat Tolerant	Tolerant of De-icers	Shade Tolerant	Soil	Wet Soil	Deer Resistant	Source
CANOPY TREES:																
Red Maple	*Acer rubrum*	X	Sap	70'	50'	Yes	Yes	Good	Fair	Good	Poor	Fair	Adaptable	VG	Yes	https://plants.ces.ncsu.edu/plants/acer-rubrum/
Yellow Buckeye	*Aesculus flava*	X	None	75'	40'	Yes	Yes	Poor	Fair	Poor	Poor	VG	Well-drained	VG	Yes	https://plants.usda.gov/home/plantProfile?symbol=AEFL
River Birch	*Betula nigra*	X	Sap	40'	40'	Yes	Yes	Fair	Fair	Fair	Fair	VG	Adaptable	Excellent	Yes	https://plants.ces.ncsu.edu/plants/betula-nigra/
Pignut Hickory	*Carya glabra*	X	Nuts	70'	35'	Yes	Yes	VG	Good	VG	Good	Fair	Adaptable	Fair	Yes	https://www.srs.fs.usda.gov/pubs/misc/ag_654/volume_2/carya/glabra.htm
Dunstan Chestnut (American/Chinese cross)	*Castanea dentata x mollisima*	X	Nut	60'	20'	No	No	VG	Good	Excellent	Fair	Fair	Adaptable	Poor	No	http://www.ediblelandscaping.com/index.php
Hackberry	*Celtis occidentalis*	X	Berries	50'	40'	Yes	Yes	Fair	Fair	Fair	Good	Excellent	Adaptable	VG	Yes	https://plants.ces.ncsu.edu/plants/celtis-occidentalis/
Yellowwood	*Cladrastis kentukea*	X	None	40'	50'	Yes	Yes	Good	Good	Good	Good	Good	Adaptable	Good	Yes	https://plants.ces.ncsu.edu/plants/cornus-florida/
American Beech	*Fagus grandifolia*	X	Nuts	65'	60'	Yes	Yes	Fair	VG	Fair	Poor	Excellent	Adaptable	Poor	Yes	https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/faggraa.pdf
Kentucky Coffeetree	*Gymnocladus dioicus*	X	None	70'	45'	Yes	Yes	VG	VG	VG	Good	Fair	Adaptable	Good	Yes	https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/gymdioa.pdf
Roundleaf Sweetgum	*Liquidambar styraciflua 'Rotundiloba*	X	None	75'	40'	Yes	Yes	Good	Fair	Good	Good	Good	Adaptable	Fair	Yes	https://plants.ces.ncsu.edu/plants/liquidambar-styraciflua-rotundiloba/
Black Gum	*Nyssa sylvatica*	X	None	40'	25'	Yes	Yes	Fair	VG	Good	Fair	Fair	Adaptable	Excellent	Yes	https://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=a670
Sycamore	*Platanus occidentalis*	X	None	80'	80'	Yes	Yes	Poor	Poor	Poor	Fair	Fair	Moist	Excellent	Yes	https://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=285137&isprofile=1&basic=Platanus%20occidentalis
Black Cherry *	*Prunus serotina*	X	Fruit	60'	40'	Yes	Yes	Poor	Poor	Fair	Fair	Good	Well-drained	Fair	Yes	https://plants.ces.ncsu.edu/plants/prunus-serotina/
White Oak	*Quercus alba*	X	Acorns	90'	90'	Yes	Yes	Good	Good	Good	Poor	Fair	Adaptable	Good	Yes	https://pfaf.org/user/Plant.aspx?LatinName=Quercus+alba#:~:text=The%20plant%20is%20heat%20tolerant,start%20suffering%20from%20the%20h
Water Oak	*Quercus nigra*	X	Acorns	90'	70'	Yes	Yes	Good	Poor	Good	Fair	Poor	Adaptable	VG	Yes	https://en.wikipedia.org/wiki/Quercus_nigra
Willow Oak	*Quercus phellos*	X	Acorns	80'	70'	Yes	Yes	Fair	Good	Good	Good	Poor	Adaptable	Good	Yes	https://plants.ces.ncsu.edu/plants/quercus-phellos/
Chestnut Oak	*Quercus montana*	X	Acorns	65'	65'	Yes	Yes	VG	Fair	VG	Good	Poor	Adaptable	Fair	Yes	https://edis.ifas.ufl.edu/publication/ST557
Shumard Red Oak	*Quercus shumardii*	X	Acorns	110'	60'	Yes	Yes	VG	Fair	VG	Good	Poor	Adaptable	Fair	Yes	https://en.wikipedia.org/wiki/Quercus_shumardii
Willow	*Salix nigra*	X	None	50'	40'	Yes	Yes	Poor	Good	Good	Poor	Fair	Adaptable	Excellent	No	https://en.wikipedia.org/wiki/Salix_nigra#:~:text=Salix%20nigra%2C%20the%20black%20willow,to%20northern%20Florida%20and%20Texas.
Bald Cypress 'Nana'	*Taxodium distichum x Nana*	X	None	120'	70'	Yes	Yes	VG	Good	VG	Fair	Fair	Adaptable	Excellent	Yes	https://en.wikipedia.org/wiki/Taxodium_distichum
American Basswood	*Tilia americana*	X	Foliage, flowers	80'		Yes	Yes	Good	Good	Good	Poor	Good	Adaptable	Good	No	https://pfaf.org/user/Plant.aspx?LatinName=Tilia+americana#:~:text=The%20plant%20is%20heat%20tolerant,start%20suffering%20from%20the%20
American Elm *	*Ulmus americana*	X	None	70'	50'	Yes	Yes	Good	Good	Good	Good	Fair	Adaptable	Good	Yes	https://plants.ces.ncsu.edu/plants/ulmus-americana/
UNDERSTORY TREES:																
Downy Serviceberry	*Amelanchier arborea (or laevis)*	X	Fruit	25'	15'	Yes	Yes	Fair	Good	Good	Fair	Excellent	Adaptable	Fair	Yes	https://plants.ces.ncsu.edu/plants/amelanchier-arborea/
Serviceberry	*Amelanchier spp.*	X	Berry	20'	12'	Yes	Yes	Good	VG	VG	Fair	Good	Adaptable	Poor	Yes	http://www.ediblelandscaping.com/index.php
Pawpaw	*Asimina triloba*	X	Fruit	15'	15'	Yes	Yes	VG	Excellent	VG	Poor	Good	Adaptable	Good	Yes	http://www.ediblelandscaping.com/index.php
Contorted Filbert (Hazelnut)	*Corylus avellana*	X	Nut	12'	8'	Yes	Yes	Good	Excellent	VG	Poor	Good	Adaptable	Poor	Yes	http://www.ediblelandscaping.com/index.php
Eastern Redbud	*Cercis canadensis*	X	None	30'	35'	Yes	Yes	Poor	Fair	Poor	Good	Fair	Adaptable	Poor	No	https://plants.ces.ncsu.edu/plants/cercis-canadensis/
Flowering Dogwood	*Cornus florida*	X	None	25'	25'	Yes	Yes	No	Poor	Poor	Poor	Fair	Well-drained	Poor	No	https://plants.ces.ncsu.edu/plants/cornus-florida/
Thornless Cockspur Hawthorn	*Crataegus crus-galli var. inermis*	X	Berries	30'	35'	Yes	Yes	VG	Poor	Fair	Fair	Fair	Adaptable	Fair	Yes	https://plants.ces.ncsu.edu/plants/crataegus-crus-galli-var-inermis/
Winter King Green Hawthorn	*Crataegus viridis 'Winter King'*	X	Berries	30'	30'	Yes	Yes	Good	Fair	Good	Good	Fair	Adaptable	Fair	Yes	http://woodyplants.cals.cornell.edu/plant/78
Native Persimmon	*Diospyros virginiana*	X	Fruit	35'	20'	Yes	Yes	VG	VG	Good	Good	Fair	Adaptable	Good	Yes	http://www.treetrail.net/
Sweetbay Magnolia	*Magnolia virginiana*	X	None	40'	35'	Yes	Yes	Fair	Fair	VG	Fair	Excellent	Adaptable	Excellent	Yes	https://en.wikipedia.org/wiki/Magnolia_virginiana
Flowering cherry *	*Prunus spp.*	X	None	30'	35'	No	No	Fair	Fair	Fair	Fair	Good	Well-drained	Poor	No	https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/pruserb.pdf, https://www.gardenia.net/plant-variety/prunus-serrulata-japanese-flowering-cherry
EVERGREEN TREES:																
Atlantic White Cedar	*Chamaecyparis thoides*	X	Bark	50'	15'	Yes	Yes	Poor	VG	Good	Good	Poor	Moist	Excellent	No	https://plants.ces.ncsu.edu/plants/chamaecyparis-thyoides/
American Holly	*Ilex opaca*	X	None	100'	65'	Yes	Yes	VG	Good	Good	Fair	Excellent	Adaptable	Poor	Yes	https://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=k640
Eastern Red Cedar	*Juniperus virginiana*	X	Leaf	35'	20'	Yes	Yes	VG	Good	Fair	VG	Fair	Adaptable	Fair	Yes	https://plants.ces.ncsu.edu/plants/juniperus-virginiana/
Southern Magnolia	*Magnolia grandiflora*	X	None	90'	60'	Yes	No	Good	VG	VG	Poor	Excellent	Adaptable	Poor	No	https://en.wikipedia.org/wiki/Magnolia_%C3%97_soulangeana
* Refer to Cherry, Elm, and Chestnut sheet for cultivars																

ADDITIONAL RECOMMENDED TREE CULTIVARS

COMMON NAME	BOTANICAL NAME		
CHERRIES			
Available cultivars		Suppliers	Notes
Kwanzan Japanese Flowering	*Prunus serrulata 'Kwanzan'*	66 suppliers	
Shirofugen (or Fugenzo) Japanese Flowering Cherry	*Prunus serrulata 'Shirofugen'*	1 supplier	
Snow Goose Higan Cherry	*Prunus subhirtella 'Snow Goose'*	21 suppliers	
Okame Taiwan Cherry	*Prunus x incam 'Okame'*	49 suppliers	
Higan Cherry	*Prunus x subhirtella*	6 suppliers	
Yoshino Cherry	*Prunus yedoensis*	54 suppliers	Use sparingly
Akebono Yoshino Cherry	*Prunus yedoensis 'Akebono'*	21 suppliers	Use sparingly
Shidare Yoshino Cherry	*Prunus yedoensis 'Shidare'*	6 suppliers	Use sparingly
Invasive Cherries - DO NOT PLANT			
Sweet Cherry	*Prunus avium*		
Sour Cherry	*Prunus cerasus*		
Mahaleb Cherry	*Prunus mahaleb*		
Nanking Cherry	*Prunus tomentosa Thunberg*		
ELMS			
Available cultivars			
Triumph Elm	*Ulmus carpinifolia 'Morton Glossy'*	56 suppliers	7000+ available
Jefferson American Elm	*Ulmus americana 'Jefferson'*	30 suppliers	4000+ available
Valley Forge American Elm	*Ulmus americana 'Valley Forge'*	34 suppliers	3000+ available
Patriot Elm	*Ulmus wilsoniana 'Patriot'*	23 suppliers	1300+ available
New Harmony American Elm	*Ulmus americana 'New Harmony'*	15 suppliers	1900+ available
Prairie Expedition American Elm	*Ulmus americana 'Lewis & Clark'*	9 suppliers	500+ available
Invasive Elms - DO NOT PLANT			
Siberian Elm	*Ulmus pumila*		
Chestnuts			
Available cultivars - resistant to Chestnut Blight			
Dunstan Chestnut	*Castanea dentata x mollissima*	1 supplier	180+ available
American Chestnut	*Castanea dentata*	1 supplier	limited supply
Chinese Chestnut	*Castanea mollissima*	1 supplier	limited supply
No invasive Chestnuts found			

NOTES:

1. Suppliers and availability based on Landscape Hub and Plant Ant; research Fall 2022.
2. Information provided to convey general availability only; contractor to confirm availability.
3. Invasive information based on Maryland Biodiversity Project and MD Invasive Species Council

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
CADD JLS/DBS	L13.1	TIDAL BASIN - EAST PROPOSED PLANT LIST	802 177531
TECH. REVIEW: RVS			PMIS/PKG NO. 318722
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 63 OF 226

PRELIMINARY TREE REPLACEMENT REQUIREMENTS

FIELD SURVEY REQUIRED BY LICENSED ARBORIST FOR ACCURATE SIZE, CONDITION, TREE SCORE AND REPLACEMENT REQUIREMENT

EXISTING TREE DATA [6]						PRELIMINARY REPLACEMENT - NCPC GUIDELINES [5]											
								SPECIES RATING [3]								QUANTITY REMOVED		
TREE #	COMMON NAME	SCIENTIFIC NAME	DBH (IN.) 2014	CONDITION	PROJECTED ANNUAL GROWTH (IN.)	PROJECTED DBH (IN.) 2024 [1]	CONDITION RATING [2]	RANGE (%)	MID-POINT OF RANGE (%)	TREE SCORE	TREE REPLACEMENT <10" DBH	TREE REPLACEMENT >= 10" DBH	LOCATION	COMMENTS	CANOPY	CHERRY	EVERGREEN
5376	American holly	Ilex opaca	3.50	Good	0.25	6.00		60-85	72.5		1		TBE				1
6841	Flowering cherry spp.	Prunus	3.20	Good	0.25	5.70		35-75	55		1		TBE			1	
7202	Flowering cherry spp.	Prunus	6.60	Good	0.25	9.10		35-75	55		1		TBE			1	
7203	Flowering cherry spp.	Prunus	5.30	Fair	0.25	7.80		35-75	55		1		TBE			1	
7204	Flowering cherry spp.	Prunus	2.90	Good	0.25	5.40		35-75	55		1		TBE			1	
7205	Flowering cherry spp.	Prunus	5.30	Fair	0.25	7.80		35-75	55		1		TBE			1	
7206	Flowering cherry spp.	Prunus	3.90	Fair	0.25	6.40		35-75	55		1		TBE			1	
7207	Flowering cherry spp.	Prunus	6.40	Good	0.25	8.90		35-75	55		1		TBE			1	
7208	Flowering cherry spp.	Prunus	3.80	Fair	0.25	6.30		35-75	55		1		TBE			1	
7209	Flowering cherry spp.	Prunus	2.00	Poor	0.25	4.50		35-75	55		1		TBE			1	
7212	American elm	Ulmus americana	24.40	Good	0.40	28.40	75%	35-80	57.5	12.2		3	TBE		1		
7213	American elm	Ulmus americana	24.40	Fair	0.40	28.40	50%	35-80	57.5	8.2		2	TBE		1		
7216	Flowering cherry spp.	Prunus	2.60	Fair	0.25	5.10		35-75	55		1		TBE			1	
7217	Crabapple	Malus	7.90	Fair	0.25	10.40	50%	40-85	62.5	3.3		1	TBE		1		
7218	Crabapple	Malus	6.00	Fair	0.25	8.50		40-85	62.5		1		TBE		1		
7219	Flowering cherry spp.	Prunus	3.20	Fair	0.25	5.70		35-75	55		1		TBE			1	
7220	Crabapple	Malus	10.80	Fair	0.25	13.30	50%	40-85	62.5	4.2		1	TBE		1		
7221	Flowering cherry spp.	Prunus	7.90	Fair	0.25	10.40	50%	35-75	55	2.9		1	TBE			1	
7222	Flowering cherry spp.	Prunus	4.20	Fair	0.25	6.70		35-75	55		1		TBE			1	
7223	Flowering cherry spp.	Prunus	7.90	Fair	0.25	10.40	50%	35-75	55	2.9		1	TBE			1	
7224	Flowering cherry spp.	Prunus	5.30	Fair	0.25	7.80		35-75	55		1		TBE			1	
7225	Flowering cherry spp.	Prunus	7.40	Fair	0.25	9.90		35-75	55		1		TBE			1	
7226	Flowering cherry spp.	Prunus	4.50	Fair	0.25	7.00		35-75	55		1		TBE			1	
7227	Flowering cherry spp.	Prunus	6.50	Fair	0.25	9.00		35-75	55		1		TBE			1	
7228	Flowering cherry spp.	Prunus	3.50	Fair	0.25	6.00		35-75	55		1		TBE			1	
7230	Crabapple	Malus	9.20	Fair	0.25	11.70	50%	40-85	62.5	3.7		1	TBE		1		
7231	Flowering cherry spp.	Prunus	2.40	Fair	0.25	4.90		35-75	55		1		TBE			1	
7232	Crabapple	Malus	10.20	Fair	0.25	12.70	50%	40-85	62.5	4.0		1	TBE		1		
7233	Eastern white pine	Pinus strobus	6.50	Good	0.40	10.50	75%	30-80	55	4.3		1	TBE				1
8186	Eastern white pine	Pinus strobus	18.20	Good	0.21	20.30	75%	30-80	55	8.4		2	TBE				1
8190	Flowering cherry spp.	Prunus	23.30	Good	0.05	23.80	75%	35-75	55	9.8		2	TBE			1	
8191	American holly	Ilex opaca	21.40	Good	0.25	23.90	75%	60-85	72.5	13.0		3	TBE				1
8192	American holly	Ilex opaca	15.90	Good	0.25	18.40	75%	60-85	72.5	10.0		3	TBE				1
8193	American holly	Ilex opaca	11.70	Good	0.21	13.80	75%	60-85	72.5	7.5		2	TBE				1
8194	American holly	Ilex opaca	10.30	Good	0.21	12.40	75%	60-85	72.5	6.7		2	TBE				1
8195	Flowering cherry spp.	Prunus	12.20	Fair	0.25	14.70	50%	35-75	55	4.0		1	TBE			1	
8196	Flowering cherry spp.	Prunus	8.20	Fair	0.25	10.70	50%	35-75	55	2.9		1	TBE			1	
8197	Flowering cherry spp.	Prunus	8.10	Fair	0.25	10.60	50%	35-75	55	2.9		1	TBE			1	
8198	Flowering cherry spp.	Prunus	8.60	Fair	0.25	11.10	50%	35-75	55	3.1		1	TBE			1	
8199	Flowering cherry spp.	Prunus	6.10	Good	0.25	8.60		35-75	55		1		TBE			1	
8200	Flowering cherry spp.	Prunus	12.00	Poor	0.05	12.50	25%	35-75	55	1.7		1	TBE			1	
8201	Flowering cherry spp.	Prunus	7.30	Good	0.05	7.80		35-75	55		1		TBE			1	
8202	American elm	Ulmus americana	5.10	Good	0.97	14.80	75%	35-80	57.5	6.4		2	TBE		1		
8203	American holly	Ilex opaca	7.10	Good	0.25	9.60		60-85	72.5		1		TBE				1
8204	American holly	Ilex opaca	9.50	Good	0.25	12.00	75%	60-85	72.5	6.5		2	TBE				1
8206	American holly	Ilex opaca	9.30	Good	0.25	11.80	75%	60-85	72.5	6.4		2	TBE				1
8207	Flowering cherry spp.	Prunus	6.60	Fair	0.05	7.10		35-75	55		1		TBE			1	
8208	Flowering cherry spp.	Prunus	5.50	Fair	0.05	6.00		35-75	55		1		TBE			1	
8211	Flowering cherry spp.	Prunus	6.00	Poor	0.25	8.50		35-75	55		1		TBE			1	
8212	Flowering cherry spp.	Prunus	2.20	Good	0.25	4.70		35-75	55		1		TBE			1	
8213	Flowering cherry spp.	Prunus	8.30	Fair	0.25	10.80	50%	35-75	55	3.0		1	TBE			1	
8214	Flowering cherry spp.	Prunus	22.80	Fair	0.25	25.30	50%	35-75	55	7.0		2	TBE			1	
8215	Flowering cherry spp.	Prunus	5.90	Fair	0.25	8.40		35-75	55		1		TBE			1	
8216	Flowering cherry spp.	Prunus	2.90	Good	0.25	5.40		35-75	55		1		TBE			1	
8220	Flowering cherry spp.	Prunus	10.00	Fair	0.25	12.50	50%	35-75	55	3.4		1	TBE			1	
8221	Flowering cherry spp.	Prunus	20.00	Fair	0.25	22.50	50%	35-75	55	6.2		2	TBE			1	
8222	Flowering cherry spp.	Prunus	5.20	Fair	0.25	7.70		35-75	55		1		TBE			1	
8223	Flowering cherry spp.	Prunus	13.50	Fair	0.25	16.00	50%	35-75	55	4.4		1	TBE			1	
8227	Flowering cherry spp.	Prunus	9.10	Fair	0.25	11.60	50%	35-75	55	3.2		1	TBE			1	
8228	Flowering cherry spp.	Prunus	19.00	Fair	0.25	21.50	50%	35-75	55	5.9		2	TBE			1	
8229	Flowering cherry spp.	Prunus	26.00	Fair	0.25	28.50	50%	35-75	55	7.8		2	TBE			1	
8230	Flowering cherry spp.	Prunus	5.30	Good	0.25	7.80		35-75	55		1		TBE			1	
8231	Flowering cherry spp.	Prunus	4.20	Fair	0.25	6.70		35-75	55		1		TBE			1	
8232	Flowering cherry spp.	Prunus	5.40	Fair	0.25	7.90		35-75	55		1		TBE			1	
8233	Flowering cherry spp.	Prunus	6.20	Fair	0.25	8.70		35-75	55		1		TBE			1	
8235	Flowering cherry spp.	Prunus	13.80	Fair	0.25	16.30	50%	35-75	55	4.5		1	TBE			1	
8237	Flowering cherry spp.	Prunus	4.80	Fair	0.25	7.30		35-75	55		1		TBE			1	
8238	Flowering cherry spp.	Prunus	3.00	Good	0.25	5.50		35-75	55		1		TBE			1	
8241	Flowering cherry spp.	Prunus	11.80	Poor	0.25	14.30	25%	35-75	55	2.0		1	TBE			1	
8256	American elm	Ulmus americana	3.30	Poor	0.97	13.00	25%	35-80	57.5	1.9		1	TBE		1		
8257	American elm	Ulmus americana	2.30	Fair	0.40	6.30		35-80	57.5		1		TBE				
8258	American elm	Ulmus americana	43.40	Fair	0.40	47.40	50%	35-80	57.5	13.6		3	TBE		1		
8259	American holly	Ilex opaca	13.90	Good	0.25	16.40	75%	60-85	72.5	8.9		2	TBE				1
8260	American holly	Ilex opaca	13.90	Good	0.25	16.40	75%	60-85	72.5	8.9		2	TBE				1
8261	American holly	Ilex opaca	14.40	Good	0.25	16.90	75%	60-85	72.5	9.2		2	TBE				1
8262	American holly	Ilex opaca	21.30	Good	0.25	23.80	75%	60-85	72.5	12.9		3	TBE				1
8263	American elm	Ulmus americana	3.80	Fair	0.40	7.80		35-80	57.5		1		TBE		1		
8264	American holly	Ilex opaca	21.80	Good	0.25	24.30	75%	60-85	72.5	13.2		3	TBE				1
8265	Flowering cherry spp.	Prunus	9.10	Fair	0.25	11.60	50%	35-75	55	3.2		1	TBE			1	
8266	Flowering cherry spp.	Prunus	10.30	Fair	0.25	12.80	50%	35-75	55	3.5		1	TBE			1	
8267	Flowering cherry spp.	Prunus	4.00	Good	0.25	6.50		35-75	55		1		TBE			1	
8268	Flowering cherry spp.	Prunus	5.10	Fair	0.25	7.60		35-75	55		1		TBE			1	
8269	Flowering cherry spp.	Prunus	2.40	Poor	0.25	4.90		35-75	55		1		TBE			1	
8270	American holly	Ilex opaca	14.10	Good	0.25	16.60	75%	60-85	72.5	9.0		2	TBE				1
8271	Sugar maple	Acer saccharum	16.80	Good	0.25	19.30	75%	0%	0%	0.0		1	TBE		1		
8272	Flowering cherry spp.	Prunus	4.00	Fair	0.25	6.50		35-75	55		1		TBE			1	
8273	American holly	Ilex opaca	11.90	Good	0.25	14.40	75%	60-85	72.5	7.8		2	TBE				1
8274	Sugar maple	Acer saccharum	16.70	Fair	0.25	19.20	50%	0%	0%	0.0		1	TBE		1		
8275	American elm	Ulmus americana	19.50	Fair	0.40	23.50	50%	35-80	57.5	6.8		2	TBE		1		
8276	Flowering cherry spp.	Prunus	10.60	Fair	0.25	13.10	50%	35-75	55	3.6		1	TBE			1	
8277	American elm	Ulmus americana	15.90	Good	0.97	25.60	75%	35-80	57.5	11.0		3	TBE		1		
8278	Unknown	Unknown	10.00	Fair	0.21	12.10	50%	30-60	45	2.7		1	TBE	No species, assumed to be 30-60%	1		
8280	Sugar maple	Acer saccharum	34.90	Fair	0.25	37.40	50%	0%	0%	0.0		1	TBE		1		
8281	American holly	Ilex opaca	21.70	Fair	0.25	24.20	50%	60-85	72.5	8.8		2	TBE				1
8282	Flowering cherry spp.	Prunus	9.00	Fair	0.25	11.50	50%	35-75	55	3.2		1	TBE			1	
8283	Flowering cherry spp.	Prunus	14.70	Poor	0.25	17.20	25%	35-75	55	2.4		1	TBE			1	
8284	Flowering cherry spp.	Prunus	2.00	Fair	0.25	4.50		35-75	55		1		TBE			1	
8285	Flowering cherry spp.	Prunus	2.40	Fair	0.25	4.90		35-75	55		1		TBE			1	
8286	Flowering cherry spp.	Prunus	8.00	Fair	0.25	10.50	50%	35-75	55	2.9		1	TBE			1	
8287	Flowering cherry spp.	Prunus	9.00	Fair	0.25	11.50	50%	35-75	55	3.2		1	TBE			1	
8288	Flowering cherry spp.	Prunus	10.50	Good	0.25	13.00	75%	35-75	55	5.4		2	TBE			1	
8289	Flowering cherry spp.	Prunus	2.50	Fair	0.25	5.00		35-75	55		1		TBE			1	
8290	Flowering cherry spp.	Prunus	3.80	Fair	0.25	6.30		35-75	55		1		TBE			1	
8291	Flowering cherry spp.	Prunus	10.80	Fair	0.25	13.30	50%	35-75	55	3.7		1	TBE			1	
8292	Flowering cherry spp.	Prunus	6.20	Good	0.25	8.70		35-75	55		1		TBE			1	
8293	Flowering cherry spp.	Prunus	5.90	Good	0.25	8.40		35-75	55		1		TBE			1	
8294	Flowering cherry spp.	Prunus	3.30	Fair	0.25	5.80		35-75	55		1		TBE			1	
8295	Flowering cherry spp.	Prunus	2.80	Fair	0.25	5.30		35-75	55		1		TBE			1	
8296	Flowering cherry spp.	Prunus	2.50	Dead	0.25	5.00		35-75	55		1		TBE			1	
8297	Flowering cherry spp.	Prunus	2.30	Fair	0.25	4.80		35-75	55		1		TBE	No condition rating, assumed to be Fair		1	
8298	Flowering cherry spp.	Prunus	2.50	Good	0.25	5.00		35-75	55		1		TBE			1	
8299	Flowering cherry spp.	Prunus	3.60	Good	0.25	6.10		35-75	55		1		TBE			1	
8300	Flowering cherry spp.	Prunus	7.90	Fair	0.25	10.40	50%	35-75	55	2.9		1	TBE			1	
8301	Flowering cherry spp.	Prunus	4.30	Fair	0.25	6.80		35-75	55		1		TBE			1	
8302	Flowering cherry spp.	Prunus	12.10	Good	0.25	14.60	75%	35-75	55	6.0		2	TBE			1	

PRELIMINARY TREE REPLACEMENT REQUIREMENTS

FIELD SURVEY REQUIRED BY LICENSED ARBORIST FOR ACCURATE SIZE, CONDITION, TREE SCORE AND REPLACEMENT REQUIREMENT

EXISTING TREE DATA [6]						PRELIMINARY REPLACEMENT - NCPC GUIDELINES [5]											
								SPECIES RATING [3]								QUANTITY REMOVED		
TREE #	COMMON NAME	SCIENTIFIC NAME	DBH (IN.) 2014	CONDITION	PROJECTED ANNUAL GROWTH (IN.)	PROJECTED DBH (IN.) 2024 [1]	CONDITION RATING [2]	RANGE (%)	MID-POINT OF RANGE (%)	TREE SCORE	TREE REPLACEMENT <10" DBH	TREE REPLACEMENT >= 10" DBH	LOCATION	COMMENTS	CANOPY	CHERRY	EVERGREEN
8303	Flowering cherry spp.	Prunus	11.70	Fair	0.25	14.20	50%	35-75	55	3.9		1	TBE			1	
8304	American elm	Ulmus americana	17.70	Fair	0.40	21.70	50%	35-80	57.5	6.2		2	TBE		1		
8305	American elm	Ulmus americana	41.30	Fair	0.40	45.30	50%	35-80	57.5	13.0		3	TBE		1		
8306	American holly	Ilex opaca	13.40	Fair	0.25	15.90	50%	60-85	72.5	5.8		2	TBE				1
8307	American holly	Ilex opaca	19.70	Fair	0.25	22.20	50%	60-85	72.5	8.0		2	TBE				1
8308	American holly	Ilex opaca	17.00	Fair	0.25	19.50	50%	60-85	72.5	7.1		2	TBE				1
8309	American holly	Ilex opaca	19.20	Fair	0.25	21.70	50%	60-85	72.5	7.9		2	TBE				1
8310	American holly	Ilex opaca	15.50	Fair	0.25	18.00	50%	60-85	72.5	6.5		2	TBE				1
8311	American holly	Ilex opaca	14.20	Fair	0.25	16.70	50%	60-85	72.5	6.1		2	TBE				1
8312	Unknown	Unknown	10.30	Fair	0.25	12.80	50%	30-60	45	2.9		1	TBE	No species, assumed to be 30-60%	1		
8315	American holly	Ilex opaca	15.80	Good	0.25	18.30	75%	60-85	72.5	10.0		2	TBE				1
8317	Hawthorn spp.	Crataegus	12.80	Fair	0.25	15.30	50%	40-75	50.75	3.9		1	TBE	No condition rating, assumed to be Fair	1		
8318	Hawthorn spp.	Crataegus	11.70	Fair	0.25	14.20	50%	40-75	50.75	3.6		1	TBE		1		
8329	American elm	Ulmus americana	19.40	Fair	0.40	23.40	50%	35-80	57.5	6.7		2	TBE		1		
8330	American elm	Ulmus americana	14.70	Fair	0.40	18.70	50%	35-80	57.5	5.4		2	TBE		1		
8331	Flowering cherry spp.	Prunus	12.50	Fair	0.25	15.00	50%	35-75	55	4.1		1	TBE			1	
8332	Flowering cherry spp.	Prunus	3.00	Fair	0.25	5.50		35-75	55		1		TBE			1	
8333	Flowering cherry spp.	Prunus	6.80	Fair	0.25	9.30		35-75	55		1		TBE			1	
8334	Flowering cherry spp.	Prunus	2.80	Fair	0.25	5.30		35-75	55		1		TBE			1	
8335	Unknown	Unknown	2.20	Dead	0.25	4.70		30-60	45		1		TBE	No species, assumed to be 30-60%	1		
8336	Flowering cherry spp.	Prunus	3.30	Fair	0.25	5.80		35-75	55		1		TBE			1	
8337	Flowering cherry spp.	Prunus	2.60	Poor	0.25	5.10		35-75	55		1		TBE			1	
8338	Flowering cherry spp.	Prunus	5.60	Fair	0.25	8.10		35-75	55		1		TBE			1	
8339	Flowering cherry spp.	Prunus	8.70	Fair	0.25	11.20	50%	35-75	55	3.1		1	TBE			1	
8340	Flowering cherry spp.	Prunus	6.10	Poor	0.25	8.60		35-75	55		1		TBE			1	
8341	Flowering cherry spp.	Prunus	6.20	Fair	0.25	8.70		35-75	55		1		TBE			1	
8342	Flowering cherry spp.	Prunus	10.60	Fair	0.25	13.10	50%	35-75	55	3.6		1	TBE			1	
8343	American holly	Ilex opaca	15.90	Good	0.25	18.40	75%	60-85	72.5	10.0		3	TBE				1
8345	Flowering cherry spp.	Prunus	3.40	Good	0.25	5.90		35-75	55		1		TBE			1	
8346	Flowering cherry spp.	Prunus	2.60	Fair	0.25	5.10		35-75	55		1		TBE			1	
8347	Flowering cherry spp.	Prunus	2.80	Poor	0.25	5.30		35-75	55		1		TBE			1	
8348	Flowering cherry spp.	Prunus	2.70	Fair	0.25	5.20		35-75	55		1		TBE			1	
8349	Flowering cherry spp.	Prunus	4.70	Poor	0.25	7.20		35-75	55		1		TBE			1	
8350	Flowering cherry spp.	Prunus	3.30	Fair	0.25	5.80		35-75	55		1		TBE			1	
8351	Unknown	Unknown	2.00	Dead	0.25	4.50		30-60	45		1		TBE	No species, assumed to be 30-60%	1		
8352	Flowering cherry spp.	Prunus	3.00	Fair	0.25	5.50		35-75	55		1		TBE			1	
8353	Flowering cherry spp.	Prunus	2.60	Fair	0.25	5.10		35-75	55		1		TBE			1	
8354	Flowering cherry spp.	Prunus	2.20	Fair	0.25	4.70		35-75	55		1		TBE			1	
8355	Flowering cherry spp.	Prunus	2.90	Fair	0.25	5.40		35-75	55		1		TBE			1	
8356	Unknown	Unknown	2.00	Dead	0.25	4.50		30-60	45		1		TBE	No species, assumed to be 30-60%	1		
8357	Flowering cherry spp.	Prunus	3.00	Fair	0.25	5.50		35-75	55		1		TBE			1	
8358	Flowering cherry spp.	Prunus	17.00	Fair	0.25	19.50	50%	35-75	55	5.4		2	TBE			1	
8359	Flowering cherry spp.	Prunus	12.90	Fair	0.25	15.40	50%	35-75	55	4.2		1	TBE			1	
8360	Flowering cherry spp.	Prunus	10.40	Fair	0.25	12.90	50%	35-75	55	3.5		1	TBE			1	
8374	American elm	Ulmus americana	10.30	Poor	0.40	14.30	25%	35-80	57.5	2.1		1	TBE		1		
8375	American elm	Ulmus americana	17.00	Fair	0.40	21.00	50%	35-80	57.5	6.0		2	TBE		1		
8376	American elm	Ulmus americana	31.60	Fair	0.40	35.60	50%	35-80	57.5	10.2		3	TBE		1		
8377	American elm	Ulmus americana	24.20	Fair	0.40	28.20	50%	35-80	57.5	8.1		2	TBE		1		
8378	Willow oak	Quercus phellos	44.00	Fair	0.25	46.50	50%	60-90	75	17.4		4	TBE		1		
8379	American elm	Ulmus americana	4.90	Fair	0.40	8.90		35-80	57.5		1		TBE		1		
8381	Flowering cherry spp.	Prunus	2.40	Poor	0.25	4.90		35-75	55		1		TBE			1	
8383	Flowering cherry spp.	Prunus	6.40	Fair	0.25	8.90		35-75	55		1		TBE		1	1	
8396	Flowering cherry spp.	Prunus	3.00	Fair	0.25	5.50		35-75	55		1		TBE			1	
							TIDAL BASIN EAST		TOTAL		81	144			34	108	26
									GRAND TOTAL		225					168	

[1] Projected growth rate

Projected DBH calculation method extrapolated from data collected by Biohabitats, Inc. in another location at a National Park Service property in Washington, DC

Growth Escalation Guideline*

Genus	Species	Common name**	Average DBH Growth per Year (inches)	Min DBH Growth per Year (inches)***	Max DBH Growth per Year (inches)	Number of Trees in Sample
Ulmus	*americanus*	American Elm	0.97	0.88	1.06	2
Magnolia	*x soulangiana*	Magnolia-Saucer	0.05	0	0.25	12
Tilia	*sp.*	Lindens (3 species)	0.21	0.03	0.69	79
Acer	*saccharum*	Sugar Maple	0.26	0	0.44	14
Acer	*sp.*	Maples (7 species)	0.31	0	0.94	75
Quercus	*sp.*	Oaks (10 species)	0.42	0	1.63	112

*Summary of the tree growth at a NPS Property in Washington DC from 2014-2022. Provided by Biohabitats, Inc. October 14, 2022.

**Analyzed 4 tree species also present at WPP and/or Tidal Basin (American elm, magnolia-saucer, sugar maple, and lindens). Also analyzed dominant tree species (maples and oak species) at this NPS property in Washington DC to provide context considering all 3 locations experience similar tree stressors. Tree conditions at this location were generally split - half good and half fair/poor.

***Included living trees with no change (0 inches) in DBH from 2014-2022.

Based on this data, the following assumed growth rates were used.

COMMON NAME	AVERAGE DBH PER YEAR (IN.)	COMMENTS
Maple	0.25	medium growth rate
Hawthorn	0.25	medium growth rate
Holly	0.25	medium growth rate
Walnut	0.25	medium growth rate
Magnolia	0.25	medium growth rate
Crabapple	0.25	medium growth rate
Pine	0.40	fast growth rate
Cherry	0.25	medium growth rate
Oak	0.25	medium growth rate
Willow	0.40	fast growth rate
Linden	0.30	medium growth rate
Elm	0.40	fast growth rate
Unknown	0.25	assumed medium growth

[2] Condition Rating assummptions simplified to : Poor = 25%, Fair = 50%, Good = 75%)

[3] Species Rating assummptions: mid-point of Species Rating range

[4] DBH refers to the tree trunk Diameter at Breast Height (4.5' height)

[5] NCPC Guidelines:

Trees less than 10-inches DBH: Replace at 1:1

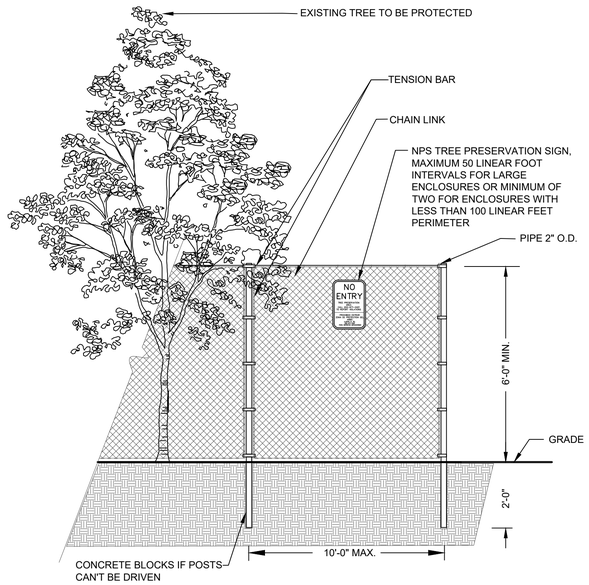
Trees 10-inches DBH and greater: Replace based on the Tree Score (DBH x Species Rating (as percentage) x Condition Rating (as percentage)

Tree Score: 1 - 4.9 = 1 tree
Tree Score: 5 -9.9 = 2 trees
Tree Score: 10 - 14.9 = 3 trees
Tree Score: 15 - 19.9 = 4 trees
Tree Score: 20 - 24.5.9 = 5 trees
Tree Score: 25 + = 6 trees

Species Rating: value from 1 to 100, per Mid-Atlantic Tree Species Rating Guide
Condition Rating: value from 0 to 100, per 9th Edition of the Council of Tree and Landscape Appraisers

[6] Existing Tree Data Source: NPS NAMA GIS, assumed to be from 2014

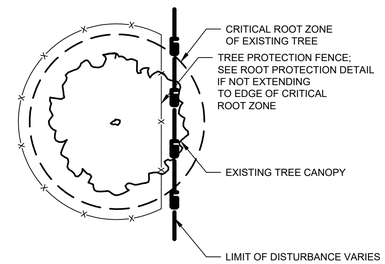
DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD JLS/DBS	L14.1	TIDAL BASIN - EAST TREE MITIGATION CALCULATIONS	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET 64 OF 226
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	



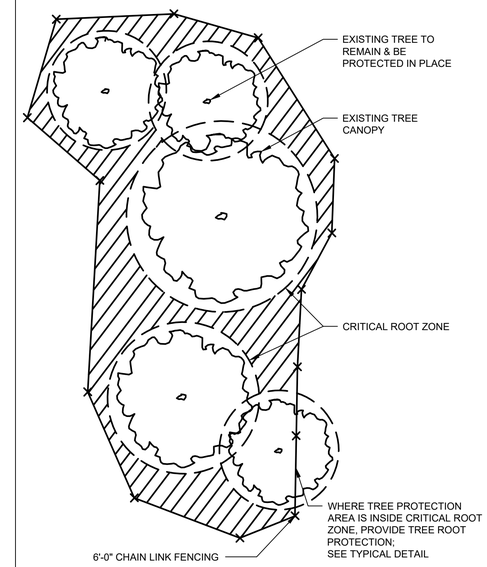
NOTES:
1. BOUNDARIES OF TREE PROTECTION AREA SHALL BE STAKED, FLAGGED, AND/OR FENCED PRIOR TO INSTALLATION OF TREE PROTECTION FENCE.
2. TREE PROTECTION FENCE SHALL BE INSTALLED AS PER THE TREE PROTECTION PLAN AND INSPECTED BY NPS ARBORIST PRIOR TO ANY WORK DONE ONSITE, INCLUDING DEMOLITION.
3. ALL EXISTING TREES, TO REMAIN WITHIN A WORK ZONE UNTIL A PROJECT IS COMPLETED, REQUIRE THE FOLLOWING TREE PROTECTION FENCING. IF FOR ANY REASON THE SCOPE OF THE PROJECT REQUIRES WORK TO BE PERFORMED WITHIN THE TREE PROTECTION FENCE, THE CONTRACTOR MUST CONTACT THE CONTRACTING OFFICER AND NPS ARBORIST BEFORE ENTERING.
   - 3.a. INSTALL FENCING PRIOR TO AND MAINTAIN THROUGHOUT CONSTRUCTION, REMOVING ONLY AT END OF THE PROJECT.
   - 3.b. FENCING SHALL ENCLOSE MULTIPLE TREES WHEN IN A CONTIGUOUS, OPEN AREA AND SITE ACCESS ALLOWS. OTHERWISE, INDIVIDUAL TREES SHALL BE FENCED.
   - 3.c. FENCING SHALL HAVE VERTICAL AND HORIZONTAL SUPPORT RAILINGS TO DECREASE FLEXIBILITY AND PREVENT SAGGING.
   - 3.d. FENCE POSTS SHALL BE ANCHORED IN THE GROUND TO PREVENT MOVEMENT AND PROVIDE A SECURE BARRIER. CONCRETE BLOCKS OR METAL SUPPORT STANDS CAN BE USED AS NEEDED WHERE CONDITIONS PREVENT DRIVING POSTS.
   - 3.e. NPS TREE PROTECTION AREA SIGNS SHALL BE MOUNTED ON THE TREE PROTECTION FENCE ON A MAXIMUM OF 50 LINEAR FOOT INTERVALS FOR LARGE ENCLOSURES OR AT A MINIMUM OF TWO NPS TREE PROTECTION AREA SIGNS FOR EACH ENCLOSED TREE PROTECTION AREA WITH LESS THAN 100 LINEAR FEET PERIMETER.
4. AVOID USING MACHINERY NEAR THE TREE PROTECTION AREA AND CRITICAL ROOT ZONE AS MUCH AS POSSIBLE. WHERE WORK IS TO OCCUR WITHIN THE CRITICAL ROOT ZONE, INSTALL TEMPORARY TREE ROOT PROTECTION (SEE TYPICAL DETAIL).
5. REQUIREMENTS WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE:
   - 5.a. THE CONTRACTOR SHALL NOT ENGAGE IN ANY CONSTRUCTION ACTIVITY, NOT SHOWN ON THE CONSTRUCTION DRAWINGS, THAT IS WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE WITHOUT THE APPROVAL OF THE CONTRACTING OFFICER AND NPS ARBORIST. IF THE CONTRACTOR HAS TO TEMPORARILY WORK WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE OF A TREE, THE TREE PROTECTION FENCING SHALL BE RESET TO PROTECT THE AREA OF THE TREE ROOT ZONE NOT AFFECTED BY EQUIPMENT/WORK AND TEMPORARY OR PERMANENT TREE ROOT PROTECTION SHALL BE INSTALLED. TREE PROTECTION FENCE WILL NEED TO BE MOVED BACK IMMEDIATELY AFTER WORK INSIDE THE CRITICAL ROOT ZONE HAS BEEN COMPLETED.
   - 5.b. WITH APPROVAL OF THE CONTRACTING OFFICER AND NPS ARBORIST, TEMPORARY AND/OR PERMANENT TREE ROOT PROTECTION SHALL BE INSTALLED FOR ANY WORK WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE.
   - 5.c. NO STORAGE OF CONSTRUCTION MATERIALS, EQUIPMENT, SOIL OR DEBRIS WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE.
   - 5.d. NO DISPOSAL OF ANY LIQUIDS (E.G., CONCRETE SLEUTH, GAS, OIL, PAINT AND BLACKTOP) WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE.
   - 5.e. NO TRENCHING WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE. IF REQUIRED, WORK SHALL BE PERFORMED PER ROOT PRUNING SPECIFICATION AND DETAIL.
   - 5.f. NO SOIL IS TO BE IN CONTACT WITH THE TREE TRUNK ABOVE THE BASAL FLAIR AT ANY TIME.
   - 5.g. USE FILTER LOG INSTEAD OF SILT FENCE WITHIN TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE OF ANY TREE THAT WILL REMAIN. IF SEDIMENT AND EROSION CONTROL MEASURES CONFLICT, THEN SEDIMENT AND EROSION CONTROL MEASURES TAKE PRECEDENCE. CONTACT THE CONTRACTING OFFICER AND NPS SEDIMENT AND EROSION CONTROL INSPECTOR.
6. ANY PENALTIES RELATED TO DAMAGE TO TREE(S) WITHIN THE TREE PROTECTION AREA SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
7. ADAPTED FROM DDOT URBAN FORESTRY TREE PROTECTION FENCE DETAIL EXAMPLE.

1 TREE PROTECTION FENCE ELEVATION

NOT TO SCALE



TYPICAL INDIVIDUAL TREE PROTECTION FENCE

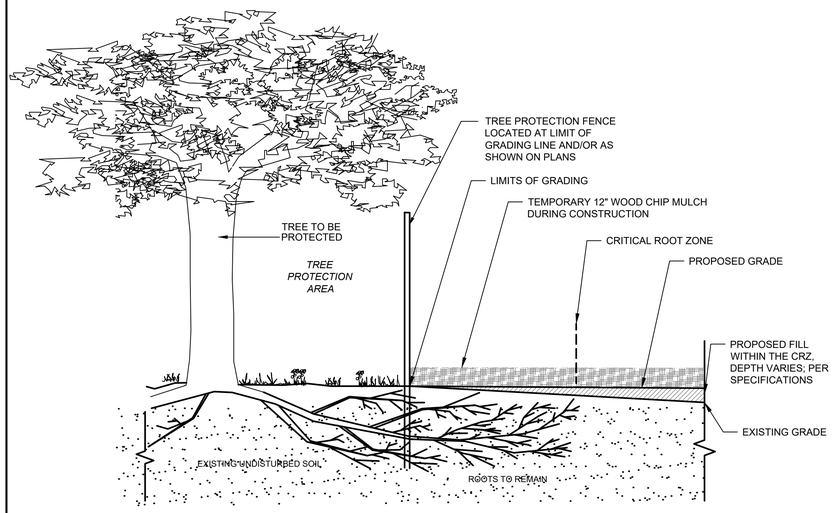


TYPICAL OPEN AREA TREE PROTECTION

NOTES:
1. SEE TREE PROTECTION FENCE-ELEVATION, FOR TREE PROTECTION NOTES.
2. CRITICAL ROOT ZONE (CRZ): SHALL BE DEFINED AS THE AREA ONE AND ONE HALF LINEAR FEET AWAY FROM THE TRUNK OF BASE, FOR EVERY INCH DIAMETER: (DBH) OF THE TRUNK.
3. TREE PROTECTION FENCE TO BE PLACED OUTSIDE THE CRZ AND NO MORE THAN 1 FOOT FROM THE LIMITS OF DISTURBANCE.
4. FENCING SHALL NOT BE PLACED CLOSER TO THE TREE THAN 1/2 THE TOTAL DISTANCE FROM THE TREE TO THE DRIP LINE.

2 TREE PROTECTION FENCE PLAN VIEW

NOT TO SCALE

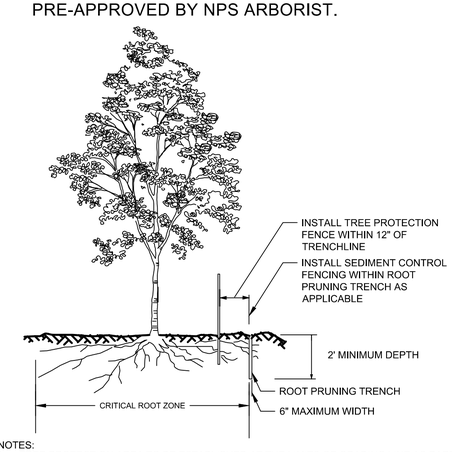


NOTES:
1. TEMPORARY AND PERMANENT TREE ROOT PROTECTION SHALL BE INSTALLED AS PER THE TREE REMOVAL AND TREE PROTECTION PLANS AND SPECIFICATIONS AND INSPECTED BY NPS ARBORIST PRIOR TO ANY WORK DONE ONSITE, INCLUDING CLEARING, GRUBBING AND DEMOLITION.
2. APPLIES TO CRITICAL ROOT ZONE (CRZ) AREA WITHIN THE LIMITS OF DISTURBANCE (LOD).
3. PROTECT ALL AREAS FROM COMPACTION OF THE SOIL; DAMAGE OF ANY KIND TO TRUNKS, BARK, BRANCHES, LEAVES AND ROOTS;
4. TEMPORARY ROOT PROTECTION:
   - 4.a. AREAS WHERE FOOT TRAFFIC OR STORAGE OF LIGHTWEIGHT MATERIALS IS ANTICIPATED TO BE UNAVOIDABLE, PROVIDE A LAYER OF FILTER FABRIC UNDER THE 12 INCHES OF WOOD CHIPS.
   - 4.b. AREAS WHERE OCCASIONAL LIGHT VEHICLE TRAFFIC IS ANTICIPATED TO BE UNAVOIDABLE PROVIDE A LAYER OF GEOGRIDS UNDER 8 INCHES OF WOOD CHIPS.
   - 4.c. AREAS WHERE HEAVY VEHICLE TRAFFIC IS UNAVOIDABLE PROVIDE A LAYER OF GEOGRIDS UNDER 8-12 INCHES OF WOOD CHIPS AND A LAYER OF MATTING OVER THE WOOD CHIPS.
   - 4.d. REPLENISH WOOD CHIP MULCH, AS NEEDED, TO MAINTAIN THICKNESS.
5. PERMANENT ROOT PROTECTION:
   - 5.a. REMOVE ANY TEMPORARY ROOT PROTECTION MEASURES AND/OR EXISTING SOD OR ORGANIC MATERIAL WITHIN THE DRIP LINE OF TREES TO A MAXIMUM DEPTH OF 6 INCHES BELOW EXISTING GRADE AS NEEDED.
   - 5.b. FOR FILL DEPTHS GREATER THAN 12 INCHES, APPLY 3 TO 6 INCHES OF MEDIUM GRAVEL, PLACE A LAYER OF FILTER FABRIC ON TOP OF THE GRAVEL LAYER AND SECURE, PROCEED WITH PLACEMENT OF LOAMY SAND TOPSOIL TO FINAL GRADE AS SPECIFIED IN THE PROJECT DRAWINGS.
   - 5.c. FOR FILL DEPTHS LESS THAN 12 INCHES PROCEED WITH PLACEMENT OF LOAMY SAND TOPSOIL TO FINAL GRADE AS SPECIFIED IN THE PROJECT DRAWINGS.
6. ADAPTED FROM DDOT URBAN FORESTRY TREE ROOT PROTECTION DETAIL EXAMPLES.

3 TREE ROOT PROTECTION TYPICAL

NOT TO SCALE

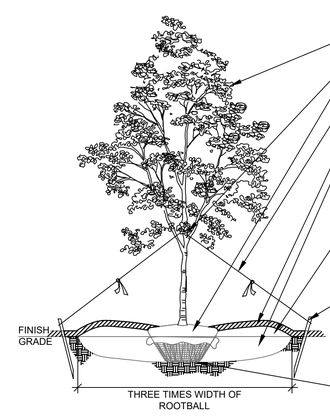
NOTE: ROOT PRUNING LIMITED ONLY TO AREAS PRE-APPROVED BY NPS ARBORIST.



NOTES:
1. TREE PROTECTION AREA TO BE ESTABLISHED AT THE LIMITS OF GRADING LINE AS PART OF THE TREE PROTECTION PLAN.
2. BOUNDARIES OF TREE PROTECTION AREA SHALL BE STAKED, FLAGGED, AND/OR FENCED PRIOR TO TRENCHING.
3. EXACT LOCATION, DEPTH, AND METHODS OF ROOT PRUNING TO BE DETERMINED IN THE FIELD WITH NPS ARBORIST.
4. NEVER MORE THAN 25% OF THE ROOTS WITHIN THE CRITICAL ROOT ZONE SHALL BE PRUNED UNLESS APPROVED BY NPS ARBORIST.
5. ROOT PRUNING SHALL BE PERFORMED BY SPECIALIZED ARBORICULTURAL MACHINERY AND/OR EQUIPMENT MADE FOR THAT PURPOSE.
6. ALL PRUNING CUTS SHALL BE MADE CLEANLY AND PERPENDICULAR TO ROOT FORM. ROOTS OVER 1.5" DIAMETER SHOULD BE CLEANLY CUT BY HAND.
7. TRENCH SHALL BE BACKFILLED IMMEDIATELY OR INCORPORATED INTO SEDIMENT CONTROL FENCING INSTALLATION. TRENCH SHALL BE BACKFILLED WITH SOIL REMOVED OR AN APPROVED TOPSOIL.

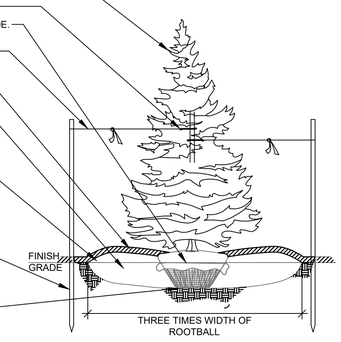
4 ROOT PRUNING TYPICAL

NOT TO SCALE



5 DECIDUOUS TREE PLANTING

NOT TO SCALE

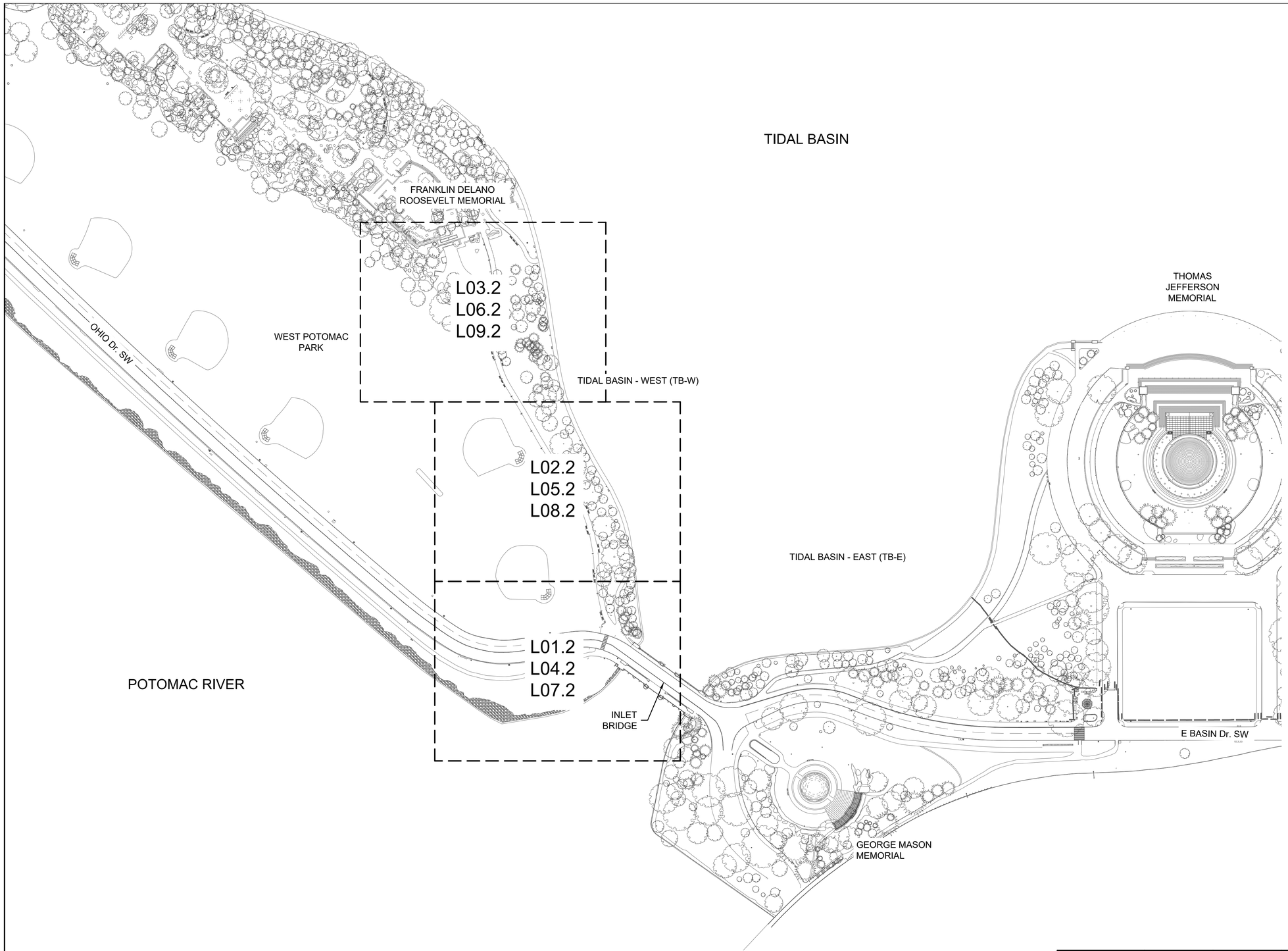


6 EVERGREEN TREE PLANTING

NOT TO SCALE

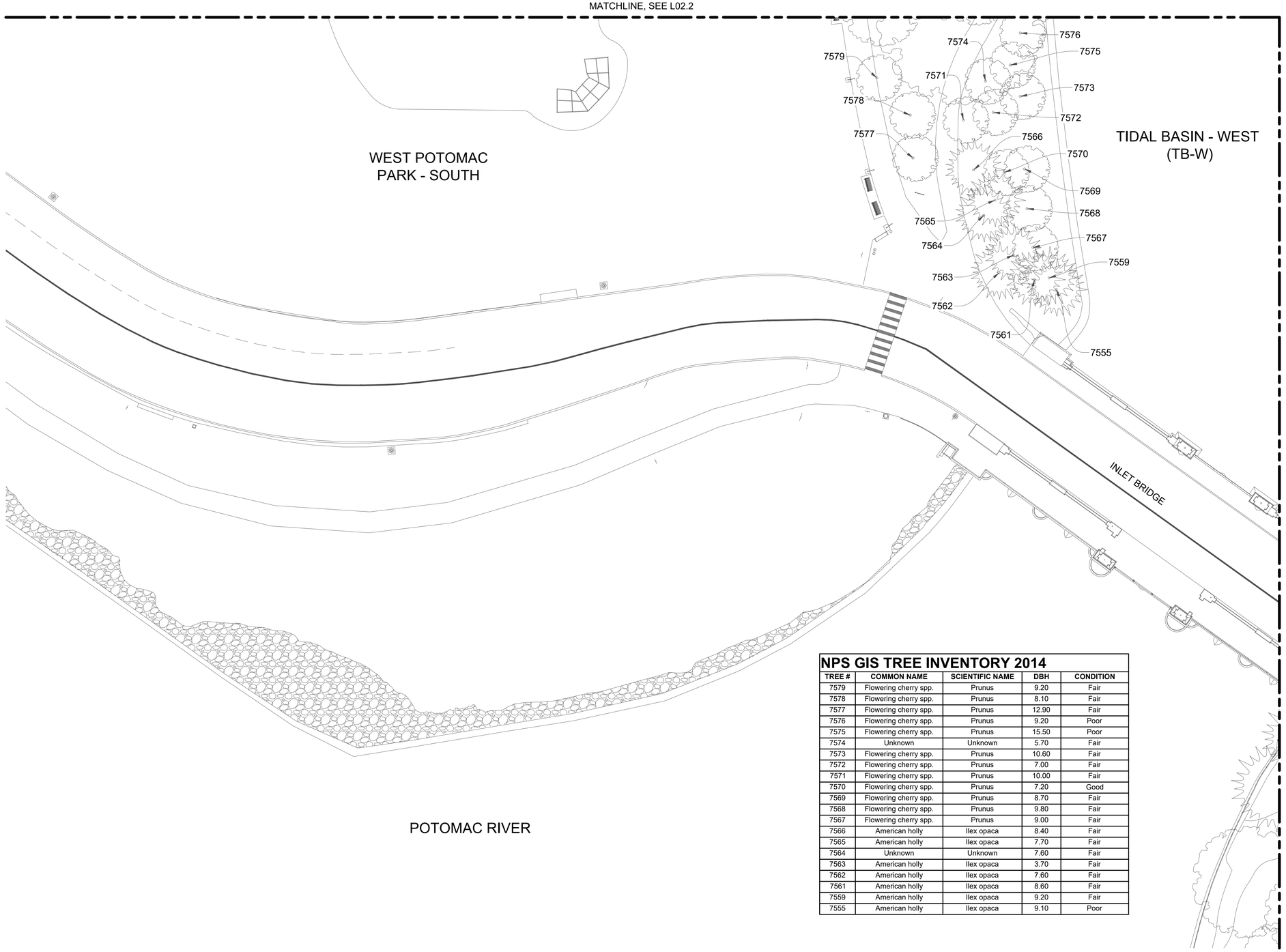
NOTE: SPREAD MULCH IN 6'-0" DIAM. CIRCLES AROUND TREES EXCEPT WHERE TREES ARE CLOSER THAN 15'-0". CREATE CONTINUOUS MULCH BEDS TO MINIMIZE MOWING AND MAINTENANCE.

NATIONAL PARK SERVICE, Department of the Interior	DESIGNED: CS/SR CADD TB/SF TECH. REVIEW: RVS DATE: FEB 2023	SUB SHEET NO. L15.1	TITLE OF SHEET TIDAL BASIN - EAST TREE PROTECTION & TREE PLANTING DETAILS NATIONAL MALL AND MEMORIAL PARKS	DRAWING NO. 802/177531 PMIS/PKG NO. 318722 SHEET 65 OF 226



L01.2 TO L03.2 ENLARGED EXISTING VEGETATION PLAN
L04.2 TO L06.2 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN
L07.2 TO L09.2 ENLARGED PROPOSED TREE PLANTING PLAN

DESIGNED: SAM CADD OAS TECH. REVIEW: RVS DATE: FEB 2023	SUB SHEET NO. L00.2	TITLE OF SHEET TIDAL BASIN - WEST OVERALL VEGETATION PLAN & KEY MAP NATIONAL MALL AND MEMORIAL PARKS	DRAWING NO. 802 / 177531 PMIS/PKG NO. 318722 SHEET 94 OF 226



NOTE:

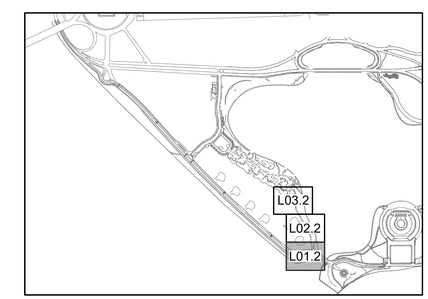
1. CONTRACTOR TO FIELD VERIFY TREE LOCATIONS WITH COMPLETE TREE SURVEY AND ASSESSMENT PER SPECIFICATION SECTION 01 56 36 TREE PROTECTION.

PLANT KEY

- DECIDUOUS TREE
- FLOWERING CHERRY TREE
- EVERGREEN TREE
- SHRUB

NPS GIS TREE INVENTORY 2014

TREE #	COMMON NAME	SCIENTIFIC NAME	DBH	CONDITION
7579	Flowering cherry spp.	Prunus	9.20	Fair
7578	Flowering cherry spp.	Prunus	8.10	Fair
7577	Flowering cherry spp.	Prunus	12.90	Fair
7576	Flowering cherry spp.	Prunus	9.20	Poor
7575	Flowering cherry spp.	Prunus	15.50	Poor
7574	Unknown	Unknown	5.70	Fair
7573	Flowering cherry spp.	Prunus	10.60	Fair
7572	Flowering cherry spp.	Prunus	7.00	Fair
7571	Flowering cherry spp.	Prunus	10.00	Fair
7570	Flowering cherry spp.	Prunus	7.20	Good
7569	Flowering cherry spp.	Prunus	8.70	Fair
7568	Flowering cherry spp.	Prunus	9.80	Fair
7567	Flowering cherry spp.	Prunus	9.00	Fair
7566	American holly	Ilex opaca	8.40	Fair
7565	American holly	Ilex opaca	7.70	Fair
7564	Unknown	Unknown	7.60	Fair
7563	American holly	Ilex opaca	3.70	Fair
7562	American holly	Ilex opaca	7.60	Fair
7561	American holly	Ilex opaca	8.60	Fair
7559	American holly	Ilex opaca	9.20	Fair
7555	American holly	Ilex opaca	9.10	Poor



KEY MAP

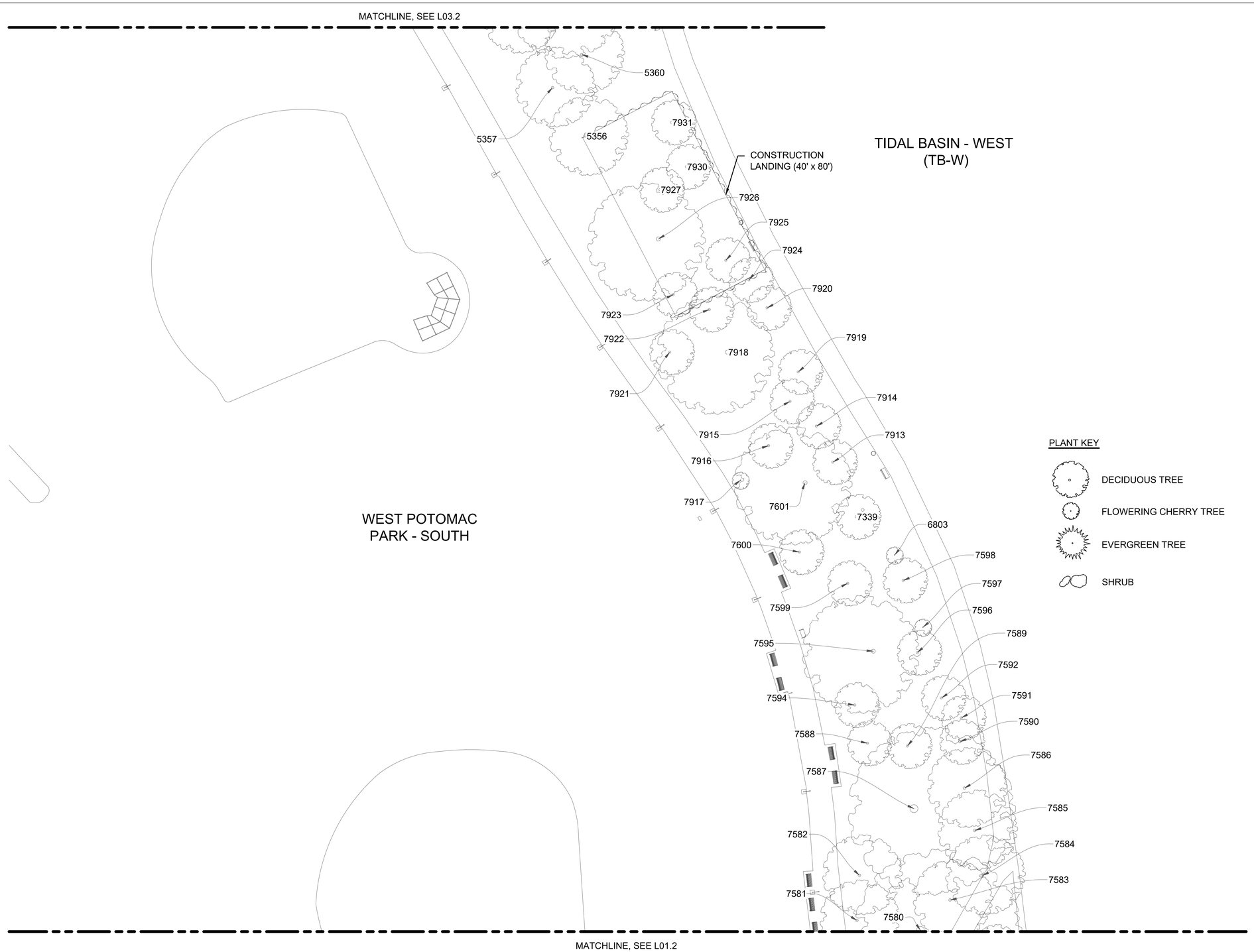
20 0 20 40

SCALE OF FEET

L01.2 / L00.2 ENLARGED EXISTING VEGETATION PLAN 1

1" = 20'

DESIGNED:	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
SAM	L01.2	TIDAL BASIN - WEST ENLARGED EXISTING VEGETATION PLAN 1	802 / 177531
CADD: OAS			PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	95 OF 226



NOTE:

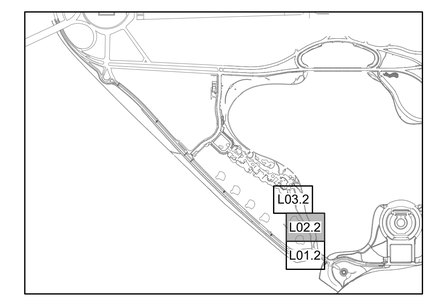
1. CONTRACTOR TO FIELD VERIFY TREE LOCATIONS WITH COMPLETE TREE SURVEY AND ASSESSMENT PER SPECIFICATION SECTION 01 56 36 TREE PROTECTION.

PLANT KEY

- DECIDUOUS TREE
- FLOWERING CHERRY TREE
- EVERGREEN TREE
- SHRUB

NPS GIS TREE INVENTORY 2014

TREE #	COMMON NAME	SCIENTIFIC NAME	DBH	CONDITION
7931	Flowering cherry spp.	Prunus	8.20	Fair
7930	Flowering cherry spp.	Prunus	7.20	Fair
7927	Flowering cherry spp.	Prunus	3.90	Fair
7926	American elm	Ulmus americana	32.90	Fair
7925	Flowering cherry spp.	Prunus	2.40	Good
7924	Flowering cherry spp.	Prunus	11.90	Fair
7923	Flowering cherry spp.	Prunus	4.80	Good
7922	Flowering cherry spp.	Prunus	6.60	Good
7921	Flowering cherry spp.	Prunus	7.20	Good
7920	Flowering cherry spp.	Prunus	18.20	Fair
7919	Flowering cherry spp.	Prunus	20.60	Fair
7918	American elm	Ulmus americana	21.90	Fair
7917	Flowering cherry spp.	Prunus	2.50	Good
7916	Flowering cherry spp.	Prunus	12.10	Fair
7915	Flowering cherry spp.	Prunus	8.30	Fair
7914	Flowering cherry spp.	Prunus	10.80	Fair
7913	Flowering cherry spp.	Prunus	17.40	Poor
7601	American elm	Ulmus americana	24.00	Fair
7600	Flowering cherry spp.	Prunus	9.40	Good
7599	Flowering cherry spp.	Prunus	13.60	Fair
7598	Flowering cherry spp.	Prunus	24.00	Poor
7597	Flowering cherry spp.	Prunus	12.00	Fair
7596	Flowering cherry spp.	Prunus	16.90	Fair
7595	American elm	Ulmus americana	23.70	Fair
7594	Flowering cherry spp.	Prunus	7.50	Fair
7592	Flowering cherry spp.	Prunus	22.40	Fair
7591	Flowering cherry spp.	Prunus	19.00	Poor
7590	Flowering cherry spp.	Prunus	10.30	Poor
7588	Flowering cherry spp.	Prunus	7.90	Good
7587	American elm	Ulmus americana	31.20	Fair
7586	Flowering cherry spp.	Prunus	10.60	Fair
7585	Flowering cherry spp.	Prunus	8.60	Fair
7584	Flowering cherry spp.	Prunus	10.80	Good
7583	Flowering cherry spp.	Prunus	6.80	Fair
7582	Flowering cherry spp.	Prunus	8.30	Good
7581	Flowering cherry spp.	Prunus	9.00	-
7580	American elm	Ulmus americana	30.40	Good
6803	Flowering cherry spp.	Prunus	3.70	Fair
5360	Flowering cherry spp.	Prunus	6.30	Fair
5357	Flowering cherry spp.	Prunus	7.20	Good
5356	Flowering cherry spp.	Prunus	6.80	Poor



KEY MAP

20 0 20 40

SCALE OF FEET

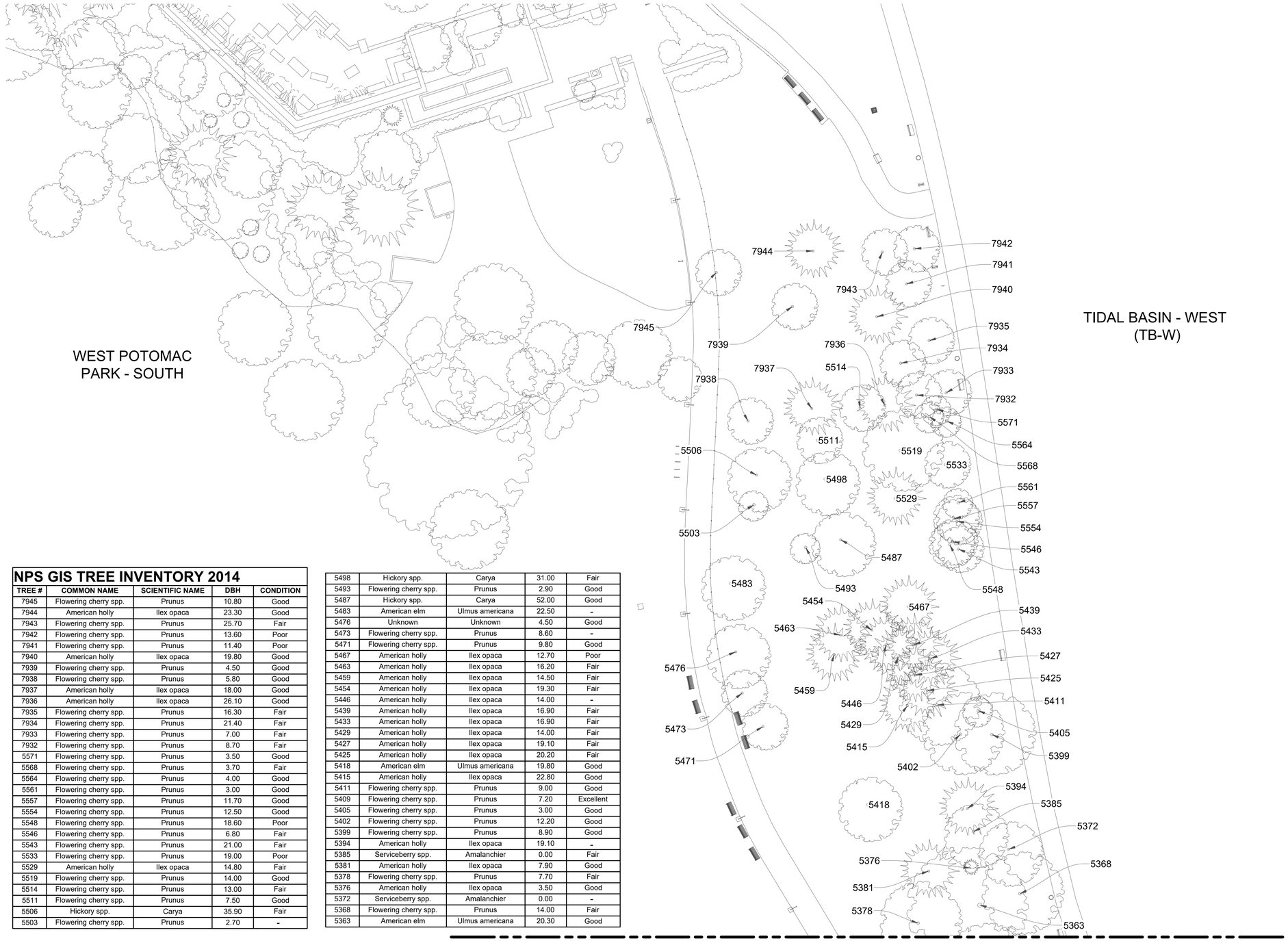
L02.2 / L00.2 ENLARGED EXISTING VEGETATION PLAN 2

1" = 20'

DESIGNED: SAM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD OAS	L02.2	TIDAL BASIN - WEST ENLARGED EXISTING VEGETATION PLAN 2	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	96 OF 226

NOTE:

1. CONTRACTOR TO FIELD VERIFY TREE LOCATIONS WITH COMPLETE TREE SURVEY AND ASSESSMENT PER SPECIFICATION SECTION 01 56 36 TREE PROTECTION.

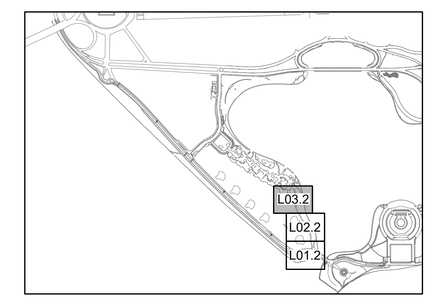


NPS GIS TREE INVENTORY 2014

TREE #	COMMON NAME	SCIENTIFIC NAME	DBH	CONDITION
7945	Flowering cherry spp.	Prunus	10.80	Good
7944	American holly	Ilex opaca	23.30	Good
7943	Flowering cherry spp.	Prunus	25.70	Fair
7942	Flowering cherry spp.	Prunus	13.60	Poor
7941	Flowering cherry spp.	Prunus	11.40	Poor
7940	American holly	Ilex opaca	19.80	Good
7939	Flowering cherry spp.	Prunus	4.50	Good
7938	Flowering cherry spp.	Prunus	5.80	Good
7937	American holly	Ilex opaca	18.00	Good
7936	American holly	Ilex opaca	26.10	Good
7935	Flowering cherry spp.	Prunus	16.30	Fair
7934	Flowering cherry spp.	Prunus	21.40	Fair
7933	Flowering cherry spp.	Prunus	7.00	Fair
7932	Flowering cherry spp.	Prunus	8.70	Fair
5571	Flowering cherry spp.	Prunus	3.50	Good
5568	Flowering cherry spp.	Prunus	3.70	Fair
5564	Flowering cherry spp.	Prunus	4.00	Good
5561	Flowering cherry spp.	Prunus	3.00	Good
5557	Flowering cherry spp.	Prunus	11.70	Good
5554	Flowering cherry spp.	Prunus	12.50	Good
5548	Flowering cherry spp.	Prunus	18.60	Poor
5546	Flowering cherry spp.	Prunus	6.80	Fair
5543	Flowering cherry spp.	Prunus	21.00	Fair
5533	Flowering cherry spp.	Prunus	19.00	Poor
5529	American holly	Ilex opaca	14.80	Fair
5519	Flowering cherry spp.	Prunus	14.00	Good
5514	Flowering cherry spp.	Prunus	13.00	Fair
5511	Flowering cherry spp.	Prunus	7.50	Good
5506	Hickory spp.	Carya	35.90	Fair
5503	Flowering cherry spp.	Prunus	2.70	-
5498	Hickory spp.	Carya	31.00	Fair
5493	Flowering cherry spp.	Prunus	2.90	Good
5487	Hickory spp.	Carya	52.00	Good
5483	American elm	Ulmus americana	22.50	-
5476	Unknown	Unknown	4.50	Good
5473	Flowering cherry spp.	Prunus	8.60	-
5471	Flowering cherry spp.	Prunus	9.80	Good
5467	American holly	Ilex opaca	12.70	Poor
5463	American holly	Ilex opaca	16.20	Fair
5459	American holly	Ilex opaca	14.50	Fair
5454	American holly	Ilex opaca	19.30	Fair
5446	American holly	Ilex opaca	14.00	-
5439	American holly	Ilex opaca	16.90	Fair
5433	American holly	Ilex opaca	16.90	Fair
5429	American holly	Ilex opaca	14.00	Fair
5427	American holly	Ilex opaca	19.10	Fair
5425	American holly	Ilex opaca	20.20	Fair
5418	American elm	Ulmus americana	19.80	Good
5415	American holly	Ilex opaca	22.80	Good
5411	Flowering cherry spp.	Prunus	9.00	Good
5409	Flowering cherry spp.	Prunus	7.20	Excellent
5405	Flowering cherry spp.	Prunus	3.00	Good
5402	Flowering cherry spp.	Prunus	12.20	Good
5399	Flowering cherry spp.	Prunus	8.90	Good
5394	American holly	Ilex opaca	19.10	-
5385	Serviceberry spp.	Amalanchier	0.00	Fair
5381	American holly	Ilex opaca	7.90	Good
5378	Flowering cherry spp.	Prunus	7.70	Fair
5376	American holly	Ilex opaca	3.50	Good
5372	Serviceberry spp.	Amalanchier	0.00	-
5368	Flowering cherry spp.	Prunus	14.00	Fair
5363	American elm	Ulmus americana	20.30	Good

PLANT KEY

- DECIDUOUS TREE
- FLOWERING CHERRY TREE
- EVERGREEN TREE
- SHRUB



KEY MAP

20 0 20 40

SCALE OF FEET

L03.2 / L00.2 ENLARGED EXISTING VEGETATION PLAN 3

1" = 20'

DESIGNED: SAM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
CADD OAS	L03.2	TIDAL BASIN - WEST ENLARGED EXISTING VEGETATION PLAN 3	802 / 177531
TECH. REVIEW: RVS			PMIS/PKG NO. 318722
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 97 OF 226

LEGEND

TREE PROTECTION AREA; PROVIDE SIX FOOT HEIGHT CHAIN LINK TREE PROTECTION FENCE OR EIGHT FOOT HEIGHT LIMITS OF CONSTRUCTION FENCE; ALL TREE PROTECTION AREAS SHALL BE SIGNED AND FULLY ENCLOSED; NO CONSTRUCTION ACCESS ALLOWED THROUGH OR IN TREE PROTECTION AREAS

CONSTRUCTION FENCE - 8' HT. CHAIN LINK

ROOT IMPACT ZONE - TREE STATUS IN ZONE TBD BY ARBORIST 15' OUTSIDE OF LIMIT OF GRADING (ASSUME 30% ATTRITION). ALL WORK WITHIN TREE PROTECTION ZONE PERFORMED UNDER OVERSIGHT OF ARBORIST. NO VEHICLES ALLOWED WITHIN TREE PROTECTION ZONE.

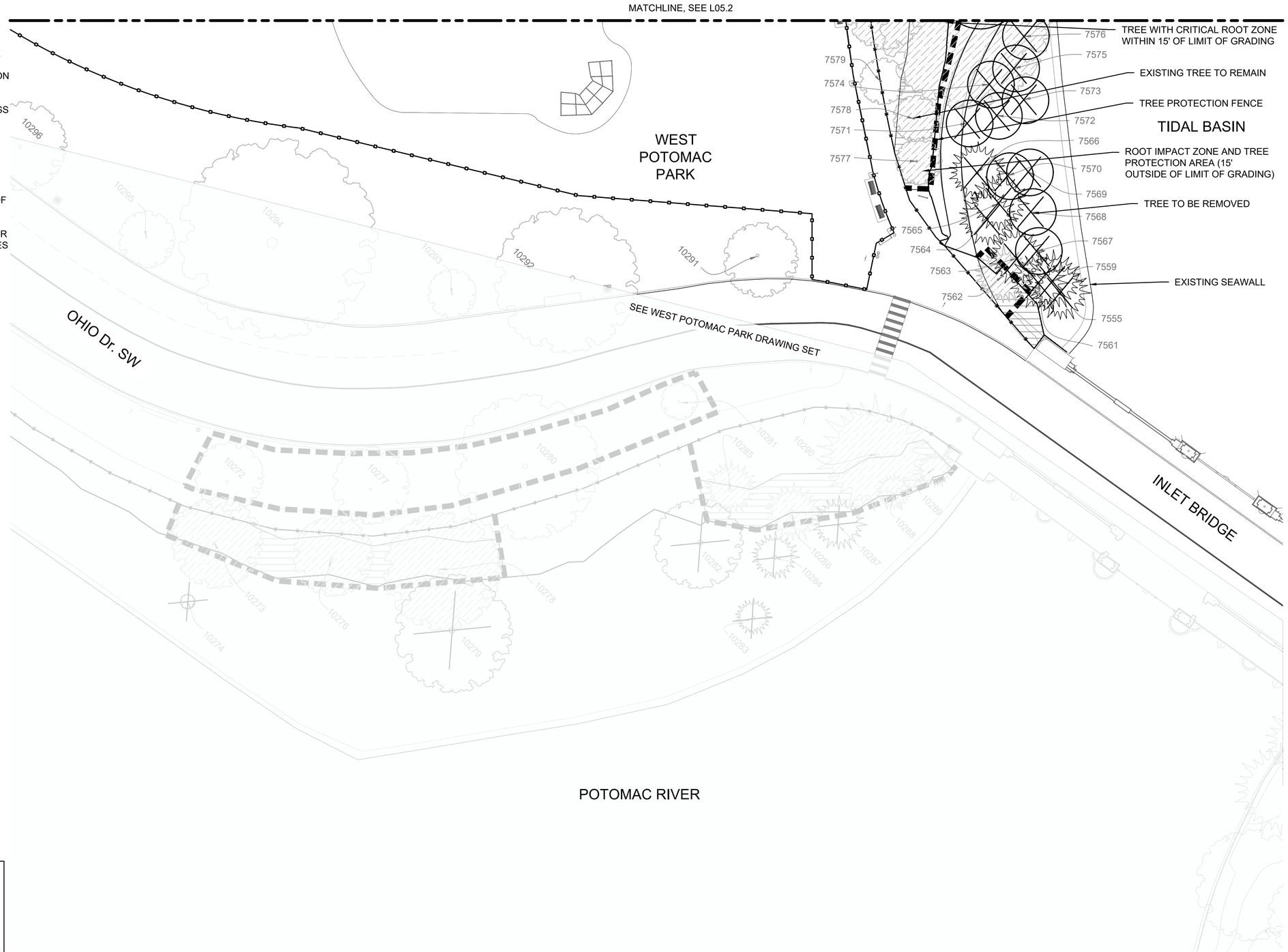
TREES WITH CRITICAL ROOT ZONE WITHIN 15' OF LIMIT OF GRADING

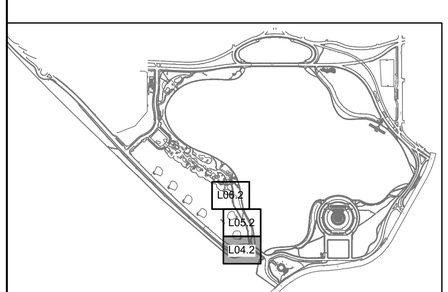
TREES TO REMAIN

CHERRY TREES TO BE REMOVED

DECIDUOUS (NON-CHERRY) TREES TO BE REMOVED

EVERGREEN TREES TO BE REMOVED





KEY MAP

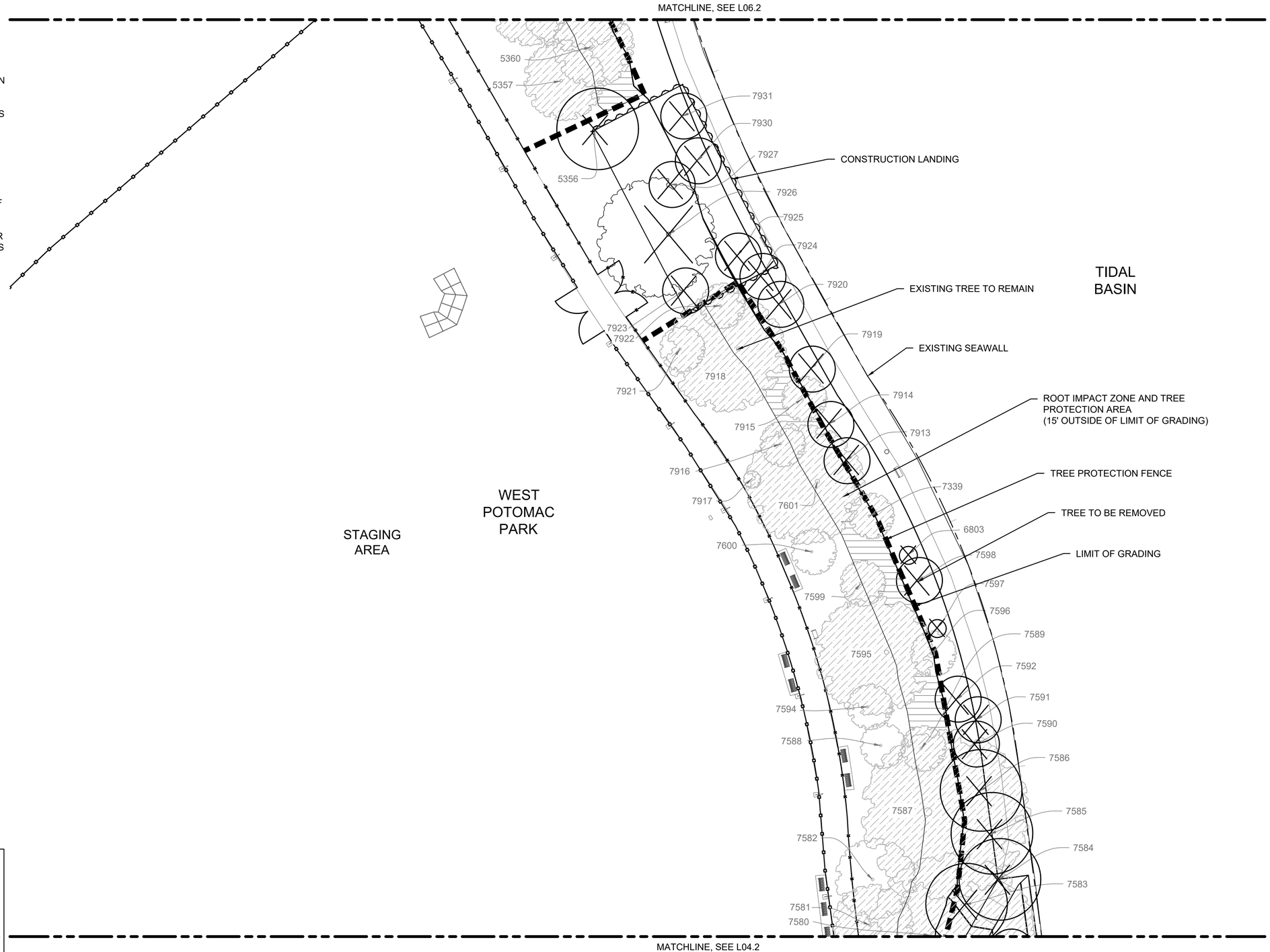
L04.2 / L00.2 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 1
1" = 20'

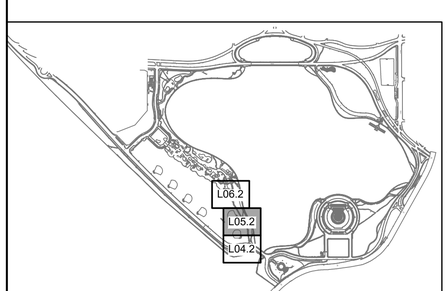
20 0 20 40
SCALE OF FEET

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
CADD JLS/DBS	L04.2	TIDAL BASIN WEST ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 1	802 177531
TECH. REVIEW: RVS			PMIS/PKG NO. 318722
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 98 OF 226

LEGEND

- TREE PROTECTION AREA; PROVIDE SIX FOOT HEIGHT CHAIN LINK TREE PROTECTION FENCE OR EIGHT FOOT HEIGHT LIMITS OF CONSTRUCTION FENCE; ALL TREE PROTECTION AREAS SHALL BE SIGNED AND FULLY ENCLOSED; NO CONSTRUCTION ACCESS ALLOWED THROUGH OR IN TREE PROTECTION AREAS
- CONSTRUCTION FENCE - 8' HT. CHAIN LINK
- ROOT IMPACT ZONE - TREE STATUS IN ZONE TBD BY ARBORIST 15' OUTSIDE OF LIMIT OF GRADING (ASSUME 30% ATTRITION). ALL WORK WITHIN TREE PROTECTION ZONE PERFORMED UNDER OVERSIGHT OF ARBORIST. NO VEHICLES ALLOWED WITHIN TREE PROTECTION ZONE.
- TREES WITH CRITICAL ROOT ZONE WITHIN 15' OF LIMIT OF GRADING
- TREES TO REMAIN
- CHERRY TREES TO BE REMOVED
- DECIDUOUS (NON-CHERRY) TREES TO BE REMOVED
- EVERGREEN TREES TO BE REMOVED





KEY MAP

L05.2 / L00.2 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 2

1" = 20'

20 0 20 40

SCALE OF FEET

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
CADD JLS/DBS	L05.2	TIDAL BASIN - WEST ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 2	802 / 177531
TECH. REVIEW: RVS			PMIS/PKG NO. 318722
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 99 OF 226

LEGEND

TREE PROTECTION AREA; PROVIDE SIX FOOT HEIGHT CHAIN LINK TREE PROTECTION FENCE OR EIGHT FOOT HEIGHT LIMITS OF CONSTRUCTION FENCE; ALL TREE PROTECTION AREAS SHALL BE SIGNED AND FULLY ENCLOSED; NO CONSTRUCTION ACCESS ALLOWED THROUGH OR IN TREE PROTECTION AREAS

CONSTRUCTION FENCE - 8' HT. CHAIN LINK

ROOT IMPACT ZONE - TREE STATUS IN ZONE TBD BY ARBORIST 15' OUTSIDE OF LIMIT OF GRADING (ASSUME 30% ATTRITION). ALL WORK WITHIN TREE PROTECTION ZONE PERFORMED UNDER OVERSIGHT OF ARBORIST. NO VEHICLES ALLOWED WITHIN TREE PROTECTION ZONE.

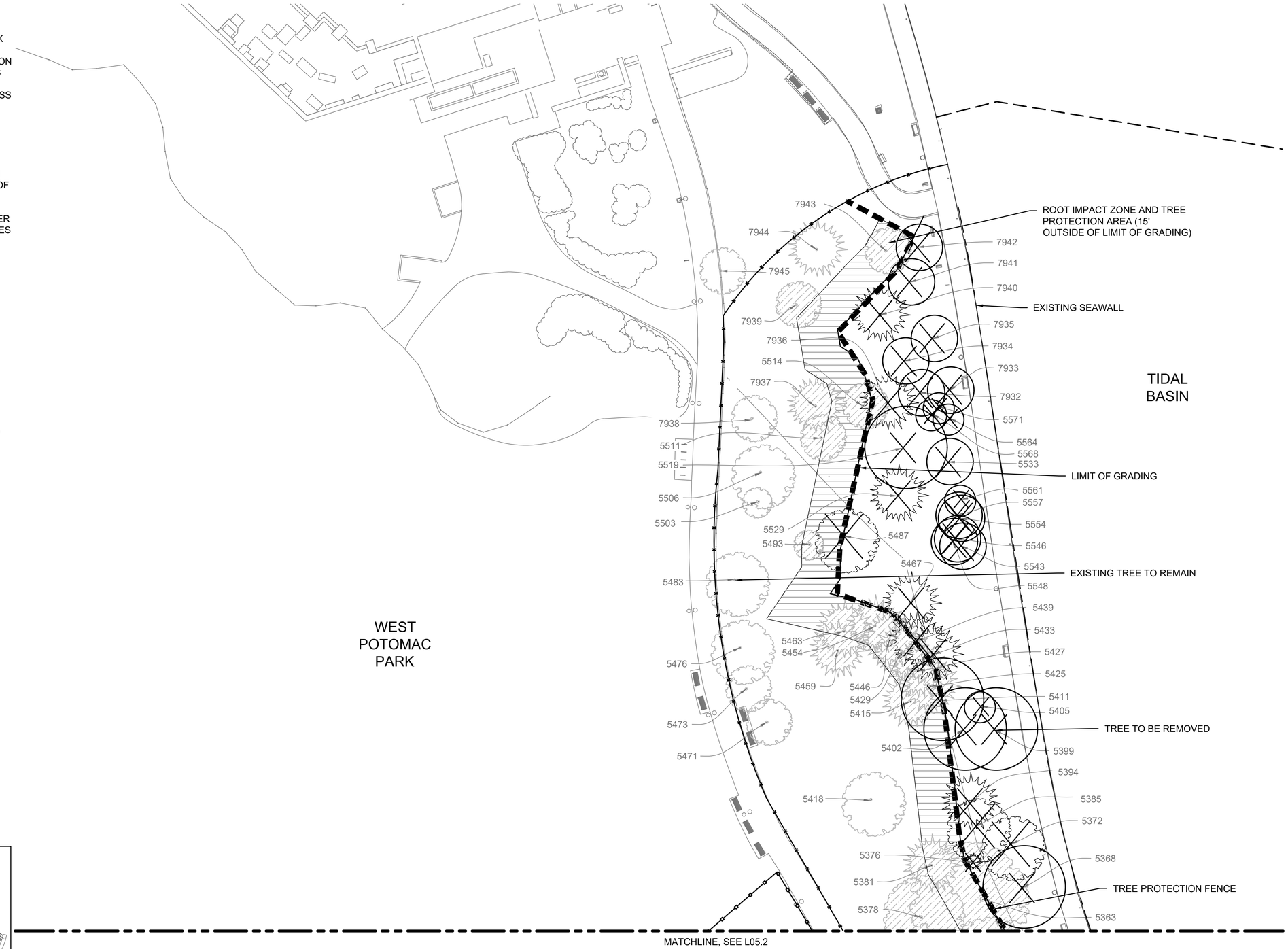
TREES WITH CRITICAL ROOT ZONE WITHIN 15' OF LIMIT OF GRADING

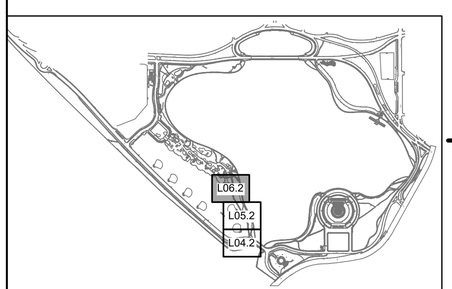
TREES TO REMAIN

CHERRY TREES TO BE REMOVED

DECIDUOUS (NON-CHERRY) TREES TO BE REMOVED

EVERGREEN TREES TO BE REMOVED





KEY MAP

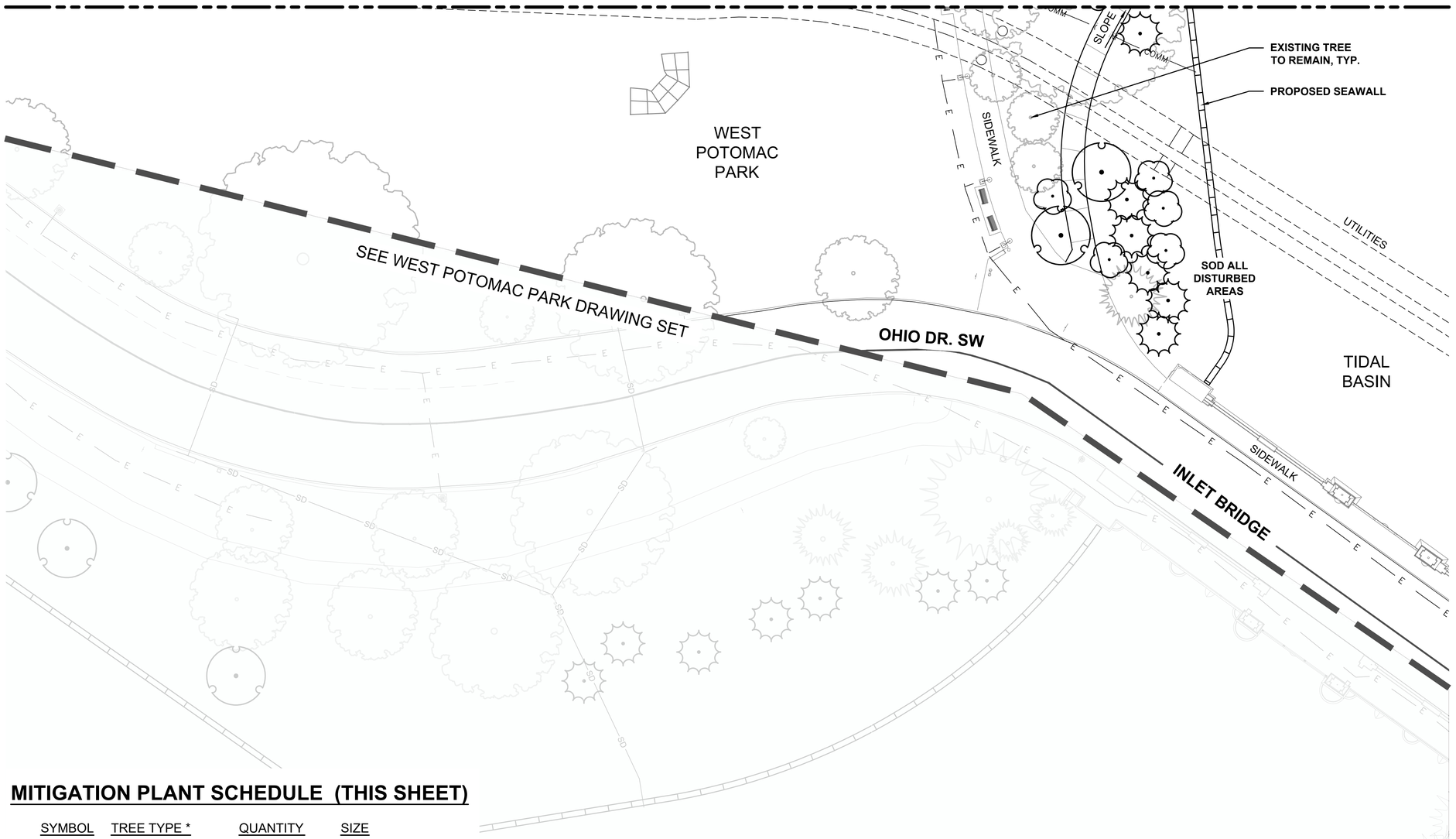
L06.2 / L00.2 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 3

1" = 20'

20 0 20 40

SCALE OF FEET

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
DADD JLS/DBS	L06.2	TIDAL BASIN - WEST ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 3	802 / 177531
TECH. REVIEW: RVS			PMIS/PKG NO. 318722
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 100 OF 226



LEGEND

TREES TO REMAIN

TIDAL BASIN WEST - SUMMARY					
	DECIDUOUS	UNKNOWN	CHERRY	EVERGREEN	TOTAL
REMOVED	4	2	52	12	70
TREE MITIGATION REQUIRED:			89		
PROPOSED	8	0	66	15	89
SEE SHEET L11.2 FOR DETAILED TREE MITIGATION CALCULATIONS					

ALL NEW TREE PLANTINGS TO BE A MINIMUM OF 18' FROM THE FACE OF THE WALL

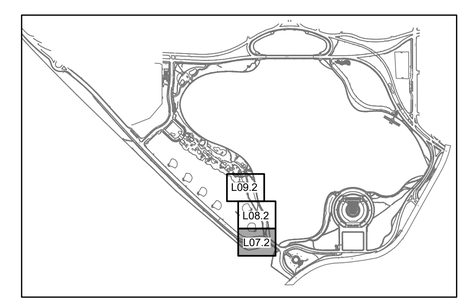
MITIGATION PLANT SCHEDULE (THIS SHEET)

SYMBOL	TREE TYPE *	QUANTITY	SIZE
	DECIDUOUS TREE	2	3"- 6" CAL.
	CHERRY TREE	5	2" - 3.5" CAL.
	EVERGREEN TREE	6	10' - 16' HT.

* REFER TO PROPOSED PLANT LIST FOR TREE SELECTION

NOTES:
1. TREE CHOICES FOR MITIGATION, SEE SHEET L10.2
2. TREE MITIGATION CALCULATIONS, SEE SHEET L11.2
3. TREE PLANTING DETAILS, SEE SHEET L12.2

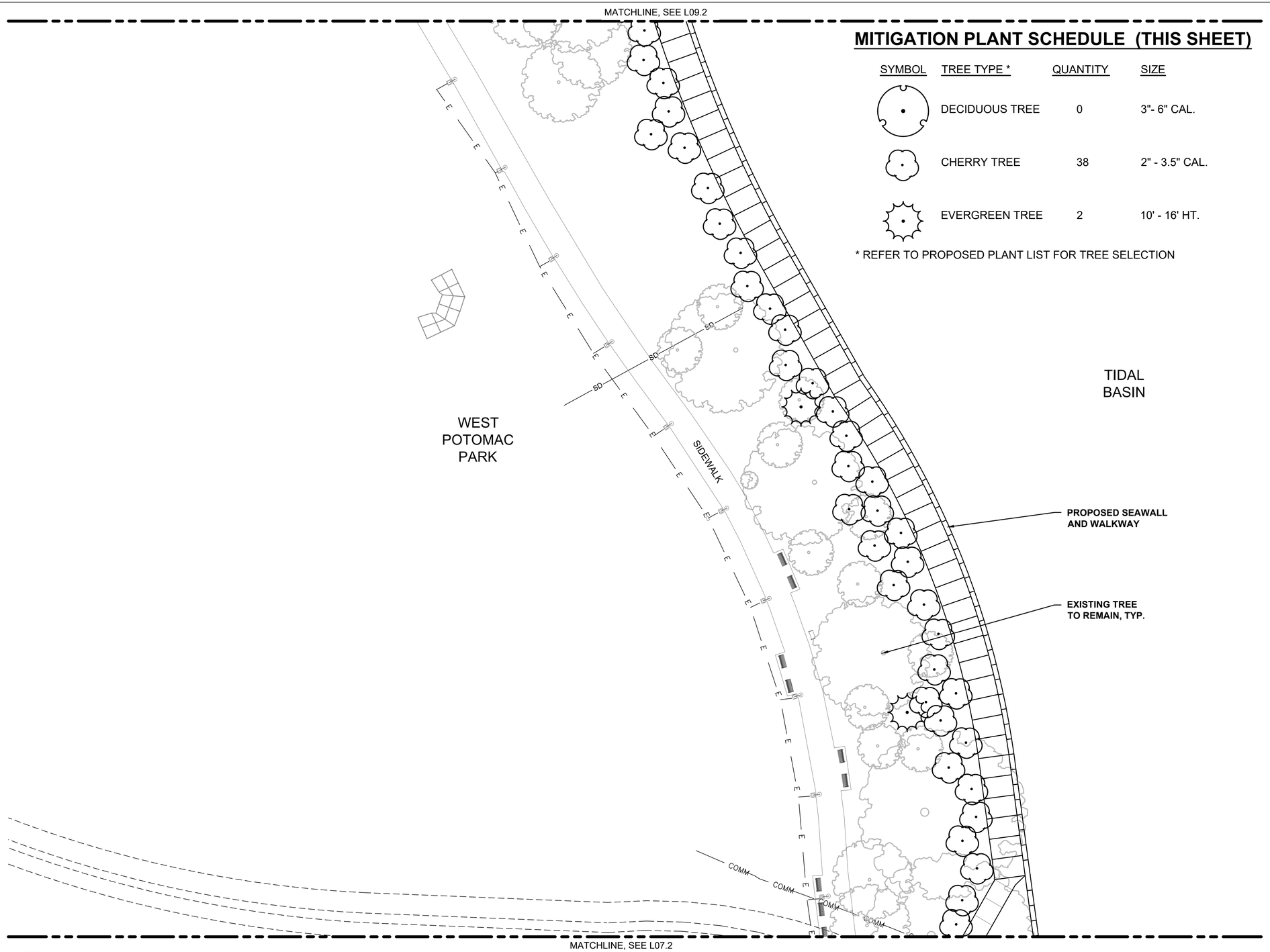
L07.2 / L00.2 ENLARGED PROPOSED TREE PLANTING PLAN 1
1" = 20'



KEY MAP

20 0 20 40
SCALE OF FEET

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
CADD JLS/DBS	L07.2	TIDAL BASIN - WEST ENLARGED PROPOSED TREE PLANTING PLAN 1	802 / 177531
TECH. REVIEW: RVS			PMIS/PKG NO. 318722
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 101 OF 226



MITIGATION PLANT SCHEDULE (THIS SHEET)

SYMBOL	TREE TYPE *	QUANTITY	SIZE
	DECIDUOUS TREE	0	3"- 6" CAL.
	CHERRY TREE	38	2" - 3.5" CAL.
	EVERGREEN TREE	2	10' - 16' HT.

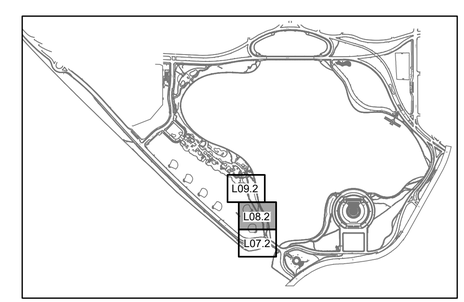
* REFER TO PROPOSED PLANT LIST FOR TREE SELECTION

LEGEND

TREES TO REMAIN

TIDAL BASIN WEST - SUMMARY					
	DECIDUOUS	UNKNOWN	CHERRY	EVERGREEN	TOTAL
REMOVED	4	2	52	12	70
TREE MITIGATION REQUIRED:			89		
PROPOSED	8	0	66	15	89
SEE SHEET L11.2 FOR DETAILED TREE MITIGATION CALCULATIONS					

ALL NEW TREE PLANTINGS TO BE A MINIMUM OF 18' FROM THE FACE OF THE WALL



KEY MAP

20 0 20 40

SCALE OF FEET

NOTES:
1. TREE CHOICES FOR MITIGATION, SEE SHEET L10.2
2. TREE MITIGATION CALCULATIONS, SEE SHEET L11.2
3. TREE PLANTING DETAILS, SEE SHEET L12.2

L08.2 / L00.2 ENLARGED PROPOSED TREE PLANTING PLAN 2
1" = 20'

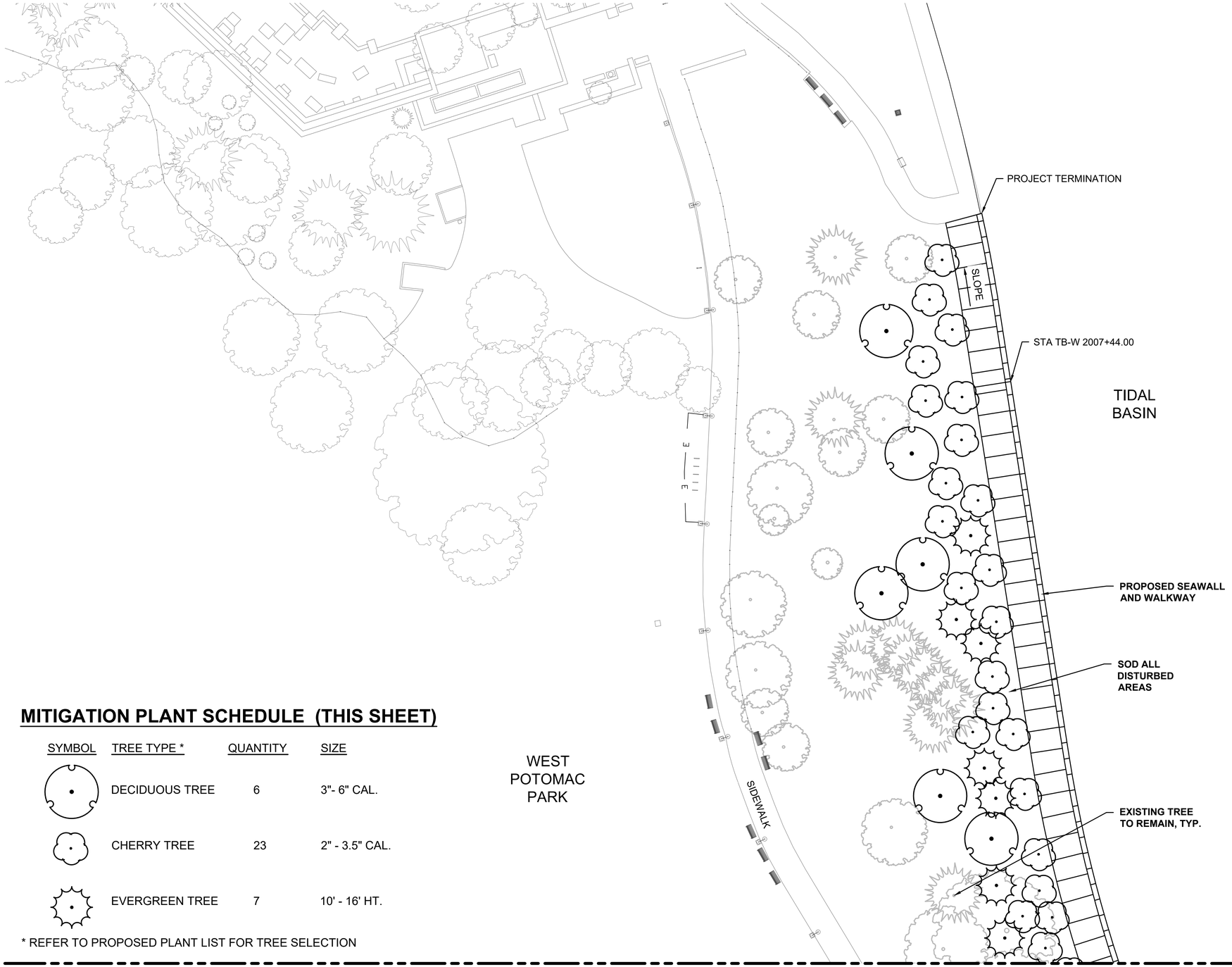
DESIGNED: SDR CADD JLS/DBS TECH. REVIEW: RVS DATE: FEB 2023	SUB SHEET NO. L08.2	TITLE OF SHEET TIDAL BASIN - WEST ENLARGED PROPOSED TREE PLANTING PLAN 2 NATIONAL MALL AND MEMORIAL PARKS	DRAWING NO. 802 / 177531 PMIS/PKG NO. 318722 SHEET 102 OF 226

LEGEND

TREES TO REMAIN

TIDAL BASIN WEST - SUMMARY					
	DECIDUOUS	UNKNOWN	CHERRY	EVERGREEN	TOTAL
REMOVED	4	2	52	12	70
TREE MITIGATION REQUIRED:			89		
PROPOSED	8	0	66	15	89
SEE SHEET L11.2 FOR DETAILED TREE MITIGATION CALCULATIONS					

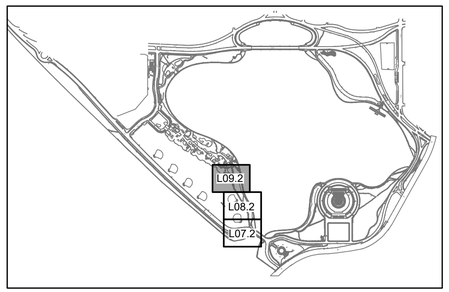
ALL NEW TREE PLANTINGS TO BE A MINIMUM OF 18' FROM THE FACE OF THE WALL



MITIGATION PLANT SCHEDULE (THIS SHEET)

SYMBOL	TREE TYPE *	QUANTITY	SIZE
	DECIDUOUS TREE	6	3"- 6" CAL.
	CHERRY TREE	23	2" - 3.5" CAL.
	EVERGREEN TREE	7	10' - 16' HT.

* REFER TO PROPOSED PLANT LIST FOR TREE SELECTION



KEY MAP

20 0 20 40

SCALE OF FEET

MATCHLINE, SEE L08.2

NOTES:
1. TREE CHOICES FOR MITIGATION, SEE SHEET L10.2
2. TREE MITIGATION CALCULATIONS, SEE SHEET L11.2
3. TREE PLANTING DETAILS, SEE SHEET L12.2

L09.2 / L00.2 ENLARGED PROPOSED TREE PLANTING PLAN 3
1" = 20'

DESIGNED: SDR CADD JLS/DBS TECH. REVIEW: RVS DATE: FEB 2023	SUB SHEET NO. L09.2	TITLE OF SHEET TIDAL BASIN - WEST ENLARGED PROPOSED TREE PLANTING PLAN 3 NATIONAL MALL AND MEMORIAL PARKS	DRAWING NO. 802 / 177531 PMIS/PKG NO. 318722 SHEET 103 OF 226

PROPOSED TREE LIST - CULTIVATION AND LANDSCAPE CHARACTERISTICS

COMMON NAME	BOTANICAL NAME	NPS approved for use	Edible Part	Mature Height	Mature Width	Native to US	Native to Mid-Atlantic	Drought Tolerant	Pest Tolerant	Heat Tolerant	Tolerant of De-icers	Shade Tolerant	Soil	Wet Soil	Deer Resistant	Source
CANOPY TREES:																
Red Maple	*Acer rubrum*	X	Sap	70'	50'	Yes	Yes	Good	Fair	Good	Poor	Fair	Adaptable	VG	Yes	https://plants.ces.ncsu.edu/plants/acer-rubrum/
Yellow Buckeye	*Aesculus flava*	X	None	75'	40'	Yes	Yes	Poor	Fair	Poor	Poor	VG	Well-drained	VG	Yes	https://plants.usda.gov/home/plantProfile?symbol=AEFL
River Birch	*Betula nigra*	X	Sap	40'	40'	Yes	Yes	Fair	Fair	Fair	Fair	VG	Adaptable	Excellent	Yes	https://plants.ces.ncsu.edu/plants/betula-nigra/
Pignut Hickory	*Carya glabra*	X	Nuts	70'	35'	Yes	Yes	VG	Good	VG	Good	Fair	Adaptable	Fair	Yes	https://www.srs.fs.usda.gov/pubs/misc/ag_654/volume_2/carya/glabra.htm
Dunstan Chestnut (American/Chinese cross)	*Castanea dentata x mollisima*	X	Nut	60'	20'	No	No	VG	Good	Excellent	Fair	Fair	Adaptable	Poor	No	http://www.ediblelandscaping.com/index.php
Hackberry	*Celtis occidentalis*	X	Berries	50'	40'	Yes	Yes	Fair	Fair	Fair	Good	Excellent	Adaptable	VG	Yes	https://plants.ces.ncsu.edu/plants/celtis-occidentalis/
Yellowwood	*Cladrastis kentukea*	X	None	40'	50'	Yes	Yes	Good	Good	Good	Good	Good	Adaptable	Good	Yes	https://plants.ces.ncsu.edu/plants/cornus-florida/
American Beech	*Fagus grandifolia*	X	Nuts	65'	60'	Yes	Yes	Fair	VG	Fair	Poor	Excellent	Adaptable	Poor	Yes	https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/faggraa.pdf
Kentucky Coffeetree	*Gymnocladus dioicus*	X	None	70'	45'	Yes	Yes	VG	VG	VG	Good	Fair	Adaptable	Good	Yes	https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/gymdioa.pdf
Roundleaf Sweetgum	*Liquidambar styraciflua 'Rotundiloba*	X	None	75'	40'	Yes	Yes	Good	Fair	Good	Good	Good	Adaptable	Fair	Yes	https://plants.ces.ncsu.edu/plants/liquidambar-styraciflua-rotundiloba/
Black Gum	*Nyssa sylvatica*	X	None	40'	25'	Yes	Yes	Fair	VG	Good	Fair	Fair	Adaptable	Excellent	Yes	https://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=a670
Sycamore	*Platanus occidentalis*	X	None	80'	80'	Yes	Yes	Poor	Poor	Poor	Fair	Fair	Moist	Excellent	Yes	https://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=285137&isprofile=1&basic=Platanus%20occidentalis
Black Cherry *	*Prunus serotina*	X	Fruit	60'	40'	Yes	Yes	Poor	Poor	Fair	Fair	Good	Well-drained	Fair	Yes	https://plants.ces.ncsu.edu/plants/prunus-serotina/
White Oak	*Quercus alba*	X	Acorns	90'	90'	Yes	Yes	Good	Good	Good	Poor	Fair	Adaptable	Good	Yes	https://pfaf.org/user/Plant.aspx?LatinName=Quercus+alba#:~:text=The%20plant%20is%20heat%20tolerant,start%20suffering%20from%20the%20h
Water Oak	*Quercus nigra*	X	Acorns	90'	70'	Yes	Yes	Good	Poor	Good	Fair	Poor	Adaptable	VG	Yes	https://en.wikipedia.org/wiki/Quercus_nigra
Willow Oak	*Quercus phellos*	X	Acorns	80'	70'	Yes	Yes	Fair	Good	Good	Good	Poor	Adaptable	Good	Yes	https://plants.ces.ncsu.edu/plants/quercus-phellos/
Chestnut Oak	*Quercus montana*	X	Acorns	65'	65'	Yes	Yes	VG	Fair	VG	Good	Poor	Adaptable	Fair	Yes	https://edis.ifas.ufl.edu/publication/ST557
Shumard Red Oak	*Quercus shumardii*	X	Acorns	110'	60'	Yes	Yes	VG	Fair	VG	Good	Poor	Adaptable	Fair	Yes	https://en.wikipedia.org/wiki/Quercus_shumardii
Willow	*Salix nigra*	X	None	50'	40'	Yes	Yes	Poor	Good	Good	Poor	Fair	Adaptable	Excellent	No	https://en.wikipedia.org/wiki/Salix_nigra#:~:text=Salix%20nigra%2C%20the%20black%20willow,to%20northern%20Florida%20and%20Texas.
Bald Cypress 'Nana'	*Taxodium distichum x Nana*	X	None	120'	70'	Yes	Yes	VG	Good	VG	Fair	Fair	Adaptable	Excellent	Yes	https://en.wikipedia.org/wiki/Taxodium_distichum
American Basswood	*Tilia americana*	X	Foliage, flowers	80'		Yes	Yes	Good	Good	Good	Poor	Good	Adaptable	Good	No	https://pfaf.org/user/Plant.aspx?LatinName=Tilia+americana#:~:text=The%20plant%20is%20heat%20tolerant,start%20suffering%20from%20the%20
American Elm *	*Ulmus americana*	X	None	70'	50'	Yes	Yes	Good	Good	Good	Good	Fair	Adaptable	Good	Yes	https://plants.ces.ncsu.edu/plants/ulmus-americana/
UNDERSTORY TREES:																
Downy Serviceberry	*Amelanchier arborea (or laevis)*	X	Fruit	25'	15'	Yes	Yes	Fair	Good	Good	Fair	Excellent	Adaptable	Fair	Yes	https://plants.ces.ncsu.edu/plants/amelanchier-arborea/
Serviceberry	*Amelanchier spp.*	X	Berry	20'	12'	Yes	Yes	Good	VG	VG	Fair	Good	Adaptable	Poor	Yes	http://www.ediblelandscaping.com/index.php
Pawpaw	*Asimina triloba*	X	Fruit	15'	15'	Yes	Yes	VG	Excellent	VG	Poor	Good	Adaptable	Good	Yes	http://www.ediblelandscaping.com/index.php
Contorted Filbert (Hazelnut)	*Corylus avellana*	X	Nut	12'	8'	Yes	Yes	Good	Excellent	VG	Poor	Good	Adaptable	Poor	Yes	http://www.ediblelandscaping.com/index.php
Eastern Redbud	*Cercis canadensis*	X	None	30'	35'	Yes	Yes	Poor	Fair	Poor	Good	Fair	Adaptable	Poor	No	https://plants.ces.ncsu.edu/plants/cercis-canadensis/
Flowering Dogwood	*Cornus florida*	X	None	25'	25'	Yes	Yes	No	Poor	Poor	Poor	Fair	Well-drained	Poor	No	https://plants.ces.ncsu.edu/plants/cornus-florida/
Thornless Cockspur Hawthorn	*Crataegus crus-galli var. inermis*	X	Berries	30'	35'	Yes	Yes	VG	Poor	Fair	Fair	Fair	Adaptable	Fair	Yes	https://plants.ces.ncsu.edu/plants/crataegus-crus-galli-var-inermis/
Winter King Green Hawthorn	*Crataegus viridis 'Winter King'*	X	Berries	30'	30'	Yes	Yes	Good	Fair	Good	Good	Fair	Adaptable	Fair	Yes	http://woodyplants.cals.cornell.edu/plant/78
Native Persimmon	*Diospyros virginiana*	X	Fruit	35'	20'	Yes	Yes	VG	VG	Good	Good	Fair	Adaptable	Good	Yes	http://www.treetrail.net/
Sweetbay Magnolia	*Magnolia virginiana*	X	None	40'	35'	Yes	Yes	Fair	Fair	VG	Fair	Excellent	Adaptable	Excellent	Yes	https://en.wikipedia.org/wiki/Magnolia_virginiana
Flowering cherry *	*Prunus spp.*	X	None	30'	35'	No	No	Fair	Fair	Fair	Fair	Good	Well-drained	Poor	No	https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/pruserb.pdf, https://www.gardenia.net/plant-variety/prunus-serrulata-japanese-flowering-cherry
EVERGREEN TREES:																
Atlantic White Cedar	*Chamaecyparis thoides*	X	Bark	50'	15'	Yes	Yes	Poor	VG	Good	Good	Poor	Moist	Excellent	No	https://plants.ces.ncsu.edu/plants/chamaecyparis-thyoides/
American Holly	*Ilex opaca*	X	None	100'	65'	Yes	Yes	VG	Good	Good	Fair	Excellent	Adaptable	Poor	Yes	https://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=k640
Eastern Red Cedar	*Juniperus virginiana*	X	Leaf	35'	20'	Yes	Yes	VG	Good	Fair	VG	Fair	Adaptable	Fair	Yes	https://plants.ces.ncsu.edu/plants/juniperus-virginiana/
Southern Magnolia	*Magnolia grandiflora*	X	None	90'	60'	Yes	No	Good	VG	VG	Poor	Excellent	Adaptable	Poor	No	https://en.wikipedia.org/wiki/Magnolia_%C3%97_soulangeana
* Refer to Cherry, Elm, and Chestnut sheet for cultivars																

ADDITIONAL RECOMMENDED TREE CULTIVARS

COMMON NAME	BOTANICAL NAME		
CHERRIES			
Available cultivars		Suppliers	Notes
Kwanzan Japanese Flowering	*Prunus serrulata 'Kwanzan'*	66 suppliers	
Shirofugen (or Fugenzo) Japanese Flowering Cherry	*Prunus serrulata 'Shirofugen'*	1 supplier	
Snow Goose Higan Cherry	*Prunus subhirtella 'Snow Goose'*	21 suppliers	
Okame Taiwan Cherry	*Prunus x incam 'Okame'*	49 suppliers	
Higan Cherry	*Prunus x subhirtella*	6 suppliers	
Yoshino Cherry	*Prunus yedoensis*	54 suppliers	Use sparingly
Akebono Yoshino Cherry	*Prunus yedoensis 'Akebono'*	21 suppliers	Use sparingly
Shidare Yoshino Cherry	*Prunus yedoensis 'Shidare'*	6 suppliers	Use sparingly
Invasive Cherries - DO NOT PLANT			
Sweet Cherry	*Prunus avium*		
Sour Cherry	*Prunus cerasus*		
Mahaleb Cherry	*Prunus mahaleb*		
Nanking Cherry	*Prunus tomentosa Thunberg*		
ELMS			
Available cultivars			
Triumph Elm	*Ulmus carpinifolia 'Morton Glossy'*	56 suppliers	7000+ available
Jefferson American Elm	*Ulmus americana 'Jefferson'*	30 suppliers	4000+ available
Valley Forge American Elm	*Ulmus americana 'Valley Forge'*	34 suppliers	3000+ available
Patriot Elm	*Ulmus wilsoniana 'Patriot'*	23 suppliers	1300+ available
New Harmony American Elm	*Ulmus americana 'New Harmony'*	15 suppliers	1900+ available
Prairie Expedition American Elm	*Ulmus americana 'Lewis & Clark'*	9 suppliers	500+ available
Invasive Elms - DO NOT PLANT			
Siberian Elm	*Ulmus pumila*		
Chestnuts			
Available cultivars - resistant to Chestnut Blight			
Dunstan Chestnut	*Castanea dentata x mollissima*	1 supplier	180+ available
American Chestnut	*Castanea dentata*	1 supplier	limited supply
Chinese Chestnut	*Castanea mollissima*	1 supplier	limited supply
No invasive Chestnuts found			

NOTES:

1. Suppliers and availability based on Landscape Hub and Plant Ant; research Fall 2022.
2. Information provided to convey general availability only; contractor to confirm availability.
3. Invasive information based on Maryland Biodiversity Project and MD Invasive Species Council

DESIGNED: SDR CADD JLS/DBS TECH. REVIEW: RVS DATE: FEB 2023	SUB SHEET NO. L10.2	TITLE OF SHEET TIDAL BASIN - WEST PROPOSED PLANT LIST NATIONAL MALL AND MEMORIAL PARKS	DRAWING NO. 802 / 177531 PMIS/PKG NO. 318722 SHEET 104 OF 226

PRELIMINARY TREE REPLACEMENT REQUIREMENTS

FIELD SURVEY REQUIRED BY LICENSED ARBORIST FOR ACCURATE SIZE, CONDITION, TREE SCORE AND REPLACEMENT REQUIREMENT

EXISTING TREE DATA [6]						PRELIMINARY REPLACEMENT - NCPC GUIDELINES [5]											
								SPECIES RATING [3]						QUANTITY REMOVED		
TREE #	COMMON NAME	SCIENTIFIC NAME	DBH (IN.) 2014	CONDITION	PROJECTED ANNUAL GROWTH (IN.)	PROJECTED DBH (IN.) 2024 [1]	CONDITION RATING [2]	RANGE (%)	MID-POINT OF RANGE (%)	TREE SCORE	TREE REPLACEMENT <10" DBH	TREE REPLACEMENT >= 10" DBH	LOCATION	COMMENTS	CANOPY	CHERRY	EVERGREEN
5356	Flowering cherry spp.	Prunus	6.80	Poor	0.05	7.30		35-75	55				TBW			1	
5368	Flowering cherry spp.	Prunus	14.00	Fair	0.25	16.50	50%	35-75	55	4.5		1	TBW			1	
5372	Serviceberry spp.	Amalanchier	0.00	Fair		0.00		0%	0%				TBW	No size, no condition rating, assumed to be Fair	1		
5385	Serviceberry spp.	Amalanchier	0.00	Fair		0.00		0%	0%				TBW		1		
5394	American holly	Ilex opaca	19.10	Fair	0.25	21.60	50%	60-85	72.5	7.8		2	TBW	No size, no condition rating, assumed to be Fair			1
5399	Flowering cherry spp.	Prunus	8.90	Good	0.25	11.40	75%	35-75	55	4.7		1	TBW			1	
5402	Flowering cherry spp.	Prunus	12.20	Good	0.25	14.70	75%	35-75	55	6.1		2	TBW			1	
5405	Flowering cherry spp.	Prunus	3.00	Good	0.25	5.50		35-75	55		1		TBW			1	
5411	Flowering cherry spp.	Prunus	9.00	Good	0.25	11.50	75%	35-75	55	4.7		1	TBW			1	
5439	American holly	Ilex opaca	16.90	Fair	0.21	19.00	50%	60-85	72.5	6.9		2	TBW				1
5519	Flowering cherry spp.	Prunus	14.00	Good	0.25	16.50	75%	35-75	55	6.8		2	TBW			1	
5433	American holly	Ilex opaca	16.90	Fair	0.25	19.40	50%	60-85	72.5	7.0		2	TBW				1
5467	American holly	Ilex opaca	12.70	Poor	0.25	15.20	25%	60-85	72.5	2.8		1	TBW				1
5487	Hickory spp.	Carya	52.00	Good	0.42	56.20	75%	65-85	75	31.6		6	TBW		1		
5529	American holly	Ilex opaca	14.80	Fair	0.25	17.30	50%	60-85	72.5	6.3		2	TBW				1
5543	Flowering cherry spp.	Prunus	21.00	Fair	0.25	23.50	50%	35-75	55	6.5		2	TBW			1	
5546	Flowering cherry spp.	Prunus	6.80	Fair	0.25	9.30		35-75	55		1		TBW			1	
5548	Flowering cherry spp.	Prunus	18.60	Poor	0.25	21.10	25%	35-75	55	2.9		1	TBW			1	
5554	Flowering cherry spp.	Prunus	12.50	Good	0.25	15.00	75%	35-75	55	6.2		2	TBW			1	
5557	Flowering cherry spp.	Prunus	11.70	Good	0.25	14.20	75%	35-75	55	5.9		2	TBW			1	
5561	Flowering cherry spp.	Prunus	3.00	Good	0.25	5.50		35-75	55		1		TBW			1	
5564	Flowering cherry spp.	Prunus	4.00	Good	0.25	6.50		35-75	55		1		TBW			1	
5568	Flowering cherry spp.	Prunus	3.70	Fair	0.25	6.20		35-75	55		1		TBW			1	
5571	Flowering cherry spp.	Prunus	3.50	Good	0.25	6.00		35-75	55		1		TBW			1	
6789	Flowering cherry spp.	Prunus	5.50	Good	0.25	8.00		35-75	55		1		TBW			1	
6803	Flowering cherry spp.	Prunus	3.70	Fair	0.25	6.20		35-75	55		1		TBW			1	
7555	American holly	Ilex opaca	9.10	Poor	0.25	11.60	25%	60-85	72.5	2.1		1	TBW				1
7559	American holly	Ilex opaca	9.20	Fair	0.25	11.70	50%	60-85	72.5	4.2		1	TBW				1
7561	American holly	Ilex opaca	8.60	Fair	0.21	10.70	50%	60-85	72.5	3.9		1	TBW				1
7563	American holly	Ilex opaca	3.70	Fair	0.21	5.80		60-85	72.5		1		TBW				1
7564	Unknown	Unknown	7.60	Fair	0.21	9.70		30-60	45		1		TBW	No species, assumed to be 30-60%	1		
7565	American holly	Ilex opaca	7.70	Fair	0.21	9.80		60-85	72.5		1		TBW				1
7566	American holly	Ilex opaca	8.40	Fair	0.21	10.50	50%	60-85	72.5	3.8		1	TBW				1
7567	Flowering cherry spp.	Prunus	9.00	Fair	0.25	11.50	50%	35-75	55	3.2		1	TBW			1	
7568	Flowering cherry spp.	Prunus	9.80	Fair	0.25	12.30	50%	35-75	55	3.4		1	TBW			1	
7569	Flowering cherry spp.	Prunus	8.70	Fair	0.25	11.20	50%	35-75	55	3.1		1	TBW			1	
7570	Flowering cherry spp.	Prunus	7.20	Good	0.05	7.70		35-75	55		1		TBW			1	
7571	Flowering cherry spp.	Prunus	10.00	Fair	0.05	10.50	50%	35-75	55	2.9		1	TBW			1	
7572	Flowering cherry spp.	Prunus	7.00	Fair	0.05	7.50		35-75	55		1		TBW			1	
7573	Flowering cherry spp.	Prunus	10.60	Fair	0.25	13.10	50%	35-75	55	3.6		1	TBW			1	
7574	Unknown	Unknown	5.70	Fair	0.21	7.80		30-60	45		1		TBW	No species, assumed to be 30-60%	1		
7575	Flowering cherry spp.	Prunus	15.50	Poor	0.25	18.00	25%	35-75	55	2.5		1	TBW			1	
7576	Flowering cherry spp.	Prunus	9.20	Poor	0.25	11.70	25%	35-75	55	1.6		1	TBW			1	
7583	Flowering cherry spp.	Prunus	6.80	Fair	0.25	9.30		35-75	55		1		TBW			1	
7584	Flowering cherry spp.	Prunus	10.80	Good	0.25	13.30	75%	35-75	55	5.5		2	TBW			1	
7585	Flowering cherry spp.	Prunus	8.60	Fair	0.25	11.10	50%	35-75	55	3.1		1	TBW			1	
7586	Flowering cherry spp.	Prunus	10.60	Fair	0.25	13.10	50%	35-75	55	3.6		1	TBW			1	
7590	Flowering cherry spp.	Prunus	10.30	Poor	0.25	12.80	25%	35-75	55	1.8		1	TBW			1	
7591	Flowering cherry spp.	Prunus	19.00	Poor	0.25	21.50	25%	35-75	55	3.0		1	TBW			1	
7592	Flowering cherry spp.	Prunus	22.40	Fair	0.25	24.90	50%	35-75	55	6.8		2	TBW			1	
7597	Flowering cherry spp.	Prunus	12.00	Fair	0.25	14.50	50%	35-75	55	4.0		1	TBW			1	
7598	Flowering cherry spp.	Prunus	24.00	Poor	0.25	26.50	25%	35-75	55	3.6		1	TBW			1	
7913	Flowering cherry spp.	Prunus	17.40	Poor	0.25	19.90	25%	35-75	55	2.7		1	TBW			1	
7914	Flowering cherry spp.	Prunus	10.80	Fair	0.25	13.30	50%	35-75	55	3.7		1	TBW			1	
7919	Flowering cherry spp.	Prunus	20.60	Fair	0.25	23.10	50%	35-75	55	6.4		2	TBW			1	
7920	Flowering cherry spp.	Prunus	18.20	Fair	0.25	20.70	50%	35-75	55	5.7		2	TBW			1	
7923	Flowering cherry spp.	Prunus	4.80	Good	0.05	5.30		35-75	55				TBW			1	
7924	Flowering cherry spp.	Prunus	11.90	Fair	0.25	14.40	50%	35-75	55	4.0		1	TBW			1	
7925	Flowering cherry spp.	Prunus	2.40	Good	0.25	4.90		35-75	55		1		TBW			1	
7926	American elm	Ulmus americana	32.90	Fair	0.97	42.60	50%	35-80	57.5	12.2		3	TBW		1		
7927	Flowering cherry spp.	Prunus	3.90	Fair	0.05	4.40		35-75	55				TBW			1	
7930	Flowering cherry spp.	Prunus	7.20	Fair	0.25	9.70		35-75	55		1		TBW			1	
7931	Flowering cherry spp.	Prunus	8.20	Fair	0.25	10.70	50%	35-75	55	2.9		1	TBW			1	
7932	Flowering cherry spp.	Prunus	8.70	Fair	0.25	11.20	50%	35-75	55	3.1		1	TBW			1	
7933	Flowering cherry spp.	Prunus	7.00	Fair	0.25	9.50		35-75	55		1		TBW			1	
7934	Flowering cherry spp.	Prunus	21.40	Fair	0.25	23.90	50%	35-75	55	6.6		2	TBW			1	
7935	Flowering cherry spp.	Prunus	16.30	Fair	0.25	18.80	50%	35-75	55	5.2		2	TBW			1	
7940	American holly	Ilex opaca	19.80	Good	0.25	22.30	75%	60-85	72.5	12.1		3	TBW				1
7941	Flowering cherry spp.	Prunus	11.40	Poor	0.25	13.90	25%	35-75	55	1.9		1	TBW			1	
7942	Flowering cherry spp.	Prunus	13.60	Poor	0.25	16.10	25%	35-75	55	2.2		1	TBW			1	
							TIDAL BASIN WEST		TOTAL		18	71			6	52	12
									GRAND TOTAL		89					70	

[1] Projected growth rate

Projected DBH calculation method extrapolated from data collected by Biohabitats, Inc. in another location at a National Park Service property in Washington, DC

Growth Escalation Guideline*

Genus	Species	Common name**	Average DBH Growth per Year (inches)	Min DBH Growth per Year (inches)***	Max DBH Growth per Year (inches)	Number of Trees in Sample
Ulmus	*americanus*	American Elm	0.97	0.88	1.06	2
Magnolia	*x soulangiana*	Magnolia-Saucer	0.05	0	0.25	12
Tilia	*sp.*	Lindens (3 species)	0.21	0.03	0.69	79
Acer	*saccharum*	Sugar Maple	0.26	0	0.44	14
Acer	*sp.*	Maples (7 species)	0.31	0	0.94	75
Quercus	*sp.*	Oaks (10 species)	0.42	0	1.63	112

*Summary of the tree growth at a NPS Property in Washington DC from 2014-2022. Provided by Biohabitats, Inc. October 14, 2022.

**Analyzed 4 tree species also present at WPP and/or Tidal Basin (American elm, magnolia-saucer, sugar maple, and lindens). Also analyzed dominant tree species (maples and oak species) at this NPS property in Washington DC to provide context considering all 3 locations experience similar tree stressors. Tree conditions at this location were generally split - half good and half fair/poor.

***Included living trees with no change (0 inches) in DBH from 2014-2022.

Based on this data, the following assumed growth rates were used.

COMMON NAME	AVERAGE DBH PER YEAR (IN.)	COMMENTS
Maple	0.25	medium growth rate
Hawthorn	0.25	medium growth rate
Holly	0.25	medium growth rate
Walnut	0.25	medium growth rate
Magnolia	0.25	medium growth rate
Crabapple	0.25	medium growth rate
Pine	0.40	fast growth rate
Cherry	0.25	medium growth rate
Oak	0.25	medium growth rate
Willow	0.40	fast growth rate
Linden	0.30	medium growth rate
Elm	0.40	fast growth rate
Unknown	0.25	assumed medium growth

[2] Condition Rating assummptions simplified to : Poor = 25%, Fair = 50%, Good = 75%)

[3] Species Rating assummptions: mid-point of Species Rating range

[4] DBH refers to the tree trunk Diameter at Breast Height (4.5' height)

[5] NCPC Guidelines:

Trees less than 10-inches DBH: Replace at 1:1

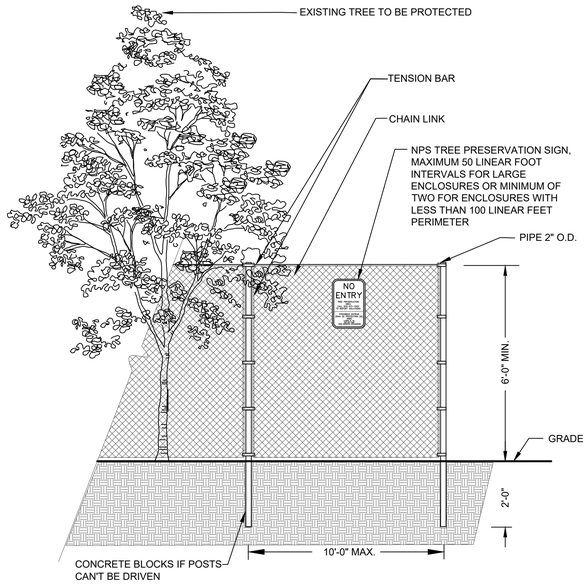
Trees 10-inches DBH and greater: Replace based on the Tree Score (DBH x Species Rating (as percentage) x Condition Rating (as percentage)

Tree Score: 1 - 4.9 = 1 tree
Tree Score: 5 -9.9 = 2 trees
Tree Score: 10 - 14.9 = 3 trees
Tree Score: 15 - 19.9 = 4 trees
Tree Score: 20 - 24.5.9 = 5 trees
Tree Score: 25 + = 6 trees

Species Rating: value from 1 to 100, per Mid-Atlantic Tree Species Rating Guide
Condition Rating: value from 0 to 100, per 9th Edition of the Council of Tree and Landscape Appraisers

[6] Existing Tree Data Source: NPS NAMA GIS, assumed to be from 2014

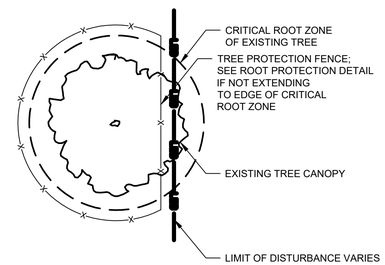
DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.	
CADD JLS/DBS	L11.2	TIDAL BASIN - WEST TREE MITIGATION CALCULATIONS	802 / 177531	
TECH. REVIEW: RVS			PMIS/PKG NO. 318722	
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 105 OF 226	



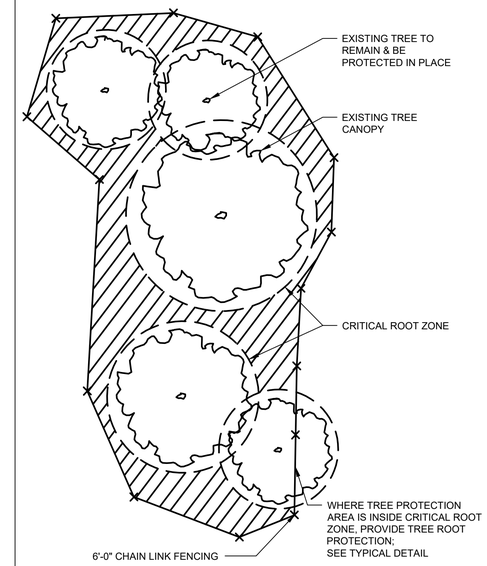
NOTES:
1. BOUNDARIES OF TREE PROTECTION AREA SHALL BE STAKED, FLAGGED, AND/OR FENCED PRIOR TO INSTALLATION OF TREE PROTECTION FENCE.
2. TREE PROTECTION FENCE SHALL BE INSTALLED AS PER THE TREE PROTECTION PLAN AND INSPECTED BY NPS ARBORIST PRIOR TO ANY WORK DONE ONSITE, INCLUDING DEMOLITION.
3. ALL EXISTING TREES, TO REMAIN WITHIN A WORK ZONE UNTIL A PROJECT IS COMPLETED, REQUIRE THE FOLLOWING TREE PROTECTION FENCING. IF FOR ANY REASON THE SCOPE OF THE PROJECT REQUIRES WORK TO BE PERFORMED WITHIN THE TREE PROTECTION FENCE, THE CONTRACTOR MUST CONTACT THE CONTRACTING OFFICER AND NPS ARBORIST BEFORE ENTERING.
   - 3.a. INSTALL FENCING PRIOR TO AND MAINTAIN THROUGHOUT CONSTRUCTION, REMOVING ONLY AT END OF THE PROJECT.
   - 3.b. FENCING SHALL ENCLOSE MULTIPLE TREES WHEN IN A CONTIGUOUS, OPEN AREA AND SITE ACCESS ALLOWS. OTHERWISE, INDIVIDUAL TREES SHALL BE FENCED.
   - 3.c. FENCING SHALL HAVE VERTICAL AND HORIZONTAL SUPPORT RAILINGS TO DECREASE FLEXIBILITY AND PREVENT SAGGING.
   - 3.d. FENCE POSTS SHALL BE ANCHORED IN THE GROUND TO PREVENT MOVEMENT AND PROVIDE A SECURE BARRIER. CONCRETE BLOCKS OR METAL SUPPORT STANDS CAN BE USED AS NEEDED WHERE CONDITIONS PREVENT DRIVING POSTS.
   - 3.e. NPS TREE PROTECTION AREA SIGNS SHALL BE MOUNTED ON THE TREE PROTECTION FENCE ON A MAXIMUM OF 50 LINEAR FOOT INTERVALS FOR LARGE ENCLOSURES OR AT A MINIMUM OF TWO NPS TREE PROTECTION AREA SIGNS FOR EACH ENCLOSED TREE PROTECTION AREA WITH LESS THAN 100 LINEAR FEET PERIMETER.
4. AVOID USING MACHINERY NEAR THE TREE PROTECTION AREA AND CRITICAL ROOT ZONE AS MUCH AS POSSIBLE. WHERE WORK IS TO OCCUR WITHIN THE CRITICAL ROOT ZONE, INSTALL TEMPORARY TREE ROOT PROTECTION (SEE TYPICAL DETAIL).
5. REQUIREMENTS WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE:
   - 5.a. THE CONTRACTOR SHALL NOT ENGAGE IN ANY CONSTRUCTION ACTIVITY, NOT SHOWN ON THE CONSTRUCTION DRAWINGS, THAT IS WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE WITHOUT THE APPROVAL OF THE CONTRACTING OFFICER AND NPS ARBORIST. IF THE CONTRACTOR HAS TO TEMPORARILY WORK WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE OF A TREE, THE TREE PROTECTION FENCING SHALL BE RESET TO PROTECT THE AREA OF THE TREE ROOT ZONE NOT AFFECTED BY EQUIPMENT/WORK AND TEMPORARY OR PERMANENT TREE ROOT PROTECTION SHALL BE INSTALLED. TREE PROTECTION FENCE WILL NEED TO BE MOVED BACK IMMEDIATELY AFTER WORK INSIDE THE CRITICAL ROOT ZONE HAS BEEN COMPLETED.
   - 5.b. WITH APPROVAL OF THE CONTRACTING OFFICER AND NPS ARBORIST, TEMPORARY AND/OR PERMANENT TREE ROOT PROTECTION SHALL BE INSTALLED FOR ANY WORK WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE.
   - 5.c. NO STORAGE OF CONSTRUCTION MATERIALS, EQUIPMENT, SOIL OR DEBRIS WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE.
   - 5.d. NO DISPOSAL OF ANY LIQUIDS (E.G., CONCRETE SLEUTH, GAS, OIL, PAINT AND BLACKTOP) WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE.
   - 5.e. NO TRENCHING WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE. IF REQUIRED, WORK SHALL BE PERFORMED PER ROOT PRUNING SPECIFICATION AND DETAIL.
   - 5.f. NO SOIL IS TO BE IN CONTACT WITH THE TREE TRUNK ABOVE THE BASAL FLAIR AT ANY TIME.
   - 5.g. USE FILTER LOG INSTEAD OF SILT FENCE WITHIN TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE OF ANY TREE THAT WILL REMAIN. IF SEDIMENT AND EROSION CONTROL MEASURES CONFLICT, THEN SEDIMENT AND EROSION CONTROL MEASURES TAKE PRECEDENCE. CONTACT THE CONTRACTING OFFICER AND NPS SEDIMENT AND EROSION CONTROL INSPECTOR.
6. ANY PENALTIES RELATED TO DAMAGE TO TREE(S) WITHIN THE TREE PROTECTION AREA SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
7. ADAPTED FROM DDOT URBAN FORESTRY TREE PROTECTION FENCE DETAIL EXAMPLE.

1 TREE PROTECTION FENCE ELEVATION

NOT TO SCALE



TYPICAL INDIVIDUAL TREE PROTECTION FENCE

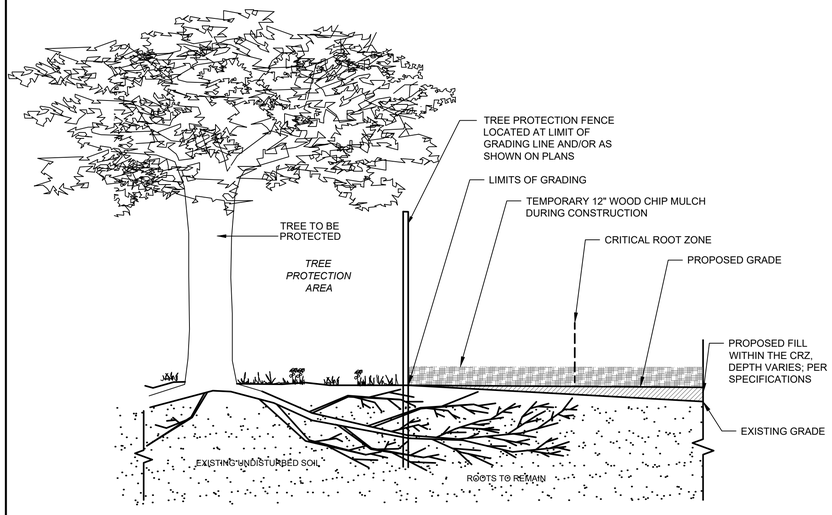


TYPICAL OPEN AREA TREE PROTECTION

NOTES:
1. SEE TREE PROTECTION FENCE-ELEVATION, FOR TREE PROTECTION NOTES.
2. CRITICAL ROOT ZONE (CRZ): SHALL BE DEFINED AS THE AREA ONE AND ONE HALF LINEAR FEET AWAY FROM THE TRUNK OF BASE, FOR EVERY INCH DIAMETER: (DBH) OF THE TRUNK.
3. TREE PROTECTION FENCE TO BE PLACED OUTSIDE THE CRZ AND NO MORE THAN 1 FOOT FROM THE LIMITS OF DISTURBANCE.
4. FENCING SHALL NOT BE PLACED CLOSER TO THE TREE THAN 1/2 THE TOTAL DISTANCE FROM THE TREE TO THE DRIP LINE.

2 TREE PROTECTION FENCE PLAN VIEW

NOT TO SCALE

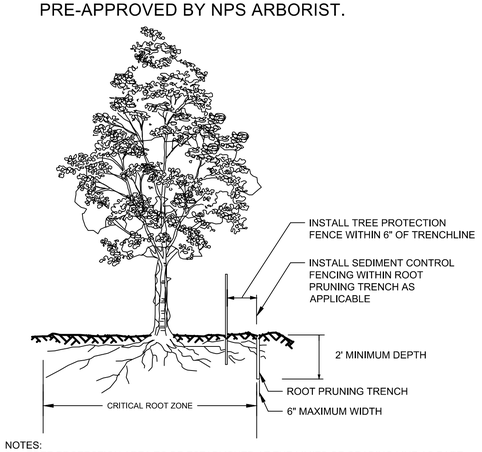


NOTES:
1. TEMPORARY AND PERMANENT TREE ROOT PROTECTION SHALL BE INSTALLED AS PER THE TREE REMOVAL AND TREE PROTECTION PLANS AND SPECIFICATIONS AND INSPECTED BY NPS ARBORIST PRIOR TO ANY WORK DONE ONSITE, INCLUDING CLEARING, GRUBBING AND DEMOLITION.
2. APPLIES TO CRITICAL ROOT ZONE (CRZ) AREA WITHIN THE LIMITS OF DISTURBANCE (LOD).
3. PROTECT ALL AREAS FROM COMPACTION OF THE SOIL; DAMAGE OF ANY KIND TO TRUNKS, BARK, BRANCHES, LEAVES AND ROOTS;
4. TEMPORARY ROOT PROTECTION:
   - 4.a. AREAS WHERE FOOT TRAFFIC OR STORAGE OF LIGHTWEIGHT MATERIALS IS ANTICIPATED TO BE UNAVOIDABLE, PROVIDE A LAYER OF FILTER FABRIC UNDER THE 12 INCHES OF WOOD CHIPS.
   - 4.b. AREAS WHERE OCCASIONAL LIGHT VEHICLE TRAFFIC IS ANTICIPATED TO BE UNAVOIDABLE PROVIDE A LAYER OF GEOGRIDS UNDER 8 INCHES OF WOOD CHIPS.
   - 4.c. AREAS WHERE HEAVY VEHICLE TRAFFIC IS UNAVOIDABLE PROVIDE A LAYER OF GEOGRIDS UNDER 8-12 INCHES OF WOOD CHIPS AND A LAYER OF MATTING OVER THE WOOD CHIPS.
   - 4.d. REPLENISH WOOD CHIP MULCH, AS NEEDED, TO MAINTAIN THICKNESS.
5. PERMANENT ROOT PROTECTION:
   - 5.a. REMOVE ANY TEMPORARY ROOT PROTECTION MEASURES AND/OR EXISTING SOD OR ORGANIC MATERIAL WITHIN THE DRIP LINE OF TREES TO A MAXIMUM DEPTH OF 6 INCHES BELOW EXISTING GRADE AS NEEDED.
   - 5.b. FOR FILL DEPTHS GREATER THAN 12 INCHES, APPLY 3 TO 6 INCHES OF MEDIUM GRAVEL, PLACE A LAYER OF FILTER FABRIC ON TOP OF THE GRAVEL LAYER AND SECURE, PROCEED WITH PLACEMENT OF LOAMY SAND TOPSOIL TO FINAL GRADE AS SPECIFIED IN THE PROJECT DRAWINGS.
   - 5.c. FOR FILL DEPTHS LESS THAN 12 INCHES PROCEED WITH PLACEMENT OF LOAMY SAND TOPSOIL TO FINAL GRADE AS SPECIFIED IN THE PROJECT DRAWINGS.
6. ADAPTED FROM DDOT URBAN FORESTRY TREE ROOT PROTECTION DETAIL EXAMPLES.

3 TREE ROOT PROTECTION TYPICAL

NOT TO SCALE

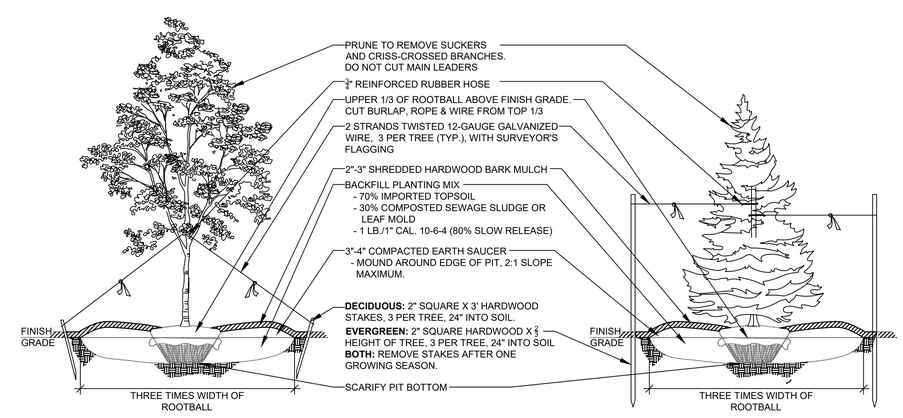
NOTE: ROOT PRUNING LIMITED ONLY TO AREAS PRE-APPROVED BY NPS ARBORIST.



NOTES:
1. TREE PROTECTION AREA TO BE ESTABLISHED AT THE LIMITS OF GRADING LINE AS PART OF THE TREE PROTECTION PLAN.
2. BOUNDARIES OF TREE PROTECTION AREA SHALL BE STAKED, FLAGGED, AND/OR FENCED PRIOR TO TRENCHING.
3. EXACT LOCATION, DEPTH, AND METHODS OF ROOT PRUNING TO BE DETERMINED IN THE FIELD WITH NPS ARBORIST.
4. NEVER MORE THAN 25% OF THE ROOTS WITHIN THE CRITICAL ROOT ZONE SHALL BE PRUNED UNLESS APPROVED BY NPS ARBORIST.
5. ROOT PRUNING SHALL BE PERFORMED BY SPECIALIZED ARBORICULTURAL MACHINERY AND/OR EQUIPMENT MADE FOR THAT PURPOSE.
6. ALL PRUNING CUTS SHALL BE MADE CLEANLY AND PERPENDICULAR TO ROOT FORM. ROOTS OVER 1.5" DIAMETER SHOULD BE CUT CLEANLY CUT BY HAND.
7. TRENCH SHALL BE BACKFILLED IMMEDIATELY OR INCORPORATED INTO SEDIMENT CONTROL FENCING INSTALLATION. TRENCH SHALL BE BACKFILLED WITH SOIL REMOVED OR AN APPROVED TOPSOIL.

4 ROOT PRUNING TYPICAL

NOT TO SCALE



5 DECIDUOUS TREE PLANTING

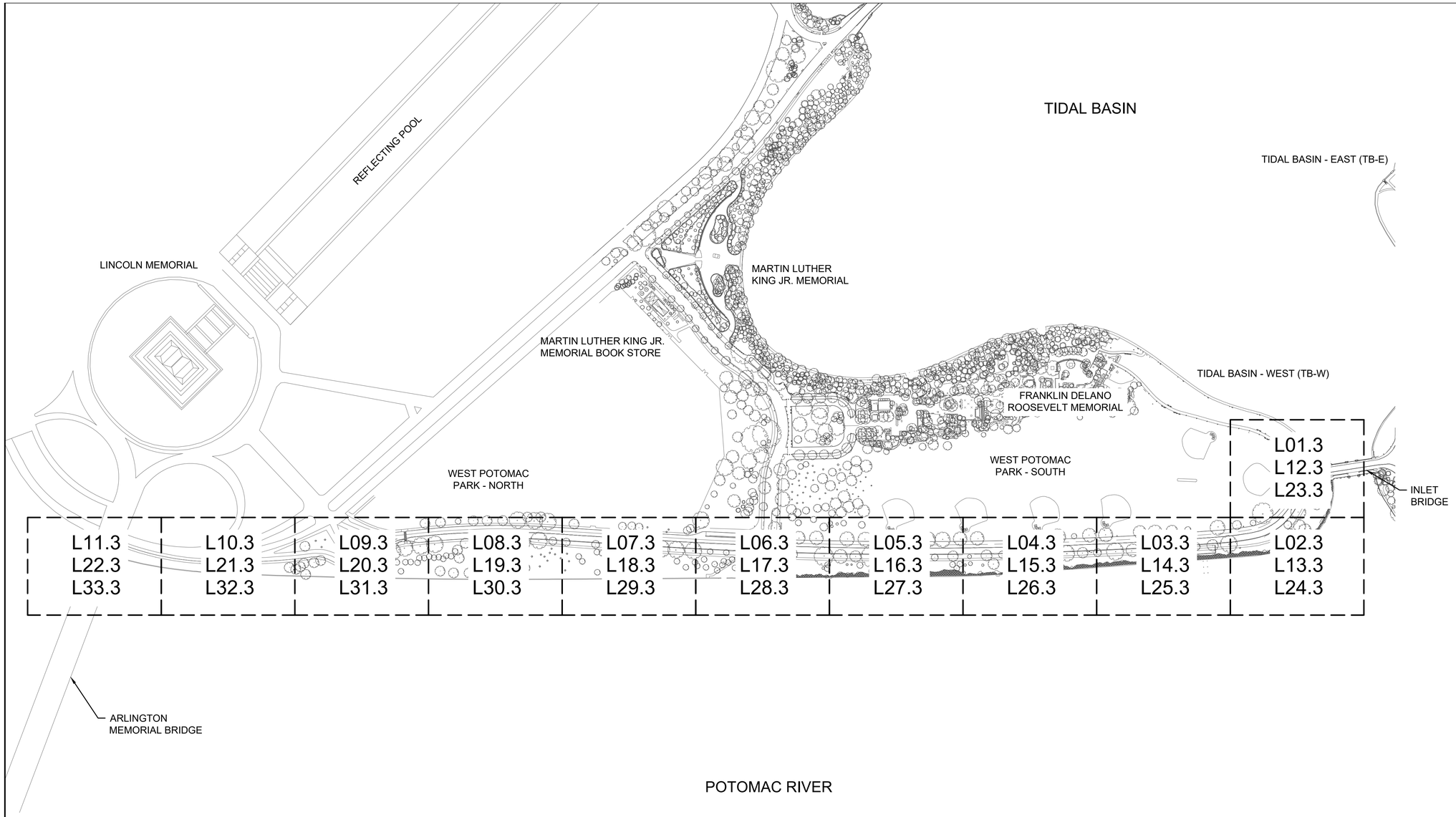
NOT TO SCALE

6 EVERGREEN TREE PLANTING

NOT TO SCALE

NOTE: SPREAD MULCH IN 6'-0" DIAM. CIRCLES AROUND TREES EXCEPT WHERE TREES ARE CLOSER THAN 15'-0". CREATE CONTINUOUS MULCH BEDS TO MINIMIZE MOWING AND MAINTENANCE.

NATIONAL PARK SERVICE	DESIGNED: CS/SR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
	CADD TB/SF	L12.2	TIDAL BASIN - WEST TREE PROTECTION & TREE PLANTING DETAILS	PMIS/PKG NO. 318722
	TECH. REVIEW: RVS			SHEET
	DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	106 OF 226



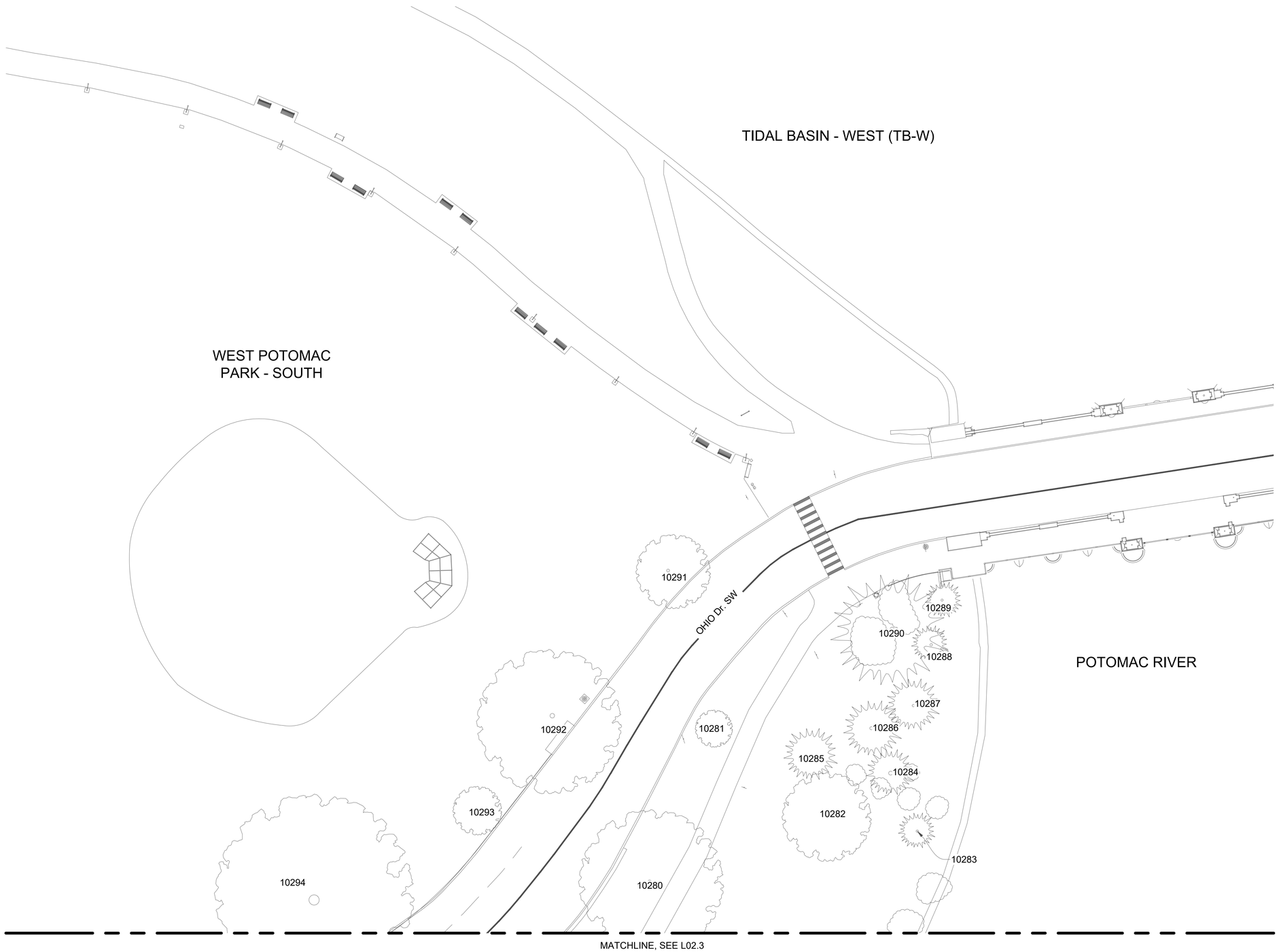
L01.3 TO L11.3 ENLARGED EXISTING VEGETATION PLAN
L12.3 TO L22.3 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN
L23.3 TO L33.3 ENLARGED PROPOSED TREE PLANTING PLAN

200 0 200 400
SCALE OF FEET

DESIGNED: SAM CADD OAS TECH. REVIEW: RVS DATE: FEB 2023	SUB SHEET NO. L00.3	TITLE OF SHEET WEST POTOMAC PARK OVERALL VEGETATION PLAN & KEY MAP NATIONAL MALL AND MEMORIAL PARKS	DRAWING NO. 802 177531 PMIS/PKG NO. 318722 SHEET 151 OF 226	

NOTE:

1. CONTRACTOR TO FIELD VERIFY TREE LOCATIONS WITH COMPLETE TREE SURVEY AND ASSESSMENT PER SPECIFICATION SECTION 01 56 36 TREE PROTECTION.



NPS GIS TREE INVENTORY 2014

TREE #	COMMON NAME	SCIENTIFIC NAME	DBH	CONDITION
10294	Black walnut	Juglans nigra	53.50	Fair
10293	American elm	Ulmus americana	7.00	Good
10292	American elm	Ulmus americana	22.50	Fair
10291	American elm	Ulmus americana	12.10	Fair
10290	Eastern white pine	Pinus strobus	23.00	Good
10289	American holly	Ilex opaca	7.20	Fair
10288	American holly	Ilex opaca	12.10	Good
10287	American holly	Ilex opaca	10.50	Fair
10286	American holly	Ilex opaca	14.70	Fair
10285	American holly	Ilex opaca	12.20	Good
10284	American holly	Ilex opaca	10.70	Good
10283	American holly	Ilex opaca	10.70	Good
10282	Common linden	Tilia x vulgaris	24.00	Fair
10281	American elm	Ulmus americana	8.50	Fair
10280	American elm	Ulmus americana	19.60	Fair

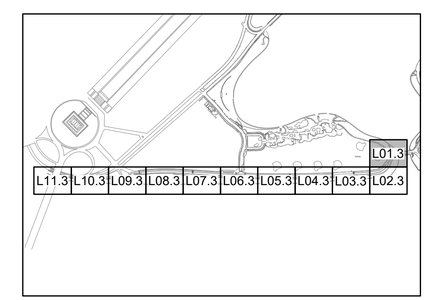
PLANT KEY

DECIDUOUS TREE

FLOWERING CHERRY TREE

EVERGREEN TREE

SHRUB



KEY MAP

20 0 20 40

SCALE OF FEET

L01.3 / L00.3 ENLARGED EXISTING VEGETATION PLAN 1

1" = 20'

DESIGNED: SAM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
DAPD OAS	L01.3	WEST POTOMAC PARK ENLARGED EXISTING VEGETATION PLAN 1	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	152 OF 226

NOTE:

1. CONTRACTOR TO FIELD VERIFY TREE LOCATIONS WITH COMPLETE TREE SURVEY AND ASSESSMENT PER SPECIFICATION SECTION 01 56 36 TREE PROTECTION.

NPS GIS TREE INVENTORY 2014

TREE #	COMMON NAME	SCIENTIFIC NAME	DBH	CONDITION
10296	American elm	Ulmus americana	15.00	Fair
10295	American elm	Ulmus americana	8.40	Fair
10279	Common linden	Tilia x vulgaris	25.60	Good
10278	Common linden	Tilia x vulgaris	24.00	Good
10277	American elm	Ulmus americana	12.70	Fair
10276	American elm	Ulmus americana	16.50	Fair
10274	Flowering cherry spp.	Prunus	21.60	Fair
10273	Flowering cherry spp.	Prunus	14.70	Fair
10272	American elm	Ulmus americana	12.30	Good

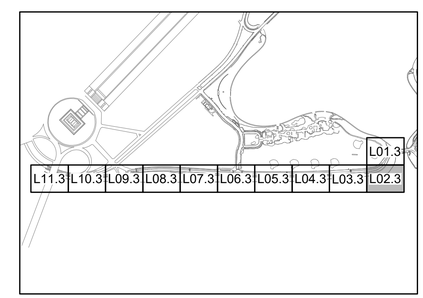
PLANT KEY

DECIDUOUS TREE

FLOWERING CHERRY TREE

EVERGREEN TREE

SHRUB



KEY MAP

20 0 20 40

SCALE OF FEET

L02.3 / L00.3 ENLARGED EXISTING VEGETATION PLAN 2

1" = 20'

DESIGNED: SAM

CADD OAS

TECH. REVIEW: RVS

DATE: FEB 2023

SUB SHEET NO. L02.3

TITLE OF SHEET

WEST POTOMAC PARK ENLARGED EXISTING VEGETATION PLAN 2

NATIONAL MALL AND MEMORIAL PARKS

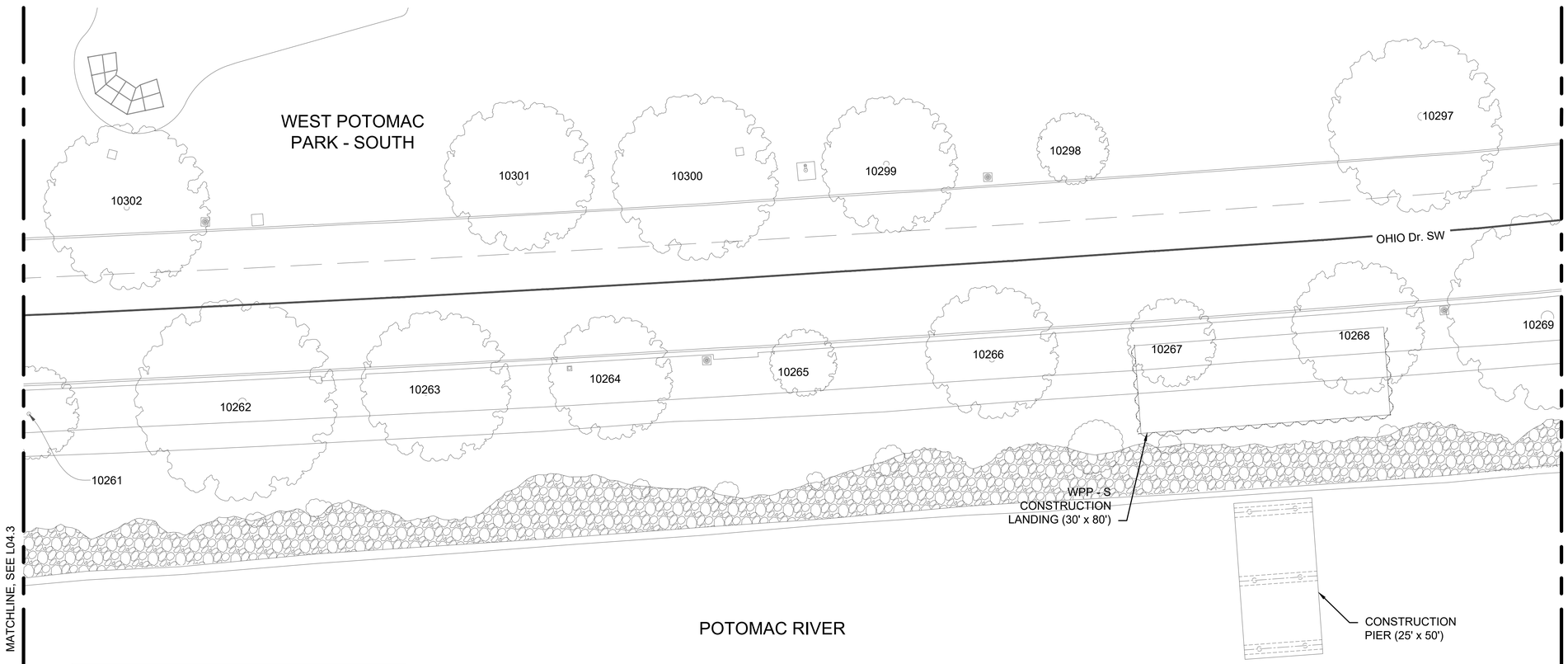
DRAWING NO. 802 / 177531

PMIS/PKG NO. 318722

SHEET 153 OF 226

NOTE:

1. CONTRACTOR TO FIELD VERIFY TREE LOCATIONS WITH COMPLETE TREE SURVEY AND ASSESSMENT PER SPECIFICATION SECTION 01 56 36 TREE PROTECTION.

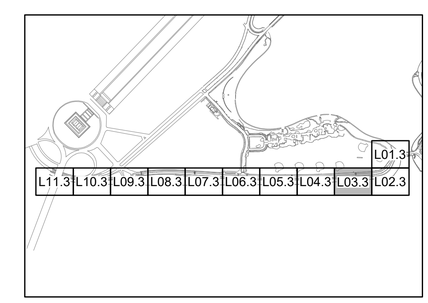


NPS GIS TREE INVENTORY 2014

TREE #	COMMON NAME	SCIENTIFIC NAME	DBH	CONDITION
10302	American elm	Ulmus americana	18.10	Fair
10301	American elm	Ulmus americana	21.60	Good
10300	American elm	Ulmus americana	19.30	Good
10299	American elm	Ulmus americana	17.60	Good
10298	American elm	Ulmus americana	9.10	Good
10297	American elm	Ulmus americana	29.00	Good
10269	American elm	Ulmus americana	50.00	Poor
10268	American elm	Ulmus americana	17.60	Fair
10267	American elm	Ulmus americana	13.70	Fair
10266	American elm	Ulmus americana	17.50	Good
10265	American elm	Ulmus americana	5.50	Fair
10264	American elm	Ulmus americana	17.60	Good
10263	American elm	Ulmus americana	18.50	Fair
10262	American elm	Ulmus americana	32.20	Fair
10261	American elm	Ulmus americana	12.80	Good

PLANT KEY

- DECIDUOUS TREE
- FLOWERING CHERRY TREE
- EVERGREEN TREE
- SHRUB



KEY MAP

20 0 20 40

SCALE OF FEET

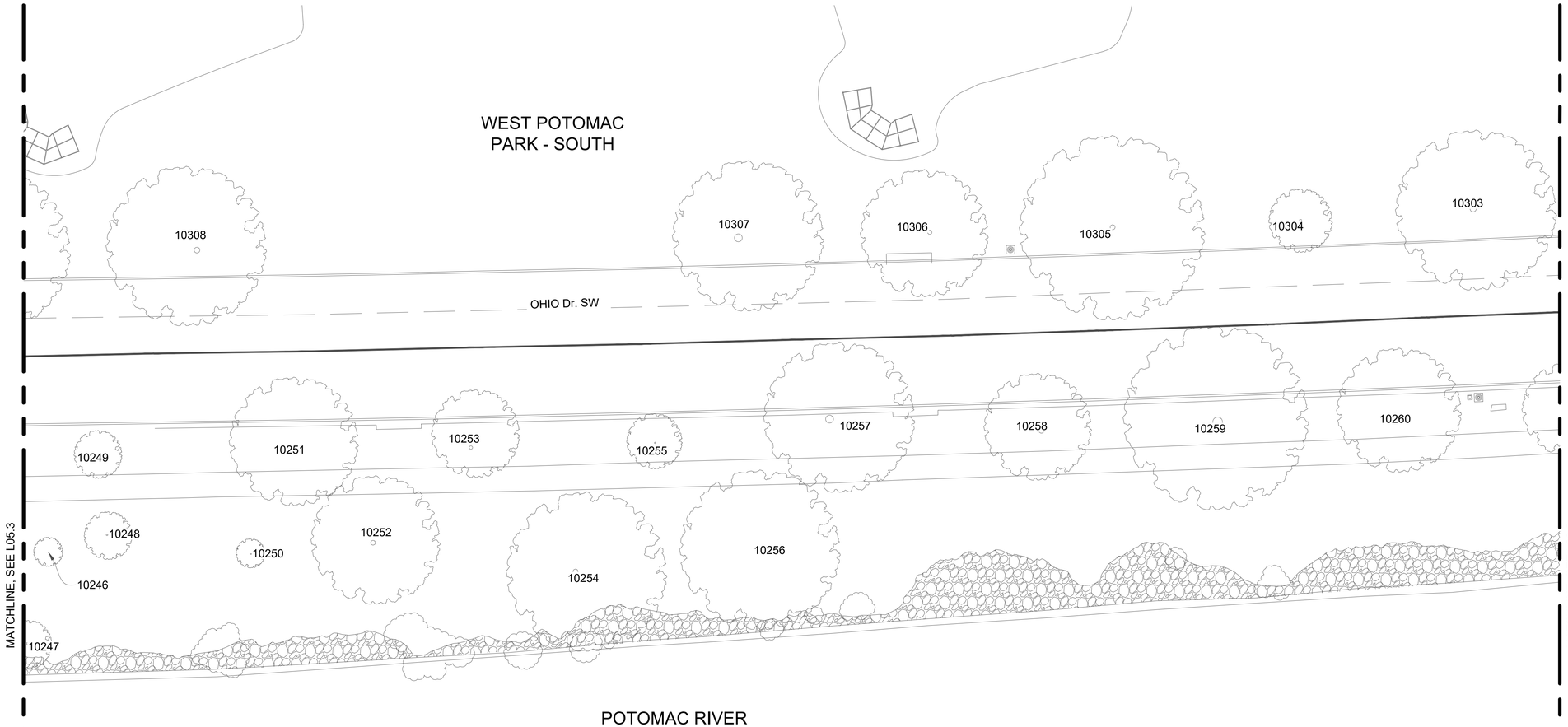
L03.3 / L00.3 ENLARGED EXISTING VEGETATION PLAN 3

1" = 20'

DESIGNED: SAM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
DADD OAS	L03.3	WEST POTOMAC PARK ENLARGED EXISTING VEGETATION PLAN 3	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	154 OF 226

NOTE:

1. CONTRACTOR TO FIELD VERIFY TREE LOCATIONS WITH COMPLETE TREE SURVEY AND ASSESSMENT PER SPECIFICATION SECTION 01 56 36 TREE PROTECTION.

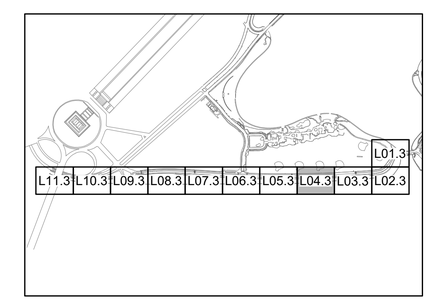


NPS GIS TREE INVENTORY 2014

TREE #	COMMON NAME	SCIENTIFIC NAME	DBH	CONDITION
10308	American elm	Ulmus americana	23.90	Fair
10307	American elm	Ulmus americana	27.00	Good
10306	American elm	Ulmus americana	15.30	Good
10305	American elm	Ulmus americana	16.70	Fair
10304	American elm	Ulmus americana	7.00	Fair
10303	American elm	Ulmus americana	19.10	Good
10260	American elm	Ulmus americana	17.20	Fair
10259	American elm	Ulmus americana	37.70	Fair
10258	American elm	Ulmus americana	20.30	Good
10257	American elm	Ulmus americana	31.70	Fair
10256	Florida maple	Acer barbatum	19.90	Good
10255	American elm	Ulmus americana	4.00	Fair
10254	Florida maple	Acer barbatum	20.50	Good
10253	American elm	Ulmus americana	14.60	Good
10252	Florida maple	Acer barbatum	19.60	Good
10251	American elm	Ulmus americana	15.90	Fair
10250	Flowering cherry spp.	Prunus	16.80	Fair
10249	American elm	Ulmus americana	4.60	Fair
10248	Flowering cherry spp.	Prunus	12.70	Fair
10247			23.00	
10246	Flowering cherry spp.	Prunus	2.70	Good

PLANT KEY

- DECIDUOUS TREE
- FLOWERING CHERRY TREE
- EVERGREEN TREE
- SHRUB



KEY MAP

20 0 20 40

SCALE OF FEET

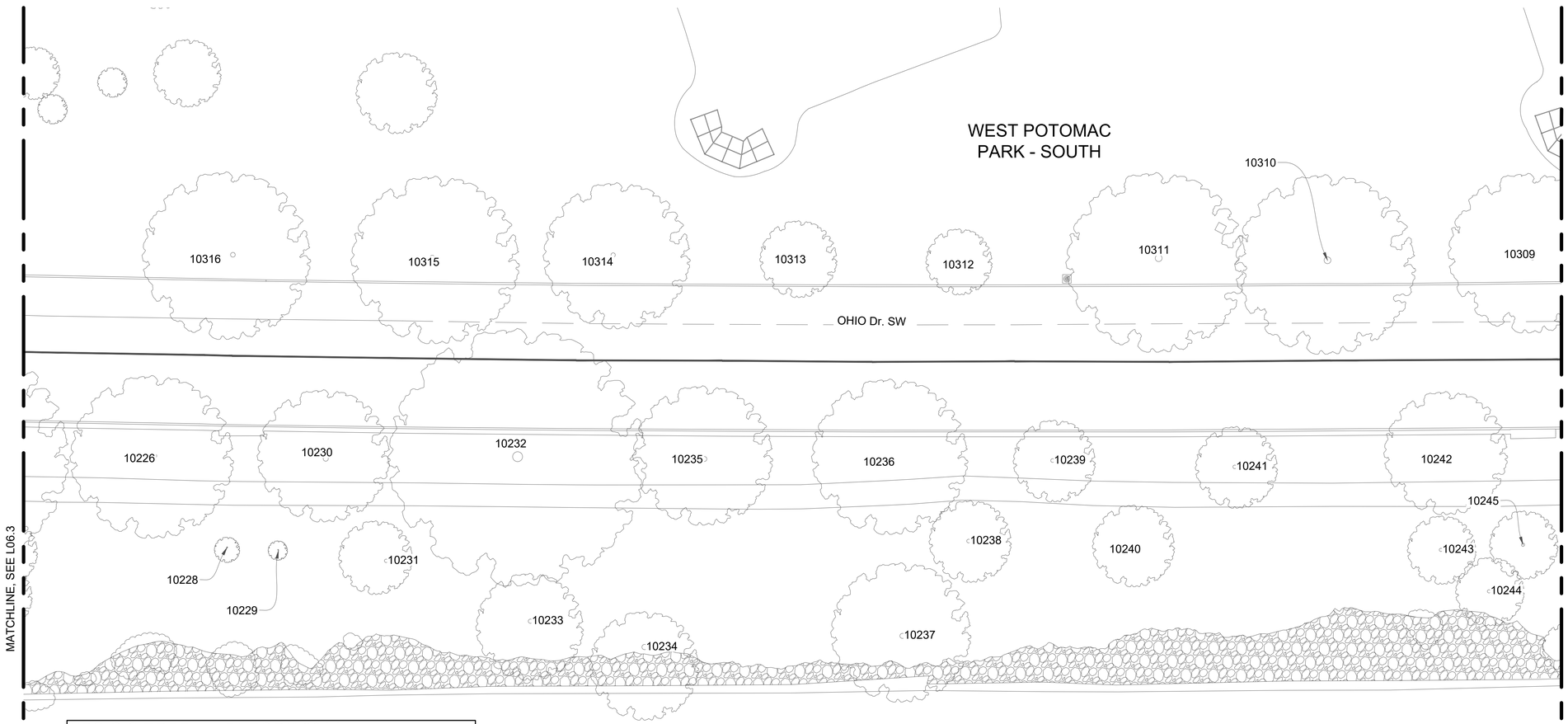
L04.3 / L00.3 ENLARGED EXISTING VEGETATION PLAN 4

1" = 20'

DESIGNED: SAM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
CADD OAS	L04.3	WEST POTOMAC PARK ENLARGED EXISTING VEGETATION PLAN 4	802 / 177531
TECH. REVIEW: RVS			PMIS/PKG NO. 318722
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 155 OF 226

NOTE:

1. CONTRACTOR TO FIELD VERIFY TREE LOCATIONS WITH COMPLETE TREE SURVEY AND ASSESSMENT PER SPECIFICATION SECTION 01 56 36 TREE PROTECTION.



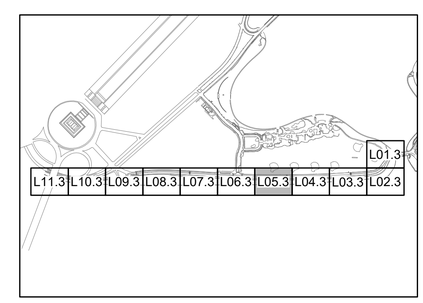
POTOMAC RIVER

NPS GIS TREE INVENTORY 2014

TREE #	COMMON NAME	SCIENTIFIC NAME	DBH	CONDITION
10316	American elm	Ulmus americana	17.40	Fair
10315	American elm	Ulmus americana	18.40	Fair
10314	American elm	Ulmus americana	18.70	Good
10313	American elm	Ulmus americana	9.80	Fair
10312	American elm	Ulmus americana	7.70	Fair
10311	American elm	Ulmus americana	26.70	Good
10310	American elm	Ulmus americana	24.70	Fair
10309	American elm	Ulmus americana	20.10	Good
10245	Flowering cherry spp.	Prunus	16.50	Good
10244	Flowering cherry spp.	Prunus	18.30	Good
10243	Flowering cherry spp.	Prunus	13.10	Good
10242	American elm	Ulmus americana	13.80	Good
10241	American elm	Ulmus americana	41.00	Fair
10240	Common linden	Tilia x vulgaris	13.00	Good
10239	American elm	Ulmus americana	19.20	Fair
10238	Hickory spp.	Carya	10.30	Poor
10237	Weeping willow	Salix x sepulcralis Simonkai	22.90	Good
10236	American elm	Ulmus americana	20.60	Fair
10235	American elm	Ulmus americana	19.40	Good
10234	Weeping willow	Salix x sepulcralis Simonkai	17.40	Good
10233	Flowering cherry spp.	Prunus	14.50	Fair
10232	American elm	Ulmus americana	47.00	Good
10231	Flowering cherry spp.	Prunus	9.60	Good
10230	American elm	Ulmus americana	19.50	Fair
10229	Flowering cherry spp.	Prunus	2.40	Fair
10228	Flowering cherry spp.	Prunus	2.80	Good
10226	American elm	Ulmus americana	17.90	Fair

PLANT KEY

- DECIDUOUS TREE
- FLOWERING CHERRY TREE
- EVERGREEN TREE
- SHRUB



KEY MAP

20 0 20 40

SCALE OF FEET

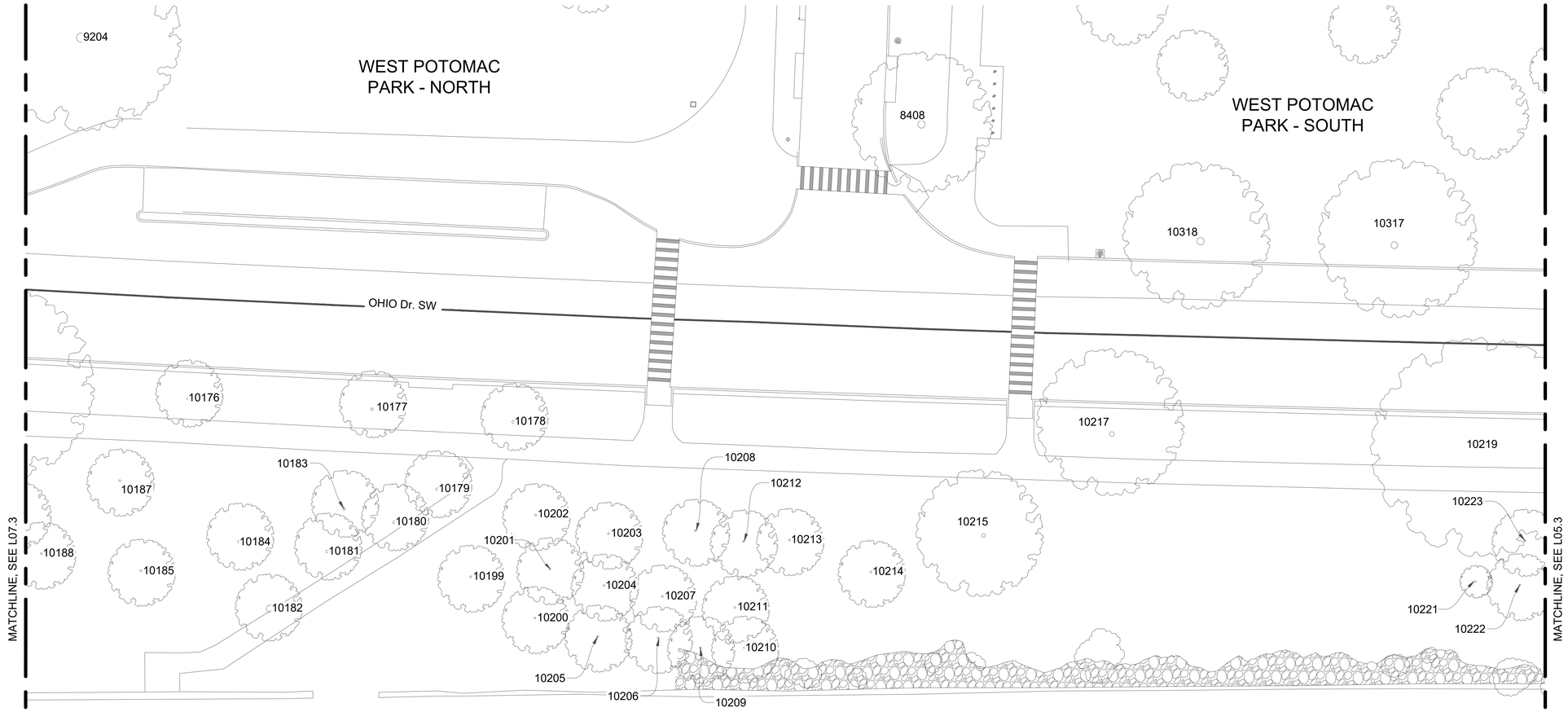
L05.3 / L00.3 ENLARGED EXISTING VEGETATION PLAN 5

1" = 20'

DESIGNED: SAM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD OAS	L05.3	WEST POTOMAC PARK ENLARGED EXISTING VEGETATION PLAN 5	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	156 OF 226

NOTE:

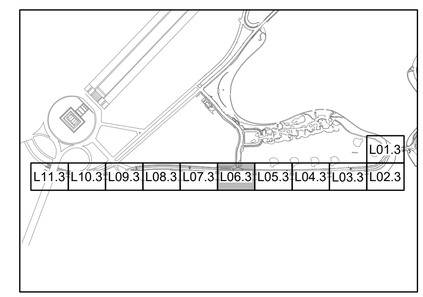
1. CONTRACTOR TO FIELD VERIFY TREE LOCATIONS WITH COMPLETE TREE SURVEY AND ASSESSMENT PER SPECIFICATION SECTION 01 56 36 TREE PROTECTION.



POTOMAC RIVER

PLANT KEY

- DECIDUOUS TREE
- FLOWERING CHERRY TREE
- EVERGREEN TREE
- SHRUB



KEY MAP

20 0 20 40

SCALE OF FEET

NPS GIS TREE INVENTORY 2014

TREE #	COMMON NAME	SCIENTIFIC NAME	DBH	CONDITION
10318	American elm	Ulmus americana	25.50	Fair
10317	American elm	Ulmus americana	23.40	Good
10223	Flowering cherry spp.	Prunus	3.10	Fair
10222	Flowering cherry spp.	Prunus	4.80	Fair
10221	Flowering cherry spp.	Prunus	1.80	Good
10219	American elm	Ulmus americana	29.30	Fair
10217	American elm	Ulmus americana	17.00	Fair
10215	Northern red oak	Quercus rubra	16.30	Good
10214	Northern red oak	Quercus rubra	22.30	Good
10213	Flowering cherry spp.	Prunus	5.60	Good
10212	Flowering cherry spp.	Prunus	5.90	Good
10211	Flowering cherry spp.	Prunus	12.80	Good
10210	Flowering cherry spp.	Prunus	14.40	Good
10209	Flowering cherry spp.	Prunus	14.40	Good
10208	Flowering cherry spp.	Prunus	14.70	Good
10207	Flowering cherry spp.	Prunus	11.40	Good
10206	Flowering cherry spp.	Prunus	10.60	Good
10205	Flowering cherry spp.	Prunus	11.90	Good
10204	Flowering cherry spp.	Prunus	13.60	Good
10203	Flowering cherry spp.	Prunus	15.60	Good
10202	Flowering cherry spp.	Prunus	12.70	Good
10201	Flowering cherry spp.	Prunus	15.30	Good
10200	Flowering cherry spp.	Prunus	15.00	Good
10199	Flowering cherry spp.	Prunus	15.90	Good
10188	Flowering cherry spp.	Prunus	15.60	Fair
10187	Flowering cherry spp.	Prunus	14.00	Fair
10185	Flowering cherry spp.	Prunus	12.10	Fair
10184	Flowering cherry spp.	Prunus	13.50	Fair
10183	Flowering cherry spp.	Prunus	12.20	Fair
10182	American elm	Ulmus americana	10.60	Fair
10181	Flowering cherry spp.	Prunus	10.10	Fair
10180	Flowering cherry spp.	Prunus	14.40	Fair
10179	Flowering cherry spp.	Prunus	13.20	Fair
10178	American elm	Ulmus americana	15.40	Fair
10177	American elm	Ulmus americana	13.50	Fair
10176	American elm	Ulmus americana	14.10	Fair
9204	Chestnut oak	Quercus prinus	34.70	Poor
8408	American elm	Ulmus americana	16.00	Fair

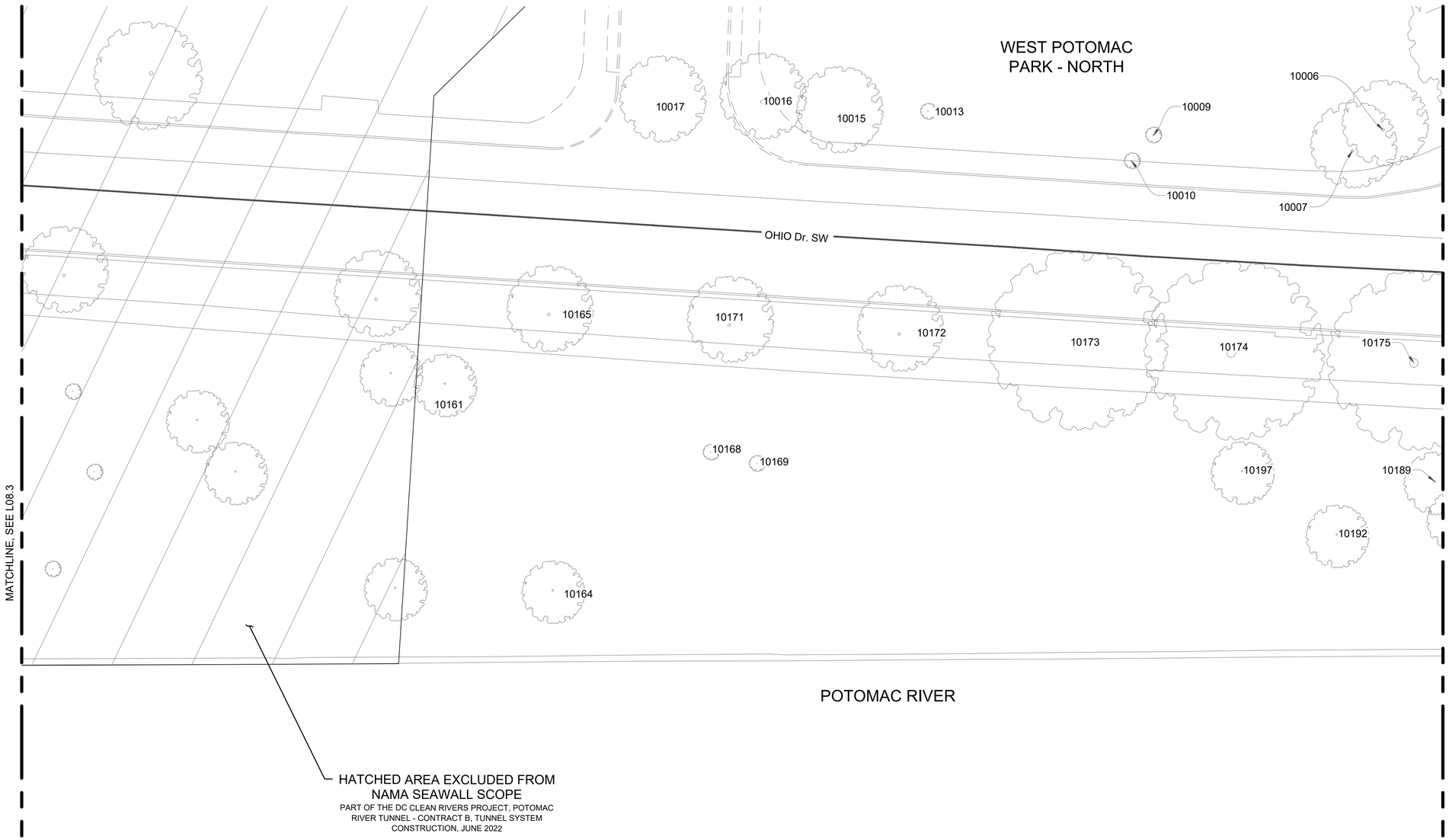
L06.3 / L00.3 ENLARGED EXISTING VEGETATION PLAN 6

1" = 20'

DESIGNED: SAM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD OAS	L06.3	WEST POTOMAC PARK ENLARGED EXISTING VEGETATION PLAN 6	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	157 OF 226

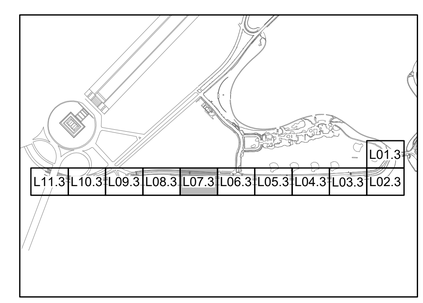
NOTE:

1. CONTRACTOR TO FIELD VERIFY TREE LOCATIONS WITH COMPLETE TREE SURVEY AND ASSESSMENT PER SPECIFICATION SECTION 01 56 36 TREE PROTECTION.



PLANT KEY

- DECIDUOUS TREE
- FLOWERING CHERRY TREE
- EVERGREEN TREE
- SHRUB



KEY MAP

20 0 20 40

SCALE OF FEET

NPS TREE INVENTORY

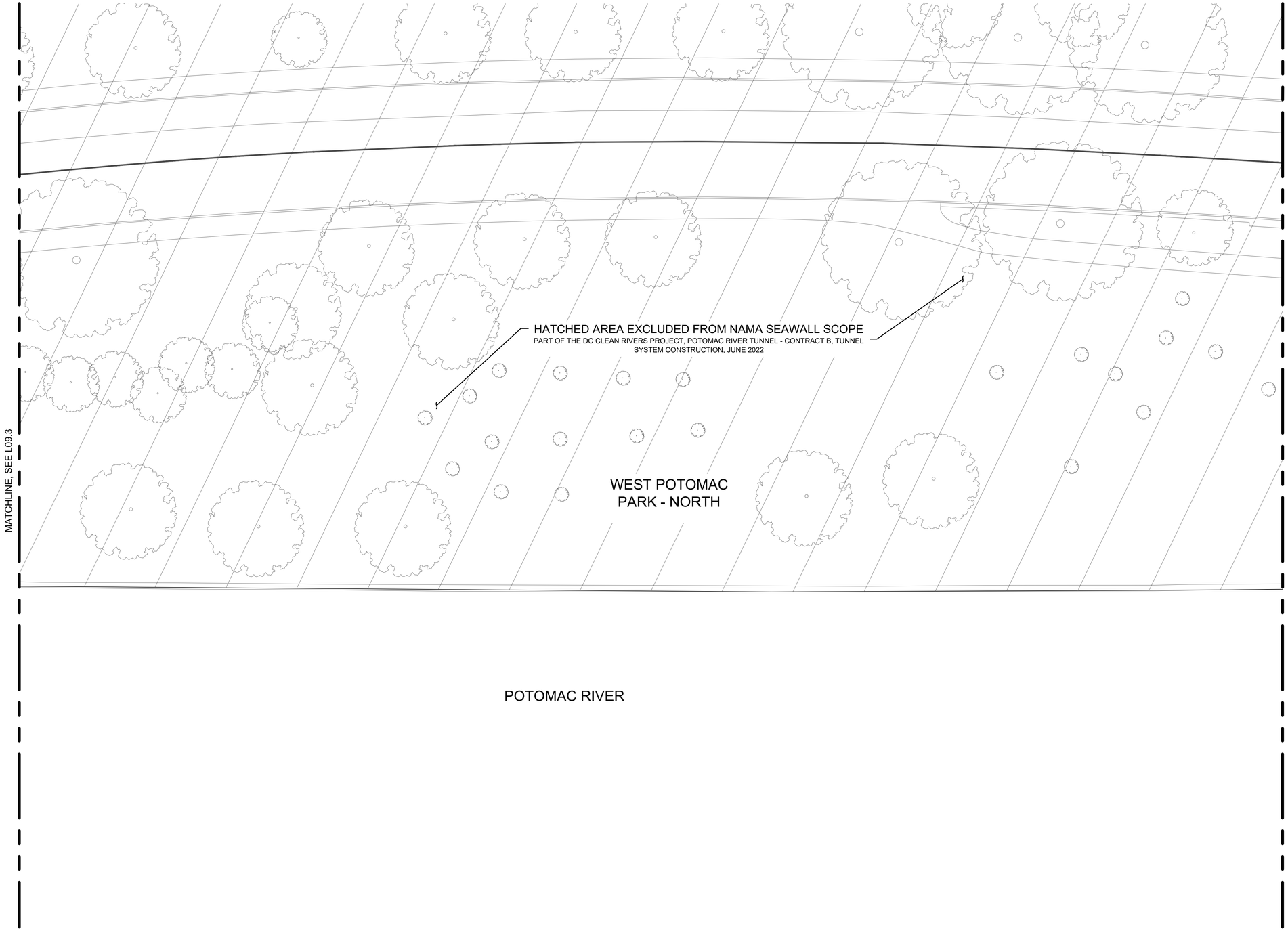
TREE #	COMMON NAME	SCIENTIFIC NAME	DBH	CONDITION
10197	Flowering cherry spp.	Prunus	10.60	Fair
10192	Flowering cherry spp.	Prunus	19.00	Fair
10189	Flowering cherry spp.	Prunus	9.40	Fair
10175	American elm	Ulmus americana	38.10	Fair
10174	American elm	Ulmus americana	44.40	Fair
10173	American elm	Ulmus americana	25.70	Fair
10172	American elm	Ulmus americana	28.10	Fair
10171	American elm	Ulmus americana	24.40	Fair
10169	Flowering cherry spp.	Prunus	3.00	Fair
10168	Flowering cherry spp.	Prunus	14.90	Fair
10165	Chinese elm	Ulmus parvifolia	32.00	Fair
10164	Weeping willow	Salix x sepulcralis Simonkai	5.60	Good
10161	Flowering cherry spp.	Prunus	19.80	Fair
10017	American elm	Ulmus americana	19.20	Fair
10016	American holly	Ilex opaca	4.00	Fair
10015	American elm	Ulmus americana	20.50	Fair
10013	Flowering cherry spp.	Prunus	8.30	Fair
10010	American holly	Ilex opaca	3.80	Fair
10009	American holly	Ilex opaca	4.20	Fair
10007	American elm	Ulmus americana	18.90	Poor
10006	Flowering cherry spp.	Prunus	16.30	Fair

L07.3 / L00.3 ENLARGED EXISTING VEGETATION PLAN 7
1" = 20'

DESIGNED: SAM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD OAS	L07.3	WEST POTOMAC PARK ENLARGED EXISTING VEGETATION PLAN 7	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	158 OF 226

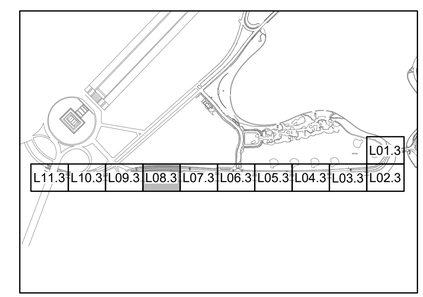
NOTE:

1. CONTRACTOR TO FIELD VERIFY TREE LOCATIONS WITH COMPLETE TREE SURVEY AND ASSESSMENT PER SPECIFICATION SECTION 01 56 36 TREE PROTECTION.



PLANT KEY

- DECIDUOUS TREE
- FLOWERING CHERRY TREE
- EVERGREEN TREE
- SHRUB



KEY MAP

20 0 20 40

SCALE OF FEET

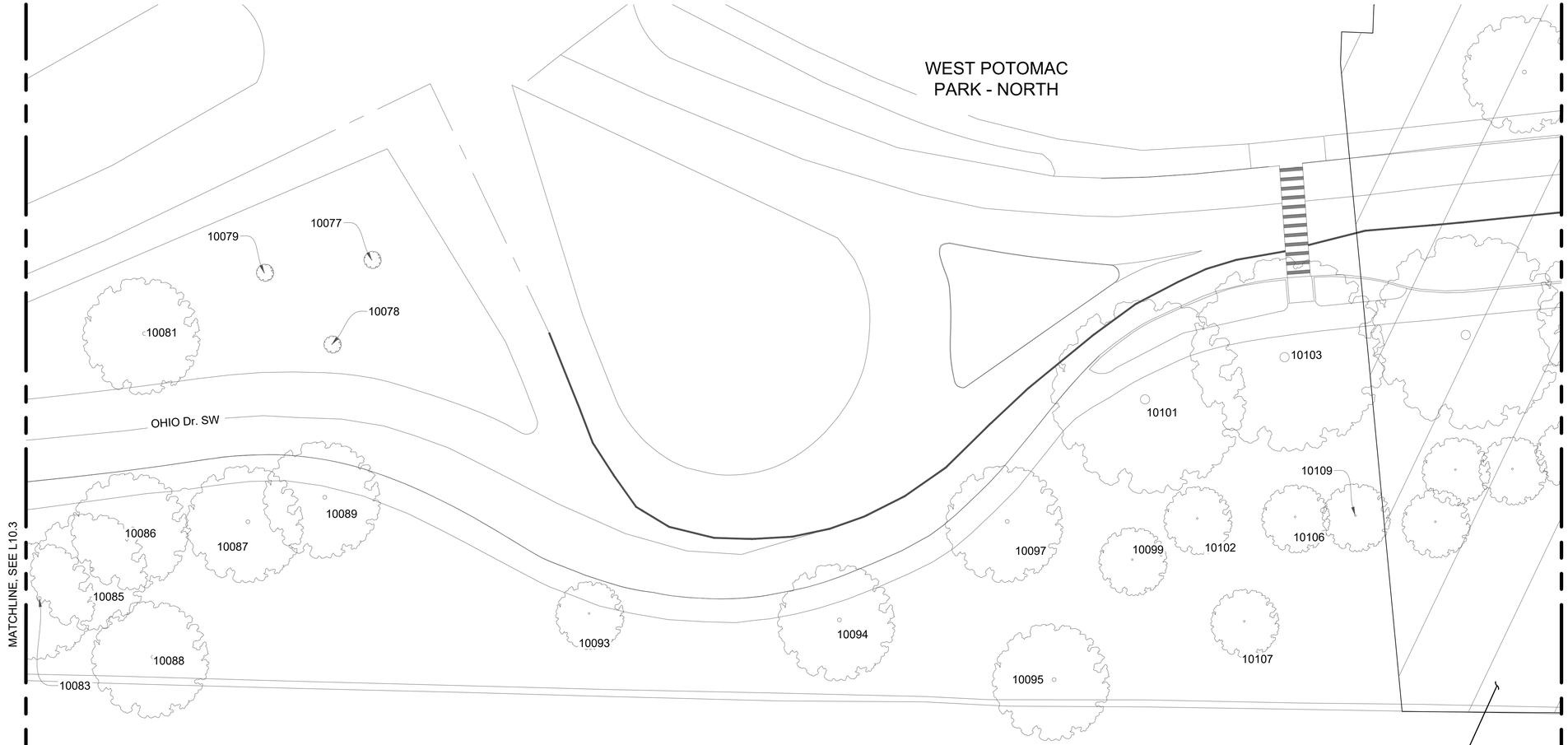
L08.3 / L00.3 ENLARGED EXISTING VEGETATION PLAN 8

1" = 20'

DESIGNED: SAM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD OAS	L08.3	WEST POTOMAC PARK ENLARGED EXISTING VEGETATION PLAN 8	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	159 OF 226

NOTE:

1. CONTRACTOR TO FIELD VERIFY TREE LOCATIONS WITH COMPLETE TREE SURVEY AND ASSESSMENT PER SPECIFICATION SECTION 01 56 36 TREE PROTECTION.

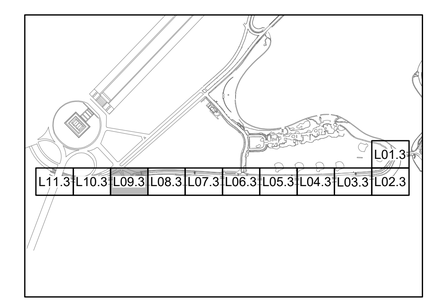


PLANT KEY

- DECIDUOUS TREE
- FLOWERING CHERRY TREE
- EVERGREEN TREE
- SHRUB

NPS GIS TREE INVENTORY 2014

TREE #	COMMON NAME	SCIENTIFIC NAME	DBH	CONDITION
10109	Flowering cherry spp.	Prunus	7.00	Good
10107	Weeping willow	Salix x sepulcralis Simonkai	23.70	Fair
10106	Flowering cherry spp.	Prunus	5.90	Fair
10103	American elm	Ulmus americana	21.30	Fair
10102	Chinese elm	Ulmus parvifolia	22.00	Good
10101	American elm	Ulmus americana	25.10	Fair
10099	Flowering cherry spp.	Prunus	13.10	Fair
10097	American elm	Ulmus americana	25.80	Fair
10095	Weeping willow	Salix x sepulcralis Simonkai	43.40	Fair
10094	American elm	Ulmus americana	19.50	Fair
10093	American elm	Ulmus americana	44.00	Poor
10089	American elm	Ulmus americana	27.70	Fair
10088	Weeping willow	Salix x sepulcralis Simonkai	48.20	Fair
10087	Flowering cherry spp.	Prunus	16.20	Good
10086	Flowering cherry spp.	Prunus	13.80	Good
10085	Flowering cherry spp.	Prunus	13.20	Good
10083	Flowering cherry spp.	Prunus	15.30	Good
10081	American elm	Ulmus americana	23.40	Fair
10079	Flowering cherry spp.	Prunus	18.00	Fair
10078	Flowering cherry spp.	Prunus	3.00	Good
10077	American elm	Ulmus americana	5.50	Fair



KEY MAP

20 0 20 40

SCALE OF FEET

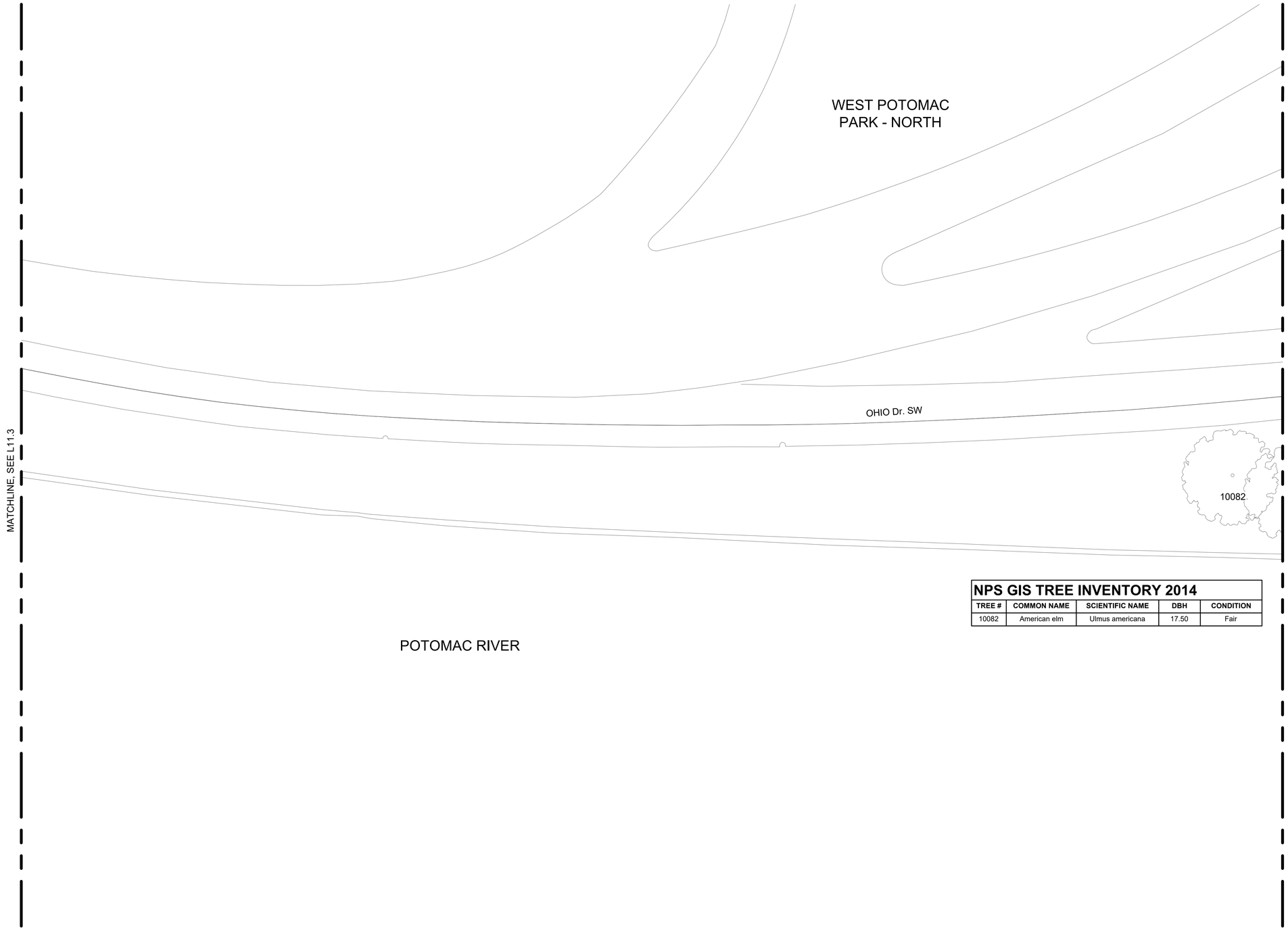
L09.3 / L00.3 ENLARGED EXISTING VEGETATION PLAN 9

1" = 20'

DESIGNED: SAM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
CADD OAS	L09.3	WEST POTOMAC PARK ENLARGED EXISTING VEGETATION PLAN 9	802 / 177531
TECH. REVIEW: RVS			PMIS/PKG NO. 318722
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 160 OF 226

NOTE:

1. CONTRACTOR TO FIELD VERIFY TREE LOCATIONS WITH COMPLETE TREE SURVEY AND ASSESSMENT PER SPECIFICATION SECTION 01 56 36 TREE PROTECTION.

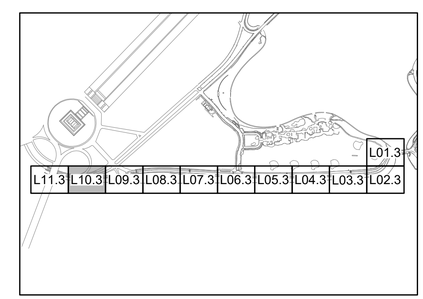


NPS GIS TREE INVENTORY 2014

TREE #	COMMON NAME	SCIENTIFIC NAME	DBH	CONDITION
10082	American elm	Ulmus americana	17.50	Fair

PLANT KEY

- DECIDUOUS TREE
- FLOWERING CHERRY TREE
- EVERGREEN TREE
- SHRUB



KEY MAP

20 0 20 40

SCALE OF FEET

L10.3 / L00.3 ENLARGED EXISTING VEGETATION PLAN 10

1" = 20'

DESIGNED: SAM

CADD OAS

TECH. REVIEW: RVS

DATE: FEB 2023

SUB SHEET NO. L10.3

TITLE OF SHEET

WEST POTOMAC PARK ENLARGED EXISTING VEGETATION PLAN 10

NATIONAL MALL AND MEMORIAL PARKS

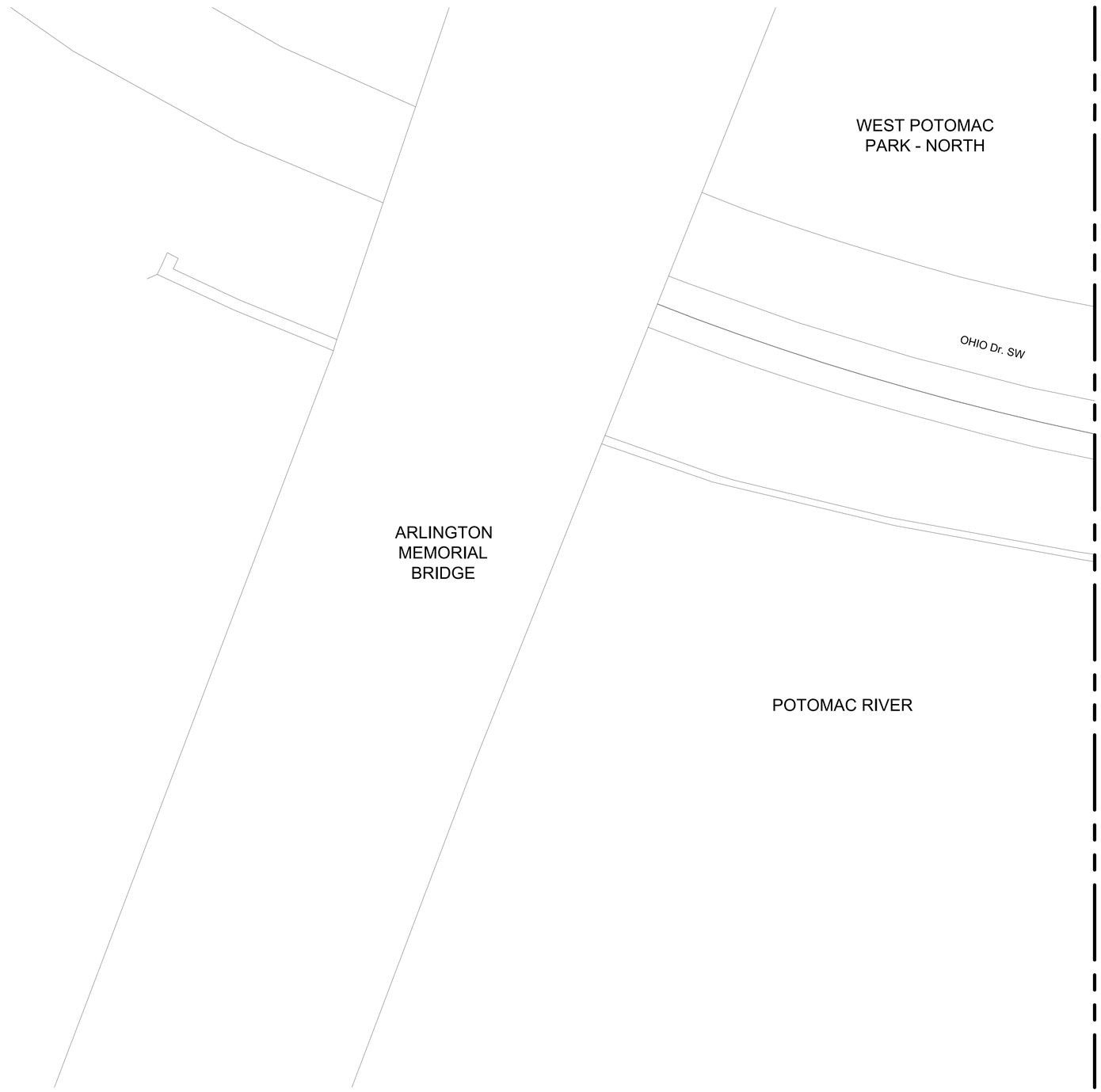
DRAWING NO. 802 / 177531

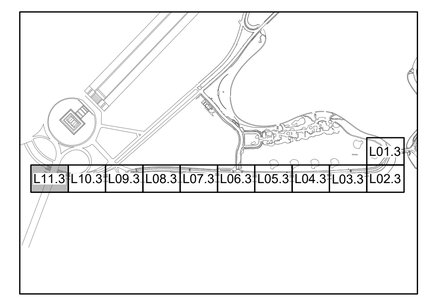
PMIS/PKG NO. 318722

SHEET 161 OF 226

NOTE:

1. CONTRACTOR TO FIELD VERIFY TREE LOCATIONS WITH COMPLETE TREE SURVEY AND ASSESSMENT PER SPECIFICATION SECTION 01 56 36 TREE PROTECTION.





KEY MAP

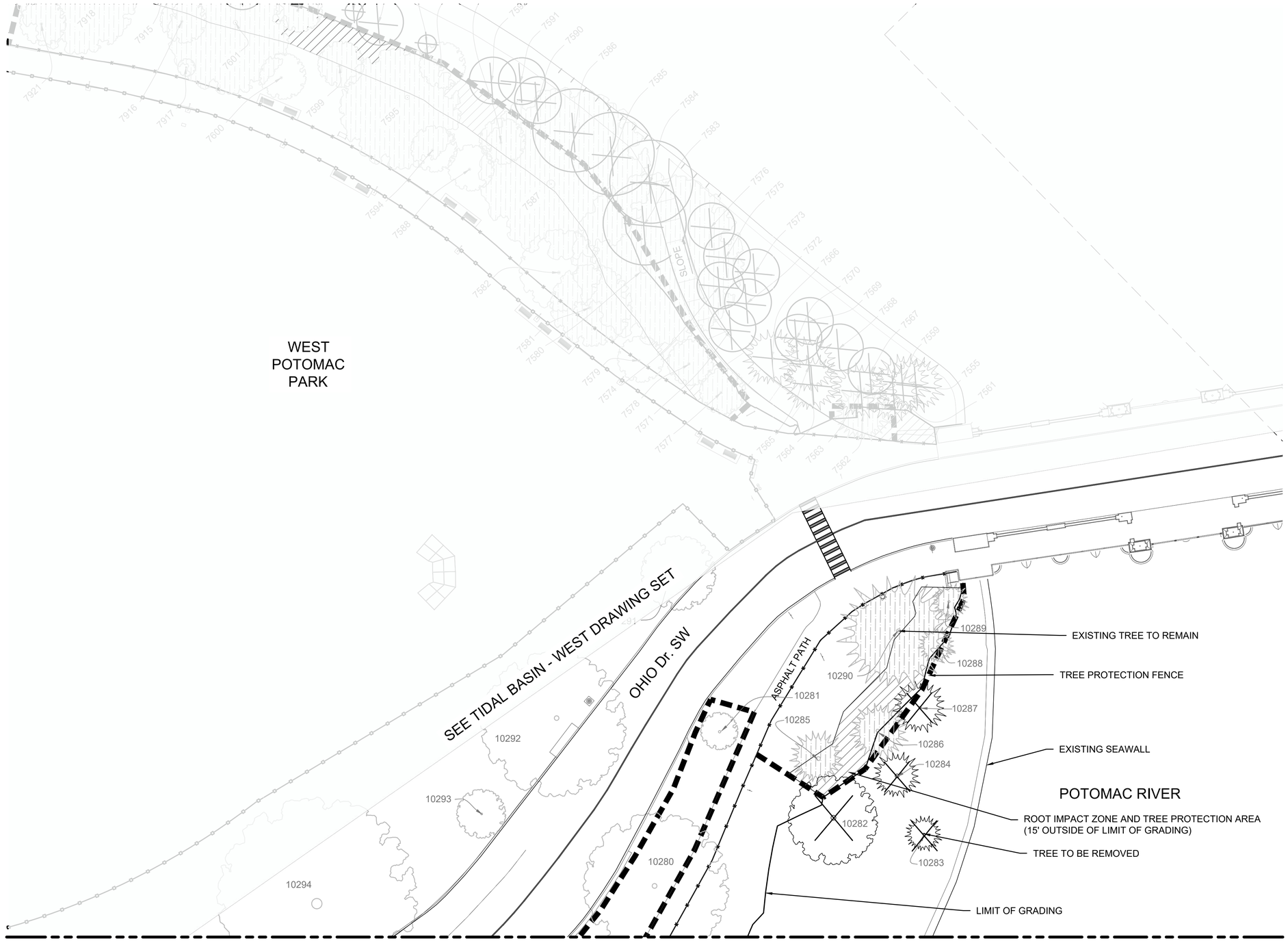
L11.3 / L00.3 ENLARGED EXISTING VEGETATION PLAN 11

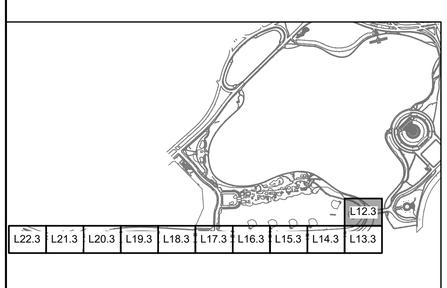
1" = 20'

DESIGNED: SAM	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
CADD OAS	L11.3	WEST POTOMAC PARK ENLARGED EXISTING VEGETATION PLAN 11	802 / 177531
TECH. REVIEW: RVS			PMIS/PKG NO. 318722
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 162 OF 226

LEGEND

- TREE PROTECTION AREA; PROVIDE SIX FOOT HEIGHT CHAIN LINK TREE PROTECTION FENCE OR EIGHT FOOT HEIGHT LIMITS OF CONSTRUCTION FENCE; ALL TREE PROTECTION AREAS SHALL BE SIGNED AND FULLY ENCLOSED; NO CONSTRUCTION ACCESS ALLOWED THROUGH OR IN TREE PROTECTION AREAS
- CONSTRUCTION FENCE - 8' HT. CHAIN LINK
- ROOT IMPACT ZONE - TREE STATUS IN ZONE TBD BY ARBORIST 15' OUTSIDE OF LIMIT OF GRADING (ASSUME 30% ATTRITION). ALL WORK WITHIN TREE PROTECTION ZONE PERFORMED UNDER OVERSIGHT OF ARBORIST. NO VEHICLES ALLOWED WITHIN TREE PROTECTION ZONE.
- TREES WITH CRITICAL ROOT ZONE WITHIN 15' OF LIMIT OF GRADING
- TREES TO REMAIN
- CHERRY TREES TO BE REMOVED
- DECIDUOUS (NON-CHERRY) TREES TO BE REMOVED
- EVERGREEN TREES TO BE REMOVED





KEY MAP

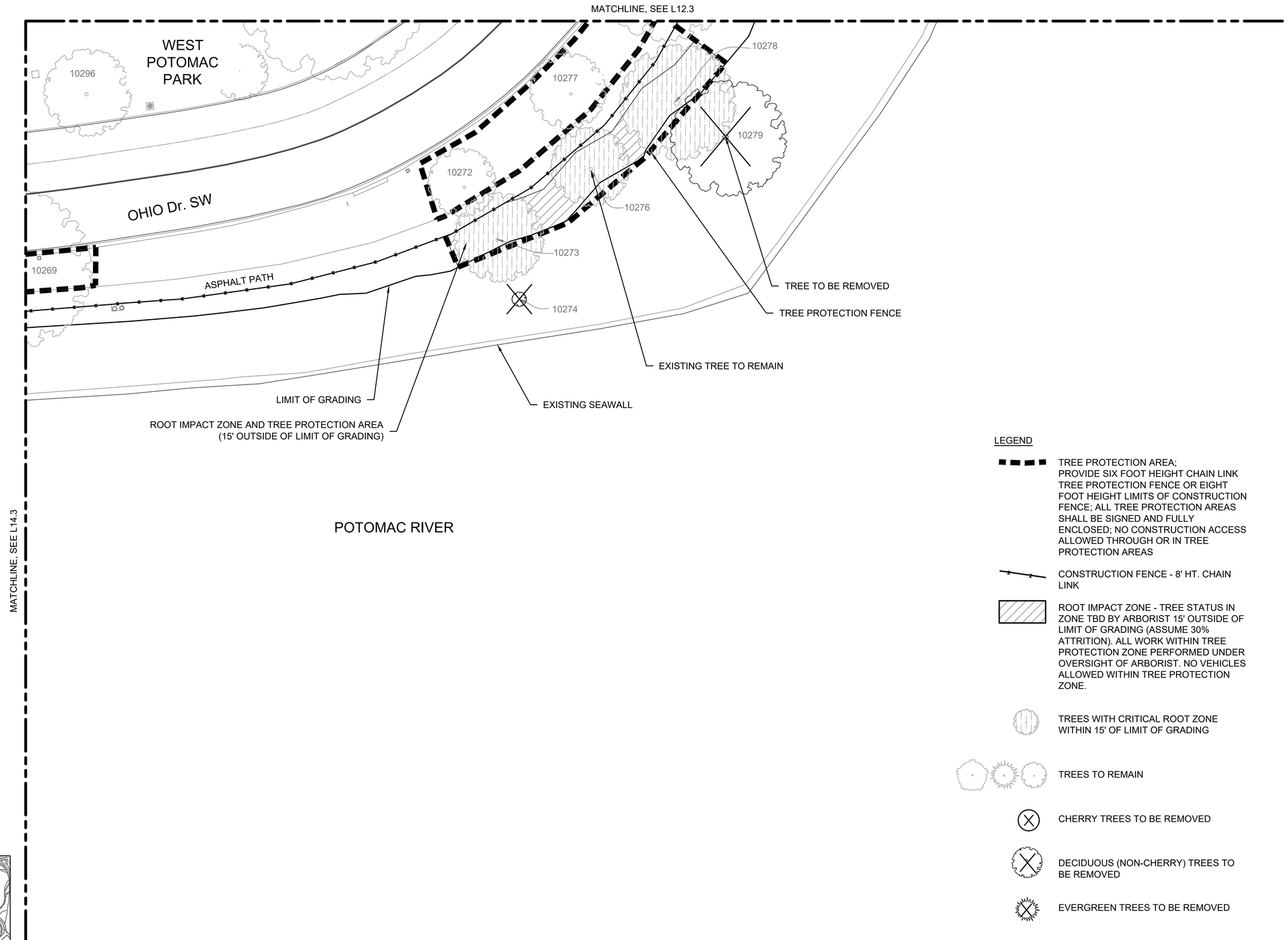
L12.3 / L00.3 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 1

1" = 20'

20 0 20 40

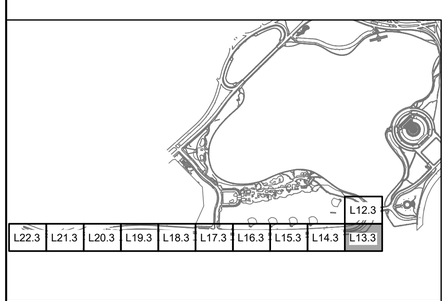
SCALE OF FEET

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
DADD	L12.3	WEST POTOMAC PARK ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 1	802 / 177531
JLS/DBS			PMIS/PKG NO.
TECH. REVIEW: RVS			318722
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 163 OF 226



LEGEND

- TREE PROTECTION AREA; PROVIDE SIX FOOT HEIGHT CHAIN LINK TREE PROTECTION FENCE OR EIGHT FOOT HEIGHT LIMITS OF CONSTRUCTION FENCE; ALL TREE PROTECTION AREAS SHALL BE SIGNED AND FULLY ENCLOSED; NO CONSTRUCTION ACCESS ALLOWED THROUGH OR IN TREE PROTECTION AREAS
- CONSTRUCTION FENCE - 8' HT. CHAIN LINK
- ROOT IMPACT ZONE - TREE STATUS IN ZONE TBD BY ARBORIST 15' OUTSIDE OF LIMIT OF GRADING (ASSUME 30% ATTRITION). ALL WORK WITHIN TREE PROTECTION ZONE PERFORMED UNDER OVERSIGHT OF ARBORIST. NO VEHICLES ALLOWED WITHIN TREE PROTECTION ZONE.
- TREES WITH CRITICAL ROOT ZONE WITHIN 15' OF LIMIT OF GRADING
- TREES TO REMAIN
- CHERRY TREES TO BE REMOVED
- DECIDUOUS (NON-CHERRY) TREES TO BE REMOVED
- EVERGREEN TREES TO BE REMOVED



KEY MAP

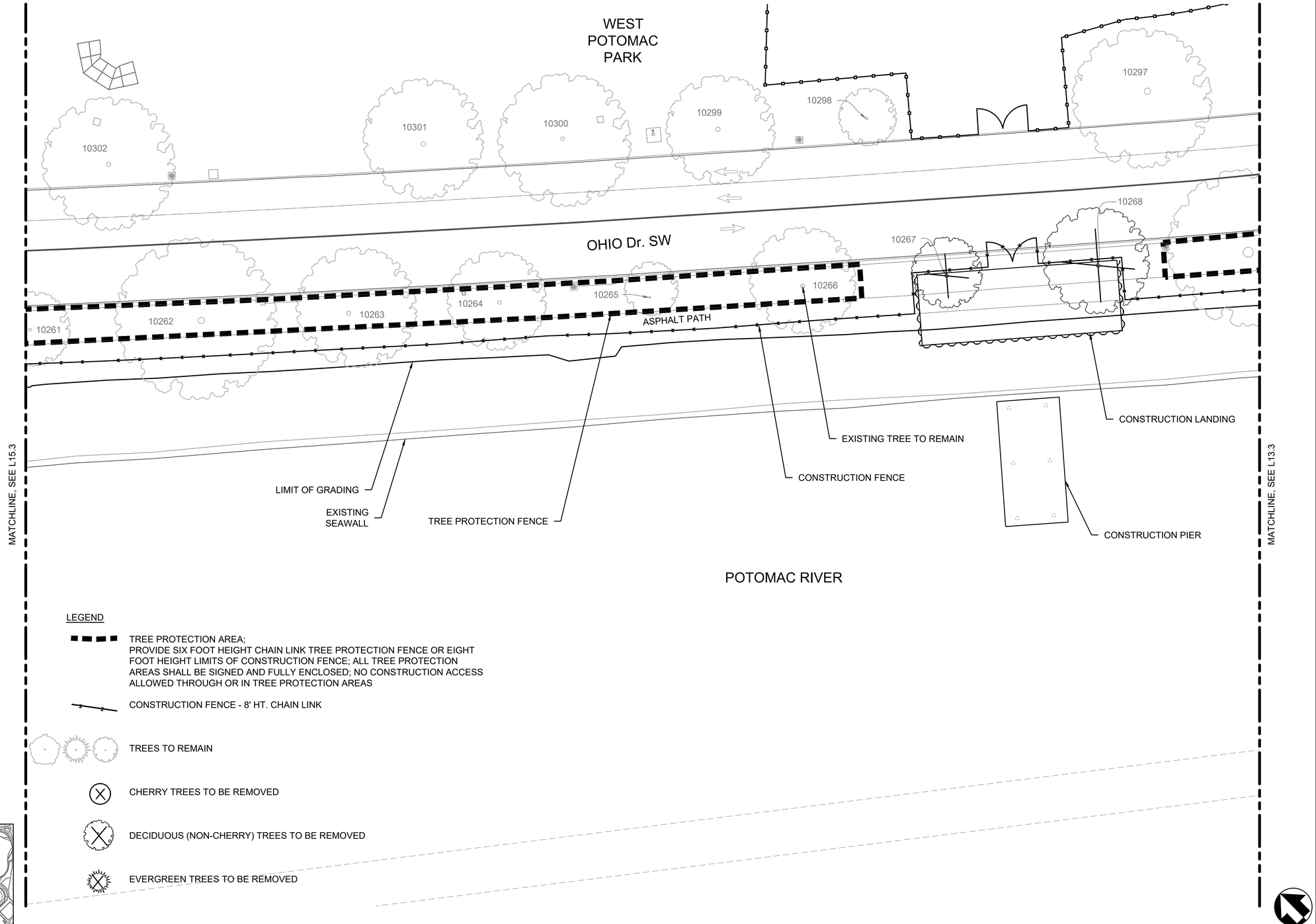
L13.3 / L00.3 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 2

1" = 20'

20 0 20 40

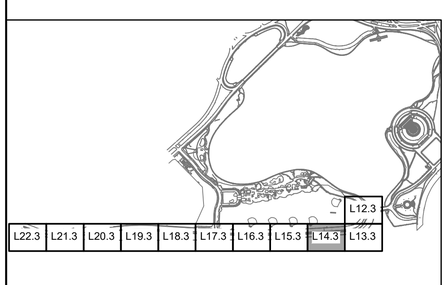
SCALE OF FEET

NATIONAL PARK SERVICE	DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET WEST POTOMAC PARK ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 2	DRAWING NO. 802 / 177531
	DAPP JLS/DBS	L13.3		PMIS/PKG NO. 318722
	TECH. REVIEW: RVS			SHEET 164 OF 226
	DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	



LEGEND

- TREE PROTECTION AREA; PROVIDE SIX FOOT HEIGHT CHAIN LINK TREE PROTECTION FENCE OR EIGHT FOOT HEIGHT LIMITS OF CONSTRUCTION FENCE; ALL TREE PROTECTION AREAS SHALL BE SIGNED AND FULLY ENCLOSED; NO CONSTRUCTION ACCESS ALLOWED THROUGH OR IN TREE PROTECTION AREAS
- CONSTRUCTION FENCE - 8' HT. CHAIN LINK
- TREES TO REMAIN
- CHERRY TREES TO BE REMOVED
- DECIDUOUS (NON-CHERRY) TREES TO BE REMOVED
- EVERGREEN TREES TO BE REMOVED



KEY MAP

L14.3 / L00.3 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 3

1" = 20'

20 0 20 40

SCALE OF FEET

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
DADD	L14.3	WEST POTOMAC PARK ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 3	802 / 177531
JLS/DBS			PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	165 OF 226

WEST
POTOMAC
PARK

10308

10307

10306

10305

10304

10303

OHIO Dr. SW

10249

10251

10253

10255

10257

10258

10259

10260

ASPHALT PATH

10252

10256

10254

10246

10248

10250

10247

MATCHLINE, SEE L16.3

MATCHLINE, SEE L14.3

ROOT IMPACT ZONE AND TREE PROTECTION AREA (15' OUTSIDE OF LIMIT OF GRADING)

EXISTING TREE TO REMAIN

TREE PROTECTION FENCE

TREE TO BE REMOVED

EXISTING SEAWALL

LIMIT OF GRADING

POTOMAC RIVER

LEGEND

TREE PROTECTION AREA; PROVIDE SIX FOOT HEIGHT CHAIN LINK TREE PROTECTION FENCE OR EIGHT FOOT HEIGHT LIMITS OF CONSTRUCTION FENCE; ALL TREE PROTECTION AREAS SHALL BE SIGNED AND FULLY ENCLOSED; NO CONSTRUCTION ACCESS ALLOWED THROUGH OR IN TREE PROTECTION AREAS

CONSTRUCTION FENCE - 8' HT. CHAIN LINK

ROOT IMPACT ZONE - TREE STATUS IN ZONE TBD BY ARBORIST 15' OUTSIDE OF LIMIT OF GRADING (ASSUME 30% ATTRITION). ALL WORK WITHIN TREE PROTECTION ZONE PERFORMED UNDER OVERSIGHT OF ARBORIST. NO VEHICLES ALLOWED WITHIN TREE PROTECTION ZONE.

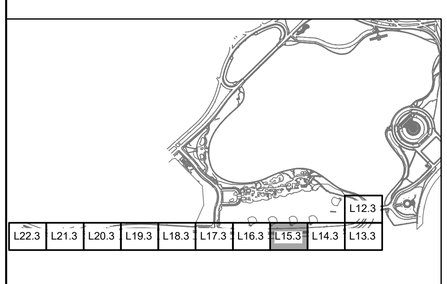
TREES WITH CRITICAL ROOT ZONE WITHIN 15' OF LIMIT OF GRADING

TREES TO REMAIN

CHERRY TREES TO BE REMOVED

DECIDUOUS (NON-CHERRY) TREES TO BE REMOVED

EVERGREEN TREES TO BE REMOVED



KEY MAP

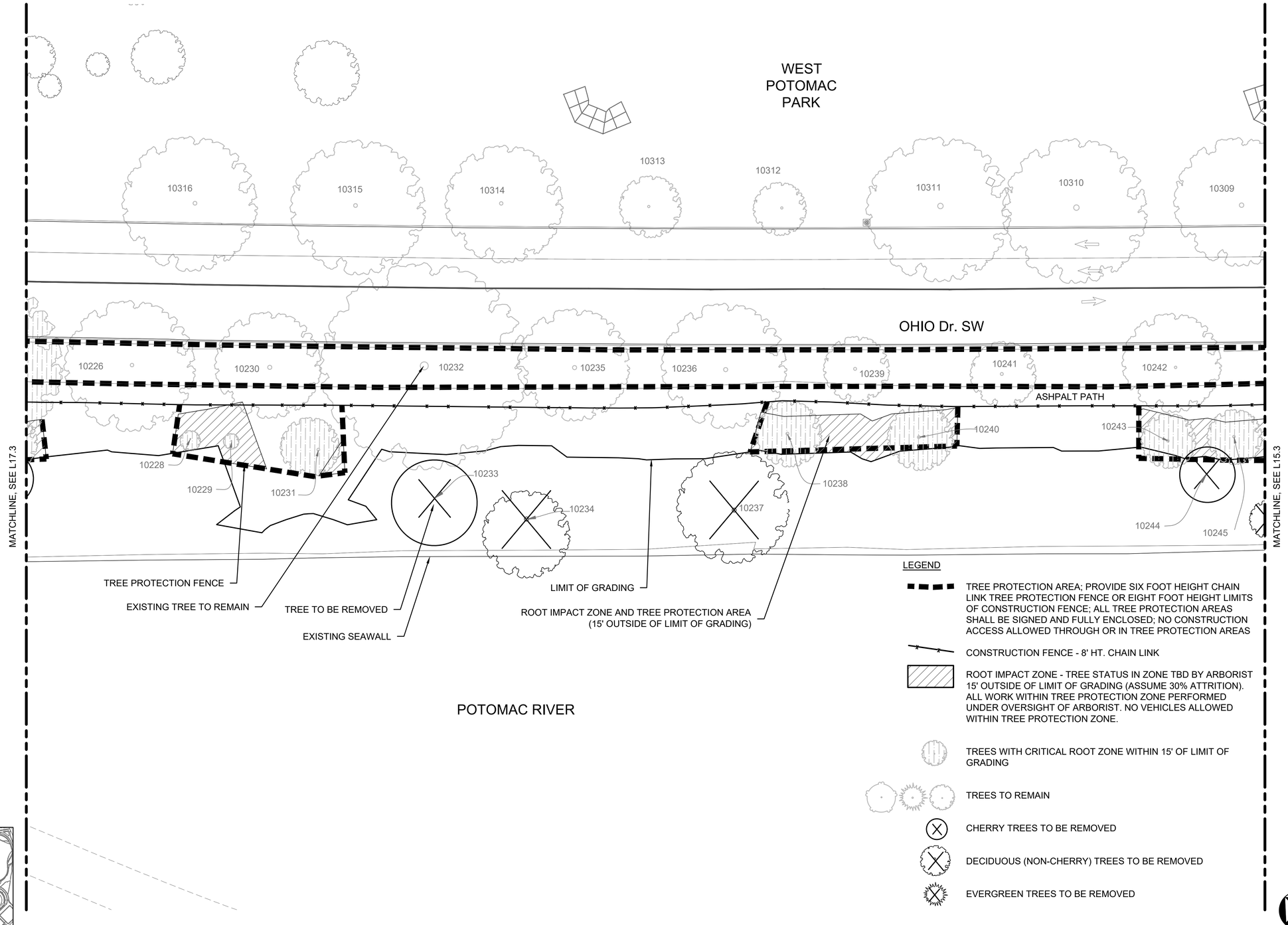
L15.3 / L00.3 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 4

1" = 20'

20 0 20 40

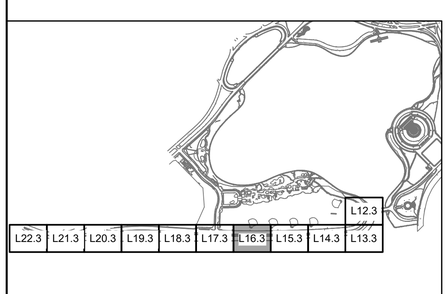
SCALE OF FEET

NATIONAL PARK SERVICE	DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
	CADD JLS/DBS	L15.3	WEST POTOMAC PARK ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 4	802 / 177531
	TECH. REVIEW: RVS			PMIS/PKG NO. 318722
	DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 166 OF 226



LEGEND

- TREE PROTECTION AREA; PROVIDE SIX FOOT HEIGHT CHAIN LINK TREE PROTECTION FENCE OR EIGHT FOOT HEIGHT LIMITS OF CONSTRUCTION FENCE; ALL TREE PROTECTION AREAS SHALL BE SIGNED AND FULLY ENCLOSED; NO CONSTRUCTION ACCESS ALLOWED THROUGH OR IN TREE PROTECTION AREAS
- CONSTRUCTION FENCE - 8' HT. CHAIN LINK
- ROOT IMPACT ZONE - TREE STATUS IN ZONE TBD BY ARBORIST 15' OUTSIDE OF LIMIT OF GRADING (ASSUME 30% ATTRITION). ALL WORK WITHIN TREE PROTECTION ZONE PERFORMED UNDER OVERSIGHT OF ARBORIST. NO VEHICLES ALLOWED WITHIN TREE PROTECTION ZONE.
- TREES WITH CRITICAL ROOT ZONE WITHIN 15' OF LIMIT OF GRADING
- TREES TO REMAIN
- CHERRY TREES TO BE REMOVED
- DECIDUOUS (NON-CHERRY) TREES TO BE REMOVED
- EVERGREEN TREES TO BE REMOVED



KEY MAP

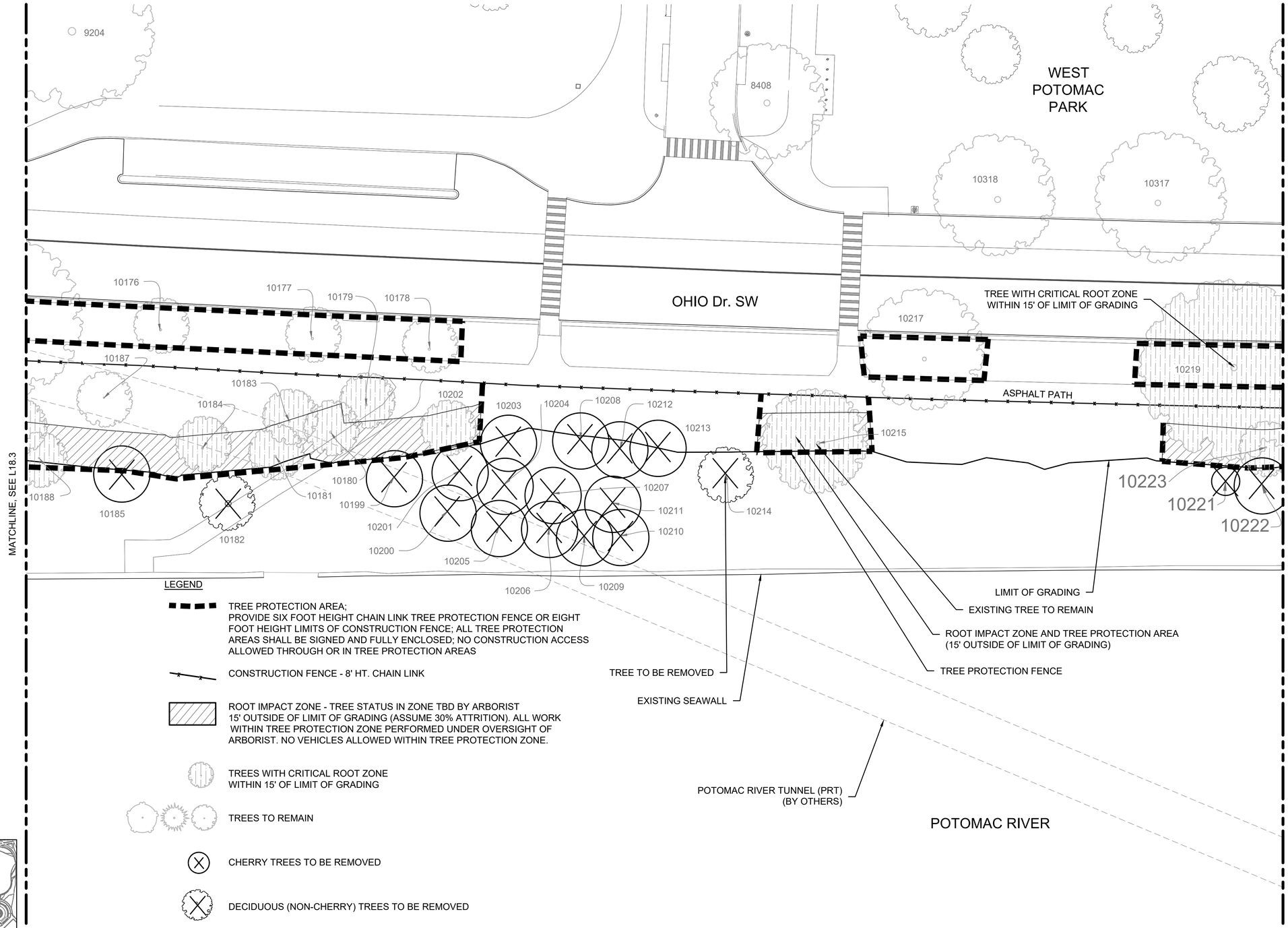
L16.3 / L00.3 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 5

1" = 20'

20 0 20 40

SCALE OF FEET

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
DAPD	L16.3	WEST POTOMAC PARK ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 5	802 / 177531
JLS/DBS			PMIS/PKG NO.
TECH. REVIEW: RVS			318722
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 167 OF 226



LEGEND

TREE PROTECTION AREA;
PROVIDE SIX FOOT HEIGHT CHAIN LINK TREE PROTECTION FENCE OR EIGHT FOOT HEIGHT LIMITS OF CONSTRUCTION FENCE; ALL TREE PROTECTION AREAS SHALL BE SIGNED AND FULLY ENCLOSED; NO CONSTRUCTION ACCESS ALLOWED THROUGH OR IN TREE PROTECTION AREAS

CONSTRUCTION FENCE - 8' HT. CHAIN LINK

ROOT IMPACT ZONE - TREE STATUS IN ZONE TBD BY ARBORIST
15' OUTSIDE OF LIMIT OF GRADING (ASSUME 30% ATTRITION). ALL WORK WITHIN TREE PROTECTION ZONE PERFORMED UNDER OVERSIGHT OF ARBORIST. NO VEHICLES ALLOWED WITHIN TREE PROTECTION ZONE.

TREES WITH CRITICAL ROOT ZONE WITHIN 15' OF LIMIT OF GRADING

TREES TO REMAIN

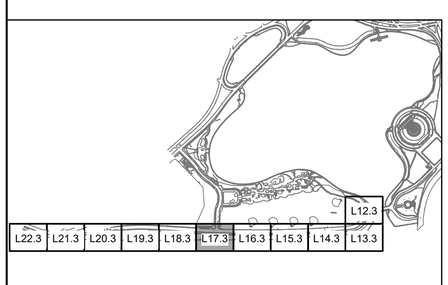
CHERRY TREES TO BE REMOVED

DECIDUOUS (NON-CHERRY) TREES TO BE REMOVED

EVERGREEN TREES TO BE REMOVED

L17.3 / L00.3 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 6
1" = 20'

20 0 20 40
SCALE OF FEET



KEY MAP

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.	
CADD JLS/DBS	L17.3	WEST POTOMAC PARK ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 6	802 / 177531	
TECH. REVIEW: RVS			PMIS/PKG NO. 318722	
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 168 OF 226	

WEST POTOMAC PARK

10016 10015 10013 10009 10006 10010 10007

OHIO Dr. SW

10165 10171 10172 10173 10174 10175

ASPHALT PATH

10161

HATCHED AREA EXCLUDED FROM NAMA SEAWALL SCOPE

PART OF THE DC CLEAN RIVERS PROJECT, POTOMAC RIVER TUNNEL - CONTRACT B, TUNNEL SYSTEM CONSTRUCTION, JUNE 2022

10168 10169 10197 10189 10192 10164

MATCHLINE, SEE L19.3

MATCHLINE, SEE L17.3

TREE PROTECTION FENCE

TREE TO BE REMOVED

LIMIT OF GRADING

EXISTING TREE TO REMAIN

EXISTING SEAWALL

ROOT IMPACT ZONE AND TREE PROTECTION AREA (15' OUTSIDE OF LIMIT OF GRADING)

POTOMAC RIVER

LEGEND

TREE PROTECTION AREA; PROVIDE SIX FOOT HEIGHT CHAIN LINK TREE PROTECTION FENCE OR EIGHT FOOT HEIGHT LIMITS OF CONSTRUCTION FENCE; ALL TREE PROTECTION AREAS SHALL BE SIGNED AND FULLY ENCLOSED; NO CONSTRUCTION ACCESS ALLOWED THROUGH OR IN TREE PROTECTION AREAS

CONSTRUCTION FENCE - 8' HT. CHAIN LINK

ROOT IMPACT ZONE - TREE STATUS IN ZONE TBD BY ARBORIST 15' OUTSIDE OF LIMIT OF GRADING (ASSUME 30% ATTRITION). ALL WORK WITHIN TREE PROTECTION ZONE PERFORMED UNDER OVERSIGHT OF ARBORIST. NO VEHICLES ALLOWED WITHIN TREE PROTECTION ZONE.

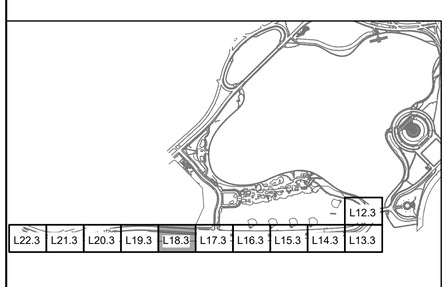
TREES WITH CRITICAL ROOT ZONE WITHIN 15' OF LIMIT OF GRADING

TREES TO REMAIN

CHERRY TREES TO BE REMOVED

DECIDUOUS (NON-CHERRY) TREES TO BE REMOVED

EVERGREEN TREES TO BE REMOVED



KEY MAP

L18.3 / L00.3 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 7

1" = 20'

20 0 20 40

SCALE OF FEET

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
CADD JLS/DBS	L18.3	WEST POTOMAC PARK ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 7	802 / 177531
TECH. REVIEW: RVS			PMIS/PKG NO. 318722
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 169 OF 226

WEST POTOMAC PARK

OHIO Dr. SW

HATCHED AREA EXCLUDED FROM
NAMA SEAWALL SCOPE

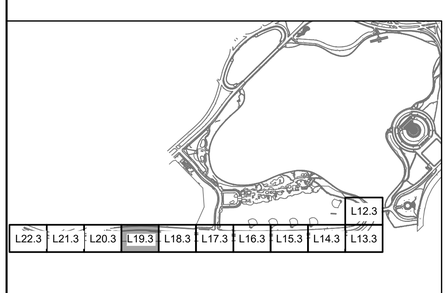
PART OF THE DC CLEAN RIVERS PROJECT, POTOMAC RIVER TUNNEL - CONTRACT B, TUNNEL SYSTEM CONSTRUCTION, JUNE 2022

MATCHLINE, SEE L20.3

MATCHLINE, SEE L18.3

EXISTING SEAWALL

POTOMAC RIVER



KEY MAP

L19.3 / L00.3 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 8

1" = 20'

20 0 20 40

SCALE OF FEET

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
DAPD JLS/DBS	L19.3	WEST POTOMAC PARK ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 8	802 / 177531
TECH. REVIEW: RVS			PMIS/PKG NO. 318722
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 170 OF 226

WEST POTOMAC PARK

HATCHED AREA EXCLUDED FROM NAMA SEAWALL SCOPE

PART OF THE DC CLEAN RIVERS PROJECT, POTOMAC RIVER TUNNEL - CONTRACT B, TUNNEL SYSTEM CONSTRUCTION, JUNE 2022

JOHN ERICSSON MEMORIAL

OHIO Dr. SW

10077
10079
10078
10081
10085
10086
10087
10089
10088
10083
10093
10094
10095
10097
10099
10101
10102
10103
10106
10107
10109

MATCHLINE, SEE L21.3

MATCHLINE, SEE L19.3

LIMIT OF GRADING

EXISTING TREE TO REMAIN

ROOT IMPACT ZONE AND TREE PROTECTION AREA (15' OUTSIDE OF LIMIT OF GRADING)

EXISTING SEAWALL

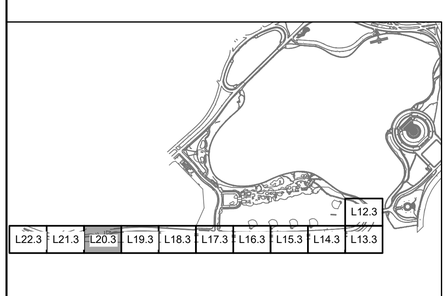
TREE TO BE REMOVED

TREE PROTECTION FENCE

POTOMAC RIVER

LEGEND

- TREE PROTECTION AREA; PROVIDE SIX FOOT HEIGHT CHAIN LINK TREE PROTECTION FENCE OR EIGHT FOOT HEIGHT LIMITS OF CONSTRUCTION FENCE; ALL TREE PROTECTION AREAS SHALL BE SIGNED AND FULLY ENCLOSED; NO CONSTRUCTION ACCESS ALLOWED THROUGH OR IN TREE PROTECTION AREAS
- CONSTRUCTION FENCE - 8' HT. CHAIN LINK
- ROOT IMPACT ZONE - TREE STATUS IN ZONE TBD BY ARBORIST 15' OUTSIDE OF LIMIT OF GRADING (ASSUME 30% ATTRITION). ALL WORK WITHIN TREE PROTECTION ZONE PERFORMED UNDER OVERSIGHT OF ARBORIST. NO VEHICLES ALLOWED WITHIN TREE PROTECTION ZONE.
- TREES WITH CRITICAL ROOT ZONE WITHIN 15' OF LIMIT OF GRADING
- TREES TO REMAIN
- CHERRY TREES TO BE REMOVED
- DECIDUOUS (NON-CHERRY) TREES TO BE REMOVED
- EVERGREEN TREES TO BE REMOVED



KEY MAP

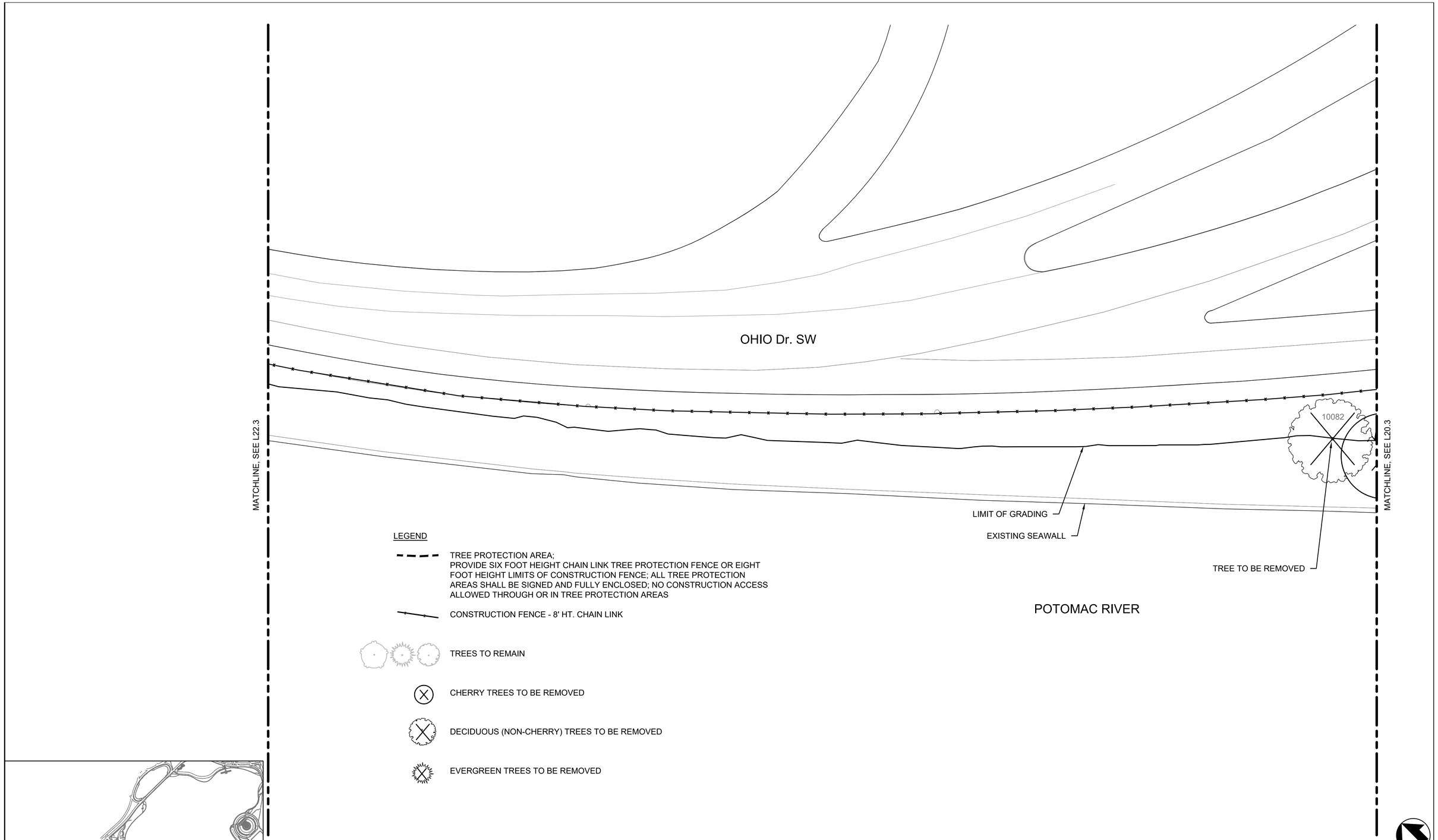
L20.3 / L00.3 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 9

1" = 20'

20 0 20 40

SCALE OF FEET

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
DAPD JLS/DBS	L20.3	WEST POTOMAC PARK ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 9	802 / 177531
TECH. REVIEW: RVS			PMIS/PKG NO. 318722
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 171 OF 226



LEGEND

TREE PROTECTION AREA;
PROVIDE SIX FOOT HEIGHT CHAIN LINK TREE PROTECTION FENCE OR EIGHT FOOT HEIGHT LIMITS OF CONSTRUCTION FENCE; ALL TREE PROTECTION AREAS SHALL BE SIGNED AND FULLY ENCLOSED; NO CONSTRUCTION ACCESS ALLOWED THROUGH OR IN TREE PROTECTION AREAS

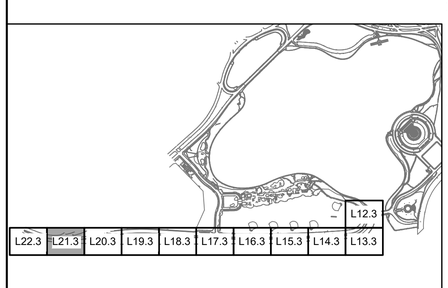
CONSTRUCTION FENCE - 8' HT. CHAIN LINK

TREES TO REMAIN

CHERRY TREES TO BE REMOVED

DECIDUOUS (NON-CHERRY) TREES TO BE REMOVED

EVERGREEN TREES TO BE REMOVED

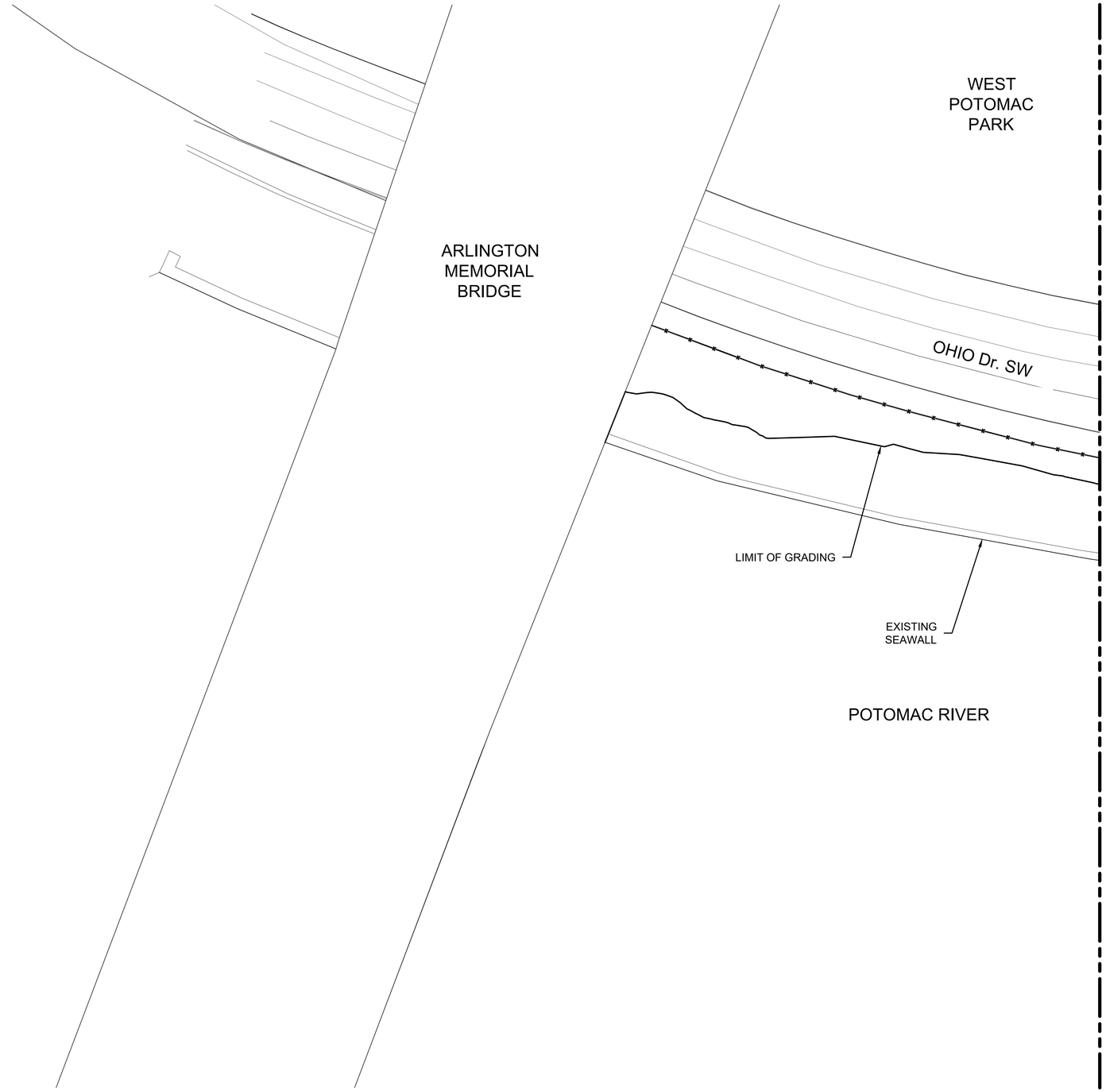


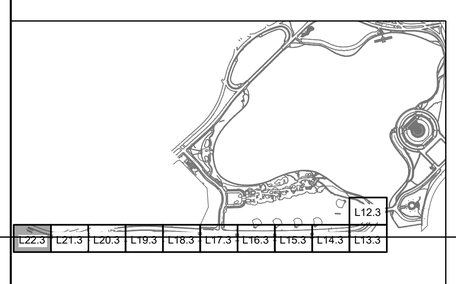
KEY MAP

L21.3 / L00.3 ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 10
1" = 20'

20 0 20 40
SCALE OF FEET

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.	
DADD JLS/DBS	L21.3	WEST POTOMAC PARK ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 10	802 / 177531	
TECH. REVIEW: RVS			PMIS/PKG NO. 318722	
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 172 OF 226	





KEY MAP

L22.3
L00.3

ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 11

1" = 20'

20 0 20 40

SCALE OF FEET

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
DRAWN: JLS/DBS	L22.3	WEST POTOMAC PARK	802 177531
TECH. REVIEW: RVS		ENLARGED TREE REMOVAL & TREE PROTECTION PLAN 11	PMIS/PKG NO. 318722
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 173 OF 226

MITIGATION PLANT SCHEDULE (THIS SHEET)

SYMBOL	TREE TYPE *	QUANTITY	SIZE
	DECIDUOUS TREE	0	3"- 6" CAL.
	CHERRY TREE	0	2" - 3.5" CAL.
	EVERGREEN TREE	5	10' - 16' HT.

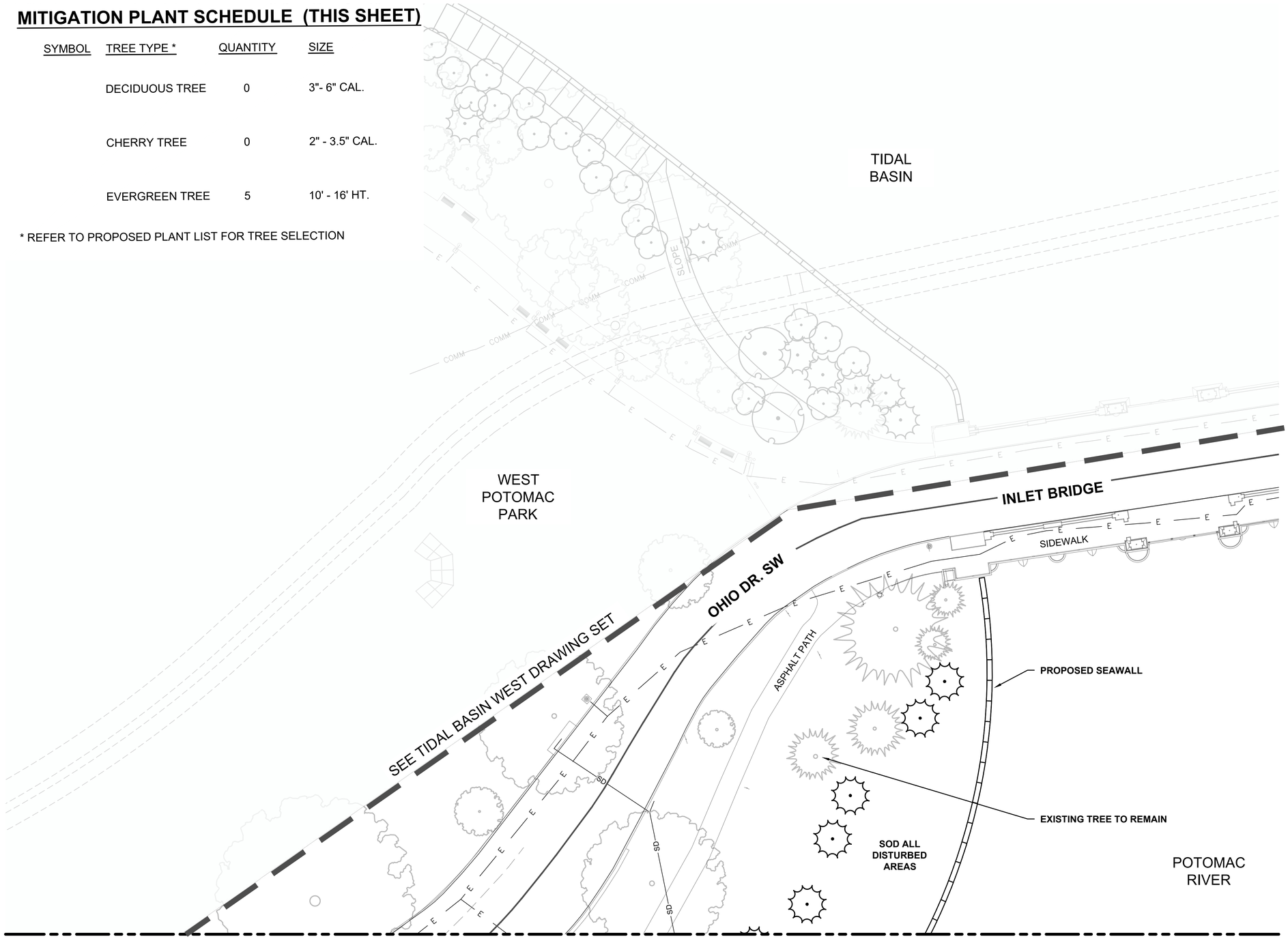
* REFER TO PROPOSED PLANT LIST FOR TREE SELECTION

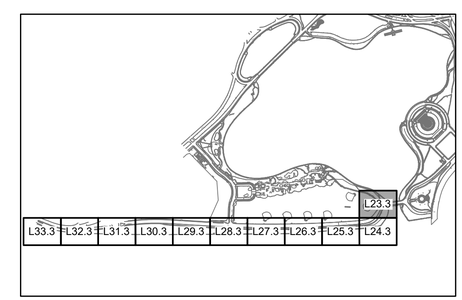
LEGEND

TREES TO REMAIN

WEST POTOMAC PARK - SUMMARY					
	DECIDUOUS	UNKNOWN	CHERRY	EVERGREEN	TOTAL
REMOVED	15	1	22	3	41
TREE MITIGATION REQUIRED: 74					
PROPOSED	28	0	39	7	74
SEE SHEET L35.3 FOR DETAILED TREE MITIGATION CALCULATIONS					

ALL NEW TREE PLANTINGS TO BE A MINIMUM OF 18' FROM THE FACE OF THE WALL





KEY MAP

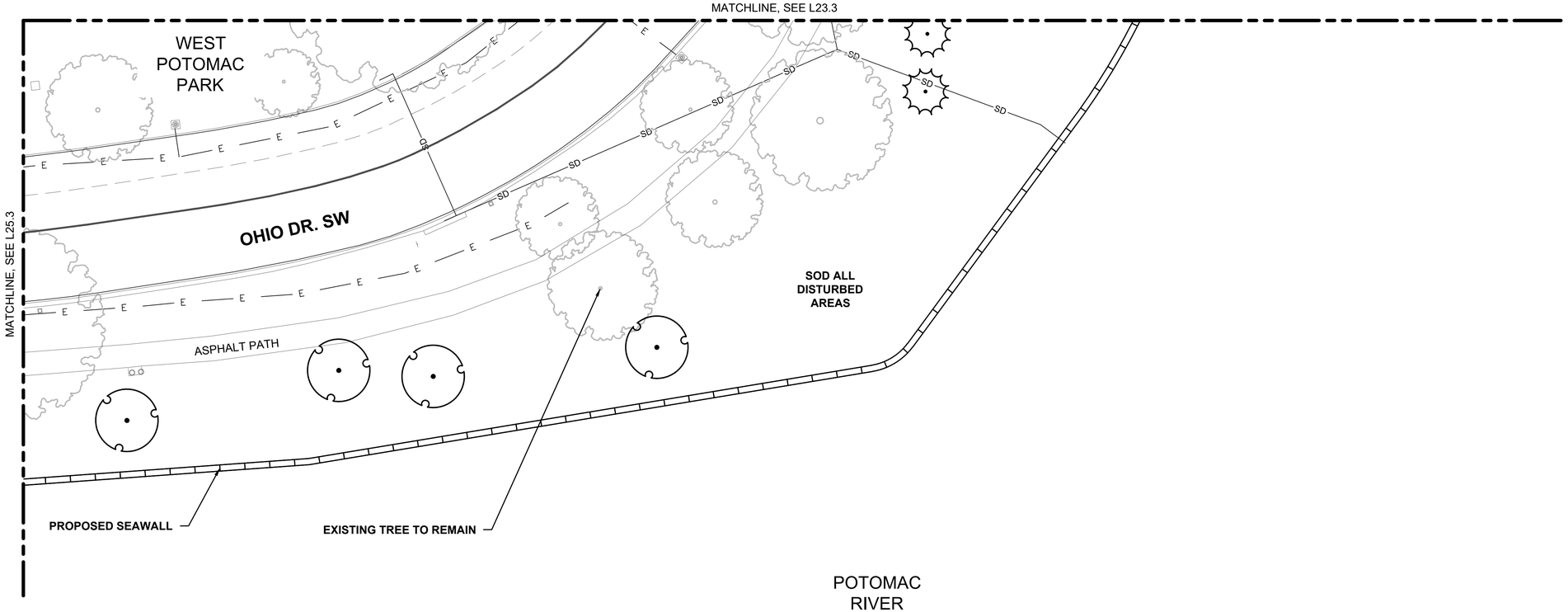
20 0 20 40

SCALE OF FEET

NOTES:
1. TREE CHOICES FOR MITIGATION, SEE SHEET L34.3
2. TREE MITIGATION CALCULATIONS, SEE SHEET L35.3
3. TREE PLANTING DETAILS, SEE SHEET L36.3

L23.3 / L00.3 ENLARGED PROPOSED TREE PLANTING PLAN 1
1" = 20'

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD JLS/DBS	L23.3	WEST POTOMAC PARK ENLARGED PROPOSED TREE PLANTING PLAN 1	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	174 OF 226



LEGEND

TREES TO REMAIN

WEST POTOMAC PARK - SUMMARY					
	DECIDUOUS	UNKNOWN	CHERRY	EVERGREEN	TOTAL
REMOVED	15	1	22	4	42
TREE MITIGATION REQUIRED: 74					
PROPOSED	28	0	39	7	74
SEE SHEET L35.3 FOR DETAILED TREE MITIGATION CALCULATIONS					

ALL NEW TREE PLANTINGS TO BE A MINIMUM OF 18' FROM THE FACE OF THE WALL

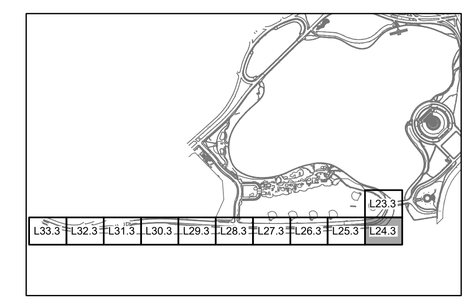
MITIGATION PLANT SCHEDULE (THIS SHEET)

SYMBOL	TREE TYPE *	QUANTITY	SIZE
	DECIDUOUS TREE	4	3"- 6" CAL.
	CHERRY TREE	0	2" - 3.5" CAL.
	EVERGREEN TREE	2	10' - 16' HT.

* REFER TO PROPOSED PLANT LIST FOR TREE SELECTION

NOTES:
1. TREE CHOICES FOR MITIGATION, SEE SHEET L34.3
2. TREE MITIGATION CALCULATIONS, SEE SHEET L35.3
3. TREE PLANTING DETAILS, SEE SHEET L36.3

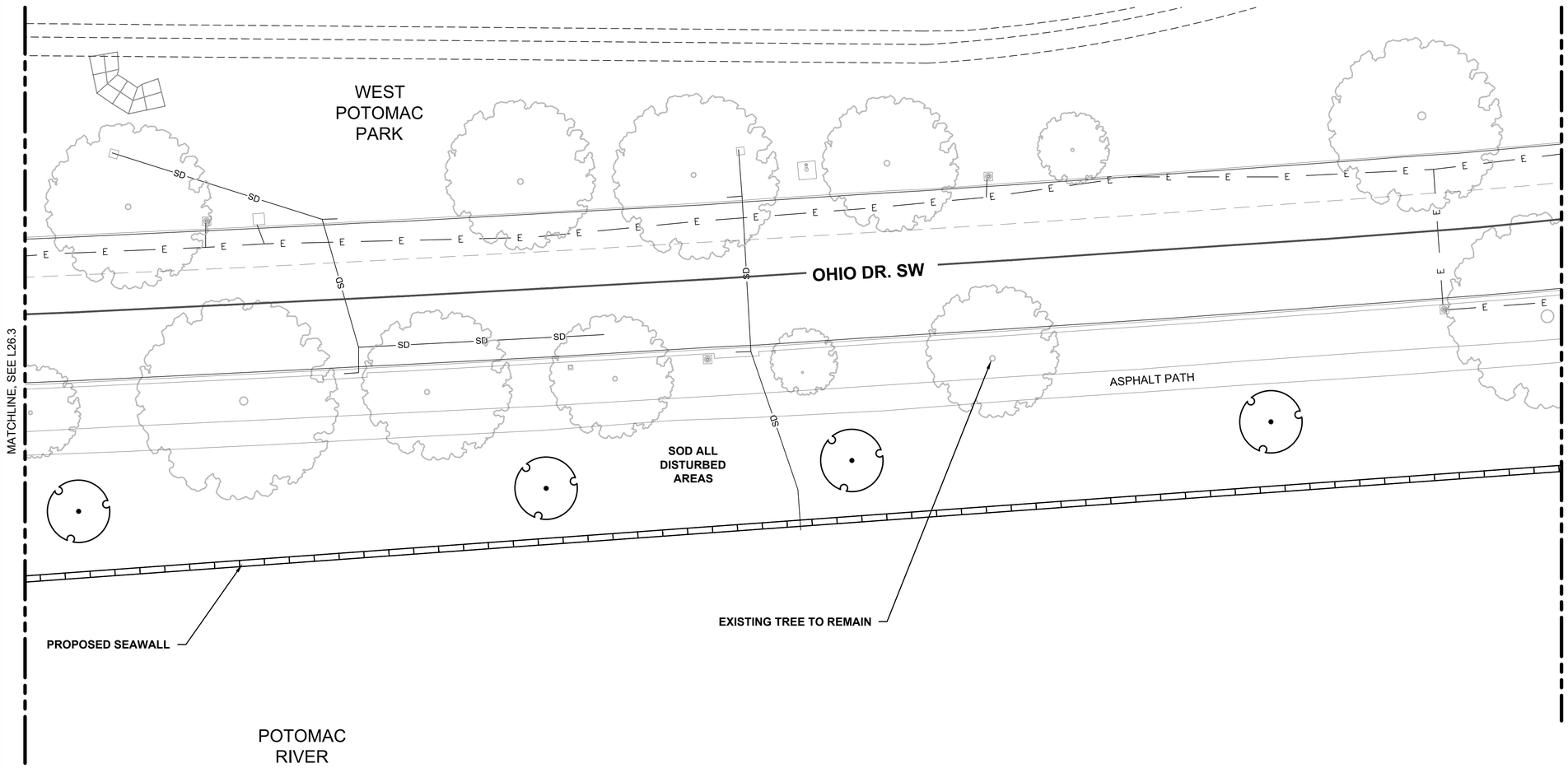
L24.3 / L00.3 ENLARGED PROPOSED TREE PLANTING PLAN 2
1" = 20'



KEY MAP

20 0 20 40
SCALE OF FEET

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD JLS/DBS	L24.3	WEST POTOMAC PARK ENLARGED PROPOSED TREE PLANTING PLAN 2	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	175 OF 226



LEGEND

TREES TO REMAIN

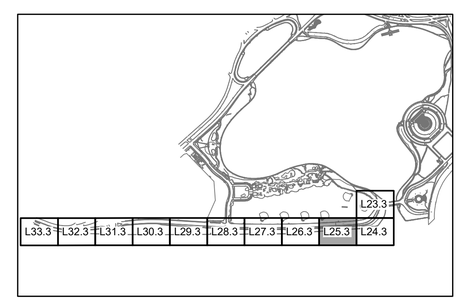
WEST POTOMAC PARK - SUMMARY					
	DECIDUOUS	UNKNOWN	CHERRY	EVERGREEN	TOTAL
REMOVED	15	1	22	4	42
TREE MITIGATION REQUIRED: 74					
PROPOSED	28	0	39	7	74
SEE SHEET L35.3 FOR DETAILED TREE MITIGATION CALCULATIONS					

ALL NEW TREE PLANTINGS TO BE A MINIMUM OF 18' FROM THE FACE OF THE WALL

MITIGATION PLANT SCHEDULE (THIS SHEET)

SYMBOL	TREE TYPE *	QUANTITY	SIZE
	DECIDUOUS TREE	4	3"- 6" CAL.
	CHERRY TREE	0	2" - 3.5" CAL.
	EVERGREEN TREE	0	10' - 16' HT.

* REFER TO PROPOSED PLANT LIST FOR TREE SELECTION



KEY MAP

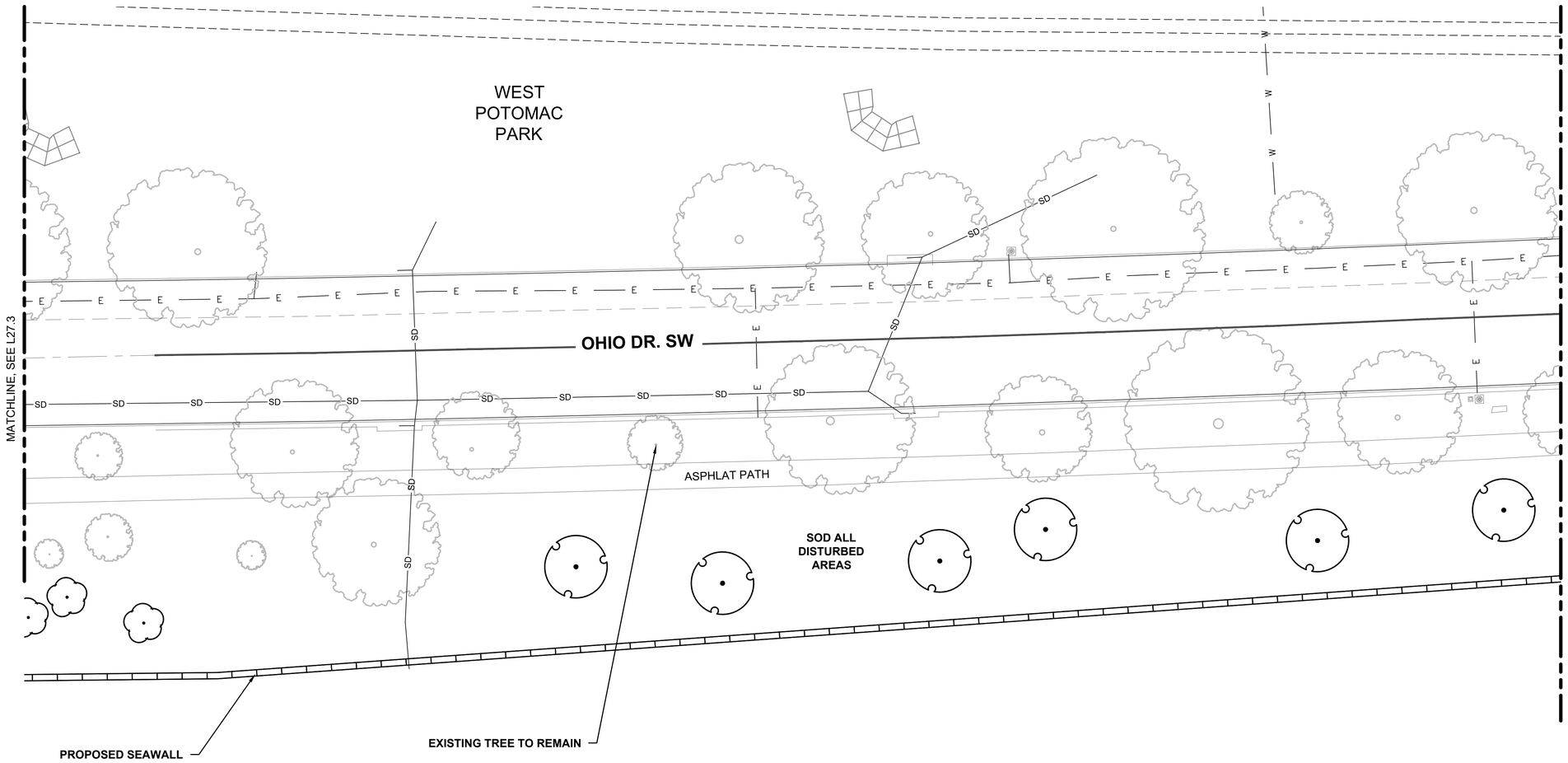
20 0 20 40

SCALE OF FEET

NOTES:
1. TREE CHOICES FOR MITIGATION, SEE SHEET L34.3
2. TREE MITIGATION CALCULATIONS, SEE SHEET L35.3
3. TREE PLANTING DETAILS, SEE SHEET L36.3

L25.3 / L00.3 ENLARGED PROPOSED TREE PLANTING PLAN 3
1" = 20'

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD JLS/DBS	L25.3	WEST POTOMAC PARK ENLARGED PROPOSED TREE PLANTING PLAN 3	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	176 OF 226



LEGEND

TREES TO REMAIN

WEST POTOMAC PARK - SUMMARY					
	DECIDUOUS	UNKNOWN	CHERRY	EVERGREEN	TOTAL
REMOVED	15	1	22	4	42
TREE MITIGATION REQUIRED: 74					
PROPOSED	28	0	39	7	74
SEE SHEET L35.3 FOR DETAILED TREE MITIGATION CALCULATIONS					

ALL NEW TREE PLANTINGS TO BE A MINIMUM OF 18' FROM THE FACE OF THE WALL

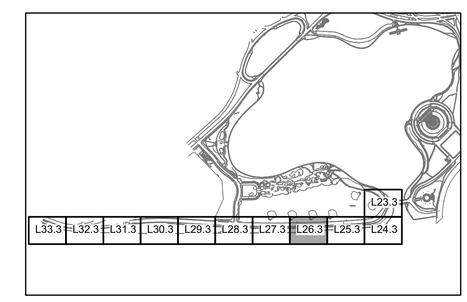
MITIGATION PLANT SCHEDULE (THIS SHEET)

SYMBOL	TREE TYPE *	QUANTITY	SIZE
	DECIDUOUS TREE	6	3"- 6" CAL.
	CHERRY TREE	3	2" - 3.5" CAL.
	EVERGREEN TREE	0	10' - 16' HT.

* REFER TO PROPOSED PLANT LIST FOR TREE SELECTION

NOTES:
1. TREE CHOICES FOR MITIGATION, SEE SHEET L34.3
2. TREE MITIGATION CALCULATIONS, SEE SHEET L35.3
3. TREE PLANTING DETAILS, SEE SHEET L36.3

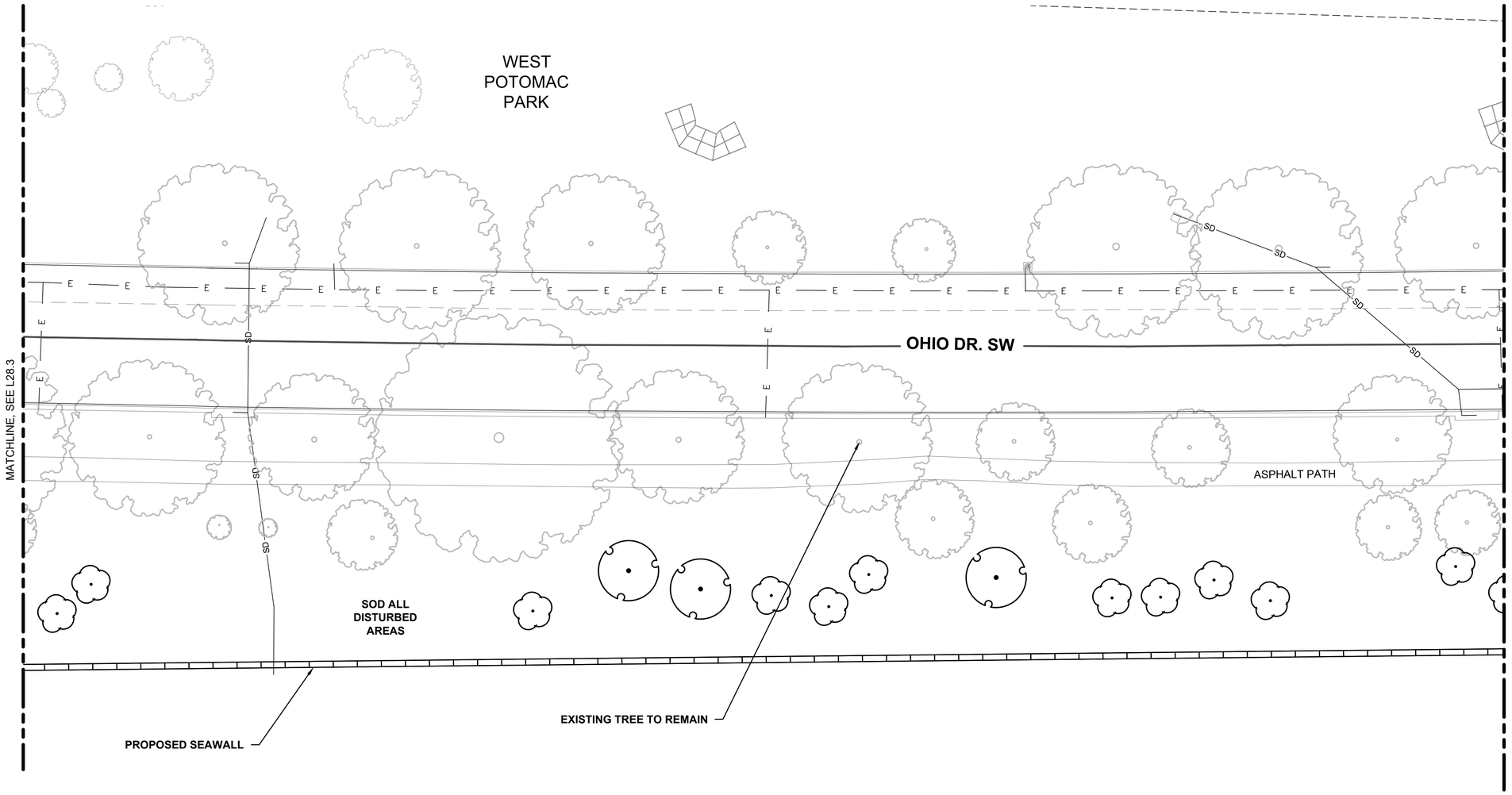
L26.3 / L00.3 ENLARGED PROPOSED TREE PLANTING PLAN 4
1" = 20'



KEY MAP

20 0 20 40
SCALE OF FEET

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD JLS/DBS	L26.3	WEST POTOMAC PARK ENLARGED PROPOSED TREE PLANTING PLAN 4	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	177 OF 226



LEGEND

TREES TO REMAIN

WEST POTOMAC PARK - SUMMARY					
	DECIDUOUS	UNKNOWN	CHERRY	EVERGREEN	TOTAL
REMOVED	15	1	22	4	42
TREE MITIGATION REQUIRED: 74					
PROPOSED	28	0	39	7	74
SEE SHEET L35.3 FOR DETAILED TREE MITIGATION CALCULATIONS					

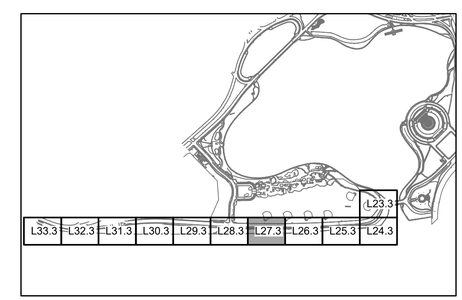
ALL NEW TREE PLANTINGS TO BE A MINIMUM OF 18' FROM THE FACE OF THE WALL

MITIGATION PLANT SCHEDULE (THIS SHEET)

SYMBOL	TREE TYPE *	QUANTITY	SIZE
	DECIDUOUS TREE	3	3"- 6" CAL.
	CHERRY TREE	11	2" - 3.5" CAL.
	EVERGREEN TREE	0	10' - 16' HT.

* REFER TO PROPOSED PLANT LIST FOR TREE SELECTION

NOTES:
1. TREE CHOICES FOR MITIGATION, SEE SHEET L34.3
2. TREE MITIGATION CALCULATIONS, SEE SHEET L35.3
3. TREE PLANTING DETAILS, SEE SHEET L36.3

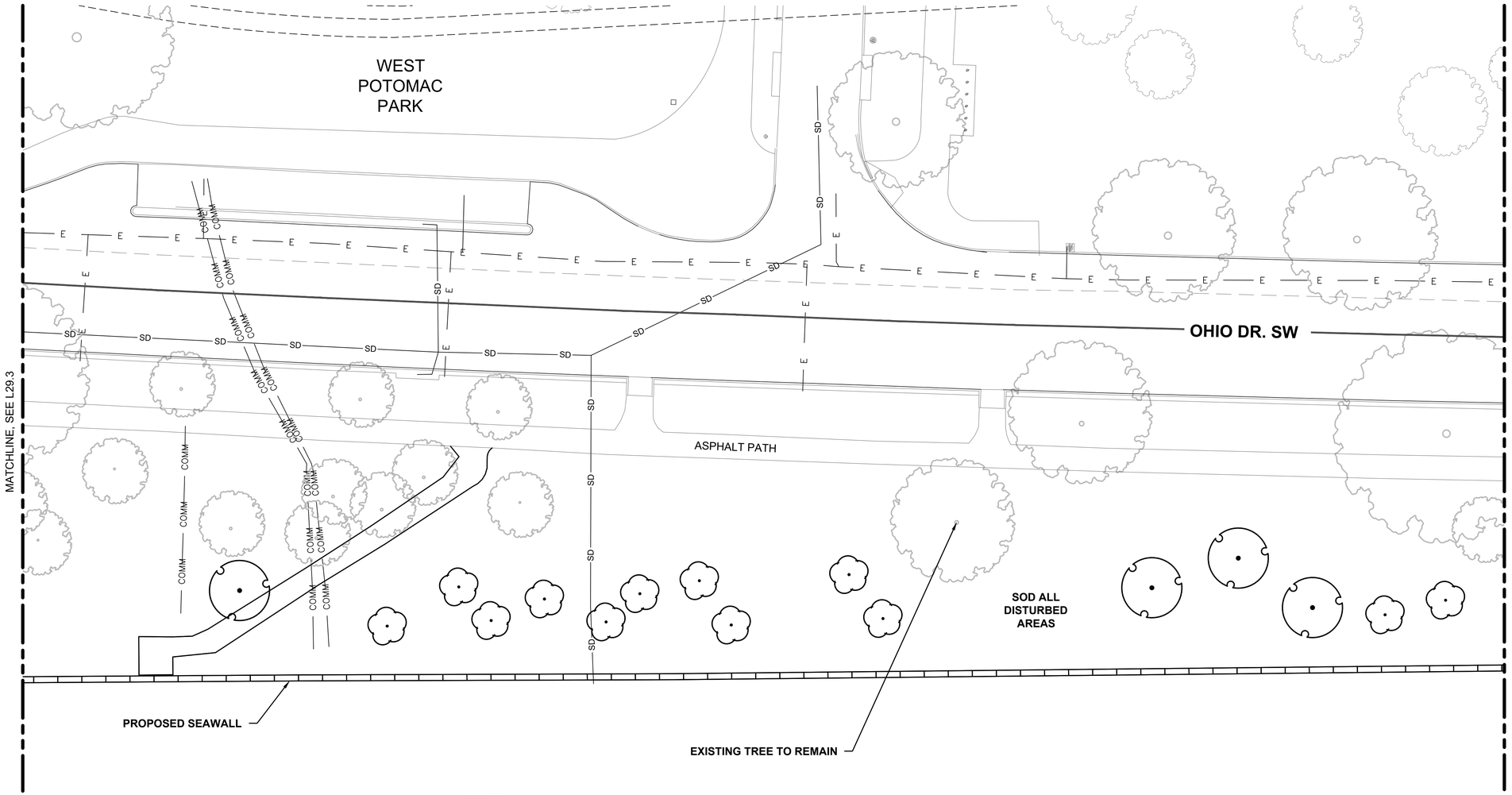


KEY MAP

20 0 20 40
SCALE OF FEET

L27.3 / L00.3 ENLARGED PROPOSED TREE PLANTING PLAN 5
1" = 20'

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD JLS/DBS	L27.3	WEST POTOMAC PARK ENLARGED PROPOSED TREE PLANTING PLAN 5	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	178 OF 226



LEGEND

TREES TO REMAIN

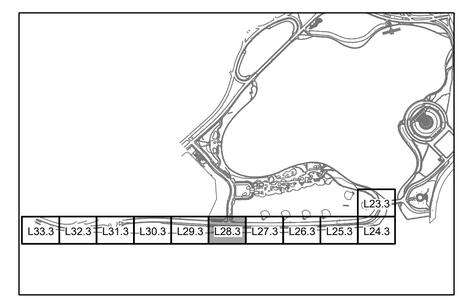
WEST POTOMAC PARK - SUMMARY					
	DECIDUOUS	UNKNOWN	CHERRY	EVERGREEN	TOTAL
REMOVED	15	1	22	4	42
TREE MITIGATION REQUIRED: 74					
PROPOSED	28	0	39	7	74
SEE SHEET L35.3 FOR DETAILED TREE MITIGATION CALCULATIONS					

ALL NEW TREE PLANTINGS TO BE A MINIMUM OF 18' FROM THE FACE OF THE WALL

MITIGATION PLANT SCHEDULE (THIS SHEET)

SYMBOL	TREE TYPE *	QUANTITY	SIZE
	DECIDUOUS TREE	4	3"- 6" CAL.
	CHERRY TREE	12	2" - 3.5" CAL.
	EVERGREEN TREE	0	10' - 16' HT.

* REFER TO PROPOSED PLANT LIST FOR TREE SELECTION



KEY MAP

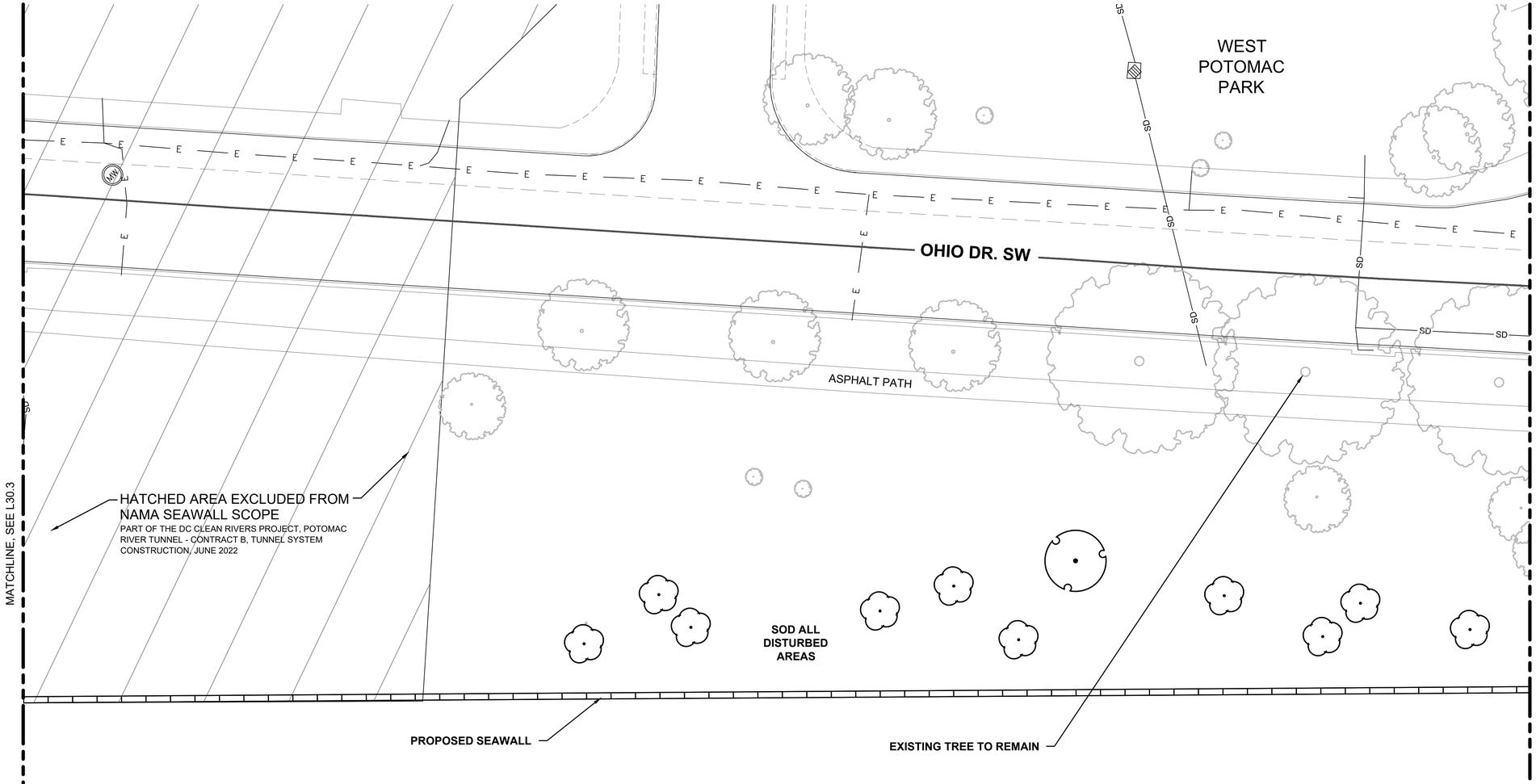
20 0 20 40

SCALE OF FEET

NOTES:
1. TREE CHOICES FOR MITIGATION, SEE SHEET L34.3
2. TREE MITIGATION CALCULATIONS, SEE SHEET L35.3
3. TREE PLANTING DETAILS, SEE SHEET L36.3

L28.3 / L00.3 ENLARGED PROPOSED TREE PLANTING PLAN 6
1" = 20'

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD JLS/DBS	L28.3	WEST POTOMAC PARK ENLARGED PROPOSED TREE PLANTING PLAN 6	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET 179 OF 226
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	



LEGEND

TREES TO REMAIN

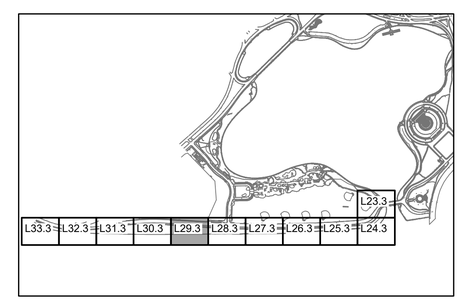
WEST POTOMAC PARK - SUMMARY					
	DECIDUOUS	UNKNOWN	CHERRY	EVERGREEN	TOTAL
REMOVED	15	1	22	4	42
TREE MITIGATION REQUIRED: 74					
PROPOSED	28	0	39	7	74
SEE SHEET L35.3 FOR DETAILED TREE MITIGATION CALCULATIONS					

ALL NEW TREE PLANTINGS TO BE A MINIMUM OF 18' FROM THE FACE OF THE WALL

MITIGATION PLANT SCHEDULE (THIS SHEET)

SYMBOL	TREE TYPE *	QUANTITY	SIZE
	DECIDUOUS TREE	1	3"- 6" CAL.
	CHERRY TREE	10	2" - 3.5" CAL.
	EVERGREEN TREE	0	10' - 16' HT.

* REFER TO PROPOSED PLANT LIST FOR TREE SELECTION



KEY MAP

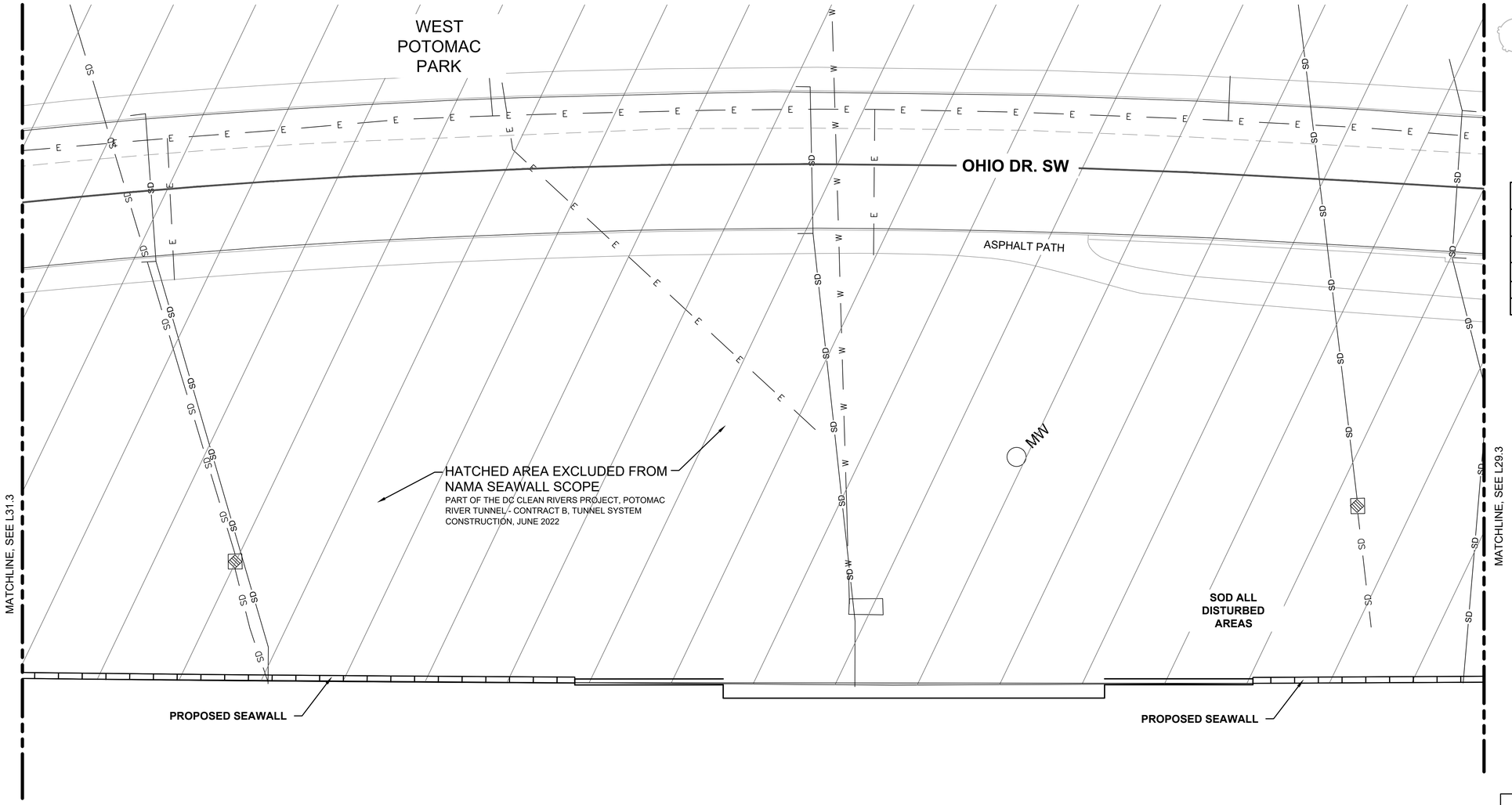
20 0 20 40

SCALE OF FEET

NOTES:
1. TREE CHOICES FOR MITIGATION, SEE SHEET L34.3
2. TREE MITIGATION CALCULATIONS, SEE SHEET L35.3
3. TREE PLANTING DETAILS, SEE SHEET L36.3

L29.3 / L00.3 ENLARGED PROPOSED TREE PLANTING PLAN 7
1" = 20'

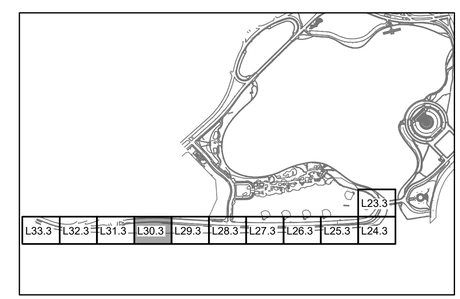
DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 177531
CADD JLS/DBS	L29.3	WEST POTOMAC PARK ENLARGED PROPOSED TREE PLANTING PLAN 7	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	180 OF 226



LEGEND

TREES TO REMAIN

WEST POTOMAC PARK - SUMMARY					
	DECIDUOUS	UNKNOWN	CHERRY	EVERGREEN	TOTAL
REMOVED	15	1	22	4	42
TREE MITIGATION REQUIRED: 74					
PROPOSED	28	0	39	7	74
SEE SHEET L35.3 FOR DETAILED TREE MITIGATION CALCULATIONS					



KEY MAP

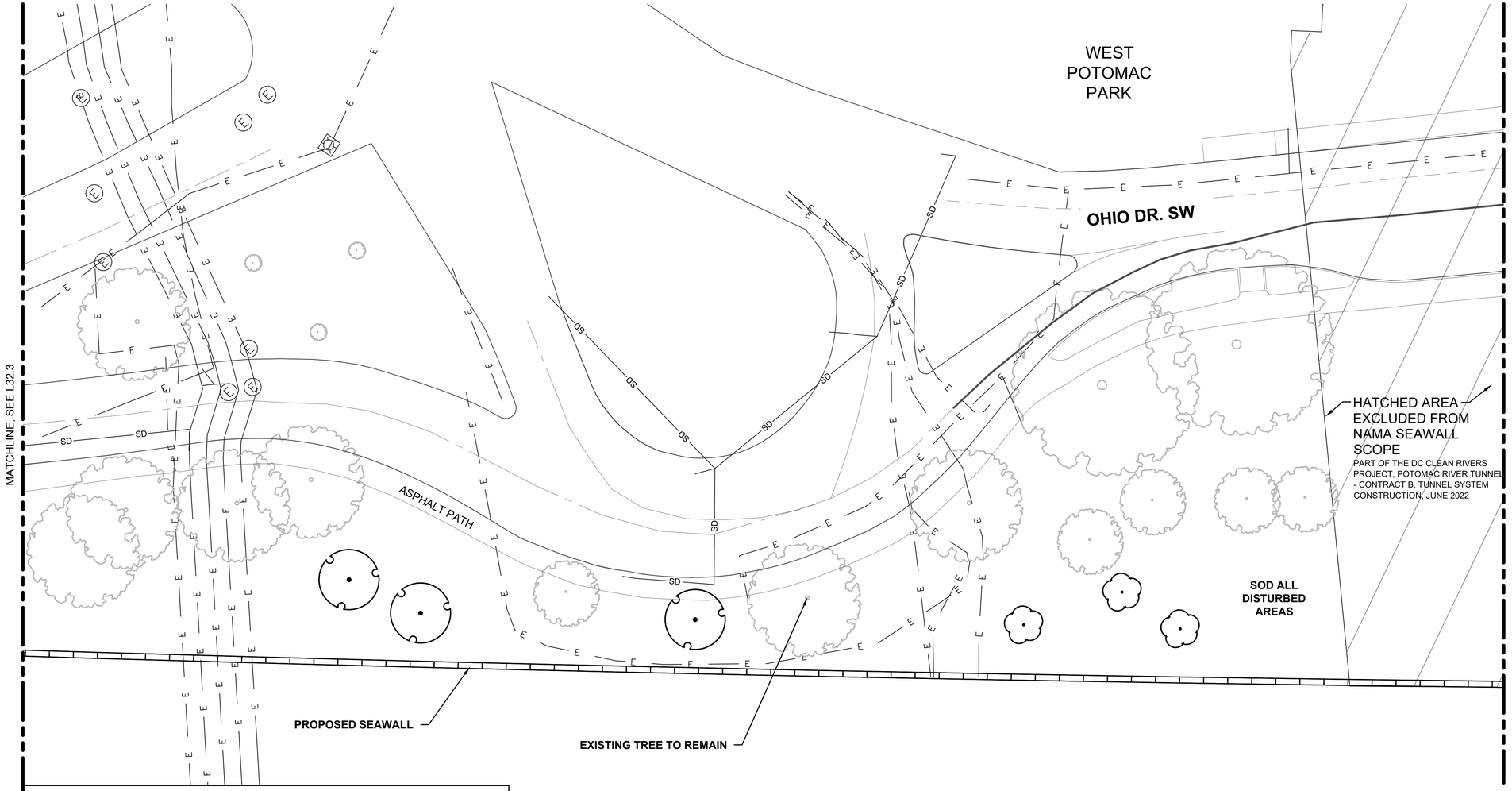
20 0 20 40

SCALE OF FEET

NOTES:
1. TREE CHOICES FOR MITIGATION, SEE SHEET L34.3
2. TREE MITIGATION CALCULATIONS, SEE SHEET L35.3
3. TREE PLANTING DETAILS, SEE SHEET L36.3

L30.3 / L00.3 ENLARGED PROPOSED TREE PLANTING PLAN 8
1" = 20'

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.	
DAPD JLS/DBS	L30.3	WEST POTOMAC PARK ENLARGED PROPOSED TREE PLANTING PLAN 8	802 / 177531	
TECH. REVIEW: RVS			PMIS/PKG NO. 318722	
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 181 OF 226	



LEGEND

TREES TO REMAIN

WEST POTOMAC PARK - SUMMARY

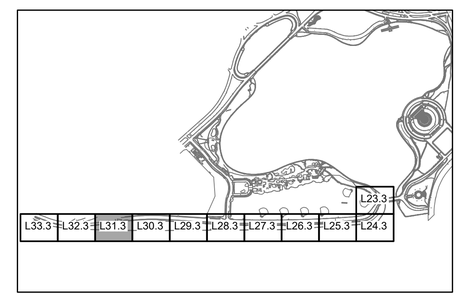
	DECIDUOUS	UNKNOWN	CHERRY	EVERGREEN	TOTAL
REMOVED	15	1	22	4	42
TREE MITIGATION REQUIRED: 74					
PROPOSED	28	0	39	7	74
SEE SHEET L35.3 FOR DETAILED TREE MITIGATION CALCULATIONS					

ALL NEW TREE PLANTINGS TO BE A MINIMUM OF 18' FROM THE FACE OF THE WALL

MITIGATION PLANT SCHEDULE (THIS SHEET)

SYMBOL	TREE TYPE *	QUANTITY	SIZE
	DECIDUOUS TREE	3	3"- 6" CAL.
	CHERRY TREE	3	2" - 3.5" CAL.
	EVERGREEN TREE	0	10' - 16' HT.

* REFER TO PROPOSED PLANT LIST FOR TREE SELECTION



KEY MAP

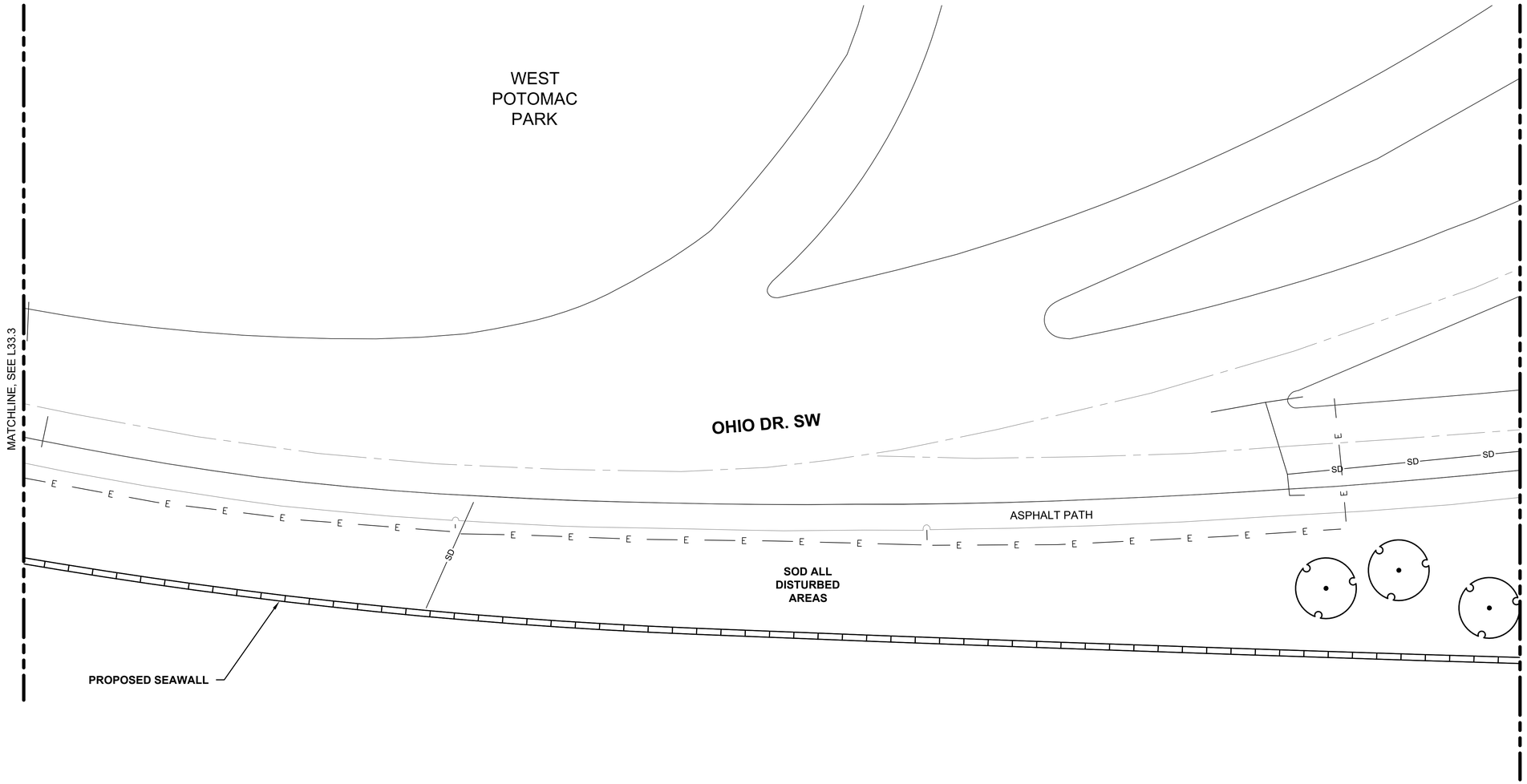
20 0 20 40

SCALE OF FEET

NOTES:
1. TREE CHOICES FOR MITIGATION, SEE SHEET L34.3
2. TREE MITIGATION CALCULATIONS, SEE SHEET L35.3
3. TREE PLANTING DETAILS, SEE SHEET L36.3

L31.3 / L00.3 ENLARGED PROPOSED TREE PLANTING PLAN 9
1" = 20'

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD JLS/DBS	L31.3	WEST POTOMAC PARK ENLARGED PROPOSED TREE PLANTING PLAN 9	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	182 OF 226



LEGEND

TREES TO REMAIN

WEST POTOMAC PARK - SUMMARY					
	DECIDUOUS	UNKNOWN	CHERRY	EVERGREEN	TOTAL
REMOVED	15	1	22	4	42
TREE MITIGATION REQUIRED: 74					
PROPOSED	28	0	39	7	74
SEE SHEET L35.3 FOR DETAILED TREE MITIGATION CALCULATIONS					

ALL NEW TREE PLANTINGS TO BE A MINIMUM OF 18' FROM THE FACE OF THE WALL

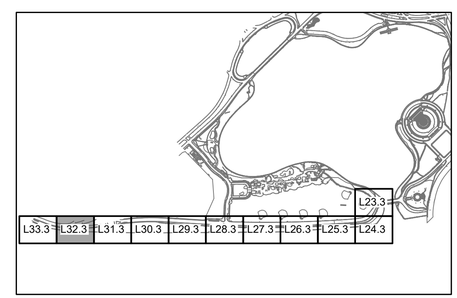
MITIGATION PLANT SCHEDULE (THIS SHEET)

SYMBOL	TREE TYPE *	QUANTITY	SIZE
	DECIDUOUS TREE	3	3"- 6" CAL.
	CHERRY TREE	0	2" - 3.5" CAL.
	EVERGREEN TREE	0	10' - 16' HT.

* REFER TO PROPOSED PLANT LIST FOR TREE SELECTION

NOTES:
1. TREE CHOICES FOR MITIGATION, SEE SHEET L34.3
2. TREE MITIGATION CALCULATIONS, SEE SHEET L35.3
3. TREE PLANTING DETAILS, SEE SHEET L36.3

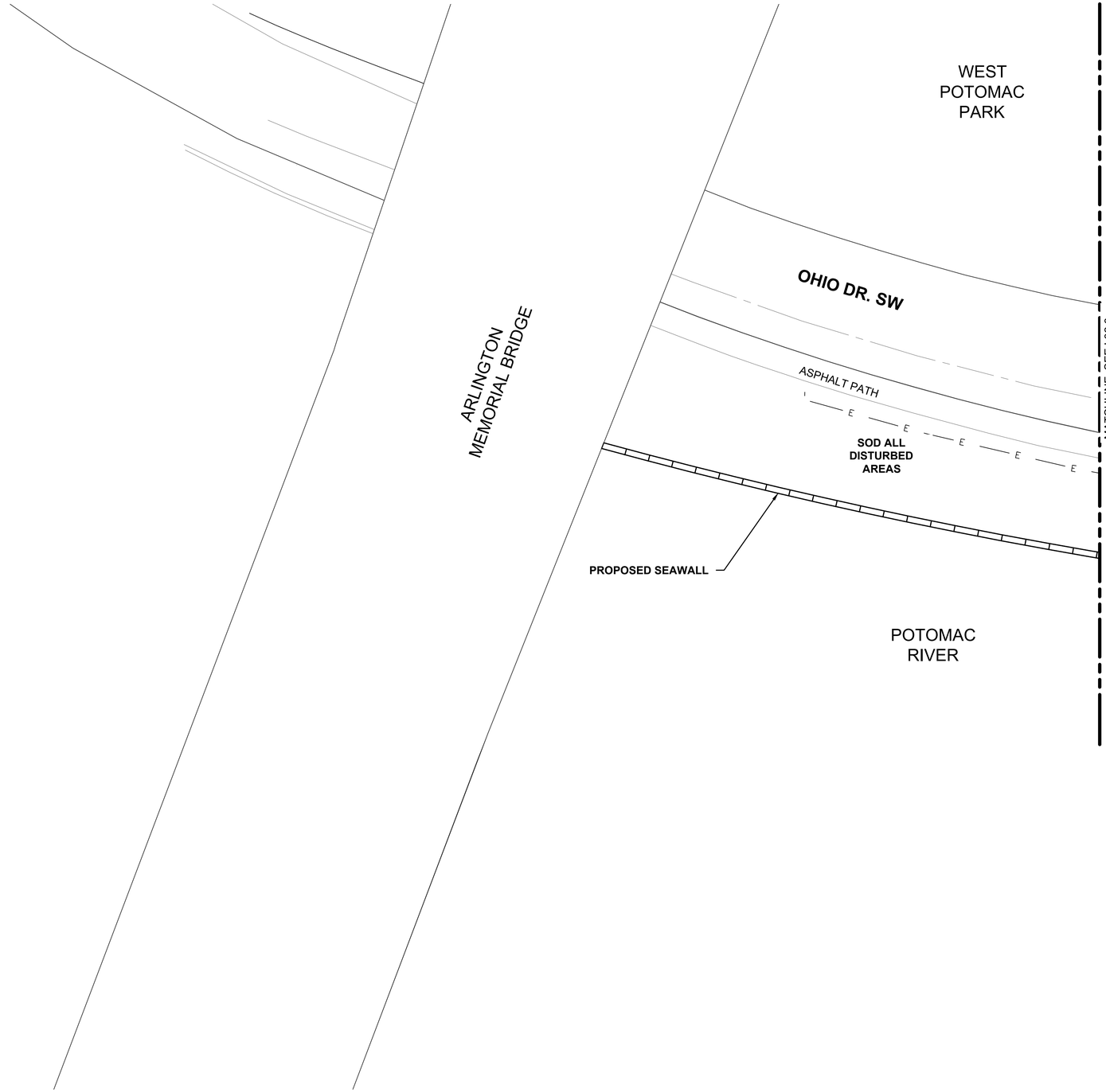
L32.3 / L00.3 ENLARGED PROPOSED TREE PLANTING PLAN 9
1" = 20'



KEY MAP

20 0 20 40
SCALE OF FEET

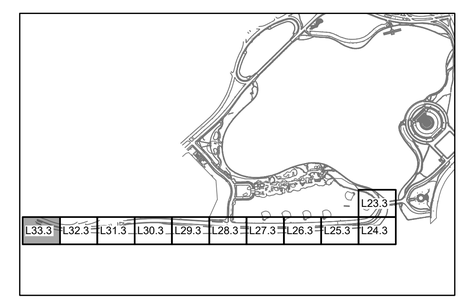
DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO. 802 / 177531
CADD JLS/DBS	L32.3	WEST POTOMAC PARK ENLARGED PROPOSED TREE PLANTING PLAN 10	PMIS/PKG NO. 318722
TECH. REVIEW: RVS			SHEET
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	183 OF 226



LEGEND

TREES TO REMAIN

WEST POTOMAC PARK - SUMMARY					
	DECIDUOUS	UNKNOWN	CHERRY	EVERGREEN	TOTAL
REMOVED	15	1	22	4	42
TREE MITIGATION REQUIRED: 74					
PROPOSED	28	0	39	7	74
SEE SHEET L35.3 FOR DETAILED TREE MITIGATION CALCULATIONS					



KEY MAP

20 0 20 40

SCALE OF FEET

NOTES:
1. TREE CHOICES FOR MITIGATION, SEE SHEET L34.3
2. TREE MITIGATION CALCULATIONS, SEE SHEET L35.3
3. TREE PLANTING DETAILS, SEE SHEET L36.3

L33.3 / L00.3 ENLARGED PROPOSED TREE PLANTING PLAN 11
1" = 20'

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.
DAPD JLS/DBS	L33.3	WEST POTOMAC PARK ENLARGED PROPOSED TREE PLANTING PLAN 11	802 / 177531
TECH. REVIEW: RVS			PMIS/PKG NO. 318722
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 184 OF 226

PROPOSED TREE LIST - CULTIVATION AND LANDSCAPE CHARACTERISTICS

COMMON NAME	BOTANICAL NAME	NPS approved for use	Edible Part	Mature Height	Mature Width	Native to US	Native to Mid-Atlantic	Drought Tolerant	Pest Tolerant	Heat Tolerant	Tolerant of De-icers	Shade Tolerant	Soil	Wet Soil	Deer Resistant	Source
CANOPY TREES:																
Red Maple	*Acer rubrum*	X	Sap	70'	50'	Yes	Yes	Good	Fair	Good	Poor	Fair	Adaptable	VG	Yes	https://plants.ces.ncsu.edu/plants/acer-rubrum/
Yellow Buckeye	*Aesculus flava*	X	None	75'	40'	Yes	Yes	Poor	Fair	Poor	Poor	VG	Well-drained	VG	Yes	https://plants.usda.gov/home/plantProfile?symbol=AEFL
River Birch	*Betula nigra*	X	Sap	40'	40'	Yes	Yes	Fair	Fair	Fair	Fair	VG	Adaptable	Excellent	Yes	https://plants.ces.ncsu.edu/plants/betula-nigra/
Pignut Hickory	*Carya glabra*	X	Nuts	70'	35'	Yes	Yes	VG	Good	VG	Good	Fair	Adaptable	Fair	Yes	https://www.srs.fs.usda.gov/pubs/misc/ag_654/volume_2/carya/glabra.htm
Dunstan Chestnut (American/Chinese cross)	*Castanea dentata x mollisima*	X	Nut	60'	20'	No	No	VG	Good	Excellent	Fair	Fair	Adaptable	Poor	No	http://www.ediblelandscaping.com/index.php
Hackberry	*Celtis occidentalis*	X	Berries	50'	40'	Yes	Yes	Fair	Fair	Fair	Good	Excellent	Adaptable	VG	Yes	https://plants.ces.ncsu.edu/plants/celtis-occidentalis/
Yellowwood	*Cladrastis kentukea*	X	None	40'	50'	Yes	Yes	Good	Good	Good	Good	Good	Adaptable	Good	Yes	https://plants.ces.ncsu.edu/plants/cornus-florida/
American Beech	*Fagus grandifolia*	X	Nuts	65'	60'	Yes	Yes	Fair	VG	Fair	Poor	Excellent	Adaptable	Poor	Yes	https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/faggraa.pdf
Kentucky Coffeetree	*Gymnocladus dioicus*	X	None	70'	45'	Yes	Yes	VG	VG	VG	Good	Fair	Adaptable	Good	Yes	https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/gymdioa.pdf
Roundleaf Sweetgum	*Liquidambar styraciflua 'Rotundiloba*	X	None	75'	40'	Yes	Yes	Good	Fair	Good	Good	Good	Adaptable	Fair	Yes	https://plants.ces.ncsu.edu/plants/liquidambar-styraciflua-rotundiloba/
Black Gum	*Nyssa sylvatica*	X	None	40'	25'	Yes	Yes	Fair	VG	Good	Fair	Fair	Adaptable	Excellent	Yes	https://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=a670
Sycamore	*Platanus occidentalis*	X	None	80'	80'	Yes	Yes	Poor	Poor	Poor	Fair	Fair	Moist	Excellent	Yes	https://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=285137&isprofile=1&basic=Platanus%20occidentalis
Black Cherry *	*Prunus serotina*	X	Fruit	60'	40'	Yes	Yes	Poor	Poor	Fair	Fair	Good	Well-drained	Fair	Yes	https://plants.ces.ncsu.edu/plants/prunus-serotina/
White Oak	*Quercus alba*	X	Acorns	90'	90'	Yes	Yes	Good	Good	Good	Poor	Fair	Adaptable	Good	Yes	https://pfaf.org/user/Plant.aspx?LatinName=Quercus+alba#:~:text=The%20plant%20is%20heat%20tolerant,start%20suffering%20from%20the%20h
Water Oak	*Quercus nigra*	X	Acorns	90'	70'	Yes	Yes	Good	Poor	Good	Fair	Poor	Adaptable	VG	Yes	https://en.wikipedia.org/wiki/Quercus_nigra
Willow Oak	*Quercus phellos*	X	Acorns	80'	70'	Yes	Yes	Fair	Good	Good	Good	Poor	Adaptable	Good	Yes	https://plants.ces.ncsu.edu/plants/quercus-phellos/
Chestnut Oak	*Quercus montana*	X	Acorns	65'	65'	Yes	Yes	VG	Fair	VG	Good	Poor	Adaptable	Fair	Yes	https://edis.ifas.ufl.edu/publication/ST557
Shumard Red Oak	*Quercus shumardii*	X	Acorns	110'	60'	Yes	Yes	VG	Fair	VG	Good	Poor	Adaptable	Fair	Yes	https://en.wikipedia.org/wiki/Quercus_shumardii
Willow	*Salix nigra*	X	None	50'	40'	Yes	Yes	Poor	Good	Good	Poor	Fair	Adaptable	Excellent	No	https://en.wikipedia.org/wiki/Salix_nigra#:~:text=Salix%20nigra%2C%20the%20black%20willow,to%20northern%20Florida%20and%20Texas.
Bald Cypress 'Nana'	*Taxodium distichum x Nana*	X	None	120'	70'	Yes	Yes	VG	Good	VG	Fair	Fair	Adaptable	Excellent	Yes	https://en.wikipedia.org/wiki/Taxodium_distichum
American Basswood	*Tilia americana*	X	Foliage, flowers	80'		Yes	Yes	Good	Good	Good	Poor	Good	Adaptable	Good	No	https://pfaf.org/user/Plant.aspx?LatinName=Tilia+americana#:~:text=The%20plant%20is%20heat%20tolerant,start%20suffering%20from%20the%20
American Elm *	*Ulmus americana*	X	None	70'	50'	Yes	Yes	Good	Good	Good	Good	Fair	Adaptable	Good	Yes	https://plants.ces.ncsu.edu/plants/ulmus-americana/
UNDERSTORY TREES:																
Downy Serviceberry	*Amelanchier arborea (or laevis)*	X	Fruit	25'	15'	Yes	Yes	Fair	Good	Good	Fair	Excellent	Adaptable	Fair	Yes	https://plants.ces.ncsu.edu/plants/amelanchier-arborea/
Serviceberry	*Amelanchier spp.*	X	Berry	20'	12'	Yes	Yes	Good	VG	VG	Fair	Good	Adaptable	Poor	Yes	http://www.ediblelandscaping.com/index.php
Pawpaw	*Asimina triloba*	X	Fruit	15'	15'	Yes	Yes	VG	Excellent	VG	Poor	Good	Adaptable	Good	Yes	http://www.ediblelandscaping.com/index.php
Contorted Filbert (Hazelnut)	*Corylus avellana*	X	Nut	12'	8'	Yes	Yes	Good	Excellent	VG	Poor	Good	Adaptable	Poor	Yes	http://www.ediblelandscaping.com/index.php
Eastern Redbud	*Cercis canadensis*	X	None	30'	35'	Yes	Yes	Poor	Fair	Poor	Good	Fair	Adaptable	Poor	No	https://plants.ces.ncsu.edu/plants/cercis-canadensis/
Flowering Dogwood	*Cornus florida*	X	None	25'	25'	Yes	Yes	No	Poor	Poor	Poor	Fair	Well-drained	Poor	No	https://plants.ces.ncsu.edu/plants/cornus-florida/
Thornless Cockspur Hawthorn	*Crataegus crus-galli var. inermis*	X	Berries	30'	35'	Yes	Yes	VG	Poor	Fair	Fair	Fair	Adaptable	Fair	Yes	https://plants.ces.ncsu.edu/plants/crataegus-crus-galli-var-inermis/
Winter King Green Hawthorn	*Crataegus viridis 'Winter King'*	X	Berries	30'	30'	Yes	Yes	Good	Fair	Good	Good	Fair	Adaptable	Fair	Yes	http://woodyplants.cals.cornell.edu/plant/78
Native Persimmon	*Diospyros virginiana*	X	Fruit	35'	20'	Yes	Yes	VG	VG	Good	Good	Fair	Adaptable	Good	Yes	http://www.treetrail.net/
Sweetbay Magnolia	*Magnolia virginiana*	X	None	40'	35'	Yes	Yes	Fair	Fair	VG	Fair	Excellent	Adaptable	Excellent	Yes	https://en.wikipedia.org/wiki/Magnolia_virginiana
Flowering cherry *	*Prunus spp.*	X	None	30'	35'	No	No	Fair	Fair	Fair	Fair	Good	Well-drained	Poor	No	https://hort.ifas.ufl.edu/database/documents/pdf/tree_fact_sheets/pruserb.pdf, https://www.gardenia.net/plant-variety/prunus-serrulata-japanese-flowering-cherry
EVERGREEN TREES:																
Atlantic White Cedar	*Chamaecyparis thoides*	X	Bark	50'	15'	Yes	Yes	Poor	VG	Good	Good	Poor	Moist	Excellent	No	https://plants.ces.ncsu.edu/plants/chamaecyparis-thyoides/
American Holly	*Ilex opaca*	X	None	100'	65'	Yes	Yes	VG	Good	Good	Fair	Excellent	Adaptable	Poor	Yes	https://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=k640
Eastern Red Cedar	*Juniperus virginiana*	X	Leaf	35'	20'	Yes	Yes	VG	Good	Fair	VG	Fair	Adaptable	Fair	Yes	https://plants.ces.ncsu.edu/plants/juniperus-virginiana/
Southern Magnolia	*Magnolia grandiflora*	X	None	90'	60'	Yes	No	Good	VG	VG	Poor	Excellent	Adaptable	Poor	No	https://en.wikipedia.org/wiki/Magnolia_%C3%97_soulangeana

* Refer to Cherry, Elm, and Chestnut sheet for cultivars

ADDITIONAL RECOMMENDED TREE CULTIVARS

COMMON NAME	BOTANICAL NAME		
CHERRIES			
Available cultivars		Suppliers	Notes
Kwanzan Japanese Flowering	*Prunus serrulata 'Kwanzan'*	66 suppliers	
Shirofugen (or Fugenzo) Japanese Flowering Cherry	*Prunus serrulata 'Shirofugen'*	1 supplier	
Snow Goose Higan Cherry	*Prunus subhirtella 'Snow Goose'*	21 suppliers	
Okame Taiwan Cherry	*Prunus x incam 'Okame'*	49 suppliers	
Higan Cherry	*Prunus x subhirtella*	6 suppliers	
Yoshino Cherry	*Prunus yedoensis*	54 suppliers	Use sparingly
Akebono Yoshino Cherry	*Prunus yedoensis 'Akebono'*	21 suppliers	Use sparingly
Shidare Yoshino Cherry	*Prunus yedoensis 'Shidare'*	6 suppliers	Use sparingly
Invasive Cherries - DO NOT PLANT			
Sweet Cherry	*Prunus avium*		
Sour Cherry	*Prunus cerasus*		
Mahaleb Cherry	*Prunus mahaleb*		
Nanking Cherry	*Prunus tomentosa Thunberg*		
ELMS			
Available cultivars			
Triumph Elm	*Ulmus carpinifolia 'Morton Glossy'*	56 suppliers	7000+ available
Jefferson American Elm	*Ulmus americana 'Jefferson'*	30 suppliers	4000+ available
Valley Forge American Elm	*Ulmus americana 'Valley Forge'*	34 suppliers	3000+ available
Patriot Elm	*Ulmus wilsoniana 'Patriot'*	23 suppliers	1300+ available
New Harmony American Elm	*Ulmus americana 'New Harmony'*	15 suppliers	1900+ available
Prairie Expedition American Elm	*Ulmus americana 'Lewis & Clark'*	9 suppliers	500+ available
Invasive Elms - DO NOT PLANT			
Siberian Elm	*Ulmus pumila*		
Chestnuts			
Available cultivars - resistant to Chestnut Blight			
Dunstan Chestnut	*Castanea dentata x mollissima*	1 supplier	180+ available
American Chestnut	*Castanea dentata*	1 supplier	limited supply
Chinese Chestnut	*Castanea mollissima*	1 supplier	limited supply
No invasive Chestnuts found			

NOTES:

1. Suppliers and availability based on Landscape Hub and Plant Ant; research Fall 2022.
2. Information provided to convey general availability only; contractor to confirm availability.
3. Invasive information based on Maryland Biodiversity Project and MD Invasive Species Council

DESIGNED: SDR	SUB SHEET NO.	TITLE OF SHEET	DRAWING NO.	
CADD JLS/DBS	L34.3	WEST POTOMAC PARK PROPOSED PLAN LIST	802 / 177531	
TECH. REVIEW: RVS			PMIS/PKG NO. 318722	
DATE: FEB 2023		NATIONAL MALL AND MEMORIAL PARKS	SHEET 185 OF 226	

PRELIMINARY TREE REPLACEMENT REQUIREMENTS

FIELD SURVEY REQUIRED BY LICENSED ARBORIST FOR ACCURATE SIZE, CONDITION, TREE SCORE AND REPLACEMENT REQUIREMENT

EXISTING TREE DATA [6]						PRELIMINARY REPLACEMENT - NCPC GUIDELINES [5]											
								SPECIES RATING [3]						QUANTITY REMOVED		
TREE #	COMMON NAME	SCIENTIFIC NAME	DBH (IN.) 2014	CONDITION	PROJECTED ANNUAL GROWTH (IN.)	PROJECTED DBH (IN.) 2024 [1]	CONDITION RATING [2]	RANGE (%)	MID-POINT OF RANGE (%)	TREE SCORE	TREE REPLACEMENT <10" DBH	TREE REPLACEMENT >= 10" DBH	LOCATION	COMMENTS	CANOPY	CHERRY	EVERGREEN
10244	Flowering cherry spp.	Prunus	18.30	Good	0.25	20.80	75%	35-75	55	8.6		2	WPP			1	
10247	Unknown	Unknown	23.00	Fair	0.25	25.50	50%	30-60	45	5.7		2	WPP	No condition rating, assumed to be Fair	1		
10254	Florida maple	Acer barbatum	20.50	Good	0.25	23.00	75%	55-85	70	12.1		3	WPP		1		
10256	Florida maple	Acer barbatum	19.90	Good	0.25	22.40	75%	55-85	70	11.8		3	WPP		1		
10274	Flowering cherry spp.	Prunus	21.60	Fair	0.25	24.10	50%	35-75	55	6.6		2	WPP			1	
10279	Common linden	Tilia x vulgaris	25.60	Good	0.25	28.10	75%	60-85	72.5	15.3		4	WPP		1		
10282	Common linden	Tilia x vulgaris	24.00	Fair	0.25	26.50	50%	60-85	72.5	9.6		2	WPP		1		
10283	American holly	Ilex opaca	10.70	Good	0.25	13.20	75%	60-85	72.5	7.2		2	WPP				1
10284	American holly	Ilex opaca	10.70	Good	0.25	13.20	75%	60-85	72.5	7.2		2	WPP				1
10287	American holly	Ilex opaca	10.50	Fair	0.25	13.00	50%	60-85	72.5	4.7		1	WPP				1
10289	American holly	Ilex opaca	7.20	Fair	0.25	9.70		60-85	72.5		1		WPP				1
10164	Weeping willow	Salix x sepulcralis Simonkai	5.60	Good	0.40	9.60		0%	0%		1		WPP		1		
10182	American elm	Ulmus americana	10.60	Fair	0.40	14.60	50%	35-80	57.5	4.2		1	WPP		1		
10185	Flowering cherry spp.	Prunus	12.10	Fair	0.25	14.60	50%	35-75	55	4.0		1	WPP			1	
10192	Flowering cherry spp.	Prunus	19.00	Fair	0.25	21.50	50%	35-75	55	5.9		2	WPP			1	
10199	Flowering cherry spp.	Prunus	15.90	Good	0.25	18.40	75%	35-75	55	7.6		2	WPP			1	
10200	Flowering cherry spp.	Prunus	15.00	Good	0.25	17.50	75%	35-75	55	7.2		2	WPP			1	
10201	Flowering cherry spp.	Prunus	15.30	Good	0.25	17.80	75%	35-75	55	7.3		2	WPP			1	
10203	Flowering cherry spp.	Prunus	15.60	Good	0.25	18.10	75%	35-75	55	7.5		2	WPP			1	
10204	Flowering cherry spp.	Prunus	13.60	Good	0.25	16.10	75%	35-75	55	6.6		2	WPP			1	
10205	Flowering cherry spp.	Prunus	11.90	Good	0.25	14.40	75%	35-75	55	5.9		2	WPP			1	
10206	Flowering cherry spp.	Prunus	10.60	Good	0.25	13.10	75%	35-75	55	5.4		2	WPP			1	
10207	Flowering cherry spp.	Prunus	11.40	Good	0.25	13.90	75%	35-75	55	5.7		2	WPP			1	
10208	Flowering cherry spp.	Prunus	14.70	Good	0.25	17.20	75%	35-75	55	7.1		2	WPP			1	
10209	Flowering cherry spp.	Prunus	14.40	Good	0.25	16.90	75%	35-75	55	7.0		2	WPP			1	
10210	Flowering cherry spp.	Prunus	14.40	Good	0.25	16.90	75%	35-75	55	7.0		2	WPP			1	
10211	Flowering cherry spp.	Prunus	12.80	Good	0.25	15.30	75%	35-75	55	6.3		2	WPP			1	
10212	Flowering cherry spp.	Prunus	5.90	Good	0.25	8.40		35-75	55		1		WPP			1	
10213	Flowering cherry spp.	Prunus	5.60	Good	0.25	8.10		35-75	55		1		WPP			1	
10214	Northern red oak	Quercus rubra	22.30	Good	0.25	24.80	75%	60-90	75	13.9		3	WPP		1		
10221	Flowering cherry spp.	Prunus	1.80	Good	0.25	4.30		35-75	55		1		WPP			1	
10222	Flowering cherry spp.	Prunus	4.80	Fair	0.25	7.30		35-75	55		1		WPP			1	
10233	Flowering cherry spp.	Prunus	14.50	Fair	0.25	17.00	50%	35-75	55	4.7		1	WPP			1	
10234	Weeping willow	Salix x sepulcralis Simonkai	17.40	Good	0.40	21.40	75%	0%	0%	0.0		1	WPP		1		
10237	Weeping willow	Salix x sepulcralis Simonkai	22.90	Good	0.40	26.90	75%	0%	0%	0.0		1	WPP		1		
10267	American elm	Ulmus americana	13.70	Fair	0.97	23.40	50%	35-80	57.5	6.7		2	WPP		1		
10268	American elm	Ulmus americana	17.60	Fair	0.97	27.30	50%	35-80	57.5	7.8		2	WPP		1		
10082	American elm	Ulmus americana	17.50	Fair	0.40	21.50	50%	35-80	57.5	6.2		2	WPP		1		
10083	Flowering cherry spp.	Prunus	15.30	Good	0.25	17.80	75%	35-75	55	7.3		2	WPP			1	
10088	Weeping willow	Salix x sepulcralis Simonkai	48.20	Fair	0.40	52.20	50%	0%	0%	0.0		1	WPP		1		
10095	Weeping willow	Salix x sepulcralis Simonkai	43.40	Fair	0.40	47.40	50%	0%	0%	0.0		1	WPP		1		
10107	Weeping willow	Salix x sepulcralis Simonkai	23.70	Fair	0.40	27.70	50%	0%	0%	0.0		1	WPP		1		
						WEST POTOMAC PARK				TOTAL	6	68			16	22	4
										GRAND TOTAL	74				42		

[1] Projected growth rate

Projected DBH calculation method extrapolated from data collected by Biohabitats, Inc. in another location at a National Park Service property in Washington, DC

Growth Escalation Guideline*

Genus	Species	Common name**	Average DBH Growth per Year (inches)	Min DBH Growth per Year (inches)***	Max DBH Growth per Year (inches)	Number of Trees in Sample
Ulmus	*americanus*	American Elm	0.97	0.88	1.06	2
Magnolia	*x soulangiana*	Magnolia-Saucer	0.05	0	0.25	12
Tilia	*sp.*	Lindens (3 species)	0.21	0.03	0.69	79
Acer	*saccharum*	Sugar Maple	0.26	0	0.44	14
Acer	*sp.*	Maples (7 species)	0.31	0	0.94	75
Quercus	*sp.*	Oaks (10 species)	0.42	0	1.63	112

*Summary of the tree growth at a NPS Property in Washington DC from 2014-2022. Provided by Biohabitats, Inc. October 14, 2022.

**Analyzed 4 tree species also present at WPP and/or Tidal Basin (American elm, magnolia-saucer, sugar maple, and lindens). Also analyzed dominant tree species (maples and oak species) at this NPS property in Washington DC to provide context considering all 3 locations experience similar tree stressors. Tree conditions at this location were generally split - half good and half fair/poor.

***Included living trees with no change (0 inches) in DBH from 2014-2022.

Based on this data, the following assumed growth rates were used.

COMMON NAME	AVERAGE DBH PER YEAR (IN.)	COMMENTS
Maple	0.25	medium growth rate
Hawthorn	0.25	medium growth rate
Holly	0.25	medium growth rate
Walnut	0.25	medium growth rate
Magnolia	0.25	medium growth rate
Crabapple	0.25	medium growth rate
Pine	0.40	fast growth rate
Cherry	0.25	medium growth rate
Oak	0.25	medium growth rate
Willow	0.40	fast growth rate
Linden	0.30	medium growth rate
Elm	0.40	fast growth rate
Unknown	0.25	assumed medium growth

[2] Condition Rating assummptions simplified to : Poor = 25%, Fair = 50%, Good = 75%)

[3] Species Rating assummptions: mid-point of Species Rating range

[4] DBH refers to the tree trunk Diameter at Breast Height (4.5' height)

[5] NCPC Guidelines:

Trees less than 10-inches DBH: Replace at 1:1

Trees 10-inches DBH and greater: Replace based on the Tree Score (DBH x Species Rating (as percentage) x Condition Rating (as percentage)

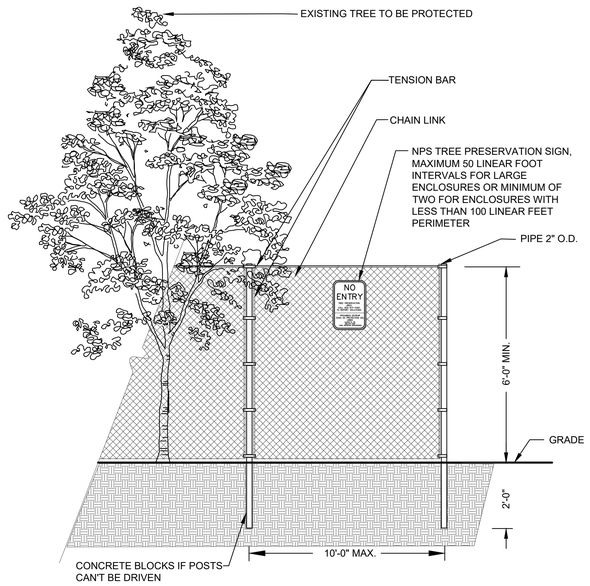
Tree Score: 1 - 4.9 = 1 tree
Tree Score: 5 -9.9 = 2 trees
Tree Score: 10 - 14.9 = 3 trees
Tree Score: 15 - 19.9 = 4 trees
Tree Score: 20 - 24.5.9 = 5 trees
Tree Score: 25 + = 6 trees

Species Rating: value from 1 to 100, per Mid-Atlantic Tree Species Rating Guide

Condition Rating: value from 0 to 100, per 9th Edition of the Council of Tree and Landscape Appraisers

[6] Existing Tree Data Source: NPS NAMA GIS, assumed to be from 2014

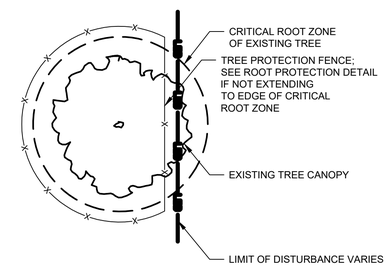
DESIGNED: SDR CADD JLS/DBS TECH. REVIEW: RVS DATE: FEB 2023	SUB SHEET NO. L35.3	TITLE OF SHEET WEST POTOMAC PARK TREE MITIGATION CALCULATIONS NATIONAL MALL AND MEMORIAL PARKS	DRAWING NO. 802 / 177531 PMIS/PKG NO. 318722	SHEET 186 OF 226



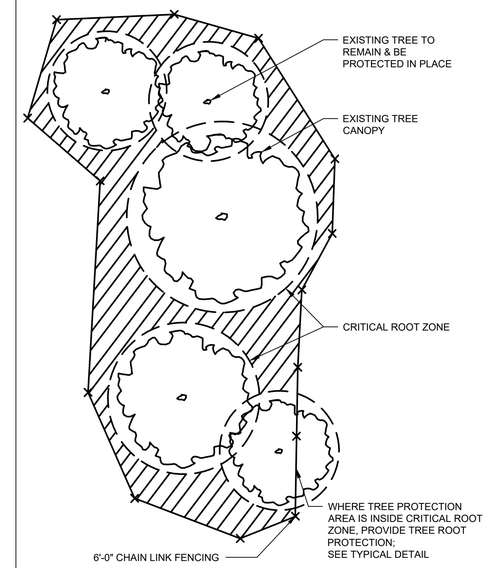
1 TREE PROTECTION FENCE ELEVATION

NOT TO SCALE

NOTES:
1. BOUNDARIES OF TREE PROTECTION AREA SHALL BE STAKED, FLAGGED, AND/OR FENCED PRIOR TO INSTALLATION OF TREE PROTECTION FENCE.
2. TREE PROTECTION FENCE SHALL BE INSTALLED AS PER THE TREE PROTECTION PLAN AND INSPECTED BY NPS ARBORIST PRIOR TO ANY WORK DONE ONSITE, INCLUDING DEMOLITION.
3. ALL EXISTING TREES, TO REMAIN WITHIN A WORK ZONE UNTIL A PROJECT IS COMPLETED, REQUIRE THE FOLLOWING TREE PROTECTION FENCING. IF FOR ANY REASON THE SCOPE OF THE PROJECT REQUIRES WORK TO BE PERFORMED WITHIN THE TREE PROTECTION FENCE, THE CONTRACTOR MUST CONTACT THE CONTRACTING OFFICER AND NPS ARBORIST BEFORE ENTERING.
   - 3.a. INSTALL FENCING PRIOR TO AND MAINTAIN THROUGHOUT CONSTRUCTION, REMOVING ONLY AT END OF THE PROJECT.
   - 3.b. FENCING SHALL ENCLOSE MULTIPLE TREES WHEN IN A CONTIGUOUS, OPEN AREA AND SITE ACCESS ALLOWS. OTHERWISE, INDIVIDUAL TREES SHALL BE FENCED.
   - 3.c. FENCING SHALL HAVE VERTICAL AND HORIZONTAL SUPPORT RAILINGS TO DECREASE FLEXIBILITY AND PREVENT SAGGING.
   - 3.d. FENCE POSTS SHALL BE ANCHORED IN THE GROUND TO PREVENT MOVEMENT AND PROVIDE A SECURE BARRIER. CONCRETE BLOCKS OR METAL SUPPORT STANDS CAN BE USED AS NEEDED WHERE CONDITIONS PREVENT DRIVING POSTS.
   - 3.e. NPS TREE PROTECTION AREA SIGNS SHALL BE MOUNTED ON THE TREE PROTECTION FENCE ON A MAXIMUM OF 50 LINEAR FOOT INTERVALS FOR LARGE ENCLOSURES OR AT A MINIMUM OF TWO NPS TREE PROTECTION AREA SIGNS FOR EACH ENCLOSED TREE PROTECTION AREA WITH LESS THAN 100 LINEAR FEET PERIMETER.
4. AVOID USING MACHINERY NEAR THE TREE PROTECTION AREA AND CRITICAL ROOT ZONE AS MUCH AS POSSIBLE. WHERE WORK IS TO OCCUR WITHIN THE CRITICAL ROOT ZONE, INSTALL TEMPORARY TREE ROOT PROTECTION (SEE TYPICAL DETAIL).
5. REQUIREMENTS WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE:
   - 5.a. THE CONTRACTOR SHALL NOT ENGAGE IN ANY CONSTRUCTION ACTIVITY, NOT SHOWN ON THE CONSTRUCTION DRAWINGS, THAT IS WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE WITHOUT THE APPROVAL OF THE CONTRACTING OFFICER AND NPS ARBORIST. IF THE CONTRACTOR HAS TO TEMPORARILY WORK WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE OF A TREE, THE TREE PROTECTION FENCING SHALL BE RESET TO PROTECT THE AREA OF THE TREE ROOT ZONE NOT AFFECTED BY EQUIPMENT/WORK AND TEMPORARY OR PERMANENT TREE ROOT PROTECTION SHALL BE INSTALLED. TREE PROTECTION FENCE WILL NEED TO BE MOVED BACK IMMEDIATELY AFTER WORK INSIDE THE CRITICAL ROOT ZONE HAS BEEN COMPLETED.
   - 5.b. WITH APPROVAL OF THE CONTRACTING OFFICER AND NPS ARBORIST, TEMPORARY AND/OR PERMANENT TREE ROOT PROTECTION SHALL BE INSTALLED FOR ANY WORK WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE.
   - 5.c. NO STORAGE OF CONSTRUCTION MATERIALS, EQUIPMENT, SOIL OR DEBRIS WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE.
   - 5.d. NO DISPOSAL OF ANY LIQUIDS (E.G., CONCRETE SLEUTH, GAS, OIL, PAINT AND BLACKTOP) WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE.
   - 5.e. NO TRENCHING WITHIN THE TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE. IF REQUIRED, WORK SHALL BE PERFORMED PER ROOT PRUNING SPECIFICATION AND DETAIL.
   - 5.f. NO SOIL IS TO BE IN CONTACT WITH THE TREE TRUNK ABOVE THE BASAL FLAIR AT ANY TIME.
   - 5.g. USE FILTER LOG INSTEAD OF SILT FENCE WITHIN TREE PROTECTION AREA AND/OR CRITICAL ROOT ZONE OF ANY TREE THAT WILL REMAIN. IF SEDIMENT AND EROSION CONTROL MEASURES CONFLICT, THEN SEDIMENT AND EROSION CONTROL MEASURES TAKE PRECEDENCE. CONTACT THE CONTRACTING OFFICER AND NPS SEDIMENT AND EROSION CONTROL INSPECTOR.
6. ANY PENALTIES RELATED TO DAMAGE TO TREE(S) WITHIN THE TREE PROTECTION AREA SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
7. ADAPTED FROM DDOT URBAN FORESTRY TREE PROTECTION FENCE DETAIL EXAMPLE.



TYPICAL INDIVIDUAL TREE PROTECTION FENCE

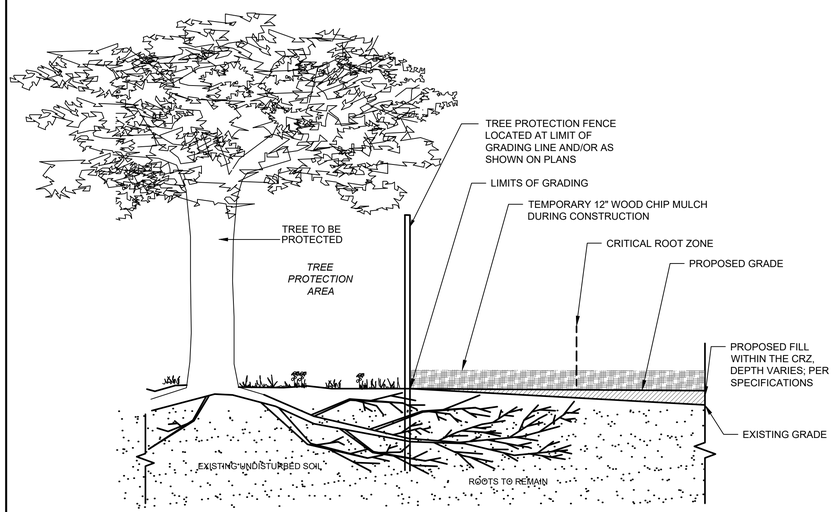


TYPICAL OPEN AREA TREE PROTECTION

NOTES:
1. SEE TREE PROTECTION FENCE-ELEVATION, FOR TREE PROTECTION NOTES.
2. CRITICAL ROOT ZONE (CRZ): SHALL BE DEFINED AS THE AREA ONE AND ONE HALF LINEAR FEET AWAY FROM THE TRUNK OF BASE, FOR EVERY INCH DIAMETER: (DBH) OF THE TRUNK.
3. TREE PROTECTION FENCE TO BE PLACED OUTSIDE THE CRZ AND NO MORE THAN 1 FOOT FROM THE LIMITS OF DISTURBANCE.
4. FENCING SHALL NOT BE PLACED CLOSER TO THE TREE THAN 1/2 THE TOTAL DISTANCE FROM THE TREE TO THE DRIP LINE.

2 TREE PROTECTION FENCE PLAN VIEW

NOT TO SCALE

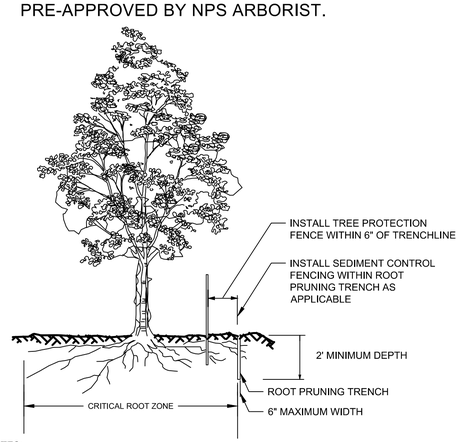


NOTES:
1. TEMPORARY AND PERMANENT TREE ROOT PROTECTION SHALL BE INSTALLED AS PER THE TREE REMOVAL AND TREE PROTECTION PLANS AND SPECIFICATIONS AND INSPECTED BY NPS ARBORIST PRIOR TO ANY WORK DONE ONSITE, INCLUDING CLEARING, GRUBBING AND DEMOLITION.
2. APPLIES TO CRITICAL ROOT ZONE (CRZ) AREA WITHIN THE LIMITS OF DISTURBANCE (LOD).
3. PROTECT ALL AREAS FROM COMPACTION OF THE SOIL; DAMAGE OF ANY KIND TO TRUNKS, BARK, BRANCHES, LEAVES AND ROOTS;
4. TEMPORARY ROOT PROTECTION:
   - 4.a. AREAS WHERE FOOT TRAFFIC OR STORAGE OF LIGHTWEIGHT MATERIALS IS ANTICIPATED TO BE UNAVOIDABLE, PROVIDE A LAYER OF FILTER FABRIC UNDER THE 12 INCHES OF WOOD CHIPS.
   - 4.b. AREAS WHERE OCCASIONAL LIGHT VEHICLE TRAFFIC IS ANTICIPATED TO BE UNAVOIDABLE PROVIDE A LAYER OF GEOGRIDS UNDER 8 INCHES OF WOOD CHIPS.
   - 4.c. AREAS WHERE HEAVY VEHICLE TRAFFIC IS UNAVOIDABLE PROVIDE A LAYER OF GEOGRIDS UNDER 8-12 INCHES OF WOOD CHIPS AND A LAYER OF MATTING OVER THE WOOD CHIPS.
   - 4.d. REPLENISH WOOD CHIP MULCH, AS NEEDED, TO MAINTAIN THICKNESS.
5. PERMANENT ROOT PROTECTION:
   - 5.a. REMOVE ANY TEMPORARY ROOT PROTECTION MEASURES AND/OR EXISTING SOD OR ORGANIC MATERIAL WITHIN THE DRIP LINE OF TREES TO A MAXIMUM DEPTH OF 6 INCHES BELOW EXISTING GRADE AS NEEDED.
   - 5.b. FOR FILL DEPTHS GREATER THAN 12 INCHES, APPLY 3 TO 6 INCHES OF MEDIUM GRAVEL, PLACE A LAYER OF FILTER FABRIC ON TOP OF THE GRAVEL LAYER AND SECURE, PROCEED WITH PLACEMENT OF LOAMY SAND TOPSOIL TO FINAL GRADE AS SPECIFIED IN THE PROJECT DRAWINGS.
   - 5.c. FOR FILL DEPTHS LESS THAN 12 INCHES PROCEED WITH PLACEMENT OF LOAMY SAND TOPSOIL TO FINAL GRADE AS SPECIFIED IN THE PROJECT DRAWINGS.
6. ADAPTED FROM DDOT URBAN FORESTRY TREE ROOT PROTECTION DETAIL EXAMPLES.

3 TREE ROOT PROTECTION TYPICAL

NOT TO SCALE

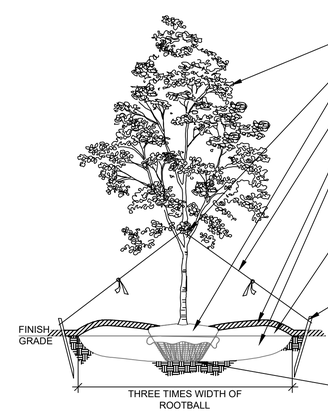
NOTE: ROOT PRUNING LIMITED ONLY TO AREAS PRE-APPROVED BY NPS ARBORIST.



NOTES:
1. TREE PROTECTION AREA TO BE ESTABLISHED AT THE LIMITS OF GRADING LINE AS PART OF THE TREE PROTECTION PLAN.
2. BOUNDARIES OF TREE PROTECTION AREA SHALL BE STAKED, FLAGGED, AND/OR FENCED PRIOR TO TRENCHING.
3. EXACT LOCATION, DEPTH, AND METHODS OF ROOT PRUNING TO BE DETERMINED IN THE FIELD WITH NPS ARBORIST.
4. NEVER MORE THAN 25% OF THE ROOTS WITHIN THE CRITICAL ROOT ZONE SHALL BE PRUNED UNLESS APPROVED BY NPS ARBORIST.
5. ROOT PRUNING SHALL BE PERFORMED BY SPECIALIZED ARBORICULTURAL MACHINERY AND/OR EQUIPMENT MADE FOR THAT PURPOSE.
6. ALL PRUNING CUTS SHALL BE MADE CLEANLY AND PERPENDICULAR TO ROOT FORM. ROOTS OVER 1.5" DIAMETER SHOULD BE CUT CLEANLY CUT BY HAND.
7. TRENCH SHALL BE BACKFILLED IMMEDIATELY OR INCORPORATED INTO SEDIMENT CONTROL FENCING INSTALLATION. TRENCH SHALL BE BACKFILLED WITH SOIL REMOVED OR AN APPROVED TOPSOIL.

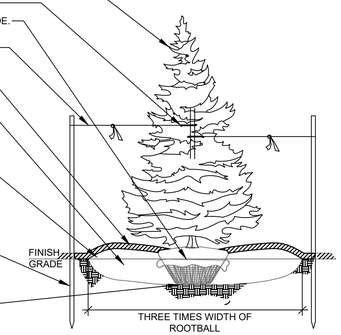
4 ROOT PRUNING TYPICAL

NOT TO SCALE



5 DECIDUOUS TREE PLANTING

NOT TO SCALE



6 EVERGREEN TREE PLANTING

NOT TO SCALE

NOTE: SPREAD MULCH IN 6'-0" DIAM. CIRCLES AROUND TREES EXCEPT WHERE TREES ARE CLOSER THAN 15'-0". CREATE CONTINUOUS MULCH BEDS TO MINIMIZE MOWING AND MAINTENANCE.

NATIONAL PARK SERVICE	DESIGNED: CS/SR AADE TB/SF TECH. REVIEW: RVS DATE: FEB 2023	SUB SHEET NO. L36.3	TITLE OF SHEET WEST POTOMAC PARK TREE PROTECTION & TREE PLANTING DETAILS NATIONAL MALL AND MEMORIAL PARKS	DRAWING NO. 802/177531 PMIS/PKG NO. 318722 SHEET 187 OF 226