

City of Cumberland CSO Pipeline Installation Environmental Assessment

Cumberland, Maryland

Prepared by the City of Cumberland
for
U.S. Department of the Interior
National Park Service
Chesapeake and Ohio Canal National Historical Park

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**US DEPARTMENT OF THE INTERIOR, NATIONAL PARK SERVICE
CHESAPEAKE AND OHIO CANAL NATIONAL HISTORICAL PARK**

City of Cumberland CSO Pipeline Installation

The City of Cumberland (City) has prepared this environmental assessment (EA), in cooperation with the National Park Service (NPS), to evaluate the impacts of the installation of a new 78-inch combined sewer overflow (CSO) pipeline along and adjacent to the last approximately 2.65-miles of the Chesapeake and Ohio Canal National Historical Park (C&O Canal NHP or the Park), between mile posts 181.8 and 184.5.

This EA evaluates two alternatives for mitigating mandated CSO issues for the City of Cumberland, portions of which are located within the C&O Canal NHP between Canal Place and Riverside Park in Allegany County, Maryland; describes the environment that would be impacted by the alternatives; and assesses the environmental consequences of implementing the alternatives. Under the no-action alternative, the proposed 78-inch pipeline would not be installed. Under the proposed action, which has been identified as the preferred alternative, the new CSO pipeline would be installed via trench installation. Upon conclusion of this EA and decision-making process, one of the alternatives would become the long-term management option for the project corridor and portions of this segment of the C&O Canal NHP.

This EA has been prepared in compliance with the National Environmental Policy Act (NEPA) of 1969, as amended, to provide the decision-making framework that 1) analyzes a reasonable range of alternatives to meet objectives of the proposal, 2) evaluates potential issues and impacts on the Park's resources and values, and 3) identifies mitigation measures to lessen the degree or extent of these impacts.

How to Comment

We invite you to comment on this EA during the 30-day public review period. The preferred method of providing comments is electronically through the following website:

<https://parkplanning.nps.gov/CumberlandCSO>. You may also submit written comments to:

Superintendent – C&O Canal NHP
c/o City of Cumberland CSO EA
1850 Dual Highway, Suite 100
Hagerstown, Maryland 21740-6620

Please submit your comments within 30 days of the posting of the notice of availability on NPS's Planning, Environment, and Public Comment (PEPC) website. Please be aware that your entire comment will become part of the public record. If you wish to remain anonymous, please clearly state that within your correspondence; however, NPS cannot guarantee that personal information, such as email address, phone number, etc., will be withheld.

Table of Contents

CHAPTER 1: PURPOSE AND NEED FOR ACTION	6
Purpose of and Need for Action	6
Project Area	12
Significance of the Project Area	12
Issues and Resource Topics Retained for Detailed Analysis.....	12
Issues and Resource Topics Considered but Dismissed from Detailed Analysis	14
CHAPTER 2: ALTERNATIVES	17
Description of the Alternatives.....	17
No-Action Alternative	17
Proposed Alternative (Preferred Alternative).....	17
Alternatives Considered but Dismissed	19
Mitigation Measures of the Proposed Alternative	20
CHAPTER 3 – AFFECTED ENVIRONMENT	22
Wetlands & Waters of the U.S.	22
Vegetation/Forests.....	22
Historic Structures.....	23
Cultural Landscapes	33
Visitor Use and Experience	34
CHAPTER 4 – ENVIRONMENTAL CONSEQUENCES	35
General Methodology	35
Past, Present, and Reasonably Foreseeable Actions	35
Wetlands & Waters of the U.S.	35
Methodology.....	35
No-Action Alternative	37
Proposed Action/Preferred Alternative	37
Vegetation and Forests.....	39
Methodology.....	39
No-Action Alternative	39
Proposed Action/Preferred Alternative	39
Historic Structures.....	41
Methodology.....	41
No-Action Alternative	41
Proposed Action/Preferred Alternative	41
Cultural Landscape.....	42
Methodology.....	42

No-Action Alternative	42
Proposed Action/Preferred Alternative	43
Visitor Use and Experience	43
Methodology.....	43
No-Action Alternative	44
Proposed Action/ Preferred Alternative	44
CHAPTER 5 – CONSULTATION AND COORDINATION.....	46
The Scoping Process.....	46
LIST OF PREPARERS AND CONSULTANTS	48
REFERENCES.....	49
APPENDIX A: Consultation with U.S. Fish and Wildlife Service.....	54
APPENDIX B: Consultation with Maryland Department of Natural Resources	57
APPENDIX C: Section 106 Coordination.....	59
APPENDIX D: Wetland Statement of Findings Report.....	65

Acronyms and Abbreviations

APE	Area of Potential Effects
B&O	Baltimore and Ohio
C&O Canal NHP or Park	Chesapeake and Ohio Canal National Historical Park
City	City of Cumberland
CFR	Code of Federal Regulations
cm	Centimeter
CSO	Combined sewer overflow
DBH	Diameter at breast height
EA	Environmental Assessment
ENR	Enhanced Nutrient Removal
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
JPA	Joint Permit Application
MDE	Maryland Department of the Environment
MD-DNR	Maryland Department of Natural Resources
MIHP	Maryland Inventory of Historic Places
MHT	Maryland Historic Trust
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NPS	National Park Service
NRHP	National Register of Historic Places
OHE	Overhead electric
PBO	Programmatic Biological Opinion
PEM	Palustrine emergent
PEPC	Planning, Environment and Public Comment
PFO	Palustrine forested
PSS	Palustrine scrub-shrub
USACE	U.S. Army Corps of Engineers
USFWS	US Fish and Wildlife Service
WOUS	Waters of the U.S.
WRF	Water Reclamation Facility
WWTP	Wastewater Treatment Plant

CHAPTER 1: PURPOSE AND NEED FOR ACTION

The City of Cumberland (City), in cooperation with the National Park Service (NPS), proposes to install a new 78-inch combined sewer overflow (CSO) pipeline along and adjacent to the last approximately 2.65 miles of the Chesapeake and Ohio Canal National Historical Park (C&O Canal NHP or the Park), between mile posts 181.8 and 184.5. The portion of the project area within the C&O Canal NHP is located between Canal Place and Riverside Park in Allegany County, Maryland. **Figure 1** shows the location of the project. **Figure 2** identifies the limits of disturbance (LOD) of the project, and the boundary of the C&O Canal NHP.

The Project Team has been working with the City of Cumberland for several years to implement various phases of the Project. This project encompasses Phase II, which includes the proposed pipeline carrying the overflows from Mill Race to the City's Water Reclamation Facility (WRF). The pipeline will also collect overflows from the Oldtown Road outfall and Elizabeth Street diversion manholes and convey these flows to the CSO storage facility at the WRF, which is currently under construction. A Preliminary Engineering Report for Phase II was completed in March of 2019.

This Environmental Assessment (EA) has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, and implementing regulations, 40 Code of Federal Regulations (CFR) Parts 1500-1508; NPS Director's Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision-making* (NPS 2011) and the accompanying handbook (NPS 2015). Compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, is being conducted concurrently with the NEPA process. Since the project will impact a National Historical Park, the Archeological Resources Protection Act of 1979 (16 U.S.C. 470aa-mm; 43 CFR 7) requires a permit that will be overseen by the NPS.

Purpose of and Need for Action

The purpose of the 78-inch CSO pipeline installation project is to provide a means to transport a greater capacity of combined sewage and stormwater from the Mill Race Screening Facility (which collects flow from several interceptors serving the northern portion of the City) to the City's WRF. A Consent Decree was issued by the Maryland Department of the Environment (MDE) in 2001, requiring the City of Cumberland to eliminate the CSOs per the Environmental Protection Agency's (EPA) 1994 CSO Control Policy by no later than October 2023. The Mill Race pipeline project serves to complete the capture of overflows from the Mill Race area, the second largest overflow location in the City; two additional overflows at Oldtown Road and Elizabeth Street will also be captured by this pipeline.

Since issuance of the EPA CSO Policy in 1994, the City has completed the following projects: Mill Race Screening and Odor Control Facility; Evitts Creek Pumping Station, Force main, and Gravity Sewer Upgrades; Enhanced Nutrient Removal (ENR) Upgrades at the WRF; and multiple additional studies of the system. Phase I of the CSO Storage Facility is currently under construction and additional projects are planned.

Figure 1. Project Location

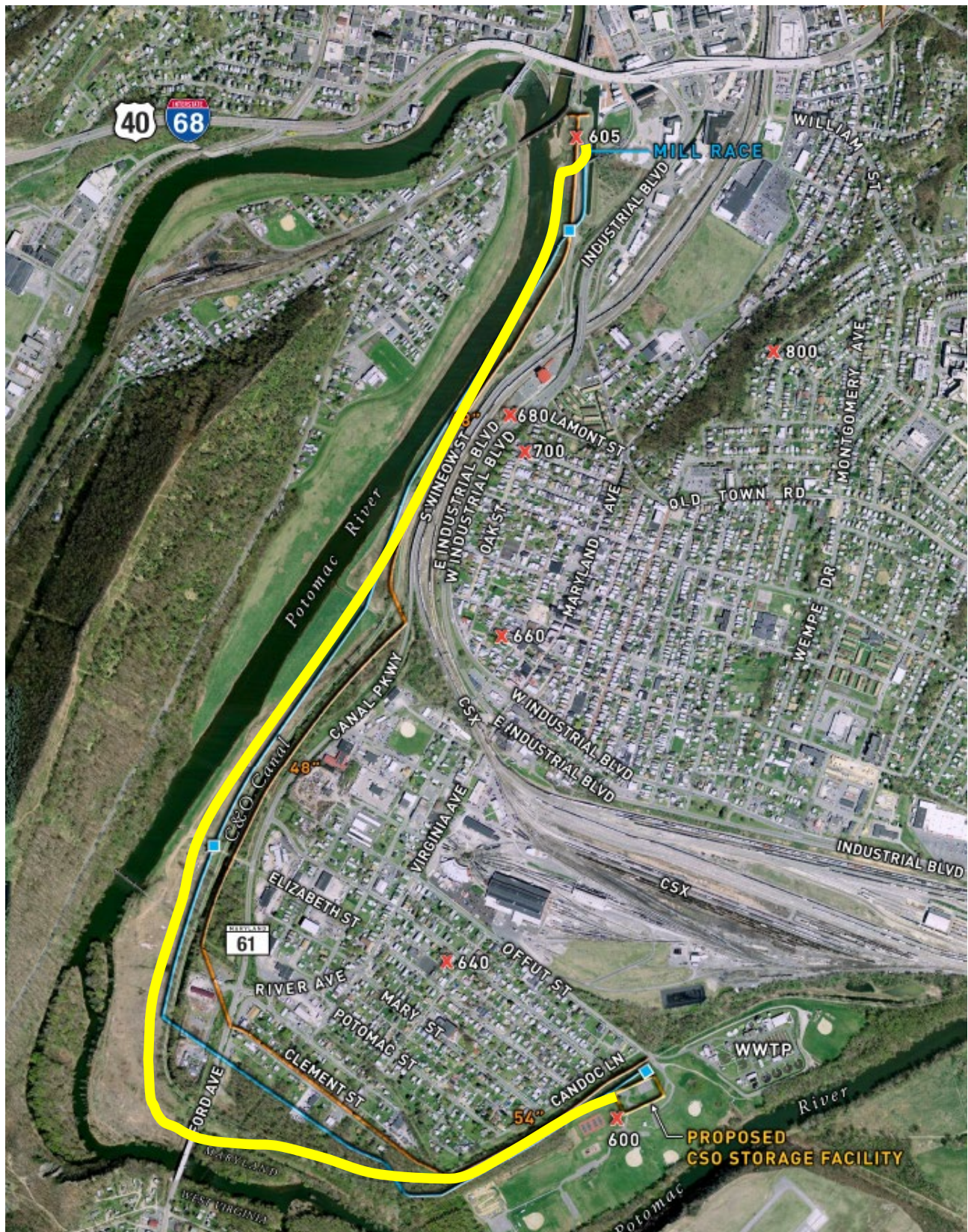


Figure 2. C&O Canal NHP and Project Location

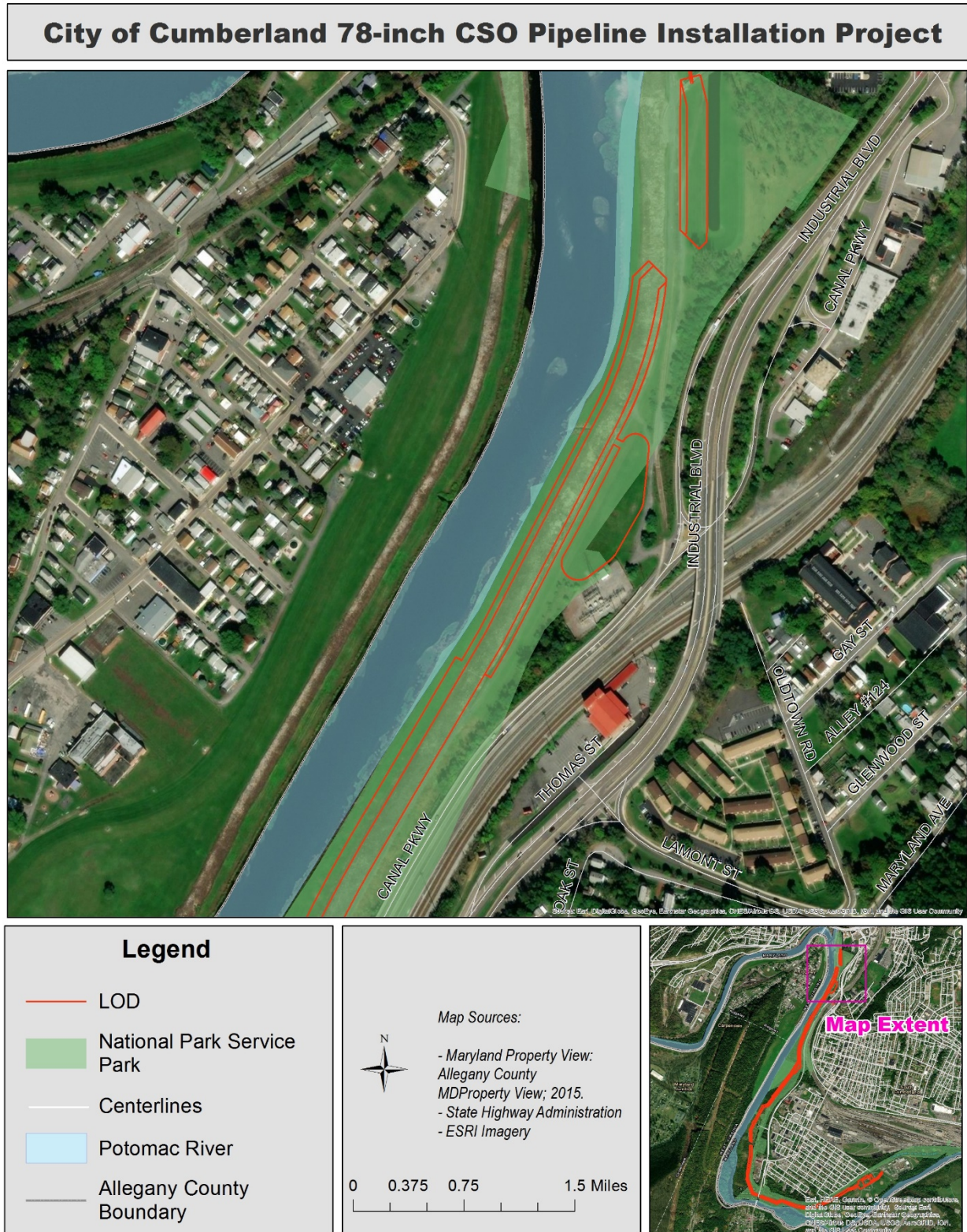


Figure 2 (cont). C&O Canal NHP and Project Location

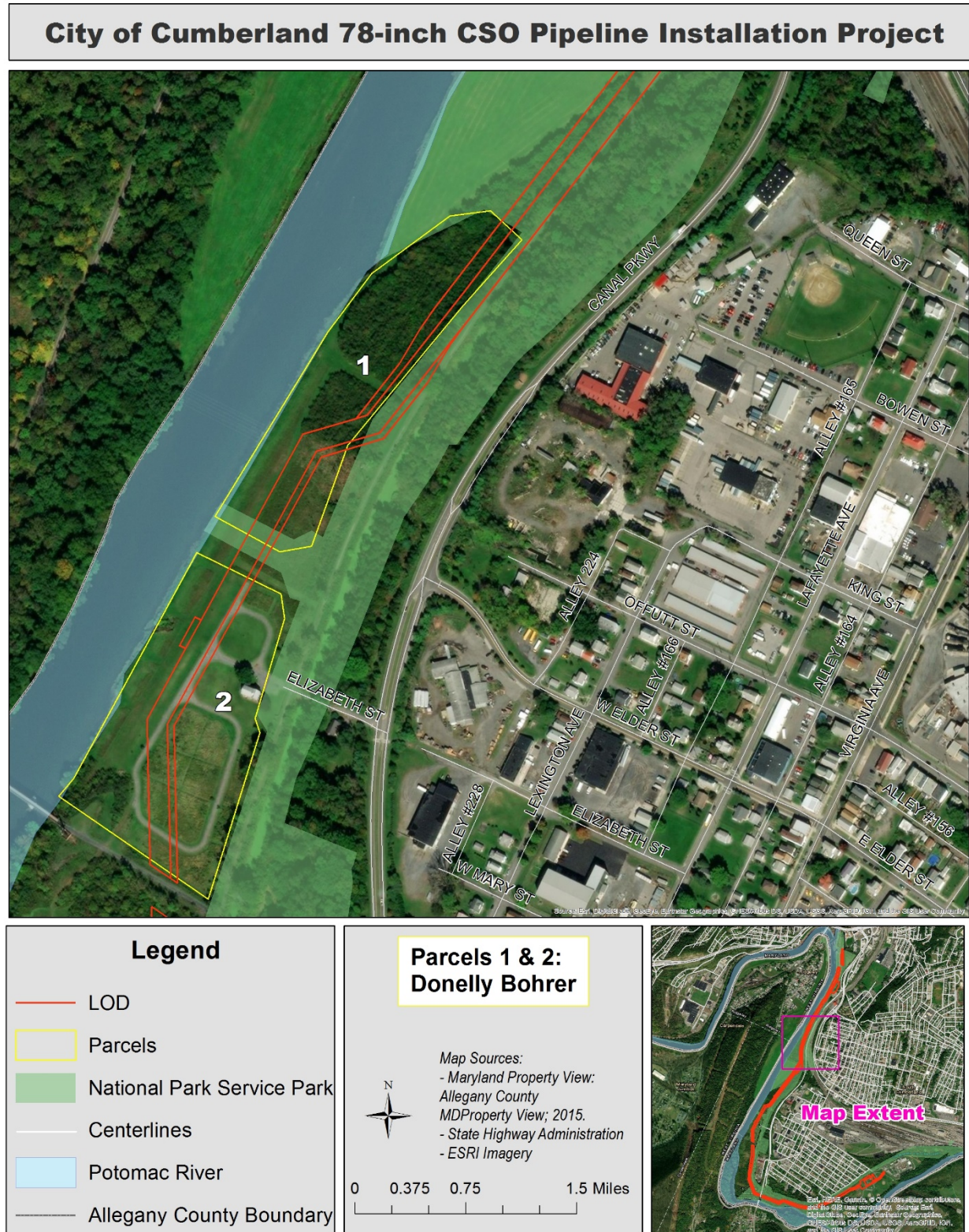


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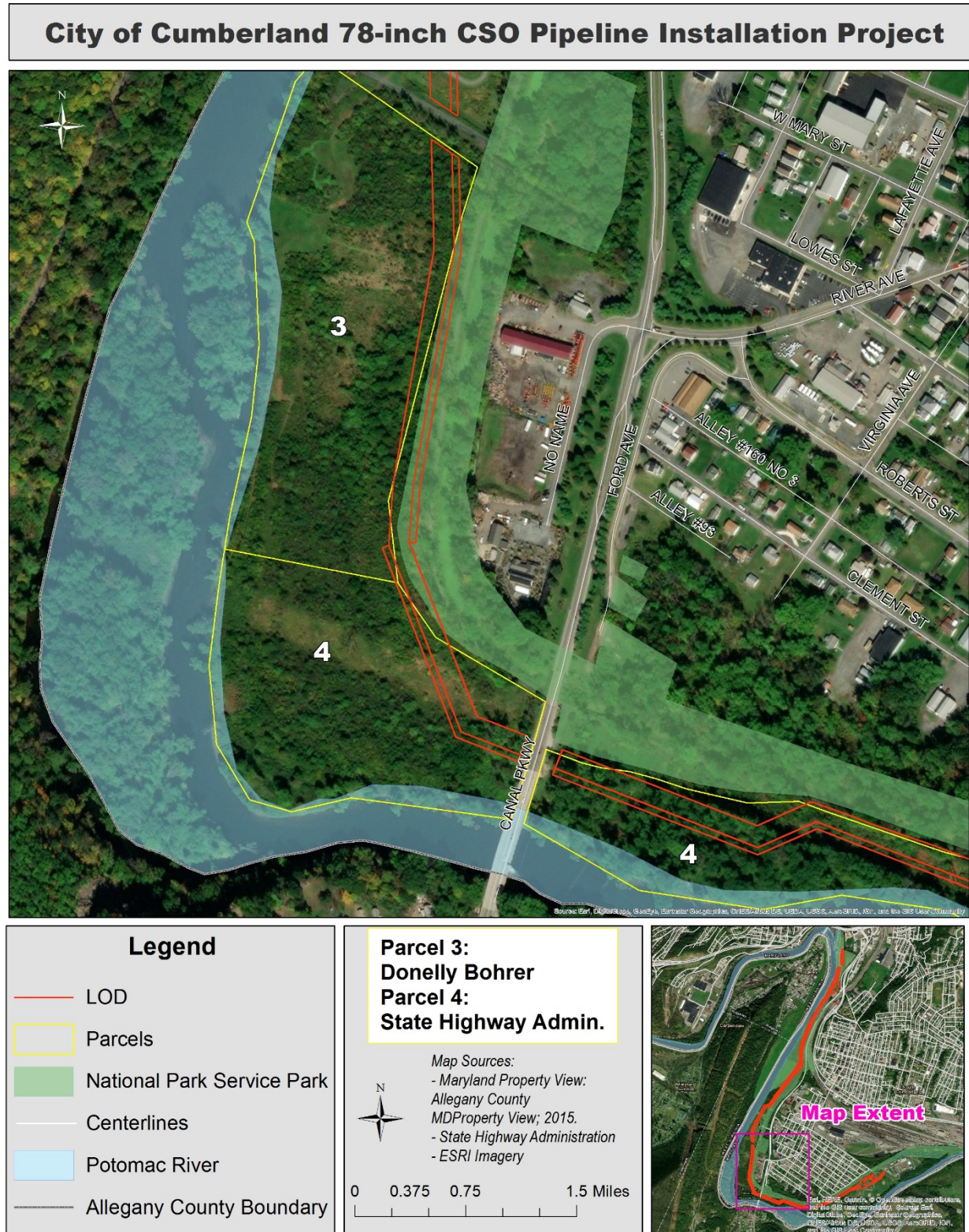


Figure 2 (cont). C&O Canal NHP and Project Location



The goal of the EPA and MDE regulations is to reduce nutrient and pollutant loading into streams and rivers. These regulatory mandates have been enacted to reduce the occurrence of CSO events and therefore provide significant improvements to the water quality of the North Branch which affects both aquatic organisms and recreational users of the resource.

Project Area

The current alignment generally runs in between and parallel to the NPS towpath and the North Branch of the Potomac River for the majority of the alignment, from the Mill Race facility at Canal Place to the Cumberland WRF. The proposed alignment for the 78-inch pipeline avoids crossing the canal itself, but will require one crossing of Canal Parkway and one crossing of the C&O Canal NHP Historic District (MIHP # AL-I-B-086), underneath the existing towpath. The limits of disturbance (LOD) for the installation of the pipeline consists of an 80-foot wide corridor, with bump-outs for staging areas, access points, and areas where a wider construction footprint is necessary.

Significance of the Project Area

The C&O Canal NHP was established in 1971 and is located along 184.5 miles of the Potomac River shoreline from the mouth of Rock Creek in Georgetown, Washington, D.C. to Cumberland, Maryland (NPS reference # 66000036). The C&O Canal NHP preserves one of the most intact 19th century canal transportation systems and is currently among the longest continuous historic canal towpaths in the country. The C&O Canal NHP was District-listed on the National Register of Historic Places (NRHP) in 1979 with an update and a boundary increase in 2015. Contributing historic structures and features within the Area of Potential Effect (APE) include the canal towpath berm, the canal water basin, a stop gate, and a spillway and wastewair.

Additionally, the project alignment generally follows the North Branch of the Potomac River and its associated floodplain. As such, environmental resources potentially impacted by the project include non-tidal wetlands and Waters of the U.S. (WOUS), 100-year floodplain, vegetation/forests, and threatened and endangered species.

Issues and Resource Topics Retained for Detailed Analysis

In the context of NEPA reviews, issue statements describe concerns associated with current conditions in the project area or from implementation of an alternative. Through the scoping process, the project team has identified potential impact topics related to the proposed action that were retained for detailed analysis:

Jurisdictional Non-tidal Wetlands and Waters of the U.S.

In accordance with Director's Order 77-1: Wetland Protection (NPS 2002), non-tidal wetlands within the project corridor were classified according to wetland habitat type based on criteria provided in the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). Based upon this delineation, and the proposed LOD for the project, the proposed project-wide impact to wetlands is calculated to be 1.73 acres, and total Waters of the U.S. impacts are calculated to be 0.06 acres. Of those impacts, a total of 0.36 acres of wetland impacts and 0.04 acres of WOUS are proposed on NPS property.

Vegetation and Forested Areas

In order to install a 78-inch underground pipeline, trees and vegetation will require removal and the established right-of-way for the new utility will be required to be maintained to prevent tree and forest cover to become reestablished. This will require the removal of approximately 19.5 acres of tree/forest cover (3.5 acres of which would be on NPS property), which will then be converted to an herbaceous cover after construction. The removal of vegetation also has the potential to alter the viewshed to which visitors are accustomed. For these reasons, the potential impacts from vegetation removal are analyzed under the “Vegetation” and “Visitor Use and Experience” resource topics.

Historic Structures

The project area contains the C&O Canal NHP Historic District as well as three historic structures outside of the District (two Western Maryland Railroad trestles and associated berms, and the historic neighborhood of Egypt). The proposed action is not expected to excavate any intact portion of the C&O Canal. Where the proposed pipeline crosses under the canal and towpath, the modifications from flood control measures have destroyed the integrity of feel and look of the historic C&O Canal. As this section no longer contributes an authentic representation of the Park, disturbance of this section of the towpath would not be considered an impact. While the proposed alternative will not directly impact any historic structure within the Park, the construction of the proposed alternative has the potential to produce vibration impacts that could harm the stop gate and spillway and wasteweir. For this reason, potential impacts to historic structures are analyzed under the “Historic Structures” resource topic.

Cultural Landscape

As described above in Historic Structures, a portion of the project is located within the C&O NHP Historic District. Although the proposed project has been designed to avoid the contributing elements to the District, including the towpath, the canal prism, the stop gate, and the spillway and wasteweir, the project will temporarily disturb the land within the Park, and will require the installation of manhole covers and above-ground structures. For these reasons, potential impacts to the cultural landscape are analyzed under the “Cultural Landscape” resource topic.

Park Visitor Use & Experience.

The construction activities associated with the installation of the pipeline is estimated to take approximately 30 months. Construction equipment expected to be utilized include excavators, dozers, compactors, loaders, dump trucks, graders, and rollers. Public parking areas are not proposed to be used as staging areas for construction materials, equipment, and vehicles; however, the proposed staging areas will be visible from the towpath. Visitors would be excluded from the construction areas using fencing and signage. Short-term, temporary traffic control may be necessary for construction vehicles to cross the towpath to access the construction corridor, but no road or towpath closures are expected during the construction activities. Should closures and detours be required, signage would be installed to inform visitors. Additionally, as discussed above, the project would include removal of vegetation and the potential installation of resurfacing materials, manhole covers, and/or above-ground structures to support the pipeline. For these reasons, potential impacts to the Visitor Use and Experience are analyzed under the “Visitor Use and Experience” resource topic.

Issues and Resource Topics Considered but Dismissed from Detailed Analysis

Threatened and Endangered Species

Special-status wildlife species are wildlife species that are Federal or State listed species of concern or other species that the Park has identified as warranting special monitoring or management. The project area contains potential habitat for the Federal endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*). Although both species have been identified within the C&O Canal NHP, neither has been identified within the project area. Bat habitat could be impacted by the removal of trees; however, no roost or maternity trees are known to occur within the project area. The NPS initiated consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7 of the Endangered Species Act. The USFWS responded that the project will have “no effect” on endangered, threatened, or candidate species as they would be unlikely to occur within the project area (Appendix A). The NPS also consulted with the Maryland Department of Natural Resources (MD-DNR) for any information regarding threatened and endangered species. The MD-DNR responded indicating that they had no official records of any threatened or endangered plant or animal species within the project area (Appendix B). The project team, on behalf of the City, independently consulted with both USFWS and MD-DNR for the project area outside of the jurisdiction of the NPS, and received similar concurrence from both agencies.

Although the proposed action requires the removal of 3.5 acres of forest within the Park, and additional acreage outside of the Park, the proposed impacts are only located within a very narrow corridor required for construction. Furthermore, tree species such as shagbark hickory (*Carya ovata*), which is a preferred tree species for roost and maternity usage by the identified bat species, were not observed in the project area. There are several size classes, from sapling to large specimens of red maple (*Acer rubrum*), a species known to be potentially utilized for roost and maternity habitat during the summer months, that may be impacted by the clearing on NPS property and within the corridor; however, the quantity of the proposed impacts to this tree species are minimal. Furthermore, research has shown that if a roost/maternity tree is not available due to clearing or natural occurrences, the bat species will readily seek out an alternative tree that is in the vicinity. Due to the narrow corridor of impact and the availability of other large trees of appropriate species in the vicinity, the potential impact to these bat species would be minimal. In order to further minimize potential impacts, no trees will be removed from the Park between April 15 and September 1.

For these reasons, potential impacts to threatened and endangered species has been dismissed from detailed analysis.

100-year Floodplain of the North Branch of the Potomac River

The project corridor parallels the North Branch of the Potomac River and its 100-year floodplain. As such, the corridor traverses much of the floodplain along the designated route. Impacts to the floodplain are expected to be incurred where the corridor topography drops into the floodplain elevation and/or where it is necessary for the corridor to be located spatially closer to the North Branch to avoid infrastructure, utilities, and other resources. The project is anticipated to temporarily impact approximately 17.2 acres of floodplain within the Park.

State and Federal laws mandate that any project that proposes unavoidable impacts to jurisdictional floodplains must show that design efforts were undertaken to avoid and minimize impacts to those jurisdictional resources. As such, the proposed action was developed by analyzing several different alignments in order to minimize impacts to the greatest extent possible to environmental resources, including the 100-year floodplain. However, due to the spatial proximity of the project to the North Branch, much of the proposed alignment is located within the 100-year floodplain.

During construction, the majority of the pipeline would be installed via excavating a large trench to the engineered gradient, installing the pipeline within the trench, and backfilling the excavated area with fill to reestablish the pre-existing grades. Therefore, the overall topography of the area within the construction corridor would be restored to the pre-construction conditions. Therefore, the flow and storage characteristics of the 100-year floodplain would not be affected, and the proposed impacts are considered temporary.

For these reasons, potential impacts to the 100-year floodplain has been dismissed from detailed analysis.

Archeology

A Phase I Archeological and Geomorphological Investigation was completed for this project to identify archeological resources within or proximate to the project area, to summarize previous archeological investigations, to discuss the methods and results of the Phase I archeological investigation performed for this project, and to document the findings of the archeological investigation. The report was submitted to MHT for their review and concurrence (Appendix C).

The Western Terminus area was investigated during the development of Canal Place Heritage Area and the new Canal Parkway¹. While several Canal-era archeological sites were identified, none were located within the project LOD². One previously documented archeological site, the Ford Site (18AG208), was originally within the LOD; however, the alignment was relocated to avoid impacts to this site. As these sites will not be impacted by the proposed pipeline, they are dismissed from further discussion.

Most of the proposed alignment travels adjacent to the C&O towpath on a low terrace of the Potomac River. Phase I archeological and geomorphological fieldwork (including systematic shovel test pits, hand auger, and mechanical geoprobe bores) was completed to identify any archeological resources within the LOD. One hundred fifty-nine (159) shovel test pits were excavated systematically, every 50 feet where advisable and feasible within the LOD. No shovel test pits were excavated in the disturbed Western Terminus area. Moreover, the southern portion of the alignment, within the Gene Mason Sport Complex and outside of NPS property, has also been heavily modified by construction of a BMX racetrack, tennis courts and roads. In addition, at the time of

¹ The area of the Canal Place Heritage Area is documented in the following reports: Balicki and Corle 2005; Balicki et al. 2001; Balicki et al. 2000; Balicki 2000. The area of the new Canal Parkway is documented in the following reports: Ebright and Webb 1995; Ebright 2001; Sprinkle et al. 1994; Helms et al. 1993; O'Brien et al. 1996.

² Identified Canal-era archeological sites include the Guard Lock Complex (18AG226), Crescent Lawn (18AG227), Canal Towage Company (18AG220), Shriver Basin (18AG244), Taylor Tin Mill (18AG213), and Shriver Farmstead (18AG2017).

archeological field investigations, construction for the CSO sewage holding tank had already disturbed much of that area. No prehistoric archeological sites were documented.

Four archeological sites were identified within the LOD. Although none of these four identified sites are within the NPS boundary, they are included in this analysis to assist with the completion of the Section 106 process. Each resource is described in detail in the *Phase I Archaeological and Geomorphological Investigation* and is summarized below.

The Candoc Lane Site (18AG299), the Bohrer/Grosh Property (18AG303), and the Mattingly Site (18AG304) relate to late 19th century and early- to mid-20th century farms on the outskirts of South End Cumberland. These domestic sites overlap the era of C&O Canal operation and occupants likely interacted with life on the canal. There are no extant buildings or structures. Further, it is not likely that the sites documented in this study have been associated with any person of renown or any historically significant event. Prior disturbances include buried gas lines, utility corridor, and flood control measures. MHT concurred that the Candoc Lane Site (18AG299), the Bohrer/Grosh Property (18AG303), and the Mattingly Site (18AG304) do not meet the criteria for eligibility in the NRHP and further work is not needed (Appendix C).

A fourth historic archeological site was identified and investigated; however, this site is outside of the APE for the project and outside of the NPS jurisdictional boundaries. MHT noted that further investigative work on this site is not required for the proposed action.

No archeological sites were documented within the National Park Service boundaries and no prehistoric archeological sites were identified in field work. The proposed action has been designed to minimize impact to significant archeological resources adjacent to the Park and the City of Cumberland would continue to coordinate with MHT to confirm that the project has incorporated measures necessary to minimize and resolve impacts. Further, the MHT determined that the proposed project will not impact any significant buried sites and no further archeological work is necessary to comply with NHPA Section 106 regulations. For these reasons, potential impacts to archeology has been dismissed from detailed analysis.

CHAPTER 2: ALTERNATIVES

Two alternatives were chosen for detailed evaluation in this EA: the No-Action Alternative and the Proposed Action. The chapter also describes other alternatives, which consisted of different corridor alignments that were considered but ultimately dismissed during the impact analysis and agency coordination phase. Mitigation measures for the proposed action are also discussed.

Description of the Alternatives

No-Action Alternative

The No-Action Alternative is analyzed in the NEPA process for the review and comparison of feasible alternatives to the existing baseline conditions. Under the No-Action Alternative, the City of Cumberland would not construct the CSO pipeline. The CSO flows from the Mill Race and other outfalls along the proposed alignment would not be intercepted for treatment and would ultimately be discharged directly into the North Branch of the Potomac River. The CSO Storage Facility (Phase I), which can store five million gallons of effluent and is currently under construction, was designed to accept the initial anticipated volume of CSO flow generated by the northern portion of the City. Without the proposed pipeline conveyance, these flows will not be transported to the facility. Furthermore, the pipeline itself provides an additional two million gallons of storage capacity. Additionally, the No-Action Alternative would cause the City to be in violation of the EPA's Combined Sewer Overflow Policy of 1994 and the MDE's Consent Decree requiring that the City eliminate the combined sewer overflows by no later than October 2023.

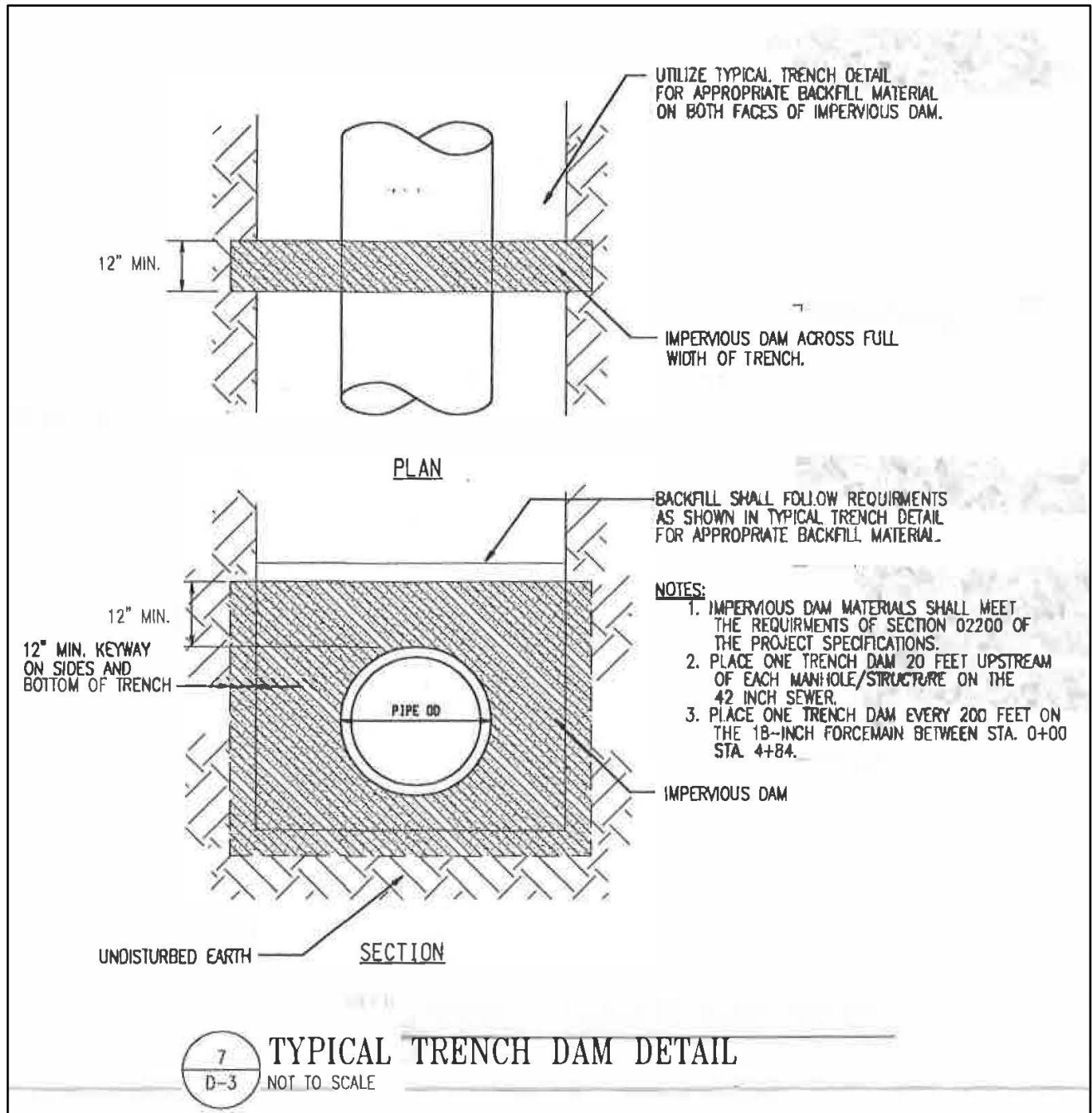
Proposed Alternative (Preferred Alternative)

The proposed alternative would satisfy the EPA and MDE mandates and regulations while providing water quality benefits to the North Branch of the Potomac River. The alignment of the proposed pipeline has been modified through several iterations in order to avoid or minimize impacts to the existing natural, environmental, historic, archeological, and Park user resources. A gravity flow pipeline design was selected to both minimize cost and negate the need for unsightly pumping stations along the proposed corridor within and adjacent to the Park and towpath.

Construction for the majority of the pipeline would involve the excavation of a trench at an engineered gradient. The pipeline would be installed within the trench, then the excavated area would be backfilled with fill to reestablish the pre-existing grades. **Figure 3** provides a typical detail of a trench dam.

Certain obstacles along the alignment, such as the towpath, Canal Parkway, and railroad crossings will require the pipeline to be installed within a constructed tunnel, to avoid impacts associated with above ground crossings. The design of the pipeline alignment has been coordinated with NPS to avoid direct impact to the historic fabric of historic structures related to the C&O Canal. The crossing of the C&O Canal NHP Historic District would occur at the Western Terminus, in the location where a levee was created by filling in the canal and raising the towpath with 30 feet of fill. The crossing would occur underneath the existing towpath.

Figure 3. Typical Trench Dam Detail



The construction of the levee and the other flood control measures at the Western Terminus have destroyed the integrity of feel and look of the C&O Canal. As this section no longer contributes as an authentic representation of the Park, disturbance on this section of the C&O Canal NHP Historic District and the towpath would not be considered an impact to historic resources. To maintain the structural integrity of the levee, boring through the levee is proposed, instead of open cut excavation. While this minimizes impact to the levee, it does not allow for an analysis of the soils above or below the original towpath.

The design of the proposed alternative has been shifted to avoid and minimize impacts to wetlands, avoid archeological resources, and avoid impacts to historic structures.

Alternatives Considered but Dismissed

Several alignment design alternatives were considered throughout the design process but were dismissed or redesigned based on impact analyses and multiple office and field meetings with representatives from the NPS, the City, the MDE, and the U.S. Army Corps of Engineers (USACE). Ultimately, the proposed alternative provides the least environmental impact, avoids all significant cultural resources within the Park, and avoids existing infrastructure to the greatest extent possible. Following is a discussion of the alignment alternatives that were evaluated but dismissed in order to minimize and avoid impacts to resources:

- Two canal prism crossings were proposed in the vicinity of Canal Parkway due to the easement location of a large overhead electric (OHE) utility that parallels the Parkway. These canal crossing were able to be eliminated and the alignment relocated to the south of the OHE lines, thereby avoiding impacts to the canal proper. While this realignment results in additional temporary emergent wetland impacts not located on NPS property, the avoidance of the historic canal crossings is preferable and the engineering aspects of impacting the historic resource are avoided. This also avoided an archeological site at a crossing of east of Canal Parkway.
- An alternate alignment proposed impacting a large palustrine forested wetland located near the WRF where the proposed pipeline discharges to the CSO Storage Facility. By realigning the pipeline outside the delineated margin of the wetland and eventually crossing the wetland at an angle, the forested wetland impacts were reduced by 0.66 acres.
- An alternate alignment placed the pipeline directly along the towpath, necessitating the need for a boardwalk diversion and direct excavation within the towpath. After further engineering review, the pipeline was relocated to the river side of the spillway and wastewer, thereby avoiding towpath impacts, diversion techniques, and impacts to the canal itself, without increasing the impacts to the Waters of the U.S. immediately downstream of the wastewer.
- Early in the planning stages, an alternative with minimal impacts to the NPS was considered. This alternative was reviewed and vetted in the July 2011 report “CSO Storage Facility at the WWTP”. The alternative considered a tunnel crossing away from the NPS right-of-way around Lamont Street, alignment along Industrial Boulevard, a CSX railroad crossing near Maryland Avenue, alignment through residential streets and eventual crossing of C&O Canal and Towpath near Candoc Lane before connecting to the existing CSO storage facility. The analysis of this alternative showed that the cost of construction would

be approximately 60 percent higher than that of the proposed action. The pipeline depths would exceed 50 feet in some areas, which would likely not be constructible along narrow residential roads. Additionally, disturbances to over 50 residences along the alignment would be significant and would require a number of private easements and possible displacement of residents. The impacts to the Park would be only reduced along some of the alignment but would be worse at both ends of the project. The disturbance near Mill Race would include a tunneling pit, which may have required a shutdown of the towpath. The southern portion also necessitated crossing of both the C&O Canal and towpath. As such, the alternative was dismissed from further consideration.

In summary, the proposed realignment completely avoided crossing the canal prism in two locations, significantly reduced impacts to the only forested wetland within the delineation, and completely avoided several historic features such as the spillway and wastew weir, towpath, and the watered portion of the canal upstream of the wastew weir.

Mitigation Measures of the Proposed Alternative

Mitigation, according to NEPA regulations (40 CFR 1508.20) includes avoiding the impact altogether by not taking a certain action or parts of an action; minimizing impacts by limiting the degree of magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and compensating for the impact by replacing or providing substitute resources or environments. Subject to the final design and approval of plans by relevant agencies, mitigation measures would include, but would not be limited to, the items listed below.

- Tree removal within the NPS property would follow time of year restrictions between April 15 and September 1 to avoid potential impact to bat habitat. The City will work with the NPS to restore forested habitat at a 1:1 ratio to account for the spatial extent of trees to be removed for the pipeline installation.
- The removal of vegetation would result in exposed soils during construction, presenting the possibility for erosion at the proposed construction corridor located near the North Branch and associated tributaries. An erosion and sediment control plan would be prepared and implemented in accordance with *Maryland Erosion and Sediment Control Guidelines for State and Federal Projects* (MDE 2015). The plan would include resource protection measures that conform to *Maryland Standards and Specifications for Erosion and Sediment Control* (MDE 2011) and would be submitted to the MDE Water Management Administration for approval.
- Conditions and Best Management Practices for Working in Non-Tidal Wetlands and Buffers will be strictly adhered to and monitored by MDE inspectors.
- Wetland mitigation will be conducted in accordance with NPS, MDE, and USACE regulations. A mitigation site has been selected and proposed designs and mitigation actions are detailed in the Wetland Statement of Findings (Appendix D). This plan has been developed in accordance with NPS Director's Order 77-1 and Procedural Manual 77-1: Wetland Protection to ensure that no net loss of wetland functions and values are incurred.

- The City of Cumberland would coordinate efforts with the MD-DNR and MDE regarding mitigation measures, including in-stream construction timing restrictions, such as stream closure periods.
- Care would be taken to avoid any rutting caused by vehicles or equipment.
- Buffers between areas of soil disturbance and waterways would be planned and maintained. Soil erosion best management practices would be used (e.g., sediment traps, erosion check screen filters, silt fences) to prevent the entry of sediment into waterways.
- Where seeding is required, a weed-free native grass and forb seed mix would be obtained and used in accordance with NPS policies and with Park approval. Management techniques would be implemented to foster rapid development of native plant growth.
- To avoid transport of non-native species to terrestrial portions of the study area, all construction vehicles would be washed prior to use on the towpath and only clean and weed-free fill material would be used.
- Adequate drainage would be maintained around historic structures (culverts) to promote stability and preservation.
- Vibration monitors will be installed during excavation and installation of the pipeline in the vicinity of the stop gate and the spillway and wastewier. The City of Cumberland is coordinating this mitigation with NPS and MHT and will include specific requirements in the construction documents.
- Archeological monitoring during project excavation is recommended in sections of the terrace in order to ensure the identification of deeply buried prehistoric archeological sites that may be inadvertently discovered. Upon discovery, all work will be halted until a resolution is identified and agreed upon, in consultation with MHT. The City of Cumberland is coordinating this mitigation with NPS and MHT and will include specific requirements in the construction documents.
- Visitors would be informed of construction activities by posting information at the trail and C&O Canal website. Visitors would also be routed away from work areas during construction. In the event that any trail closures are necessary, they will be short-term and temporary, such as brief closures to allow for construction equipment to traverse the towpath. Flaggers will be on-site if any brief closures are necessary.
- Where the use of new, above-grade material is necessary, consideration would be given to the characteristics of the materials utilized and would be compatible with historic materials in terms of design, color, and texture, resulting in a minimal effect to the overall integrity of the cultural landscape. The City will continue consultation with NPS and MHT regarding design, color, and texture.
- Construction employees would be instructed on the sensitivity of the general environment, and their activity would be monitored.
- Best management practices would be followed to avoid exposure of the terrestrial and aquatic environment to risks, such as fuel spills.
- All environmental protection measures would be clearly stated in the construction details and specifications.

CHAPTER 3 – AFFECTED ENVIRONMENT

This chapter describes the resources that could be impacted from implementation of the alternatives. The descriptions of the resources provided in this chapter serve as an account of the baseline conditions within the project corridor against which the potential impacts of the alternatives considered in this EA are compared.

Wetlands & Waters of the U.S.

Wetlands are protected by Sections 404 and 401 of the Clean Water Act and the Maryland Nontidal Wetlands Protection Act of 1991. The USACE and the EPA jointly define wetlands as “*those areas which are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas*”.

The project team defined the location, habitat type, and size of wetlands and other Waters of the United States along the project corridor. Wetlands were delineated according to the 1987 Corps of Engineers Wetland Delineation Manual. Wetland habitat types were identified and delineated following criteria provided in the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin 1979).

Wetlands that intersected the project corridor were delineated, including the portions of the wetlands that extend beyond the project corridor. Eight non-tidal palustrine wetlands, encompassing 9.59 acres, were delineated; three of which, encompassing 3.51 acres, are within NPS property (see **Table 1**). Wetland types consist of palustrine emergent (PEM), palustrine scrub-shrub (PSS), and palustrine forested (PFO). Two small non-tidal streams or WOUS were identified within the project corridor, one of which is located on NPS property. Both WOUS originate from pipe outfalls that most likely convey stormwater and intercept groundwater that results in either intermittent or perennial flow. The wetland and WOUS boundaries were inspected and confirmed by representatives with MDE and USACE.

Vegetation/Forests

The project corridor lies within the Folded Appalachian Mountain Section of the Ridge and Valley physiographic province of Maryland, which is characterized by steep ridges and gently sloping valleys. The predominant cover types along the proposed pipeline corridor are herbaceous and scrub-shrub material, with several areas comprised of forest cover. Due to past impacts to vegetation along the proposed corridor, the vegetative component is generally mixed and non-contiguous. Past and recurring impacts include utility line installation (underground gas line, overhead powerlines, etc.), utility line mowing and maintenance, private property mowing, and roadway maintenance.

Table 1: Wetlands and WOUS Within the Project Corridor

Wetland and WOUS ID	Wetland Type	Wetland Size (Acres)	Portion within NPS property (Acres)
Wetland A – WA	PEM	0.35	0.35
Wetland B – WB	PEM	0.71	0.62
Wetland C – WC	PSS	0.78	
Wetland D – WD	PEM	0.10	
Wetland E – WE	PFO	2.54	2.54
Wetland F – WF	PEM	0.01	
Wetland G – WG	PFO & PEM	3.71	
Wetland H – WH	PEM	1.39	
WOUS1	n/a	0.05	0.05
WOUS2	n/a	0.02	
Wetland Total		9.59 acres	3.51 acres
WOUS Total		0.07 acres	0.05 acres

The forested areas along the proposed corridor consist of a mix of deciduous hardwood species that vary greatly in size composition, ranging from 4-inch diameter at breast height (DBH) to greater than 30-inch DBH. Common tree and shrub species include red maple (*Acer rubrum*), American sycamore (*Platanus occidentalis*), black cherry (*Prunus serotina*), and northern spicebush (*Lindera benzoin*). Several sections along the corridor are monotypic with the invasive species Japanese knotweed (*Fallopia japonica*).

Historic Structures

The NPS initiated and completed consultation with the MHT under Section 106 of the NHPA. The Area of Potential Effect (APE) includes the approximately 2.65-mile route of the CSO, construction access points, and staging areas. Additionally, the entire section of the towpath adjacent to the route is included since visual impacts may occur from construction and permanent above-grade infrastructure, such as manholes. The APE has been surveyed for cultural resources in the C&O NHP Historic District, as well as for resources outside of the District. The historic structures within proximity of the APE are listed in **Table 2**.

Table 2. Historic Structures within the APE

Historic Structure	Number	Description	Within NPS Boundary
Contributing Elements to the C&O NHP Historic District (MIHP AL-I-B-086)			
C&O Towpath	N/A	Gravel path, approximately 6 to 15 feet wide, portion has been raised into a river levee. (MP 181.82 to 184.44)	Yes
C&O Canal Prism	N/A	Approximately 30 feet wide, infilled from MP 183.5 to terminus (MP 181.82 to 184.44)	Yes
C&O Stop Gate	LCS 12859	Dating between 1840 and 1850; modified in the 20 th century, probably during the Canal Parkway construction (MP 183.4)	Yes
C&O Spillway and Wasteweir	LCS 11775	Dating between 1840 and 1850; date of concrete additions unknown but likely early twentieth century (MP 183.6).	Yes
C&O Culvert 241	LCS 12857	Dating between 1840 and 1850; modified in the 20 th century, probably during the Canal Parkway construction (MP 182.6).	Yes
C&O Terminus	MIHP AL-IV-A-048	Canal Place, Crescent Lawn; mixed ownership of the location.	Yes
Additional Historic Properties Within the APE not Federal Owned or Managed by the NPS			
Western Maryland Railway Bridges	CSX Bridge # RPI 390	A historic truss that crosses C&O Canal at MP 182.22 near the intersection of Candoc Lane and Olive Avenue.	No
	N/A	Currently used as part of the Carpendale Rail Trail; an historic tress that crosses the C&O Canal at MP 182.97	No
Egypt	MIHP AL-IV-A-138	Lower Cumberland (Keller Survey)	No

C&O Towpath

The C&O towpath berm is approximately 6 to 15 feet wide that has been maintained with some resurfacing and gravel in a wooded setting. While most of the C&O Canal NHP has preserved the original character of the towpath structure, the last mile of the canal has been heavily modified. The C&O Western Terminus is located proximate to the confluence of the Potomac River and Wills Creek, which has caused repeated devastating floods to Cumberland's downtown and the Western Terminus area. The USACE constructed flood control features in 1959 (see **Photos 1 and 2**). The USACE added 30 feet of fill on the historic towpath and infilled the canal basin to create a levee against the overflowing Potomac River. The towpath in this section has heavy gravels and has more of an industrial feel as you approach the City of Cumberland with an electrical power station and railroad access roads nearby. The USACE also widened the banks of the Potomac River and covered them with stone riprap. This section of the Park has lost its historical integrity and does not contribute to the feel of the canal era, nor to the feel of a wooded park.



Photo 1: Facing south, downstream of the Potomac River from Canal Place. The photograph shows where the Potomac River was widened and the banks were covered in riprap.



Photo 2: Facing south, the photo shows the infilled canal basin and raised levee towpath.

With permission from the NPS, Phase I investigations attempted to document the C&O towpath construction and the potential for undisturbed soils below the towpath berm with geoprobe bores (Figure 4). A truck-mounted mechanical geoprobe placed six bores directly on the towpath surface. The geomorphologist investigated each soil bore and noted that local materials were apparently used to build the towpath berm. Only one geoprobe (P5), located south of the stop gate, encountered 85 centimeters (cm) of undisturbed Holocene alluvium above bedload at 4.35 meters

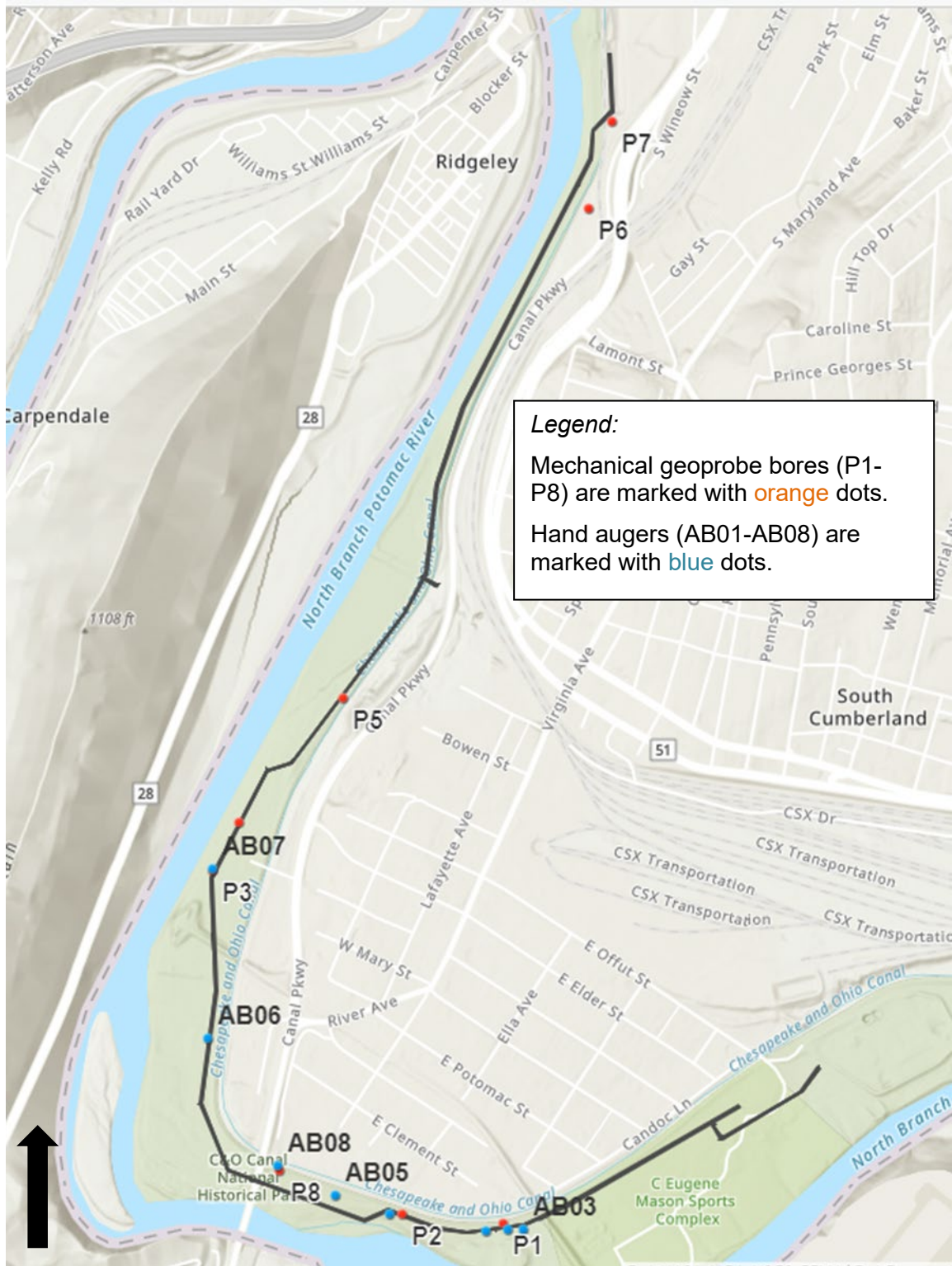
below the surface. At the base of the towpath materials was a 15 cm lens of yellowish brown (10YR5/6) clay loam that was unusual in the project area, possibly puddling clay at the base of the towpath. Results from the southern portion of the project area (P1, P2, and P8) indicated that much of that landscape appears to have been disturbed prior to towpath construction as no old land surface was encountered. Two geoprobe bores (P6 and P7) attempted to penetrate the levee fill near the Western Terminus; however, they were unable to drill more than a foot deep.

C&O Canal Basin

The original design of the canal prism included a 6-foot deep canal basin, 8-foot berm bank, and a 12-foot wide towpath to accommodate mule teams that pulled canal boats by rope. The locks were 100 feet long and 15 feet wide to accommodate canal boats carrying 120-ton loads (Unrau 2007). The prisms were hand shoveled or drilled earthen trenches flanked by a towpath on the river side and a berm on the other. Workmen lined the trench beds with 18 to 24 inches of clay and built retaining walls along much of the canal's length to prevent the prism sides from collapsing. Typically added along the canal's berm side, retaining walls were made of dry-laid stone or even riprap. A few retaining walls were added in flood-prone locations along the towpath side to protect the canal from high water. Budget constraints and topography resulted in a narrower canal prism at Cumberland. At the time of the site visit, the canal basin was approximately 25 feet wide with a 3 to 5-foot tall berm on each side. The prism is now somewhat silted, with areas that are dry and grassy as well as areas covered by standing water. Flood control measures in the 1950s filled in the canal basin from Mile Marker 183.5 to 184.5, the Western Terminus.

During field investigations, the geomorphologist completed a hand auger boring (AB08) in a dry section of the C&O Canal near the Canal Parkway Bridge (**Figure 4**). The geomorphologist recorded 43 cm of a sediment composed primarily of organic-rich silt that was deposited while the canal was filled with water, while the Canal was in use, or thereafter, and 12 cm of organic material that accumulated after draining in this very wet setting. A 15-cm lens of yellowish brown (10YR5/8) clay loam at 55 cm below the surface may be intact clay puddling lining of the basin. The boring was refused on coarse fragments at 70 cm, also possibly part of the canal lining. Like the towpath, where the proposed pipeline crosses the canal route, mid-20th century modifications from flood control measures have destroyed the historical integrity, feel, and look of the canal basin.

Figure 4. Location of Phase I Geomorphological Fieldwork



C&O Stop Gate

Constructed in 1840-1850 and altered in 1924, the seventh stop gate along the C&O Canal sits approximately one mile below the Western Maryland Station at Mile Post 183.39. The extant canal-era stop gate is a three-piece stonework structure within the canal prism (see **photos 3 and 4**). The bulkheads form a narrow channel through which canal boats once passed; it regulated water flow and retained water in the terminus basins when the canal below was drained (Smith 1978; Helms et al. 1993). It extends 70 feet between the eastern edge of towpath across the canal basin to the hillside. Original canal-era stonework is six courses of large cut stone reaching a height of 12 feet. The canal is restricted by lock-like wall, 18 feet apart, with a set of close-to-standard dimension lock gate pockets near its up-canal end. The gates and hardware are missing. The down canal berm wall turns 90 degrees to run as an equal height wall for a few feet to the waste weir opening. After the opening, the stone wall continues into the rising berm bank. The wood frame and drop planks of the wasteweir are missing. However, this does not account for the berm side weir. Originally, the structure was level with the towpath ground surface, but has since been capped with over three feet of concrete, possibly added while the C&O Canal was in operation. The downstream has an earth dam with some water in the canal below the dam. There is no water at the stop gate.



Photo 3: C&O stop gate, facing west with towpath in the distance.



Photo 4: C&O stop gate. Photo from inside the canal basin, facing south.

C&O Spillway and Wasteweir

Constructed between 1840-1850, the wasteweir at Mile Post 183.5 channeled excess water from the canal into the Potomac River (**Photos 5, 6, and 7**). The wasteweir was located on the Potomac River bank of the Canal, opposite the Maryland Glass Company and slightly downstream of a "sewer open ditch" which flowed into the canal and separated the glass company from the B&O Railroad. This ditch was probably the remnant of a stream that flowed into the Potomac prior to the canal's construction. Water flows under the towpath through a canal-era structure of stacked and mortared limestone blocks and metal pipe. The heavy stone walls of the weir cutting through the towpath are 11 feet apart and carry to towpath height for about 11 feet. By 1924, the wasteweir had been modified to include a southward extension of the bulkheads that served as an overflow area. The original stonework was capped with 3 feet of concrete, and a low concrete wall was added along the towpath edge for 148 feet. The concrete spillway continuing down from a stone wasteweir at this location was a repair from an earlier lowering of the section of the towpath bank that provided drainage and a proper water level in the canal. This wall was pierced by nine equally spaced gate openings 18 inches high by 7 feet wide. There was a 3-foot wide buttress on each side that was vertically grooved next to the opening face wall to accommodate a 2-inch oak plank drop gate. Former wood timber vertical dividers were replaced by two 10 by 12-in concrete posts on the canal side that formed three 3-feet and 1-inch clear openings that would have been closed off by drop planks. The river side of the spillway, which ran for about 124 feet below the down-canal wasteweir stone wall, was a concrete retaining wall to hold the earth fill of the bank. Rebar in the extended wall likely once supported a walkway from which workers dropped wooden boards in slots along the top of the concrete wall. To provide a dry walkway for the towpath, hollow triangles of stock flat iron were bolted to the concrete 3 feet beneath the top of the wall and 18-foot wide wood planks were laid to form a continuous walkway. Prior to USACE flood control measures in 1959, a river island (Beall's Island) channeled the Potomac inland. USACE removed this island and created a 200-foot floodplain between the canal and the river's edge. From the waste weir to the Canal Terminus, the towpath has been raised 30 feet and the canal basin has been filled.



Photo 5: The C&O wastew weir, facing west from inside canal basin.



Photo 6: C&O wastew weir with stonework, metal water pipe, and concrete capping, facing east.



Photo 7: C&O wasteweir facing north from the towpath. The photo shows the 148-foot extended concrete wall on the left of the photograph.

C&O Culvert 241

Constructed between 1840-1850 in the vicinity of present-day Canal Parkway Bridge, this culvert has a 15-inch steel pipe in concrete semi-circular arch that spans 4 feet. Carrying water beneath the canal, the outflow face is filled to a course under the coping. The inflow side is a concrete drop inlet with a flat, square opening 9 by 72 feet wide. The opening is full of debris.

C&O Western Terminus

The C&O Western Terminus was an active commercial center and the heart of Cumberland, with transportation infrastructure and private residences and businesses. C&O canal structures, described below, had included an Abutment Dam and a Guard Lock and lockkeeper's house, as well as a Commemorative Marker that was added in 1980.

- C&O Commemorative Marker - Constructed in 1980 near the remains of the twin guard locks in grassy area south of the Cumberland Visitor's Center inside the Western Maryland Train Station.
- C&O Dam 8 Abutment Dam - Built by the C&O in 1849-1850, Dam No. 8 raised the level of the river by several feet to provide water for the canal and to flood a turning basin. Constructed a few hundred feet below Wills Creek, this dam was removed for flood control.
- C&O Guard Lock 8 - Constructed in 1849-1850 within the Canal Western Terminus area, the Guard Lock Complex (18G266) included the lockkeeper's house that was apparently located between the V-shaped plan for the two lock structures. Lockkeeper "Scat" Eaton and his family and descendants resided there until 1957.

Western Maryland Railway Bridges

Two Western Maryland Railway bridges are within the APE (**Photo 8**). The bridges were built in the early 20th century and contribute to the historical viewshed of the C&O Canal NHP. One bridge is located near Elizabeth Street and has been converted to a pedestrian trail that includes the tunnel to Cependale, WV. The second bridge is near the western edge of the Mason Sports Complex. The proposed action includes plans to bore under the railroad berms, but will not impact the historic resources.



Photo 8: Western Maryland Railroad bridge over the C&O Canal near Candoc Lane.

Egypt (or Lower Cumberland)

The neighborhood of Egypt or Lower Cumberland (AL-IV-A-138), includes the southeastern side of Cumberland's South End, from the Gene Mason Sport complex to Ford Avenue/Virginia Avenue, from the railroad tracks north of Offut Street to the Potomac River. Founded as a working-class neighborhood for B&O railroad workers at the turn of the 20th century, the neighborhood was recommended as eligible for the NRHP in the original 1976 MIHP documentation by Criteria C as a contiguous collection of worker housing architecture and by Criteria A for contributing to regional history. While the historic neighborhood boundaries extend into the LOD, the narrow lots, wide streets, and sidewalks which characterize the neighborhood do not extend south of the C&O Canal. The proposed project will have no adverse effects on the contiguous working-class neighborhood of Egypt or Lower Cumberland.

Cultural Landscapes

The alignment of the pipeline generally parallels the C&O Canal towpath and crosses into the C&O NHP Historic District near the Western Terminus. Following is a brief discussion of the C&O Canal history.

Throughout the 19th century, Americans witnessed the rapid development of infrastructure improvements such as roads, railroad tracks, and canals, all of which increased and expanded commercial trade. These engineering phenomena worked to connect east coast cities to the Appalachian Mountains and beyond. The C&O Canal (AL-I-B-086) was the primary waterway between Washington, D.C. and Cumberland from 1850 to 1924. Work on the C&O Canal began near Washington, D.C. in July 1828, but it took two generations of workmen 22 years to dig the “Grand Old Ditch” all the way to Cumberland. Delays caused by floods, epidemics, labor unrest, legal disputes, lack of funds, and difficult terrain bogged down construction for decades. The completed canal ran 184.5 miles, traveling on the Maryland side of the Potomac River and passing through 74 lift locks that transitioned boats between the Potomac tidewater and the mountains. Although the Canal was originally intended to reach Ohio, Cumberland became the Western Terminus in 1850. The Western terminus included many important features of the transportation network, including Shriver Basin, West Terminus Guard Lock, and Dam 8. Just downstream from the Western Terminus is an extant stop gate that was used to halt water flow so the Terminus would retain water when the rest of the Canal was drained during winter months. A wastew weir further regulated the water in the canal as a relief valve that routed water into the Potomac River during floods. In 2013, the Canal Place Heritage Area Authority developed a park area at the Canal Terminus with a National Park Museum to attract heritage tourism visitors. The C&O Canal continues as a vital economic asset to the City of Cumberland as a recreational trail that is heavily used in the warmer months.

The C&O Canal is woven into Cumberland’s history and present-day life. The C&O Canal had a significant impact on Cumberland’s economic development, especially when combined with the coal extraction boom. Cumberland’s active wharf and turning basins, coupled with the Western Maryland Railroad Station built in 1913, and other manufacturing such as the Footer Dye Works, made the Western Terminus area a lively center of activity. The “Shantytown” neighborhood expanded with the arrival of business associated with boat building and repairs, adding saloons, merchants, skilled tradesmen, and worker housing. Shantytown was a bustling community for over 85 years, roughly between 1864 and 1949 (Helms et al. 1993; Balicki and Corle 2007). Later, after the C&O ceased commercial navigation in 1924 and another disastrous flood occurred, Shriver Basin was filled in and a baseball field built on the site.

The Western Terminus, located at the historic city center, was integral to the growth and vitality of Cumberland. Within a half mile of the Terminus lies many well-documented, historically significant neighborhoods and archeological sites. Examples include Washington Historic District (AL-IV-A-026), Downtown Cumberland Historic District (AL-IV-A-132), Greene Street Historic District (AL-IV-A-164), and Rolling Mill Historic District (AL-IV-A-169).

When the canal was being constructed, Cumberland’s outskirts consisted of agricultural fields, orchards, and scattered log and brick farmhouses (Helms et al. 1993). Hay’s Mill (1828 -1864), the Maryland Glass Company (1880-1935), Warren Glass Works (1880-1913), and the Taylor Tin Mill

(1873-1937) were among the earliest to begin manufacturing downstream on the Potomac (Helms et al. 1993). Industry was already booming in Cumberland when the B&O Railroad moved their headquarters to Offut Street in 1891. Developers Humbird and Walsh plotted neighborhood lots of South End for B&O railroad employees. By the 1920s, the neighborhoods of Egypt (AL-IV-A-138), which has been determined eligible for the NRHP, and South Cumberland (AL-IV-A-139) were considered ‘built out’ (Keller 1976; Taylor 2005).

The Western Maryland Railway tracks cross Cumberland's South End neighborhood, and the proposed alignment intersects two bridges of that line. Built by 1908, the rail line was later taken over by Chessie System. Although now defunct, the line has become part of the historic viewshed of the C&O Canal, and one bridge has been restored as a pedestrian walkway that tunnels through Knobley Mountain to Carpendale, WV.

Visitor Use and Experience

In 2019, an estimated 5,116,787 people visited the Park (NPS 2019a). The busiest months were June, July, August, and September, when average monthly attendance was approximately 617,812 visits. January and February were the least visited months with approximately 199,712 visitors to the Park in January and 200,441 visitors in December (NPS 2019b). In the portion of the Park within Allegany County, the Park counts visitors by vehicle or trail at eight sites. In 2019, a total of 214,471 visitors were estimated in the Allegany County District, accounting for approximately 4.2% of all visitors to C&O Canal NHP (NPS 2019c). At the State Heritage Area Canal Terminus, trail counts indicated that 55,326 people visited the towpath in 2019 (NPS 2019c), which accounts for 26% of the visitors in Allegany County.

The C&O Canal NHP offers a variety of natural, cultural, and recreational resources, including a towpath that provides a nearly level, continuous trail for biking and hiking through the Potomac River Valley. Within the project area, the primary recreational use of the canal is hiking and biking along the original towpath. Visitors to the study area also engage in other recreational activities, such as boating, fishing, swimming, and birdwatching. Visitors can access the towpath from the parking lot at Canal Place in Cumberland.

CHAPTER 4 – ENVIRONMENTAL CONSEQUENCES

General Methodology

This chapter describes the potential environmental consequences of implementing the No-Action Alternative and the Proposed Alternative. It is organized by resource topic and provides a comparison between the two alternatives based on issues and topics discussed in Chapter 1 and further described in Chapter 3. In accordance with the Council on Environmental Quality regulations, direct, indirect, and cumulative impacts are described, and the impacts are assessed in terms of context, intensity, and duration (40 CFR 1502.16). This analysis assumes that the mitigation measures, as defined in Chapter 2, would be implemented for construction activities under the proposed action.

Past, Present, and Reasonably Foreseeable Actions

Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

To determine potential cumulative impacts, past, present and foreseeable future actions were identified in or near the project area. Due to the relatively small scope of the proposed action, the study area for this cumulative impact assessment was limited to projects within Allegany County. Cumulative impacts are considered for the No-Action Alternative and the Proposed Action, by combining the impacts of the alternative being considered with other past, present, and reasonably foreseeable future actions and are presented at the end of each impact topic discussion. **Table 3** shows the projects considered in the cumulative impact analysis for each resource.

Wetlands & Waters of the U.S.

In this section, the potential temporary and permanent impacts on both jurisdictional non-tidal wetlands and WOUS from the no-action and proposed actions are analyzed. Construction activities necessary for the pipeline installation would cause both temporary and permanent impacts to both wetlands and WOUS. The study area for wetlands and WOUS consists of the LOD for construction, which includes the installation of the proposed pipeline, drainage improvements, and staging areas for equipment and materials.

Methodology

The potential for impacts to wetlands and WOUS were evaluated by a detailed comparison of the wetlands and WOUS as delineated in the field and the implications and impacts of implementing the proposed action. The analysis considered temporary, permanent, and conversion impacts to both resources. Additionally, the functions and values of the resources were taken into effect when analyzing the proposed actions.

Table 3: Past, Present and Reasonably Foreseeable Actions Used in the Analysis of Cumulative Impacts

Project	Project Description	Impact Topics
Mill Race Screening & Odor Control Facility	This project involved combining multiple overflow/outfall locations into one outfall and providing screening of the overflows and odor control facilities. The project was completed in conjunction with the rewatering of a short segment of the canal. A 600-foot segment of 78-inch pipe was installed as part of this project and will be the connection point for the 78-inch pipeline from Mill Race to the storage facility.	<ul style="list-style-type: none"> • 100-Year Floodplains • Cultural Landscape • Visitor Use and Experience
Evitts Creek Pumping Station, Force Main, & Gravity Sewer Upgrades	This project increased the pumping capacity at the Evitts Creek pumping station, essentially eliminating the overflows to Evitts Creek at this location. The increase of pumping rates and associated flows, resulted in the need to upgrade the force main and gravity sewers receiving the flow. A new force main was installed and a parallel 42-inch interceptor carrying the flow to the WRF.	<ul style="list-style-type: none"> • 100-Year Floodplains • Cultural Landscape
Enhanced Nutrient Removal (ENR) Upgrades at the City WRF	The ENR Upgrade to the City's WRF is a robust system capable of achieving the limit of technology nitrogen and phosphorus effluent levels while contending with sustained peak flows from the City's combined sewer system. The plant upgrade included modifications to the aeration basins to a Step-Feed BNR configuration and new deep bed denitrification filters with methanol addition.	<ul style="list-style-type: none"> • 100-Year Floodplains • Cultural Landscape
Phase I CSO Storage Facility Project	A 5-million gallon CSO storage facility adjacent to the WRF was constructed to capture and store overflows occurring at the WRF during wet weather, when WRF capacity is not capable to treat the incoming flow. The flow will be stored and then pumped to the WRF, when capacity allows it, and treated to ENR levels.	<ul style="list-style-type: none"> • 100-Year Floodplains • Cultural Landscape • Visitor Use and Experience
NPS & City of Cumberland C&O Canal Rewatering Project	This project reconstructed and re-watered the historic C&O Canal terminus at Cumberland. The sewer lines in the turning basin project area were relocated and upgraded per the Mill Race Screening and Odor Control Facility project.	<ul style="list-style-type: none"> • 100-Year Floodplains • Cultural Landscape • Visitor Use and Experience
City of Cumberland Western Maryland Railway Bridge Project	The City is planning to remove the Western Maryland Railway Bridge and the associated berm. In relation to this project, archeological fieldwork in October 2019 documented site 18AG299 and defined the boundaries as stretching across both sides of the railroad berm.	<ul style="list-style-type: none"> • 100-Year Floodplains • Historic Structure • Cultural Landscape • Visitor Use and Experience

No-Action Alternative

Under the No-Action Alternative, wetlands and WOUS would remain in their current condition. No construction activities would occur; therefore, no permanent or temporary impacts to wetlands or WOUS would be incurred.

Cumulative Impacts

Wetland and WOUS conditions would remain unchanged under the No-Action Alternative; therefore, it would have no potential to contribute to cumulative impacts when considered with past, present and reasonably foreseeable future projects occurring within the Park.

Conclusion

There would be no new temporary or permanent impacts to wetlands and WOUS under the no-action alternative.

Proposed Action/Preferred Alternative

Under the proposed action, the construction to install the new pipeline would result in both temporary and conversion impacts to wetlands and WOUS. Conversion impacts, in terms of wetlands, are when one wetland type is converted to another, less desirable or functional wetland type for the given landscape, hydrology and vegetative conditions. For example, for this project, the proposed action results in the conversion of forested wetland to emergent wetland, and because of the required vegetative maintenance within the new right-of-way, that wetland would not over time transform back into a scrub-shrub and then final forested wetland condition.

State and Federal laws mandate that any project that proposes unavoidable impacts to jurisdictional wetlands and WOUS must show that design efforts were undertaken to avoid and minimize impacts to those jurisdictional resources. As such, the proposed action was developed by analyzing several different alignments in order to completely avoid and minimize impacts to wetlands and WOUS. Additionally, wetlands that are considered higher value, such as forested wetlands, are evaluated for further minimization and avoidance, if possible, due to the categorization of those impacts as being conversion impacts rather than temporary impacts, as would be the case with emergent wetlands. The proposed action is the most favorable alignment that provides the least impacts to both wetlands and WOUS. It should be noted that due to the linear nature of the project, the wetland delineation evaluated wetlands and WOUS within a broad corridor that encompassed the proposed construction corridor. Several of the wetlands listed are in actuality much larger in acreage than listed in the table, but due to the limits of the delineation, the wetland size is shown as the spatial extent in the vicinity of the corridor. **Table 4** provides the total wetland and WOUS impact calculations as proposed. The proposed impact to wetlands is calculated to be 1.73 acres, and total WOUS impacts are calculated to be 0.06 acres. Of those impacts, a total of 0.36 acres of wetland impacts and 0.04 acres of WOUS are proposed on NPS property. A wetland mitigation site for the total project wetland impacts will be constructed and monitored in order to replace the proposed impacts incurred due to the project. Mitigation will follow National Park Service Director's Order #77-1 and Procedural Manual #77-1: Wetland Protection. Proposed wetland mitigation efforts are detailed in the Wetland Statement of Findings report (Appendix D).

Additionally, the total calculated impact of forested/scrub-shrub wetland conversion to emergent (PFO/PSS to PEM) wetland is 0.45 acres; however, no PFO/PSS to PEM conversion impacts are proposed on NPS property. As discussed in Chapter 1, by realigning the pipeline outside the

delineated margin of the forested wetland and eventually crossing the forested wetland at an angle, the forested wetland impacts were reduced from 1.07 acres to 0.41 acres, a reduction of 0.66 acres of impact

Table 4: Wetlands/WOUS Impact Calculations

Wetland ID	Wetland Type	Wetland/ WOUS Size (Acres)	Proposed Impact (Acres) & Type	NPS Wetland/ WOUS Impacts	Mitigation Required
Wetland A - WA	PEM	0.35	0.00		
Wetland B - WB	PEM	0.71	0.36 (Temp)	0.36	0.36
Wetland C - WC	PSS	0.78	0.04 (Conv.)		0.04
Wetland D - WD	PEM	0.10	0.05 (Temp.)		
Wetland E - WE	PFO	2.54	0.00		
Wetland F - WF	PEM	0.01	0.00		
Wetland G - WG	PFO	3.27	0.41 (Conv.)		0.41
Wetland G - WG	PEM	0.44	0.14 (Temp.)		
Wetland H - WH	PEM	1.39	0.73 (Temp.)		
WOUS1	n/a	0.05	0.04	0.04	
WOUS2	n/a	0.02	0.02		
Wetland Totals		9.59 ac	1.73 ac	0.36 ac	0.81 ac
Temporary Wetland Impacts			1.27 ac	0.36 ac	
Conversion Wetland Impacts – PFO/PSS to PEM			0.45 ac		
WOUS Totals		0.07 ac	0.06 ac	0.04 ac	

Construction would involve digging a trench for the pipeline, then backfilling the trench with fill. However, when traversing a wetland area, potential design applications are assessed then implemented to ensure that the wetland remains a wetland in the post-construction condition. A typical design application would be to install a bentonite clay-based trench dam at the margins of the wetland to preclude groundwater hydrology from being diverted away from the pre-existing wetland (Figure 3). This application has been utilized with great success to ensure that wetland areas remain wetlands in the post-construction condition.

A Joint Permit Application (JPA) has been prepared and submitted to the MDE and USACE to authorize proposed temporary and permanent impacts to wetlands, WOUS, and floodplains.

Cumulative Impacts

The proposed action would result in temporary and conversion impacts to wetlands and WOUS, which would contribute to the cumulative effects of past, present, and reasonably foreseeable future actions on wetlands, by disturbing existing natural areas, altering surface water hydrology, and clearing forested lands. Some of the adverse effects would be mitigated by the proper use of erosion and sediment control practices during construction. Additionally, some of the unavoidable impacts would be offset through the implementation of the proposed mitigation plan (Appendix D), which proposes a net positive increase in wetland acreage within the watershed and replacement or improvement of the functions and values of the impacted wetlands. Overall, the proposed action would contribute incrementally to the adverse cumulative impacts of other actions to wetlands and

WOUS. In the context of the entire Park, the cumulative impact on wetlands and WOUS would be minimal.

Conclusion

The proposed action is necessary to achieve the beneficial water quality goals from CSO reduction as mandated by the State and EPA. While the proposed action would result in impacts to wetlands and WOUS, several iterations of pipeline alignment designs have been evaluated to analyze the various wetland and WOUS impact scenarios. Overall, the proposed action provides the greatest minimization and avoidance efforts to both wetlands and WOUS. Additionally, the majority of the proposed impacts are temporary in nature and the wetland boundaries would be reestablished post-construction. Forested wetland conversion impacts have been minimized to 0.45 acres. Furthermore, wetland mitigation actions would be undertaken to offset the proposed impacts in order to replace the functions and values of the impacted resources (Appendix D).

Vegetation and Forests

In this section, the potential impacts on vegetation and forest from the no-action and proposed actions are analyzed. Construction activities necessary for the pipeline installation would cause both direct and indirect impacts on the vegetation community due to direct vegetation removal, soil compaction, and disturbance. The study area for vegetation and forests consists of the LOD for construction, which includes the installation of the proposed pipeline, drainage improvements, and staging areas for equipment and materials.

Methodology

A description of the baseline vegetative conditions within the project corridor is provided in Chapter 3: Affected Environment. Alternatives were evaluated against this baseline to determine the changes that would occur under each alternative. Potential impacts to vegetation were identified by reviewing the proposed LOD in conjunction with the vegetative cover types present in the field.

No-Action Alternative

Under the No-Action Alternative, there would be no construction activities, but routine maintenance activities including removal of hazard trees and maintenance of vegetation adjacent to the towpath would continue. This alternative would not result in new impacts on vegetation within the project area.

Cumulative Impacts

Under the No-Action Alternative, vegetation within the project area would remain unchanged; therefore, it would have no potential to contribute to cumulative impacts when considered with past, present and reasonably foreseeable future projects occurring within the Park.

Conclusion

Under the No-Action Alternative, treatment of vegetation would remain the same as current conditions. Vegetation communities within the project area would be unchanged, and the No-Action Alternative would not contribute to cumulative impacts on vegetation.

Proposed Action/Preferred Alternative

For the analysis of vegetation impacts, it was assumed that an approximate 80-foot wide corridor would be needed to be cleared of vegetation for construction activities and pipeline installation along 10,500 linear foot of the 13,500-linear foot corridor (the first 3,000 linear feet of the proposed corridor is situated within a riprap embankment along the North Branch and does not contain any vegetation). This would result in approximately 19.5 acres of vegetative clearing, consisting of herbaceous and woody material. Approximately 3.5 acres of tree clearing is proposed on NPS property. Staging areas for construction materials and equipment would be located in several select locations along the construction corridor; however, these locations typically consist of mowed maintained areas.

Following construction, all disturbed areas would be seeded with a weed-free native grass and forb seed mix, which would help to stabilize the disturbed soils. Given the wide-ranging upland forested and extensive similar forest habitat nearby, vegetation loss is not expected to have a discernable negative effect on the riparian and upland forests adjacent to the construction corridor. The City will work with the NPS to restore forested habitat 1:1 to account for the spatial extent of trees to be removed for the pipeline installation.

Overall, the proposed action would result in both temporary and permanent loss of vegetation. However, the permanent loss is actually a conversion loss due to converting forest and shrub cover types to an herbaceous cover type. Disturbed areas would be revegetated using a weed-free native grass and forb seed mix that would restore herbaceous cover within several years of construction. Areas adjacent to the stone wall would be maintained to be free of trees and woody vegetation to protect the structural integrity of the stone wall. The impacts on vegetation would be adverse, but in the context of the Park as a whole, the majority of the impacts would be minimal and temporary in nature.

Cumulative Impacts

Actions that contribute to maintaining the towpath require minimal vegetation clearing and would result in negligible adverse impacts on vegetation communities. The proposed action would result in disturbance to vegetation offset from and parallel to the towpath and would result in a moderate impact on vegetation within the project corridor, primarily from vegetative cover conversion. Overall, the proposed action would contribute incrementally to the adverse cumulative impacts of other actions to vegetation. In the context of the entire Park, the cumulative impact on vegetation would be minimal.

Conclusion

The proposed action would require the removal of vegetation to complete construction activities for the installation of the proposed pipeline within the project corridor. Vegetation within an approximate 19.5-acre (3.5 acres within NPS property) area would be subject to removal, including some canopy trees, understory species, and herbaceous species. Following construction, vegetation maintenance would prohibit trees and woody vegetation from growing within the established 40-foot right-of-way in order for the pipeline to retain its structural integrity. Disturbed areas would be revegetated with a weed-free native grass and forb seed mix approved by NPS, and the areas along the final right-of-way margins would be allowed to succeed naturally. The proposed action would result in temporary adverse impacts from a loss of herbaceous vegetation, permanent adverse loss due to cover type conversion, and the creation of a new maintained 40-foot right-of-way to be free of

trees and woody vegetation. The proposed action would contribute a small adverse increment to the minor adverse cumulative impact on vegetation.

Historic Structures

In this section, the potential impacts on historic resources from the no-action and proposed actions are analyzed. The study area for historic structures is the APE, which includes the approximately 2.65-mile route of the CSO, construction access points, and staging areas. Additionally, the entire section of the towpath adjacent to the route is included since visual impacts may occur from construction and permanent above-grade infrastructure, such as manholes.

Methodology

The potential for impacts to historic structures was evaluated by coordinating with MHT and NPS and requesting any information available pertaining to known historic structures in the APE.

No-Action Alternative

Under the No-Action Alternative, no potential impacts to historic structures would be incurred by the project.

Cumulative Impacts

The potential for impacts to historic structures under the No-Action Alternative would not exist; therefore, there would be no potential to contribute to cumulative impacts when considered with past, present and reasonably foreseeable future projects occurring within the Park.

Conclusion

There would be no potential impacts to historic structures under the No-Action Alternative.

Proposed Action/Preferred Alternative

The design of the pipeline alignment has been coordinated with NPS to avoid physical impacts to the historic fabric of structures within the C&O Canal NHP Historic District. The project's physical impacts to the C&O Canal towpath and basin are limited to the Western Terminus parcel that was heavily modified by the flood control measures in the mid-20th century. As described in Chapter 3, the C&O Canal was utilized to create a levee by adding 30 feet of fill to the towpath and canal basin. In this section of the C&O Canal NHP, the towpath and canal basin have lost their historic integrity in terms of look and feel and no longer are contributing historical features to the National Park and the pipeline disturbance would not be considered an adverse effect. The project proposes crossing from the riprapped banks of the Potomac River to the east side of the C&O towpath by sideways drilling through or under the levee fill to connect with existing pipe infrastructure. It is unlikely, although possible, that the drilling will impact an intact buried portion of the towpath, other elements of the Western Terminus, or even prehistoric archeological deposits. To maintain the structural integrity of the levee, boring through the levee is proposed instead of open cut excavation. While this minimizes impact to the levee, it does not allow for an analysis of the soils above or below the original towpath. Furthermore, the stop gate and the wasteweer are intact, significant features of the C&O Canal and are avoided. The installation of vibration monitors and crack gauges will measure the potential for displacement and actual movements of the historic fabric. With mitigation in place, there would be no physical impacts to the historic fabric of the stop gate and wasteweer. The buried pipe itself will have no direct or visual impact on cultural resources;

however, the manholes and other associated above-grade infrastructure will be visible. In addition, the proposed pipeline will have no adverse effect to the Egypt neighborhood as the development with gridded lots, sidewalks and streets did not extend into the project area. Lastly, the proposed pipeline will be completely beneath the Western Maryland Railway berms and will not impact their historic fabric.

There will be no adverse effects to the historic fabric of the structures that contribute to the Park's historic district, and the visual impacts resulting from the project can be mitigated resulting in an assessment of no adverse effect by the MHT (Appendix C). The City of Cumberland is coordinating this mitigation with the NPS and the MHT and will include specific requirements in the construction documents.

Cumulative Impacts

The proposed action is unlikely to result in direct or indirect impacts to historic structures. Therefore, there should be no cumulative impacts to historic structures.

Conclusion

The project has been designed to avoid historic structures. The installation of vibration monitors will ensure that no cracks develop from adjacent earthwork during pipeline installation. With mitigation in place, there would be no impact to historic resources.

Cultural Landscape

In this section, the potential for temporary and permanent impacts to the cultural landscape and its features within the Park from the no-action and proposed actions are analyzed. Construction activities necessary for the pipeline installation would temporarily disturb the Park and would require the installation of manhole covers and above-ground structures. The study area for cultural landscapes consists of the area with views of the LOD for construction.

Methodology

This analysis considers whether the proposed action would result in changes to the integrity, spatial relationship, and character-defining features of contributing elements of the cultural landscape. These changes could be considered beneficial or adverse, depending on whether they enhance or detract from the cultural landscape, or associated features.

No-Action Alternative

The cultural landscape of this section of the Park would not be impacted under the No-Action Alternative.

Cumulative Impacts

Other past, present, and reasonably foreseeable future actions have had or would have both adverse and beneficial effects on the historic character of the cultural landscape. The No-Action Alternative would not result in either an adverse or beneficial increment to the cumulative impacts to the cultural landscape.

Conclusion

The No-Action Alternative would not result in adverse effects to the cultural landscape.

Proposed Action/Preferred Alternative

The installation of an underground pipeline and establishing a maintained right-of-way along its length would alter a few of the characteristics of this section of the cultural landscape. The Western Terminus section of the C&O NHP has been heavily disturbed by the construction of the levee and the other flood control measures, modifying the original landscape and viewshed of the area. Therefore, while the addition of several above-grade structures, such as the 19 manholes (8 of which are on NPS property), along the proposed corridor would be visible within the cultural landscape, they would generally not be substantially different from the changes that have already occurred to the landscape. Where the use of new, above-grade material is necessary that are within the view of the Park, consideration would be given to the characteristics of the materials utilized and would be compatible with historic materials in terms of design, color, and texture resulting in a minimal effect to the overall integrity of the cultural landscape. The vegetation clearing required for construction activities and the ongoing vegetation maintenance to prevent growth within the right-of-way would result in a change to the cultural landscape; however, the overall integrity of the cultural landscape would not be diminished. The City will continue consulting with NPS and MHT regarding design, texture, and color.

Cumulative Impacts

Other past, present, and reasonably foreseeable future actions have been designed, similar to this project, to minimize impact to the historic character of the cultural landscape. For example, the majority of the CSO storage facility has been designed to be underground. The one building that is above-ground, a small pump station and access structures to the CSO, were designed to look similar to the buildings within the adjacent recreation facility. Other projects within the project corridor, such as underground gas lines and overhead electric transmission lines, are also linear in nature and require the same type of right-of-way maintenance. The installation of the project, and the permanent addition of the manholes and other above-grade structures proposed action would add short-term and long-term adverse incremental effects to specific elements and features of the cultural landscape.

Conclusion

The proposed action would have minor adverse impacts on the cultural landscape. The majority of the proposed project is underground and the topography would be restored to its preconstruction elevation. Vegetation clearing and maintenance would result in vegetative changes to the historic landscape. Overall, some elements and features of the cultural landscape would be adversely impacted by the proposed action.

Visitor Use and Experience

In this section, the potential for temporary and permanent impacts to visitor use and experience from the no-action and proposed actions are analyzed. Construction activities necessary for the pipeline installation would temporarily disturb the Park and would require the installation of manhole covers and above-ground structures. The study area for visitor use and experience consists of the area with views of the LOD for construction.

Methodology

The potential for changes in visitor experience and the safety of visitor and Park staff were evaluated by assessing the limitations and assumed changes to visitor access and associated visitor uses related to the proposed action and determining whether these projected changes would impact visitor experience. The analysis also considered the effect of the existing condition and the construction and operation of the proposed action on the safety of visitors and Park staff.

No-Action Alternative

Under the No-Action Alternative, the Park would remain in the current condition. No construction activities would occur. Visitors would continue to use the Park in its current condition. The No-Action Alternative would maintain the current visitor use and experience. Under the No-Action Alternative, the experience of Park visitors would remain unchanged.

Cumulative Impacts

Visitor use and experience would remain unchanged under the No-Action Alternative; therefore, it would have no potential to contribute to cumulative impacts when considered with past, present and reasonably foreseeable future projects occurring at the Park.

Conclusion

There would be no new impact on visitor use and experience under the No-Action Alternative. Visitor experience for Park visitors within the project area would be unchanged, and the No-Action Alternative would not contribute to cumulative impacts on visitor use and experience.

Proposed Action/ Preferred Alternative

Under the proposed action, the proposed pipeline would be installed primarily through excavation and backfill operations. During construction, areas adjacent to the towpath would be closed to visitors; however, the towpath will remain open with flaggers or temporary closures for equipment access. This would result in a short-term adverse visual impact on visitor use and experience.

Following construction, the landscape would be slightly changed, primarily by the change in vegetative cover. All disturbed areas of the project area would be revegetated with a weed-free native grass and forb seed mix, which generally establishes quickly. A designated right-of-way along the proposed pipeline would remain free of trees and woody vegetation indefinitely to protect the structural integrity of the pipeline. For those that visit this section of the Park for the first time, there would be no impact from the lack of trees along this new right-of-way.

The cultural context of the project area would be minimally altered by the proposed action. Since nearly the entire project is underground, long-term visual impacts are minimal. Several above-grade structures, such as manholes, are proposed; however, any new above-grade materials used for construction would be compatible with historic materials and colors. For those that visit the area for the first time, and even for most return visitors, these changes would have no impact on their experience.

Cumulative Impacts

These projects have short-term adverse visual impacts to overall visitor experience. Several other linear underground and overhead utilities are located along and traversing this section of Park. Overall, the proposed action would contribute to long-term impacts on the overall cumulative effects on visitor experience.

Conclusion

Short-term adverse impacts on visitor experience would occur during construction activities due to disruption of use in the project area, as well as construction noise. Construction activities would result in permanent changes to the viewshed, which would be adverse for some visitors but would not impact others. It is important to note that both short-term and long-term impacts would be localized to a small section of the Park, and those visitors would only experience these impacts as they traverse the project area, with the greatest impacts occurring only during the construction phase. The adverse impacts of the proposed action would contribute a small increment to the cumulative impact. Overall, the impact on visitor use and experience at the Park would be minimal.

CHAPTER 5 – CONSULTATION AND COORDINATION

This chapter summarizes the process undertaken by the City in cooperation with NPS to contact individuals, agencies, and organizations for information or that assisted in identifying important issues, analyzing impacts, or that will review and comment on the Cumberland CSO Pipeline Installation Environmental Assessment. Throughout the planning process, the C&O Canal NHP staff encouraged elected officials, culturally associated Native American tribes and groups, partners in other agencies, Park visitors, and private citizens to participate in this planning effort, as summarized below.

The Scoping Process

Scoping is the process of determining the scope of issues to be addressed in an environmental document. It includes internal scoping with NPS staff, consultation with all interested parties and any agency with jurisdiction by law or with special expertise, and the general public.

Internal Scoping

Internal scoping discussions for the Project started in the summer of 2011 among City officials, MDE, NPS staff from the Park and the National Capital Region, and the project team members. The project was generally defined and alternatives for the project were explored in a July 2011 report titled “CSO Storage Facility at WWTP, City Project No. 01-10-WWTP”. There was a period of time when the 78-inch pipeline project was inactive, due to the City’s design and construction of the CSO Storage Facility, which is an integral project of the project, as it is the terminus for the 78-inch pipeline. Internal scoping included determining the purpose and need for the project and developing alternatives. Draft schematic concepts of the alignments and costs were created for the preliminary alternatives. On May 30, 2018, a team from National Capital Region, C&O Canal NHP, City officials, and architect and engineering consultants met to discuss the feasibility of the preliminary alternatives. This meeting was conducted on-site and included a field walk by key members of the NPS, City, and design team. The team evaluated the preliminary alternatives and ultimately chose the proposed action for this project. The alternative selected was described in the pre-design report dated March 2019.

Public Scoping

It is the intent of this EA and the NEPA process to involve the public in the notification of the Cumberland CSO Pipeline Installation Project through a press release distributed via email. The press release will notify all interested parties of the 30-day scoping comment period. The public will also be encouraged to submit their comments on the Cumberland CSO Pipeline Installation electronically through the NPS Planning, Environment and Public Comment (PEPC) website. Public comments will be accepted in writing by mailing comments to the Park.

Agency Scoping

Agency scoping was held in an effort to obtain early input on the scope of issues to be addressed in this EA. Scoping inquiries were sent to MDE, MD-DNR, MHT, and USFWS. MDE involvement has included multiple meetings and field visits; most recently an MDE coordination meeting was held on September 20, 2019, followed by an on-site field walk on September 23, 2019. Additionally, a combined agency field meeting with NPS, MDE, USACE, and the City of

Cumberland occurred on January 22, 2020. Final alignment adjustments were discussed during this meeting.

Endangered Species Act Section 7 Consultation

In accordance with Federal requirements for special-status species, the NPS initiated consultation with the USFWS under Section 7 of the Endangered Species Act. The USFWS responded that the project will have “no effect” on endangered, threatened, or candidate species as they would be unlikely to occur within the project area (Appendix A). The NPS also consulted with the MD-DNR for any information regarding threatened and endangered species. The MD-DNR responded indicating that they had no official records of any threatened or endangered plant or animal species within the project area (Appendix B). The project team, on behalf of the City, independently consulted with both USFWS and MD-DNR for the project area outside of the jurisdiction of the NPS and received similar concurrence from both agencies.

Section 106 of the National Historic Preservation Act Consultation

Section 106 of NHPA requires that Federal agencies take into account the effect of any proposed undertakings on properties that are listed or eligible for listing in the National Register. The NPS initiated consultation with the MHT on April 13, 2020. The NPS also initiated consultation on May 7, 2020 with the Tribal Historic Preservation Officer of the Seneca-Cayuga Nation, the Historic Preservation and Section 106 Director of the Delaware Nation, and the Tribal Historic Preservation Officer of the Eastern Shawnee Tribe of Oklahoma. The Delaware Nation stated no concerns with the project. The NPS determined that the project as proposed will result in no adverse effect to historic properties and the MHT concurred with the NPS determination (Appendix C).

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Wah, John

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APPENDIX A: Consultation with U.S. Fish and Wildlife Service



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, Maryland 21401
<http://www.fws.gov/chesapeakebay>

August 3, 2020

National Park Service
1850 Dual Highway
Hagerstown, MD 21740

RE: SLI 1392 Permission for City of Cumberland CSO installation

Dear Andrew Landsman:

This responds to your letter, received June 6, 2020, requesting information on the presence of species which are federally listed or proposed for listing as endangered or threatened within the vicinity of the above referenced project area. We have reviewed the information you enclosed and are providing comments in accordance with section 7 of the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

This project as proposed will have “no effect” on the endangered, threatened, or candidate species listed on your IPaC species list because while the project is within the range of the species, it is unlikely that the species would occur within the project area that was submitted. Therefore, no Biological Assessment or further section 7 Consultation with the U.S. Fish and Wildlife Service is required. Should project plans change, or if additional information on the distribution of listed or proposed species becomes available, this determination may be reconsidered.

This response relates only to federally protected threatened or endangered species under our jurisdiction. For information on the presence of other rare species, you should contact Lori Byrne of the Maryland Wildlife and Heritage Division at (410) 260-8573.

An additional concern of the Service is wetlands protection. Federal and state partners of the Chesapeake Bay Program have adopted an interim goal of no overall net loss of the Chesapeake Bay’s remaining wetlands, and the long term goal of increasing the quality and quantity of the Chesapeake Bay’s wetlands resource base. Because of this policy and the functions and values wetlands perform, the Service recommends avoiding wetland impacts. All wetlands within the project area should be identified, and if construction in wetlands is proposed, the U.S. Army Corps of Engineers, Baltimore District, should be contacted for permit requirements. They can be reached at (410) 962-3670.



We appreciate the opportunity to provide information relative to fish and wildlife issues, and thank you for your interests in these resources. If you have any questions or need further assistance, please contact Kathleen Cullen at (410) 573-4579.

Sincerely,

A handwritten signature in blue ink that reads "G. LaRouche". The signature is written in a cursive, flowing style.

Genevieve LaRouche
Supervisor

APPENDIX B: Consultation with Maryland Department of Natural Resources



Larry Hogan, Governor
Boyd Rutherford, Lt. Governor
Jeannie Haddaway-Riccio, Secretary

July 29, 2020

Dr. Andrew Landsman
NPS - C&O Canal NHP
1850 Dual Highway
Suite 100
Hagerstown, MD 21740

RE: Environmental Review for City of Cumberland Pipeline, 78-Inch Combined Sewer Overflow Pipeline to Mitigate Stormwater and Sewage Overflows, in C&O Canal NHP, Allegany County, Maryland

Dear Dr. Landsman:

The Wildlife and Heritage Service has determined that there are no official State or Federal records for listed plant or animal species within the delineated area shown on the map provided. As a result, we have no specific concerns regarding potential impacts or recommendations for protection measures at this time. Please let us know however if the limits of proposed disturbance or overall site boundaries change and we will provide you with an updated evaluation.

Thank you for allowing us the opportunity to review this project. If you should have any further questions regarding this information, please contact me at (410) 260-8573.

Sincerely,

Lori A. Byrne,
Environmental Review Coordinator
Wildlife and Heritage Service
MD Dept. of Natural Resources

ER# 2020.1125.al

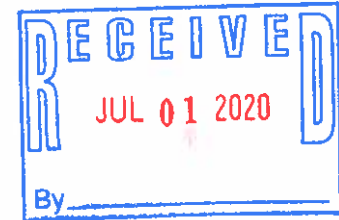
APPENDIX C: Section 106 Coordination

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NPS
EJZ

United States Department of the Interior

NATIONAL PARK SERVICE
C&O Canal National Historical Park
1850 Dual Highway, Suite 100
Hagerstown, Maryland 21740



IN REPLY REFER TO:
I.A.2. (CHOH)

June 26, 2020

Ms. Elizabeth Hughes
State Historic Preservation Officer
Maryland Historical Trust
100 Community Place,
Crownsville, MD 21032

Subject: Determination of Effect for the City of Cumberland's Combined Sewer Overflow Installation Project within portions of the Chesapeake & Ohio Canal NHP, Allegany County, Maryland

Dear Ms. Hughes:

The National Park Service (NPS), Chesapeake and Ohio Canal National Historical Park (CHOH) wishes to continue consultation with the Maryland Historical Trust (MHT) under Section 106 of the National Historic Preservation Act (54 U.S.C. 306108) regarding the City of Cumberland 78-inch CSO Pipeline Installation Project, in accordance with 36 CFR 800.3 of the regulations of the Advisory Council on Historic Preservation. This letter serves to inform the MHT of CHOH's determination that the proposed undertaking will result in No Adverse Effect to historic properties. Consultation between NPS and MHT was initiated by a letter sent on April 13, 2020.

Management Summary and Description of Undertaking

The City of Cumberland (City) proposes to mitigate mandated Combined Sewer Overflow (CSO) issues by installing a new 78-inch CSO pipeline along and adjacent to approximately 2.65 miles of the Chesapeake and Ohio Canal National Historical Park (CHOH), between mile posts 181.8 and 184.5. This pipeline will carry the overflows from the Mill Race CSO, Oldtown Road overflow, and Elizabeth Street diversion manholes and convey the flows to the City's Water Reclamation Facility (WRF). The City, in cooperation with CHOH, completed an Environmental Assessment of the proposed action. The portion of the project area within CHOH is located between Canal Place and Riverside Park in Allegany County, Maryland.

The purpose of the 78-inch CSO pipeline installation project is to provide a means to transport a greater capacity of combined sewage and stormwater from the Mill Race Screening Facility (which collects flow from several interceptors serving the northern portion of the City) to the City's WRF. A Consent Decree was issued by the Maryland Department of the Environment (MDE) in 2001, requiring the City of Cumberland to eliminate the combined sewer overflows (CSOs) by October 2023, per the Environmental Protection Agency's (EPA) 1994 CSO Control Policy. The Mill Race pipeline project serves to complete the capture of overflows from the Mill Race area, the second largest overflow location in the City. Two additional overflows at Oldtown Road and Elizabeth Street will also be captured by this pipeline.

Since issuance of the EPA CSO Policy in 1994, the City has completed the following projects: Mill Race Screening and Odor Control Facility; Evitts Creek Pumping Station, Force main, and Gravity Sewer Upgrades; Enhanced Nutrient Removal (ENR) Upgrades at the WRF; and multiple additional studies of the system. Phase I of the CSO Storage Facility is currently under construction and additional projects are planned.

The alignment of the proposed pipeline has been modified through several iterations in order to avoid and/or minimize impacts to the existing natural, environmental, historic, archeological, and park user

#2NA SC 7/28/2020 See Ph I Rtr Trussell 2020

resources. A gravity flow pipeline design was selected to both minimize cost and negate the need for unsightly pumping stations along the proposed corridor within and adjacent to the Park and towpath. Construction for the majority of the pipeline would involve the excavation of a trench at an engineered gradient. The pipeline would be installed within the trench, then the excavated area would be backfilled to reestablish the pre-existing grades. Certain obstacles along the alignment, such as the towpath, Canal Parkway, and railroad crossings will require the pipeline to be installed within a constructed tunnel to avoid impacts associated with above ground crossings.

Once complete, the vast majority of the CSO system would be concealed below grade, but there would be visible portions of the infrastructure. In its current stage of design, eight manholes would be located on NPS property and 18 manholes and three junction structures would be visible from the towpath and other points along the route of the CSO. However, the City proposes to match the character of above grade structures to existing historic materials in design, color, and texture to minimize the effect on the cultural landscape.

Area of Potential Effect

The current alignment generally runs in between and parallel to the NPS towpath and the North Branch of the Potomac River (hereinafter referred to as the North Branch) for the majority of the alignment, from the Mill Race facility at Canal Place to the Cumberland WRF. The proposed alignment for the 78-inch pipeline avoids crossing the canal itself but will require one crossing of Canal Parkway and one crossing of the towpath. The limits of disturbance for the installation of the pipeline consists of an 80-foot wide corridor, with bump-outs for staging areas, access points, and areas where a wider construction footprint is necessary.

A portion of the project is located within the Chesapeake and Ohio National Historical Park Historic District. Although the proposed project has been designed to avoid the contributing elements to the District, including the towpath, the canal prism, the stop gate, and the waste weir, the project will temporarily disturb the land within the Park, and will require the installation of manhole covers and above ground structures, which will be visible from the towpath.

The APE includes the approximately 2.65-mile route of the CSO, construction access points, and staging areas. Additionally, the entire section of the towpath adjacent to the route is included as visual impacts may occur from construction and permanent above grade infrastructure, such as manholes.

Identification of Historic Properties

The APE, as proposed, has been surveyed for cultural resources for the Chesapeake and Ohio Canal National Historical Park Historic District. Surveys were conducted of the National Register of Historic Places listing (listed 1979; boundary increase February 3, 2015), the List of Classified Structures database, and the Systemwide Archeological Inventory Program. Additionally, the City has initiated its own cultural resource surveys, including a Phase I archeological survey, to which the MHT has already been notified.

Contributing elements to the C&O Canal NHP Historic District (MIHP AL-I-B-086) within the APE include the following:

- C&O Canal Prism from approximately milepost 181.82 to 184.44.
- C&O Canal Towpath from approximately milepost 181.82 to 184.44.
- Culvert 241 (LCS# 12857; dating between 1840 – 1850; modified in the 20th century, probably during the Canal Parkway construction).
- Masonry Stop Gate (LCS # 12859; dating between 1840 – 1850; date of concrete additions unknown but likely early twentieth century).
- Spillway and Wastew weir (LCS# 11775; dating between 1840 – 1850; date of concrete additions unknown but likely early twentieth century).
- C&O Canal National Historical Park: Western Terminus (Canal Place, Crescent Lawn) (MIHP AL-IV-A-048; mixed ownership of the location).

Consultation and Potential Effects to Historic Properties

Based on known information about Native American Groups in the study area, we have determined that there are Federally recognized Tribes that may attach cultural or religious significance to portions of the APE. Although CHOH recognizes that the APE, as it pertains directly to activities within the boundaries of the park, has low potential for intact prehistoric contexts owing to the extent of historic and modern disturbances, separate consultations with Native American Groups are prudent, nonetheless. Letters inviting Tribal consultation have been sent to the Delaware Nation, the Eastern Shawnee Nation, and the Seneca Cayuga Nation. Additionally, it is not believed that this action will affect ethnographic resources or museum collections.

Our analysis of the APE, level of baseline documentation of the park's resources, employment of safety measures to avoid impacts to potentially new resources, and consultation with National Capital Area staff leads us to conclude that the proposed City of Cumberland 78-inch CSO Pipeline Installation Project will have No Adverse Effect on historic properties under Section 106 of the National Historic Preservation Act. Ground disturbance is required but the project area has been heavily disturbed by the installation of utilities and Army Corps of Engineers flood control projects.

This letter is accompanied by the proposed design and additional supporting documents. If you have any questions, please feel free to contact Jeri DeYoung, Chief of Resources Management, at 301-714-2210 or jeri_deyoung@nps.gov, or Justin Ebersole, Archeological Technician, at 301-714-2224 or justin_ebersole@nps.gov.

Sincerely,

TINA
CAPPETTA

Digitally signed by TINA
CAPPETTA
Date: 2020.06.26
10:19:29 -04'00'

Tina Cappetta
Superintendent
Chesapeake and Ohio Canal National Historical Park

Attachments

Supporting Documents
60% Design Submission
Maps of Project Area

References

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The Maryland Historical Trust concurs with the Chesapeake and Ohio Canal National Historical Park that the proposed City of Cumberland's Combined Sewer Overflow Installation Project located in the section of the park passing near the city of Cumberland in Allegany County, Maryland will have no adverse effect on historic properties. → For the entire undertaking.

Signature: Beth ColeDate: 7/28/2020

The Maryland Historical Trust does not concur with the Chesapeake and Ohio Canal National Historical Park that the proposed City of Cumberland's Combined Sewer Overflow Installation Project located in the section of the park passing near the city of Cumberland in Allegany County, Maryland will have no adverse effect on historic properties. Additional consultation will be required.

Signature:Date:

Comments:

On 7/21/2020 MHT received and reviewed the report on the Phase I archaeological and geomorphological investigations the City conducted for this project (Trussell 2020). Based on the information in the report, MHT concurs that the following 3 sites do not meet the criteria for eligibility in the NRHP and further work is not needed: 18AG299, 18AG303, 18AG304. The site [redacted] extends beyond the APE for this project and a formal evaluation of its eligibility is beyond the scope of this project. Further work is not needed for the current undertaking.

MHT appreciated the diligent efforts the City of Cumberland has taken to identify archaeological sites and to work with NPS to ensure the project has no adverse effect on historic properties.

cc: Suzanne Trussell (trussell.suzanne@yahoo.com)

APPENDIX D: Wetland Statement of Findings Report

City of Cumberland CSO Pipeline Installation Wetland Statement of Findings

NPS Director's Order 77-1: Wetland Protection

Prepared by the City of Cumberland
for
U.S. Department of the Interior
National Park Service
Chesapeake and Ohio Canal National Historical Park

October 2020

Recommended:

Superintendent, C&O Canal National Historical Park

Concurred:

Chief, Water Resources Division

Approved:

Acting Director, Region 1 – National Capital Area

Acronyms and Abbreviations

BMPs	Best Management Practices
C&O Canal NHP or Park	Chesapeake and Ohio Canal National Historical Park
City	City of Cumberland
CFR	Code of Federal Regulations
CSO	Combined sewer overflow
EA	Environmental Assessment
ENR	Enhanced Nutrient Removal
EO	Executive Order
EPA	Environmental Protection Agency
FONSI	Finding of No Significant Impact
JPA	Joint Permit Application
LOD	Limits-of-disturbance
MDE	Maryland Department of the Environment
NE	New England
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NPS	National Park Service
PEM	Palustrine emergent
PFO	Palustrine forested
PSS	Palustrine scrub-shrub
USACE	U.S. Army Corps of Engineers
WOUS	Waters of the U.S.
WRF	Water Reclamation Facility

1.0 INTRODUCTION

This Wetland Statement of Findings (SOF) describes the alternatives that were evaluated in the Environmental Assessment (EA), characterizes the wetland resources that may be adversely impacted within National Park Service (NPS) managed lands as a result of implementing the preferred alternative, describes adverse impacts that the project would likely have on these resources, and documents the steps that would be taken to avoid, minimize, and offset these impacts.

1.1 Wetlands

Executive Order 11990, “Protection of Wetlands”, issued May 24, 1977, directs all Federal agencies to avoid to the maximum extent possible the long- and short-term impacts associated with the occupancy, destruction, or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. In the absence of such alternatives, agencies must modify actions to preserve and enhance wetland values and minimize degradation.

To comply with Executive Order 11990 within the context of the agency’s mission, the NPS has developed a set of policies and procedures found in *Procedural Manual #77-1: Wetland Protection* (NPS, 2016). These policies and procedures emphasize:

- 1) Exploring all practical alternatives to building on, or otherwise adversely affecting wetlands;
- 2) Reducing impacts to wetlands whenever possible; and,
- 3) Providing direct compensation or mitigation for any unavoidable wetland impacts by restoring degraded or destroyed wetlands on NPS owned property.

If a preferred alternative results in adverse effects to wetlands, a SOF must be prepared that documents the above steps and presents the rationale for choosing an alternative that would result in impacts to wetland resources. This SOF addresses wetland impacts within the Chesapeake and Ohio Canal National Historical Park (C&O Canal NHP) boundaries that would be affected by the proposed project.

2.0 ALTERNATIVES

The City of Cumberland (City), in cooperation with the NPS, is evaluating the impacts of the installation of a new 78-inch combined sewer overflow (CSO) pipeline along and adjacent to the last approximately 2.65 miles of the C&O Canal NHP, between mile posts 181.8 and 184.5. The portion of the project area within the C&O Canal NHP is located between Canal Place and Riverside Park in Allegany County, Maryland. **Figure 1** shows the location of the project. **Figure 2** identifies the limits of disturbance (LOD) of the project and the boundary of the C&O Canal NHP.

The Project Team has been working with the City of Cumberland for several years to implement various phases of the Project. This project encompasses Phase II, which includes the proposed pipeline carrying the overflows from Mill Race to the City's Water Reclamation Facility (WRF). The pipeline will also collect overflows from the Oldtown Road outfall and Elizabeth Street diversion manholes and convey these flows to the CSO storage facility at the WRF, which is currently under construction. A Preliminary Engineering Report for Phase II was completed in March of 2019.

An EA has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, and implementing regulations, 40 Code of Federal Regulations (CFR) Parts 1500-1508; NPS Director's Order 12: *Conservation*

Planning, Environmental Impact Analysis, and Decision-making (NPS 2011) and the accompanying handbook (NPS 2015). Compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, is being conducted concurrently with the NEPA process. Since the project will impact a National Historical Park, the Archeological Resources Protection Act of 1979 (16 U.S.C. 470aa-mm; 43 CFR 7) requires a permit that will be overseen by the NPS.



Figure 2. C&O Canal NHP and Project Location

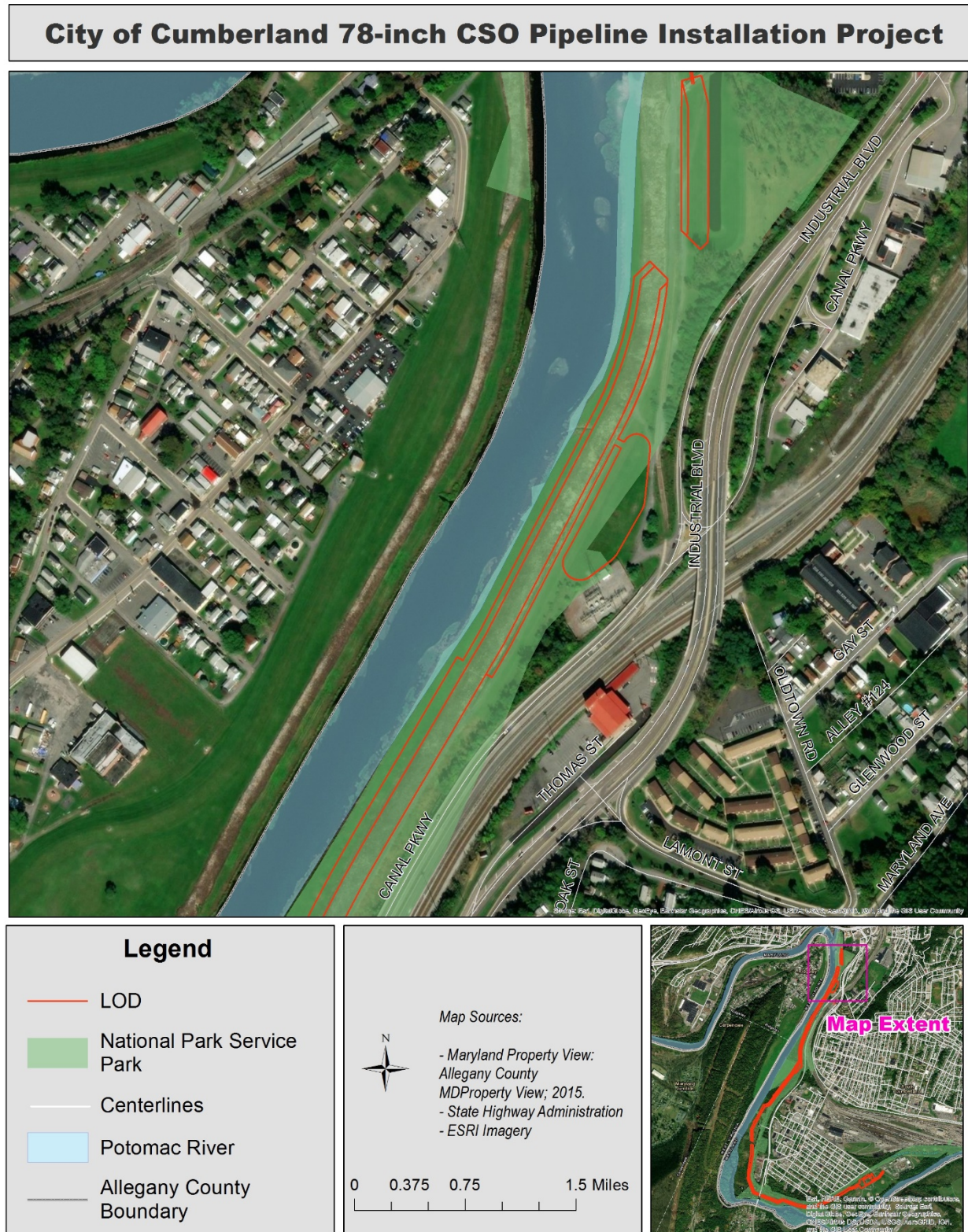


Figure 2 (cont). C&O Canal NHP and Project Location



Figure 2 (cont). C&O Canal NHP and Project Location

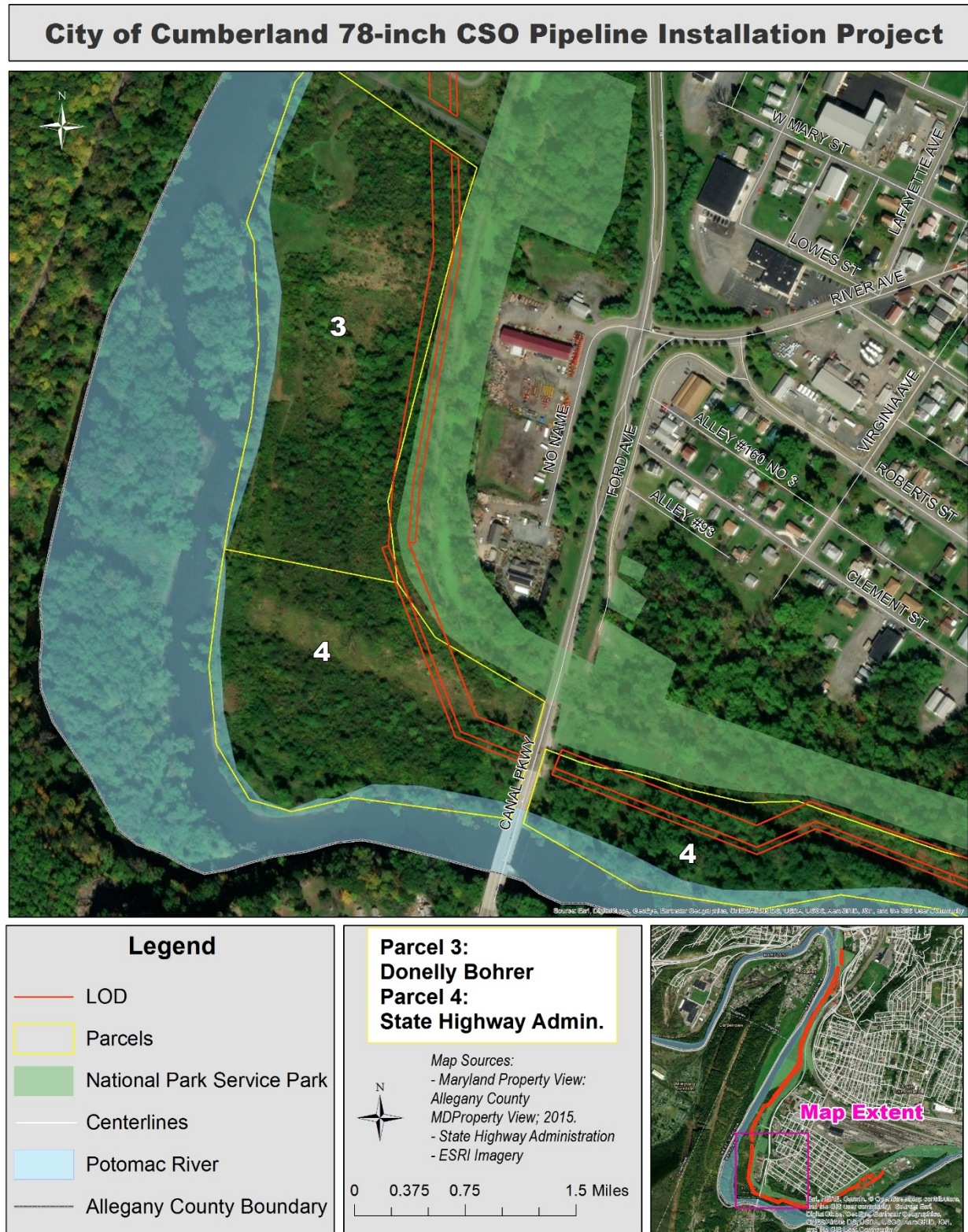


Figure 2 (cont). C&O Canal NHP and Project Location



2.1 Purpose and Need for Action

The purpose of the 78-inch CSO pipeline installation project is to provide a means to transport a greater capacity of combined sewage and stormwater from the Mill Race Screening Facility (which collects flow from several interceptors serving the northern portion of the City) to the City's WRF. A Consent Decree was issued by the Maryland Department of the Environment (MDE) in 2001, requiring the City of Cumberland to eliminate the CSOs per the Environmental Protection Agency's (EPA) 1994 CSO Control Policy by no later than October 2023. The Mill Race pipeline project serves to complete the capture of overflows from the Mill Race area, the second largest overflow location in the City; two additional overflows at Oldtown Road and Elizabeth Street will also be captured by this pipeline.

Since issuance of the EPA CSO Policy in 1994, the City has completed the following projects: Mill Race Screening and Odor Control Facility; Evitts Creek Pumping Station, Force main, and Gravity Sewer Upgrades; Enhanced Nutrient Removal (ENR) Upgrades at the WRF; and multiple additional studies of the system. Phase I of the CSO Storage Facility is currently under construction and additional projects are planned.

2.2 Project Area

The proposed project is linear in nature and spans approximately from Canal Place to the Riverside Park Recreation Complex in the City of Cumberland, Allegany County, Maryland. The current alignment generally runs in between and parallel to the NPS towpath and the North Branch of the Potomac River for the majority of the alignment, from the Mill Race facility at Canal Place to the City of Cumberland WRF near the Riverside Park Recreation Complex. The proposed alignment for the 78-inch pipeline avoids crossing the canal itself but will require one crossing of Canal Parkway and one crossing of the C&O Canal NHP Historic District (MIHP # AL-I-B-086), underneath the existing towpath. The limits of disturbance (LOD) for the installation of the pipeline consists of an 80-foot wide corridor, with bump-outs for staging areas, access points, and areas where a wider construction footprint is necessary.

3.0 ALTERNATIVES CONSIDERED

Two alternatives were chosen for detailed evaluation in the EA: the No-Action Alternative and the Proposed Action. The chapter also describes other alternatives, which consisted of different corridor alignments that were considered but ultimately dismissed during the impact analysis and agency coordination phase. Mitigation measures for the proposed action are also discussed.

3.1 Alternative 1: No-Action Alternative

The No-Action Alternative is analyzed in the NEPA process for the review and comparison of feasible alternatives to the existing baseline conditions. Under the No-Action Alternative, the City of Cumberland would not construct the 78-inch CSO pipeline. The CSO flows from the Mill Race and other outfalls along the proposed alignment would not be intercepted for treatment and would ultimately be discharged directly into the North Branch. The CSO Storage Facility (Phase I), which can store five million gallons of effluent and is currently under construction, was designed to accept the initial anticipated volume of CSO flow generated by the northern portion of the City. Without the proposed pipeline conveyance, these flows will not be transported to the facility. Furthermore, the pipeline itself provides an additional two million gallons of storage capacity.

Additionally, the No-Action Alternative would cause the City to be in violation of the EPA's Combined Sewer Overflow Policy of 1994 and the MDE's Consent Decree requiring that the City eliminate the combined sewer overflows by no later than October 2023.

3.2 Alternative 2: Preferred Alternative

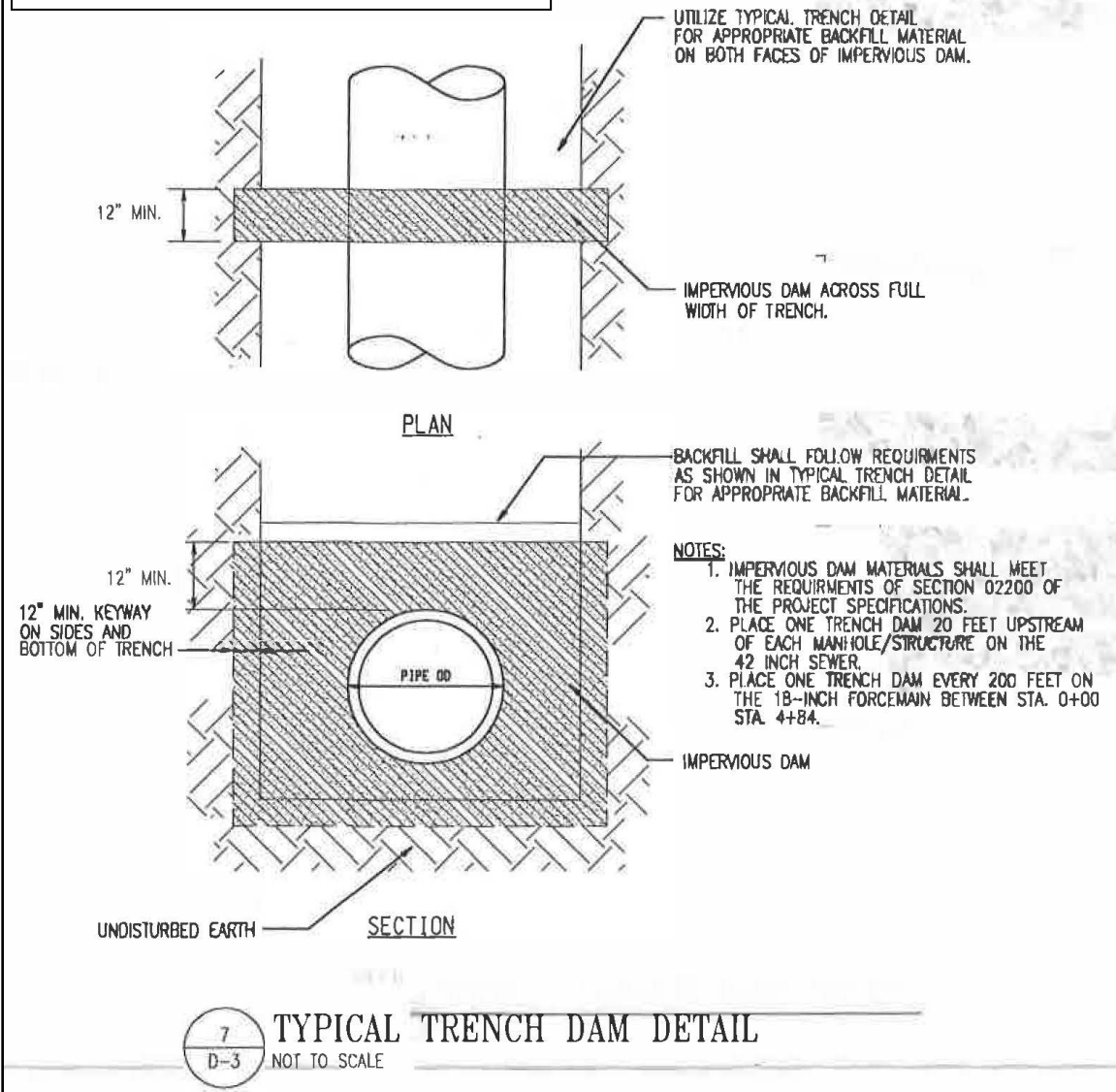
The Preferred Alternative would satisfy the EPA and MDE mandates and regulations while providing water quality benefits to the North Branch of the Potomac River. The alignment of the proposed pipeline has been modified through several iterations in order to avoid and minimize impacts to the existing natural, environmental, historic, archeological, and park user resources. A gravity flow pipeline design was selected to both minimize cost and negate the need for unsightly pumping stations along the proposed corridor within and adjacent to the Park and towpath.

Construction for the majority of the pipeline would involve the excavation of a trench at an engineered gradient. The pipeline would be installed within the trench, and then the excavated area would be backfilled with fill to re-establish the pre-existing grades. **Figure 3** provides a typical detail of a trench dam.

Certain obstacles along the alignment, such as the towpath, Canal Parkway, and railroad crossings, will require the pipeline to be installed within a constructed tunnel to avoid impacts associated with above ground crossings.

The design of the proposed alternative has been shifted to avoid and minimize impacts to wetlands, avoid archeological resources, and avoid impacts to historic structures.

Figure 3. Typical Trench Dam Detail



4.0 DESCRIPTION OF WETLANDS WITHIN THE PROJECT AREA

Wetlands and waterways were delineated according to the 1987 *U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region Version 2.0* (USACE, 2012) and represent those areas that are within the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) and the MDE. Also, as stipulated in *Procedural Manual #77-1: Wetland Protection* (NPS, 2012), NPS uses *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al., 1979) as the standard for defining, classifying, and inventorying wetlands. Therefore, wetlands and waterways were also delineated in accordance with the Cowardin System and #77-1 procedures. Under the Cowardin definition, a wetland must have one or more of the following three attributes:

1. At least periodically, the land supports predominantly hydrophytic vegetation (wetland plants);
2. The substrate is predominantly undrained hydric soil; and,
3. The substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season.

Wetland and waterway delineations were conducted during the spring and summer months of 2019 to confirm the presence and extent of any previously documented and undocumented wetlands that are located within the project corridor. Three jurisdictional nontidal wetlands were identified and delineated on NPS property within the project corridor; however, only two of the delineated wetlands are proposed to be temporarily impacted by the project. Wetland boundaries were evaluated and confirmed in the field by representatives with both the MDE and the USACE.

Fieldwork was conducted by Mr. Matthew V. Smith, who has over 20 years of experience with wetland delineation, mitigation, restoration and regulatory permitting. Mr. Smith is the project manager for the environmental aspects of the project.

4.1 Affected Wetlands

Wetlands that intersected the project corridor were delineated, including the portions of the wetlands that extend beyond the project corridor. Eight non-tidal palustrine wetlands, encompassing 9.59 acres, were delineated; three of which, encompassing 3.51 acres, are within NPS property (see **Table 1**). Wetlands consisted of palustrine emergent (PEM), palustrine scrub-shrub (PSS), and palustrine forested (PFO) wetlands. Two small non-tidal streams or Waters of the U.S. (WOUS) were identified within the project corridor, both of which originate from pipe outfalls that most likely convey stormwater and intercept groundwater that results in either intermittent or perennial flow. The wetland and WOUS boundaries were inspected and confirmed by representatives with MDE and USACE.

Table 1: Wetlands/WOUS Within the Project Corridor

Wetland and WOUS ID	Cowardin Class	Wetland/WOUS Size (Acres)	Portion within NPS property (Acres)
Wetland A - WA	PEM	0.35	0.35
Wetland B - WB	PEM	0.71	0.62
Wetland C - WC	PSS	0.78	
Wetland D - WD	PEM	0.10	
Wetland E - WE	PFO	2.54	2.54
Wetland F - WF	PEM	0.01	
Wetland G - WG	PFO & PEM	3.71	
Wetland H - WH	PEM	1.39	
WOUS1	n/a	0.05	0.05
WOUS2	n/a	0.02	
Wetland Total		9.59 acres	3.51 acres
WOUS Total		0.07 acres	0.05 acres

4.2 Description of Wetlands on NPS Property

Three vegetated wetlands, or portions thereof, were identified on NPS property. Descriptions of the vegetated wetlands identified on NPS property during the field investigations are presented below.

Vegetated Wetland W-A is classified as a palustrine, emergent, temporarily flooded (PEM1A) wetland. Wetland W-A is located within the actual canal prism of the C&O Canal NHP. Portions of the canal in the immediate upstream proximity of Wetland W-A retains sufficient hydrology to maintain a static water level (see **Table 2**).

Table 2: Characteristics of Vegetated Wetlands W-A

Indicator	Status
Classification	Palustrine, emergent, persistent, temporarily flooded (PEM1A)
Hydrology	Saturation, drainage patterns, water-stained leaves, oxidized rhizospheres
Hydrophytic Vegetation [Dominant Species]	Soft rush, lurid sedge, jewelweed
Hydric Soils	10YR 3/1 with mottles

Vegetated Wetland W-B is classified as a palustrine, emergent, temporarily flooded (PEM1A) wetland. Wetland W-B is a long, narrow wetland that is located parallel to the NPS towpath and is situated along a natural gas pipeline right-of-way. It appears that the installation of the gas pipeline and subsequent soil settlement has created a shallow depression that is sufficient to retain hydrology for hydrophytic vegetation to become dominant (see **Table 3**).



Table 3: Characteristics of Vegetated Wetland W-B

Indicator	Status
Classification	Palustrine, emergent, persistent, temporarily flooded (PEM1A)
Hydrology	Saturation, water-stained leaves, drainage patterns, oxidized rhizospheres
Hydrophytic Vegetation [Dominant Species]	Soft rush, lurid sedge, wool grass, red maple, jewelweed
Hydric Soils	10YR 3/2 with occasional mottles

Vegetated Wetland W-E is a palustrine, forested, broad-leaved deciduous, temporarily flooded (PFO1A) wetland. Wetland W-E is located within the floodplain of the North Branch of the Potomac River and was created as a wetland mitigation site for impacts incurred for the construction of Canal Parkway. The project LOD has been designed in order to avoid any impacts to Wetland W-E (see **Table 4**).

Table 4: Characteristics of Vegetated Wetland W-E

Indicator	Status
Classification	Palustrine, forested, broad-leaved deciduous, temporarily flooded (PFO1A)
Hydrology	High water table, saturation, water-stained leaves, drainage patterns
Hydrophytic Vegetation [Dominant Species]	Red maple, American sycamore, river birch
Hydric Soils	10YR 3/2

4.1.1 Wetland Functions and Values

An assessment of wetland functions and values was conducted as described in the September 1999 supplement to *The Highway Methodology Workbook* (Supplement) by the New England Division of the USACE (USACE, 1999). This methodology is commonly referred to as the “New England (NE) Method.” The NE Method is an expansion of the Highway Methodology (developed by the New England USACE District) and is used to rapidly assess and document principal wetland functions and values for use in mitigation planning. The NE Method uses a descriptive approach to characterize functions and values of wetlands and is typically used for projects that must comply with NEPA. This method was therefore considered appropriate for the City of Cumberland CSO Pipeline Installation project. The data requirements for the NE Method are minimal and require general descriptions of the wetlands. Quantitative techniques for this method are primarily based upon best professional judgement by a consensus of an interdisciplinary team.

Table 5 illustrates the principal functions and values associated with wetlands delineated on NPS property within the project corridor.

Table 5: Principal Functions and Values of Wetlands

Functions and Values	Vegetated Wetland W-A	Vegetated Wetland W-B	Vegetated Wetland W-E
Functions			
Groundwater Recharge and Discharge	X	X	X
Flood Flow Alteration			X
Fish and Shellfish Habitat			
Sediment/Toxicant Retention	X	X	X
Nutrient Removal	X	X	X
Production Export			
Sediment/Shoreline Stabilization			
Values			
Wildlife Habitat		X	X
Recreation			
Educational/Scientific Value			X
Uniqueness/Heritage	X		
Visual Quality/Aesthetics			
Endangered Species Habitat			
Other			

5.0 PROPOSED IMPACTS TO WETLANDS

Due to the nature and location of the project corridor, minor temporary and conversion impacts to nontidal wetlands are unavoidable. The EA for the project describes and evaluates the two project alternatives, consisting of the No Action Alternative and the Preferred Alternative.

5.1 Alternative 1: No Action Alternative

Under the No Action Alternative, wetlands and WOUS would remain in their current condition. No construction activities would occur; therefore, no permanent or temporary impacts to wetlands or WOUS would be incurred. However, the CSO flows from the Mill Race and other outfalls along the proposed alignment would not be intercepted for treatment and would ultimately be discharged directly into the North Branch of the Potomac River. Additionally, the No Action Alternative would cause the City to be in violation of the EPA's Combined Sewer Overflow Policy of 1994 and the MDE's Consent Decree requiring that the City eliminate the combined sewer overflows by no later than October 2023.

5.2 Alternative 2: Preferred Alternative

The Preferred Alternative would satisfy the EPA and MDE mandates and regulations while providing water quality benefits to the North Branch of the Potomac River. The alignment of the proposed pipeline has been modified through several iterations in order to avoid and minimize impacts to the existing natural, environmental, historic, archeological, and park user resources. Overall, the proposed action provides the greatest minimization and avoidance efforts to vegetated wetlands.

The Preferred Alternative LOD was overlaid with the delineated wetland boundaries in both GIS and CADD. This effort revealed that one vegetated wetland would be temporarily impacted by the Preferred Alternative (see **Table 6**). The wetland and wetland boundaries would be re-established after construction.

Table 6: Wetlands Located Within LOD and on NPS Property

Wetland	Cowardin Classification	Proposed Impacts
W-A	PEM1A	0
W-B	PEM1A	0.36 acres (Temporary)
W-E	PFO1A	0

Vegetation removal and regrading activities near wetlands has the potential to alter hydrologic patterns, such as increasing or decreasing wetland hydrology sources. Therefore, trench dams will be installed along the pipeline installation at critical locations to prevent hydrology from being diverted from the existing wetlands after construction. The proposed project, as designed, would not alter the existing supporting wetland hydrology, including groundwater discharge and surface runoff. As such, proposed activities are not expected to result in short- or long-term changes to wetland hydrology.

6.0 COMPLIANCE

In addition to compliance with NPS Director's Order 77-1, *Wetland Protection*, as discussed in **Section 1.1**, the proposed project is subject to the following regulations.

6.1 Clean Water Act Section 404 and 401

The proposed actions impact waters of the U.S., as defined by the Clean Water Act (CWA), and are therefore subject to review by USACE. Section 404 of the CWA regulates the discharge of dredged or fill material into waters of the U.S.

6.2 National Environmental Policy Act

The Environmental Assessment constitutes the review and analysis of the proposed project to ensure compliance with the National Environmental Policy Act. The Project Team and the NPS have completed the required consultation with the Maryland Historical Trust to ensure that the proposed project is in compliance with Section 106 of the National Historical Preservation Act.

6.3 Endangered Species Act and Maryland Nongame and Endangered Species Conservation Act

The Project Team and the NPS have completed the required consultation with the U.S. Fish and Wildlife Service and Maryland Department of Natural Resources to ensure that the proposed project is in compliance with both the Endangered Species Act and Maryland's Nongame and Endangered Species Conservation Act.

7.0 MITIGATION OF WETLAND IMPACTS

The proposed mitigation site was selected based on several factors. Initially, the project corridor and adjacent properties were evaluated for the location of a suitable mitigation site. Given the constraints of the project, on-site mitigation within the project corridor was determined to be infeasible. Given the jurisdictional authority of the on-site wetlands (NPS and MDE) and varying requirements by NPS and MDE, it was determined that a single mitigation site that met the criteria for all agencies involved was preferable to multiple locations. The NPS requires that any wetland impacts incurred on property owned by NPS shall be mitigated for on NPS-owned property. Therefore, the project team worked with NPS to identify a potential site, located on NPS property, within the same watershed as the impacts, and as close in proximity as possible to the project corridor and the impacts.

The City of Cumberland and the design team worked collaboratively with NPS, MDE, and USACE to identify sensitive resources and priorities within the project corridor and have engaged in an iterative design process to avoid and minimize impacts to NPS wetlands while satisfying the proposed project's purpose and need. The team has worked to achieve a minimal LOD that incorporates only the necessary areas that are required for the pipeline construction, staging areas, and access, while maintaining a positive park visitor experience.

While this wetland SOF primarily discusses and describes the proposed wetland impacts incurred on NPS property, the proposed wetland mitigation site is sufficient to mitigate the wetland impacts for the entire project, thereby satisfying the regulatory requirements for all the agencies involved. The NPS mitigation ratio for temporary PEM impacts is 1:1 and the mitigation ratio as determined by MDE for PFO/PSS conversion impacts is also 1:1. Table 7 provides a breakdown of the proposed wetland impacts and identifies NPS wetland impacts versus total wetland impacts, including the resultant mitigation requirements.

Table 7. Proposed Project Total Wetland Impacts

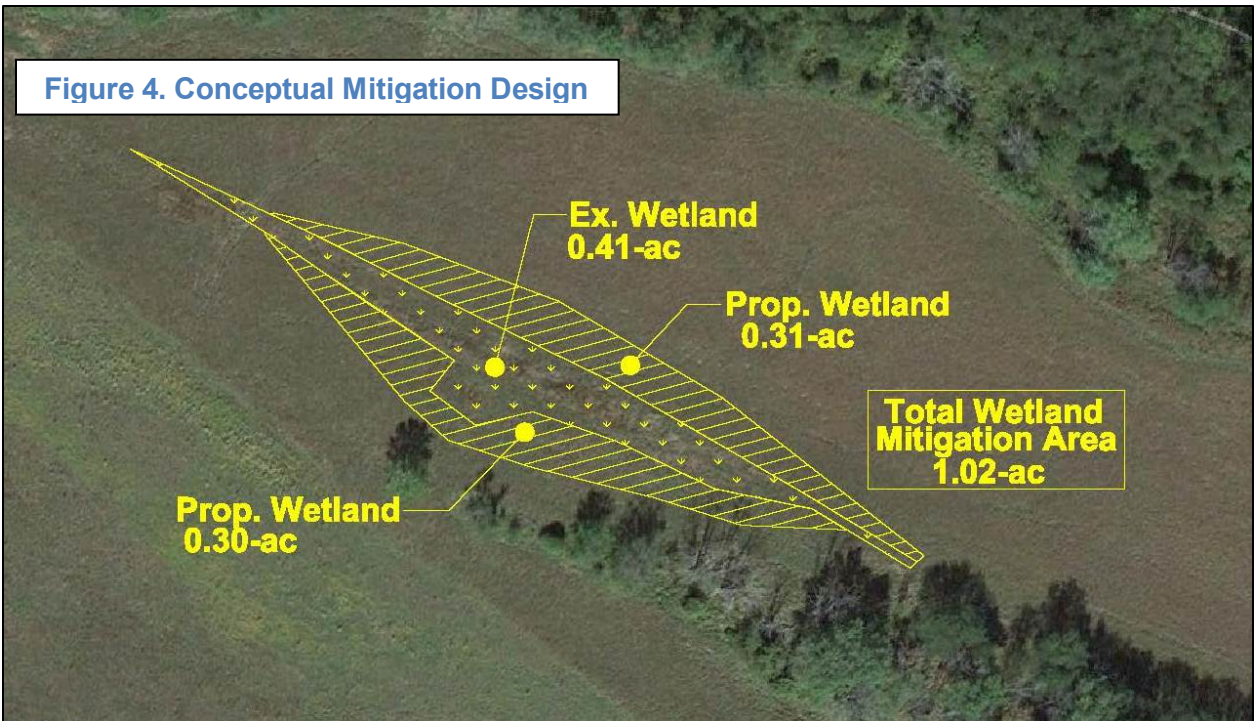
Wetland ID	Wetland Type	Wetland Size (Acres)	Proposed Impact (Acres) & Type	NPS Wetland Impacts	Mitigation Required
Wetland A - WA	PEM	0.35	0.00		
Wetland B - WB	PEM	0.71	0.36 (Temp)	0.36	0.36
Wetland C - WC	PSS	0.78	0.04 (Conv.)		0.04
Wetland D - WD	PEM	0.10	0.05 (Temp.)		
Wetland E - WE	PFO	2.54	0.00		
Wetland F - WF	PEM	0.01	0.00		
Wetland G - WG	PFO	3.27	0.41 (Conv.)		0.41
Wetland G - WG	PEM	0.44	0.14 (Temp.)		
Wetland H - WH	PEM	1.39	0.73 (Temp.)		
Wetland Totals		9.59 acres	1.73 acres	0.36 ac	0.81 ac
Temporary PEM Wetland Impacts			1.27 acres	0.36 ac	
Conversion Wetland Impacts PFO/PSS to PEM			0.45 acres		

Impacts associated with the Preferred Alternative would result in minor temporary impacts to wetland resources located on NPS property. Post-construction, the maintenance of principal functions (i.e., conveyance of surface water and groundwater discharge) and values (i.e., wildlife habitat, uniqueness and heritage, and visual quality and aesthetics) associated with vegetated wetlands in the project corridor will be retained. Proposed mitigation of unavoidable PFO/PSS conversion impacts within the project corridor, including wetland impacts on NPS property, will be satisfied by creating 0.61 acres of PFO wetland and converting 0.41 acres of PEM wetland to PFO wetland for a total of 1.02 acres of total wetland mitigation. The proposed mitigation is greater in size than requirements of MDE, USACE, and the NPS.

A wetland mitigation site located on NPS property is proposed for wetland function and values replacement associated with the conversion of nontidal PFO/PSS wetlands associated with the project. The mitigation site is located within the floodplain of the North Branch of the Potomac River, a few miles downstream of the project, near Oldtown, Maryland. The mitigation site consists of an agricultural field with existing nontidal emergent wetlands in the center of the property. The preliminary mitigation design will include reforestation plantings with native wetland tree species, minor grading for site preparation, planting native seed mix, and implementation of a five-year post-construction performance monitoring plan in accordance with MDE requirements. A Phase I Wetland Mitigation Plan has been prepared and submitted to MDE/USACE as part of the Joint Permit Application (JPA). **Figure 4** provides a visual depiction of the basic conceptual wetland mitigation design.



The Phase II Mitigation Plan will provide details such as site access, sediment and erosion control, grading plan, best management practices (BMPs), detailed planting plan, monitoring and maintenance, and other specifications to fully implement the wetland mitigation establishment.



8.0 CONCLUSION

The City of Cumberland CSO Pipeline Installation project is necessary to adhere to State and Federal mandated improvements to address combined sewer overflows within the City of Cumberland. The overall intent of the project is to capture, store, and treat CSOs in order to improve water quality within the North Branch of the Potomac River watershed. Multiple design and alignment iterations have been evaluated in order to minimize and avoid impacts to environmental, historical, cultural, and other resources.

The proposed impacts to NPS-managed jurisdictional wetlands are temporary and will not affect the existing functions and values of the identified resources. Additionally, wetland mitigation is proposed to offset the anticipated impacts, both temporary and conversion, thus ensuring a no-net loss of wetland acreage, functions, and values within the watershed. The wetland mitigation site will be monitored for a minimum of five years to document and ensure the success of the wetland creation.

9.0 REFERENCES

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

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10.0 APPENDIX A: Wetland Functions and Values Worksheets

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? ☒ Is wetland part of a wildlife corridor? yes or a "habitat island"? N
 Adjacent land use NPS Park, Floodplain, Commercial Distance to nearest roadway or other development _____
 Dominant wetland systems present Emergent Contiguous undeveloped buffer zone present yes
 Is the wetland a separate hydraulic system? yes If not, where does the wetland lie in the drainage basin? N/A
 How many tributaries contribute to the wetland? N/A Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-A
 Latitude _____ Longitude _____
 Prepared by: MVS Date 8/2019
 Wetland Impact:
 Type _____ Area _____
 Evaluation based on:
 Office _____ Field ☒
 Corps manual wetland delineation completed? Y ☒ N _____

Function/Value	Suitability Y N		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
 Groundwater Recharge/Discharge	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	
 Floodflow Alteration		<input checked="" type="checkbox"/>			
 Fish and Shellfish Habitat		<input checked="" type="checkbox"/>			
 Sediment/Toxicant Retention	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<u>Canal receives runoff from areas w/o stormwater conveyance to floodplain/river</u>
 Nutrient Removal	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	
 Production Export		<input checked="" type="checkbox"/>			
 Sediment/Shoreline Stabilization		<input checked="" type="checkbox"/>			
 Wildlife Habitat		<input checked="" type="checkbox"/>			
 Recreation		<input checked="" type="checkbox"/>			
 Educational/Scientific Value		<input checked="" type="checkbox"/>			
 Uniqueness/Heritage	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<u>NPS C+O Canal</u>
 Visual Quality/Aesthetics		<input checked="" type="checkbox"/>			
 ES Endangered Species Habitat		<input checked="" type="checkbox"/>			
Other					













Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? yes Is wetland part of a wildlife corridor? yes or a "habitat island"? no
 Adjacent land use NPS Park, Floodplain Distance to nearest roadway or other development 200 ft
 Dominant wetland systems present Emergent Contiguous undeveloped buffer zone present yes
 Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Floodplain
 How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-B
 Latitude _____ Longitude _____
 Prepared by: MVS Date 8/2019
 Wetland Impact:
 Type Temp Area _____
 Evaluation based on:
 Office _____ Field ✓
 Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y N		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
 Groundwater Recharge/Discharge	✓			✓	<u>No distinct outlet - slow infiltrates</u>
 Floodflow Alteration		X			
 Fish and Shellfish Habitat		X			
 Sediment/Toxicant Retention	✓				
 Nutrient Removal	✓				
 Production Export		X			
 Sediment/Shoreline Stabilization		X			
 Wildlife Habitat	✓			✓	<u>Thick emergent layer - adjacent to forested areas</u>
 Recreation		X			
 Educational/Scientific Value		X			
 Uniqueness/Heritage		X			
 Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					













Notes:

* Refer to backup list of numbered considerations.

Wetland Function-Value Evaluation Form

Total area of wetland _____ Human made? Yes Is wetland part of a wildlife corridor? Yes or a "habitat island"? No
 Adjacent land use NPS Property + Floodplain Distance to nearest roadway or other development 500 ft
 Dominant wetland systems present Forested Contiguous undeveloped buffer zone present yes
 Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Floodplain
 How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. W-E
 Latitude _____ Longitude _____
 Prepared by: MVS Date 8/2019
 Wetland Impact:
 Type None Area _____
 Evaluation based on:
 Office _____ Field ✓
 Corps manual wetland delineation completed? Y ✓ N _____

Function/Value	Suitability Y N		Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
 Groundwater Recharge/Discharge	✓			✓	Captures overbank flows + debris
 Floodflow Alteration	✓			✓	Provides additional floodplain storage
 Fish and Shellfish Habitat		X			
 Sediment/Toxicant Retention	✓			✓	Captures and stores sediment + nutrients during over-bank flows from N. Branch
 Nutrient Removal	✓			✓	
 Production Export		X			
 Sediment/Shoreline Stabilization		X			
 Wildlife Habitat	✓			✓	
 Recreation		X			
 Educational/Scientific Value	✓			✓	Excellent successful mitigation site for forested wetland creation
 Uniqueness/Heritage		X			
 Visual Quality/Aesthetics		X			
ES Endangered Species Habitat		X			
Other					

Notes:

* Refer to backup list of numbered considerations.

11.0 APPENDIX B: Wetland Data Sheets

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Cumberland CSO 78-inch Pipeline Project			Date: 8/7/2019
Applicant/Owner: City of Cumberland			County: Allegany
Investigator: M. Smith			State: Maryland
Do Normal Circumstances exist on the site?	Yes	No	Community ID: PEM1A
Is the site significantly disturbed (Atypical situation)?	Yes	No	Transect ID:
Is the area a potential Problem Area?	Yes	No	Plot ID: Wetland W-A
(If needed, explain on reverse.)			

VEGETATION (Note those species observed to have morphological adaptations to wetlands with a *)

Dominant Plant Species	Stratum	Indicator	Dominant plant species	Stratum	Indicator
1 <i>Juncus effusus</i>	H	OBL	9		
2 <i>Impatiens capensis</i>	H	FACW	10		
3 <i>Carex lurida</i>	H	OBL	11		
4 <i>Acer rubrum</i>	S	FAC	12		
5 <i>Polygonum spp.</i>	H		13		
6 <i>Onoclea sensibilis</i>	H	FACW	14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW or FAC (except FAC-). Include species noted (*) as showing Morphological adaptations to wetlands. 100%

Describe Morphological Adaptations:

Remarks:

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p style="padding-left: 40px;">Stream, Lake or Tide Gage</p> <p style="padding-left: 40px;">Aerial Photographs</p> <p style="padding-left: 40px;">Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators</p> <p><input type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soils Survey Data</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p style="padding-left: 40px;">Depth of Surface Water: 0 (in.)</p> <p style="padding-left: 40px;">Depth to Free Water in Pit: 12"+ (in.)</p> <p style="padding-left: 40px;">Depth to Saturated Soil: 0" (in.)</p>	
Remarks:	

SOILS

Map Unit Name: <u>Lindside silt loam, 0-3% slopes</u>		Drainage Class: _____	
Taxonomy Subgroup: _____		Field Observations: _____	
		Confirmed Mapped Type: _____	
<u>Profile Description:</u>			
Depth <u>(inches)</u>	<u>Horizon</u>	Matrix Color <u>Munsell Moist</u>	Mottle Colors <u>Munsell Moist</u>
		Mottle <u>Abundance/Contrast</u>	Texture, Concreations, <u>Rhizospheres, etc.</u>
0-2"	A	10YR 4/4	
2-12"	B	10YR 3/1	few, faint
<u>Hydric Soil Indicators:</u>			
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concrections	
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content	
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking	
<input type="checkbox"/> Probable Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List	
<input checked="" type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List	
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)	
<u>Remarks:</u>			
Relatively plastic clay loam.			

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	Is this Sampling Point within a Wetland?
Hydric Soils Present?	Yes	No	
Wetland Hydrology Present?	Yes	No	
Remarks: Wetland W-A is located within the canal prism of the C&O Canal			

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Cumberland CSO 78-inch Pipeline Project			Date: 8/7/2019
Applicant/Owner: City of Cumberland			County: Allegany
Investigator: M. Smith			State: Maryland
Do Normal Circumstances exist on the site?	Yes	No	Community ID: PEM1A
Is the site significantly disturbed (Atypical situation)?	Yes	No	Transect ID:
Is the area a potential Problem Area?	Yes	No	Plot ID: Wetland W-B
(If needed, explain on reverse.)			

VEGETATION (Note those species observed to have morphological adaptations to wetlands with a *)

Dominant Plant Species	Stratum	Indicator	Dominant plant species	Stratum	Indicator
1 <i>Juncus effusus</i>	H	OBL	9		
2 <i>Impatiens capensis</i>	H	FACW	10		
3 <i>Carex lurida</i>	H	OBL	11		
4 <i>Acer rubrum</i>	T	FAC	12		
5 <i>Scirpus cyperinus</i>	H	OBL	13		
6 <i>Onoclea sensibilis</i>	H	FACW	14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW or FAC (except FAC-). Include species noted (*) as showing Morphological adaptations to wetlands. 100%

Describe Morphological Adaptations:

Remarks:

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p style="padding-left: 20px;">Stream, Lake or Tide Gage</p> <p style="padding-left: 20px;">Aerial Photographs</p> <p style="padding-left: 20px;">Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators</p> <p><input type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soils Survey Data</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p style="padding-left: 40px;">Depth of Surface Water: 0 (in.)</p> <p style="padding-left: 40px;">Depth to Free Water in Pit: 12"+ (in.)</p> <p style="padding-left: 40px;">Depth to Saturated Soil: 0" (in.)</p>	
<p>Remarks:</p>	

SOILS

Map Unit Name:	<u>Lindside silt loam, 0-3% slopes</u>	Drainage Class:	<u> </u>		
Taxonomy Subgroup:	<u> </u>	Field Observations	<u> </u>		
		Confirmed Mapped Type:	<u> </u>		
Profile Description:					
Depth (inches)	Horizon	Matrix Color Munsell Moist	Mottle Colors Munsell Moist	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-12"	A	10YR 3/2		Common / Faint	
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking			
<input type="checkbox"/> Probable Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input checked="" type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks:					
Relatively uniform soil profile with lack of A horizon					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	Is this Sampling Point within a Wetland?	
Hydric Soils Present?	Yes	No		
Wetland Hydrology Present?	Yes	No		
			Yes	No
Remarks:				
Wetland W-B is long, narrow, and linear and is situated directly over a gas pipeline right-of-way.				

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetland Delineation Manual)

Project/Site: Cumberland CSO 78-inch Pipeline Project			Date: 8/7/2019
Applicant/Owner: City of Cumberland			County: Allegany
Investigator: M. Smith			State: Maryland
Do Normal Circumstances exist on the site?	Yes	No	Community ID: PFO1A
Is the site significantly disturbed (Atypical situation)?	Yes	No	Transect ID:
Is the area a potential Problem Area? (If needed, explain on reverse.)	Yes	No	Plot ID: Wetland W-E

VEGETATION (Note those species observed to have morphological adaptations to wetlands with a *)

Dominant Plant Species	Stratum	Indicator	Dominant plant species	Stratum	Indicator
1 <i>Platanus occidentalis</i>	T	FACW	9		
2 <i>Acer rubrum</i>	T	FAC	10		
3 <i>Betula nigra</i>	T	FACW	11		
4			12		
5			13		
6			14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW or FAC (except FAC-). Include species noted (*) as showing morphological adaptations to wetlands. 100%

Describe Morphological Adaptations:

Remarks:

HYDROLOGY

<p>Recorded Data (Describe in Remarks)</p> <p style="padding-left: 20px;">Stream, Lake or Tide Gage</p> <p style="padding-left: 20px;">Aerial Photographs</p> <p style="padding-left: 20px;">Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators</p> <p style="padding-left: 20px;"><input type="checkbox"/> Inundated</p> <p style="padding-left: 20px;"><input checked="" type="checkbox"/> Saturated in Upper 12 inches</p> <p style="padding-left: 20px;"><input checked="" type="checkbox"/> Water Marks</p> <p style="padding-left: 20px;"><input checked="" type="checkbox"/> Drift Lines</p> <p style="padding-left: 20px;"><input checked="" type="checkbox"/> Sediment Deposits</p> <p style="padding-left: 20px;"><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p style="padding-left: 20px;"><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p style="padding-left: 20px;"><input checked="" type="checkbox"/> Water-Stained Leaves</p> <p style="padding-left: 20px;"><input type="checkbox"/> Local Soils Survey Data</p> <p style="padding-left: 20px;"><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p style="padding-left: 40px;">Depth of Surface Water: 0 (in.)</p> <p style="padding-left: 40px;">Depth to Free Water in Pit: 12"+ (in.)</p> <p style="padding-left: 40px;">Depth to Saturated Soil: 0" (in.)</p>	
<p>Remarks:</p> <p style="padding-left: 20px;">Wetland receives hydrology from groundwater and overbank flood flows from the North Branch</p>	

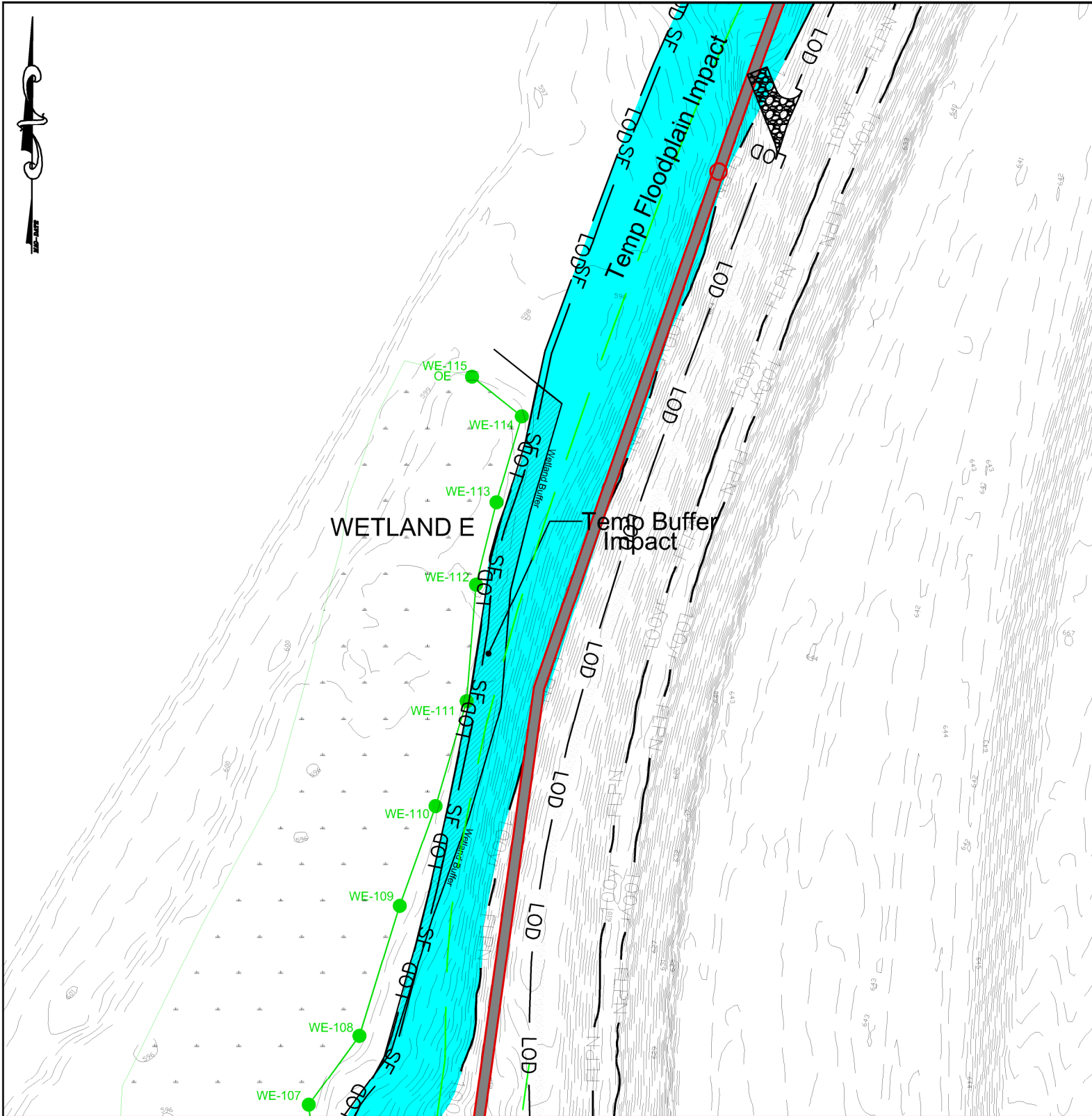
SOILS

Map Unit Name: <u>NeA - Nelse fine sandy loam, 0-3%</u>		Drainage Class: _____			
Taxonomy Subgroup: _____		Field Observations: _____			
		Confirmed Mapped Type: _____			
Profile Description:					
Depth (inches)	Horizon	Matrix Color Munsell Moist	Mottle Colors Munsell Moist	Mottle Abundance/Contrast	Texture, Concretions, Rhizospheres, etc.
0-12"	A	10YR 3/2			
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking			
<input type="checkbox"/> Probable Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input checked="" type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Remarks:					

WETLAND DETERMINATION

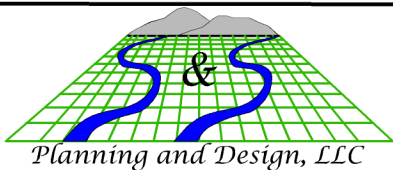
Hydrophytic Vegetation Present?	Yes	No		
Hydric Soils Present?	Yes	No	Is this Sampling Point within a Wetland?	
Wetland Hydrology Present?	Yes	No	Yes	No
Remarks:				
Wetland W-E is a successful wetland mitigation site constructed by SHA for the City of Cumberland				

12.0 APPENDIX C: Wetland Impact Plates



Impact Key & Calculations (Total Project)

Temp. 100-year Floodplain Impact - 750,105 s.f. (17.2-ac)	
Temp. PEM Wetland Impact - 55,384.8 s.f. (1.27-ac)	
Temp. Wetland Buffer Impact - 95,516.5 s.f. (2.19-ac)	
Temp. Waters of the U.S. Impact - 2,229.5 s.f. (0.06-ac)	
PFO to PEM Conversion Impact - 19,456.3 s.f. (0.45-ac)	



Prepared For:
City of Cumberland
Engineering Department
57 North Liberty Street
Cumberland, Maryland 21502

S&S Planning and Design, LLC

Job #19-102

Cumberland CSO 78" Pipeline Project

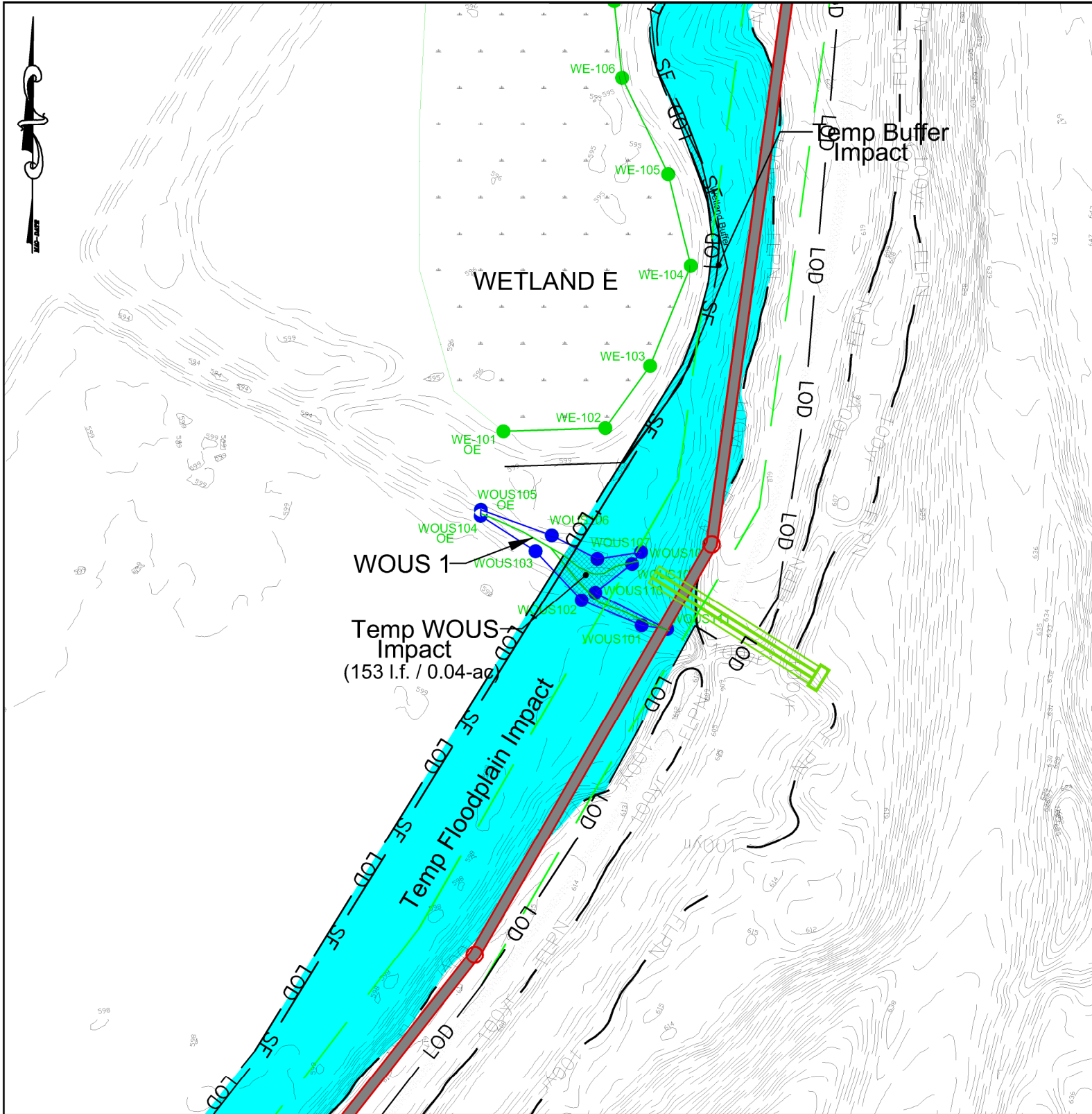
Project Impacts Exhibit

Allegany County
City of Cumberland, Maryland

August 21, 2020

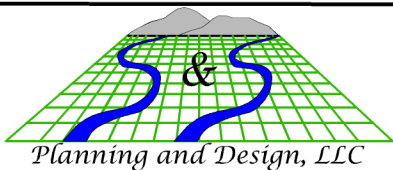
Scale: 1" = 100'

5 of 17



Impact Key & Calculations (Total Project)

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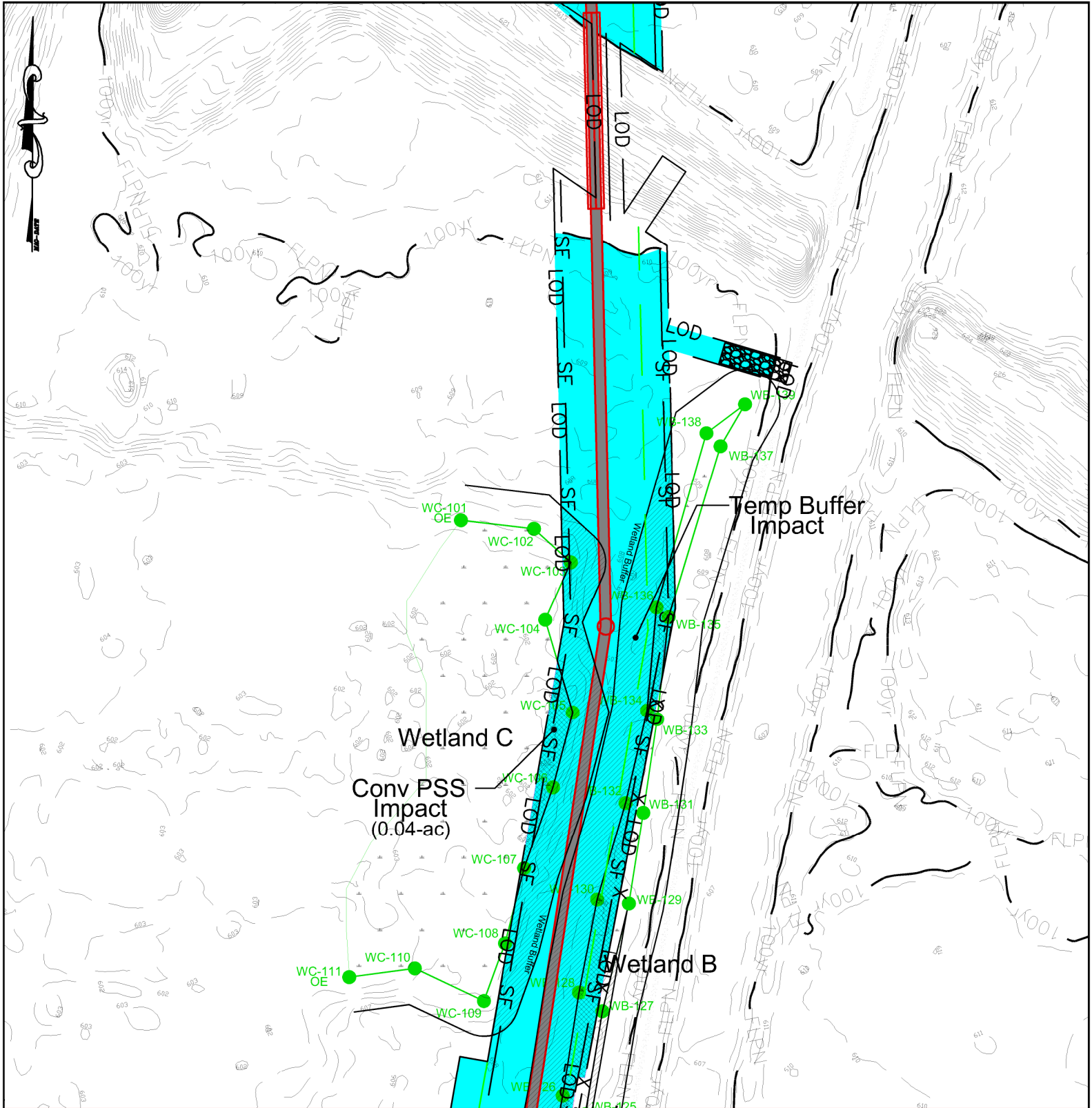
Project Impacts Exhibit

Allegany County
 City of Cumberland, Maryland

August 21, 2020

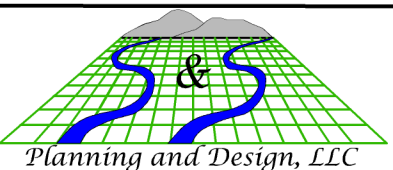
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6 of 17



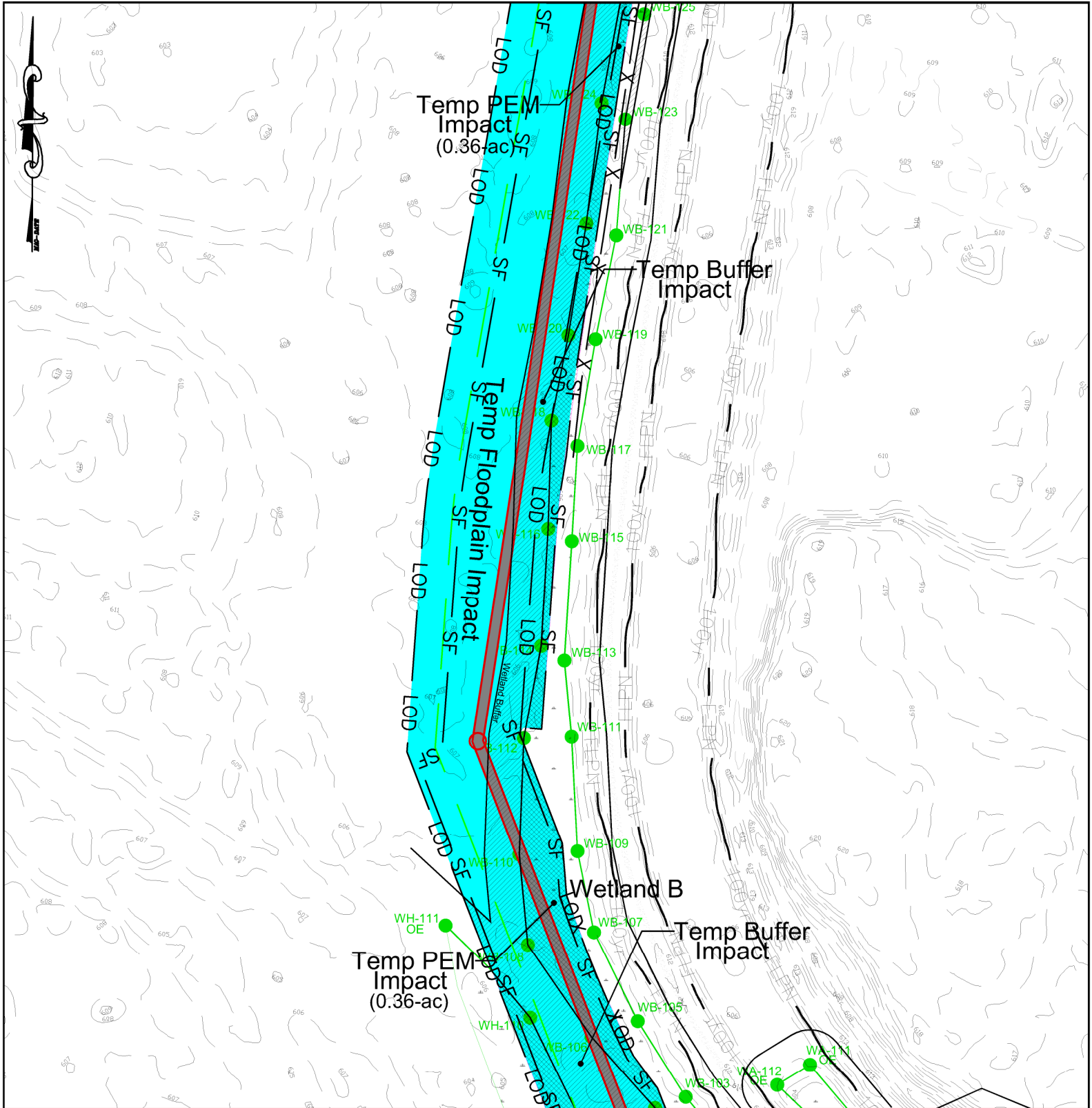
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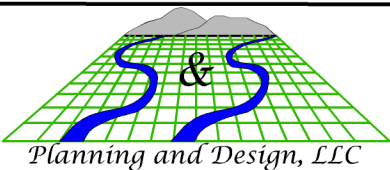
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August 21, 2020		Scale: 1" = 100'	10 of 17



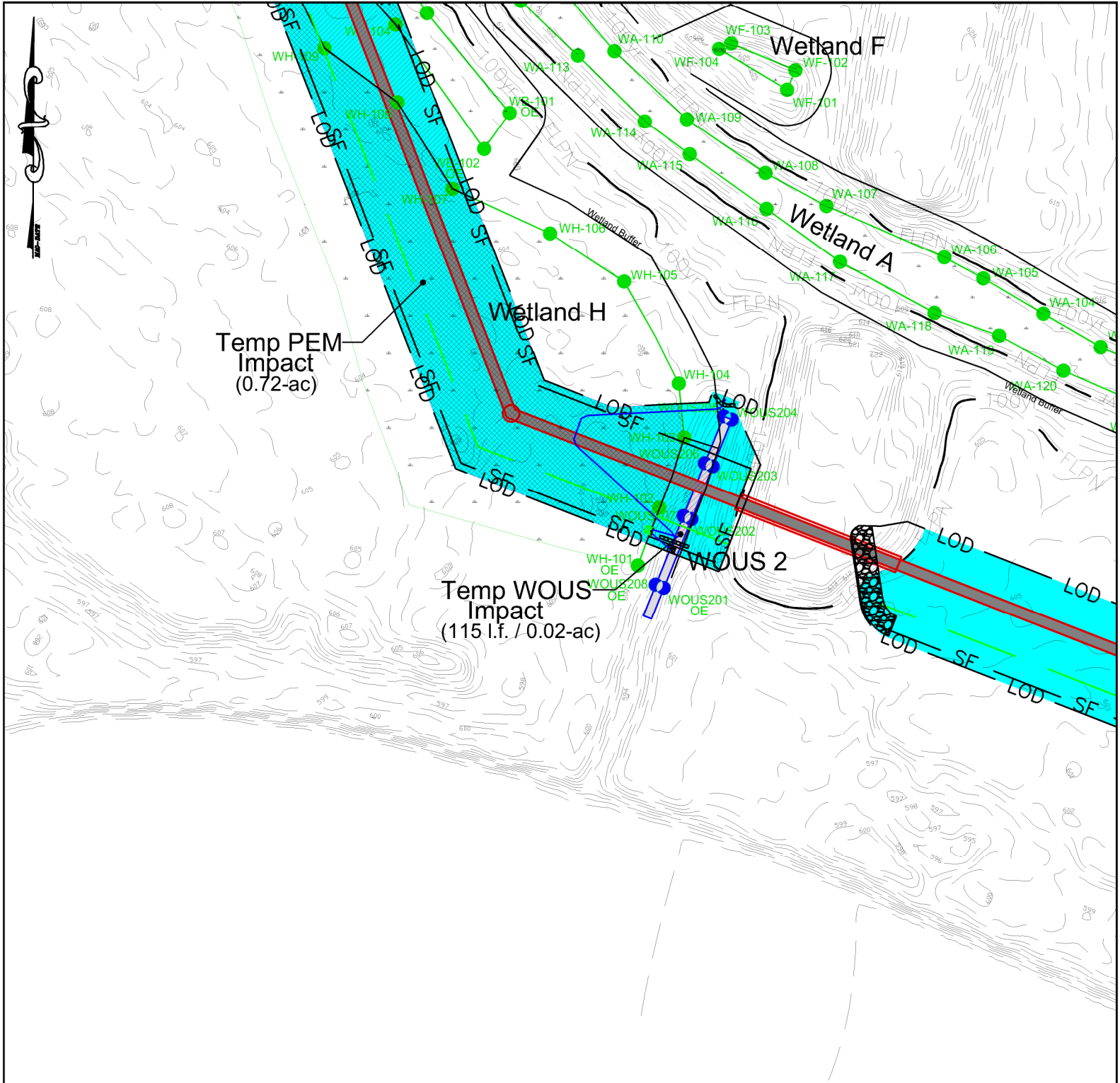
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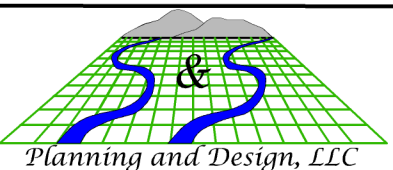
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Cumberland CSO 78" Pipeline Project Project Impacts Exhibit	
Allegany County City of Cumberland, Maryland	
August 21, 2020	Scale: 1" = 100' 11 of 17



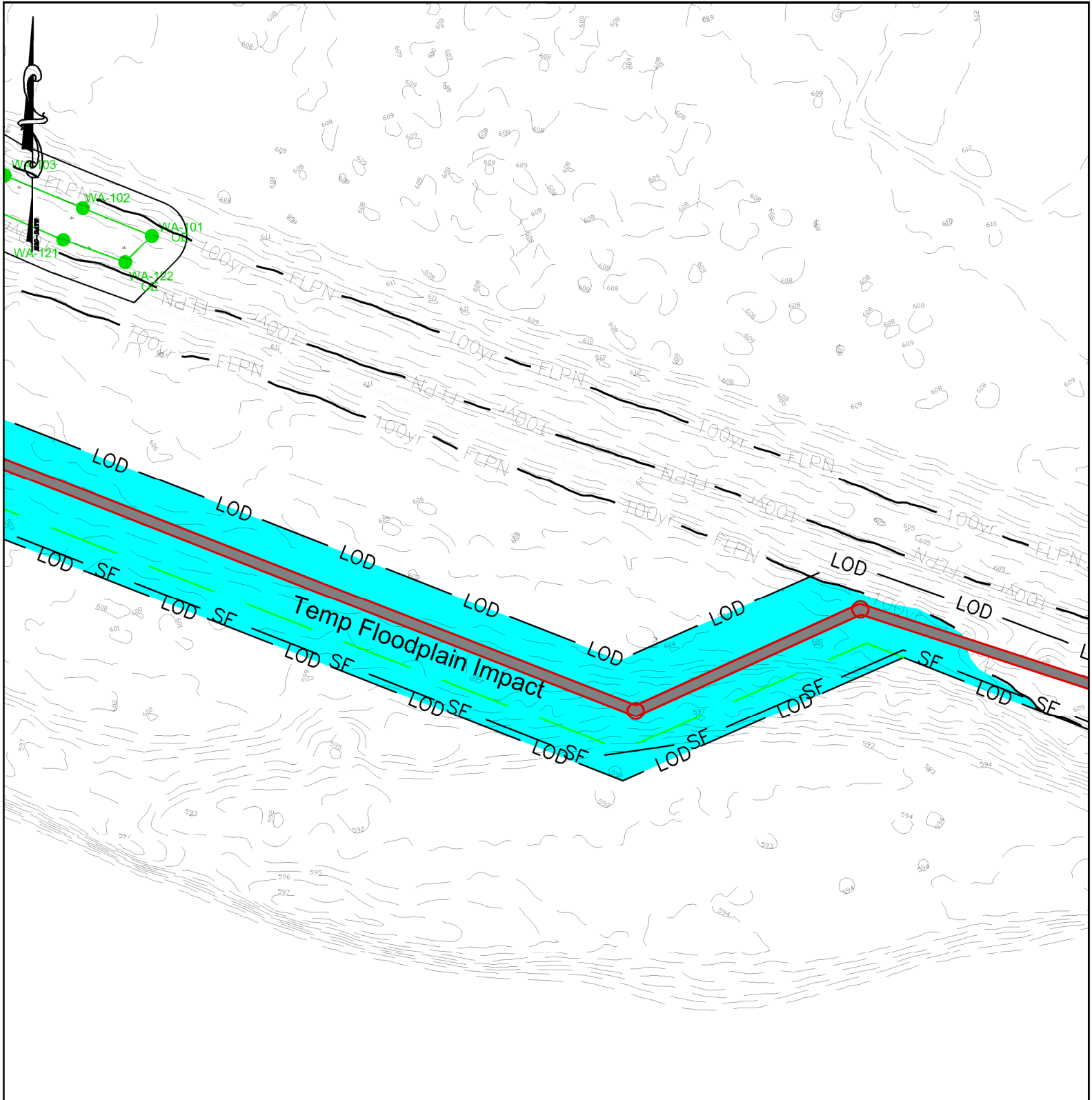
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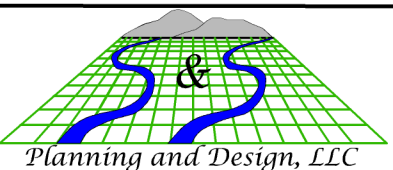
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12 of 17	



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		13 of 17	