City of Alexandria Waterfront Improvement and Flood Management Project

Archaeological Research Plan

February 20, 2020

Prepared for:

City of Alexandria

Prepared by:

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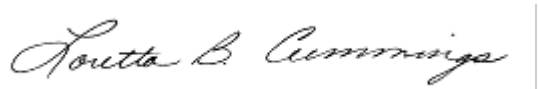
Prepared by  _____
(signature)
Ellen M. Brady, MA RPA, Cultural Resources Practice Leader

Reviewed by  _____
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(signature)
Christian Hampson, Assistant Project Manager

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1.0 INTRODUCTION

The City of Alexandria's Flood Mitigation Implementation Project (Project) is intended to address and mitigate the frequent flooding experienced in the vicinity of the "Core Area." The Alexandria Waterfront's "Core Area" encompasses approximately one-half mile of Potomac River shoreline. The Core Area is bounded by the Potomac River, Queen Street, Duke Street, and Union Street. Currently, flooding is common in the Core Area, especially at King Street, and the extent of the disruption created by each event ranges from inconvenient road flooding to negatively affecting commerce and damaging homes, businesses, and infrastructure.

The enclosed Research Plan is designed to operate as a guide for future archaeological work associated with the Project. As of the date of this document, the Project is in its planning stages working toward completion of required federal permits and federal compliance actions while setting the stage for compliance with the Alexandria Archaeological Protection Code which requires that the City Archaeologist review development projects for potential archaeological impacts. Compliance with Section 106 is required for the project to satisfy two regulatory processes. National Park Service (NPS) has jurisdiction over impacts to the bed of the Potomac River in this location which triggers the need for compliance with the National Environmental Policy Act (NEPA) which includes compliance with Section 106 of the NHPA. Secondly, compliance with Section 106 will also be necessary for the execution of necessary permits issued by the USACE.

The following Research Plan has been prepared to serve as a guide for future work associated with the project and to assist the City of Alexandria, the USACE, and the NPS in meeting their requirements for compliance with Section 106 of the NHPA and Alexandria Code 11-411, Archaeological Protection Code. All work proposed in this research plan is presented in reference to the City of Alexandria's Archaeological Protection Code (Section 11-411: Archaeology Protection), the *City of Alexandria Archaeological Standards*, the Virginia Department of Historic Resource's (2017) *Guidelines for Conducting Historic Resources Survey in Virginia*, and the standards and guidelines set forth in the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (Federal Register 1983).

The following assumptions were made during the preparation of this research plan and should be carried forward to the implementation of archaeological investigations associated with the Project.

- USACE or NPS would act as the lead federal agency and initiate all formal consultation pursuant to Section 106.
- Access to the property required for archaeological investigation will be facilitated by the City.
- All necessary permits for excavation or use of mechanical equipment required for work in the City of Alexandria will be acquired with assistance from the City.

- All necessary permits and detailed Scopes of Work required by Office of Historic Alexandria/Alexandria Archaeology(OHA) would be prepared by the archaeological contractor prior to the commencement of ground disturbing activity.

- A contract dendrochronologist identified by the City or NPS will be on-call to respond during archaeological investigations.

1.1 PROJECT DESCRIPTION

There are four major components to the Project – pump stations, a bypass sewer, bulkheads and two sections of dredging. Associated with the Project are also improvements to Waterfront Park, the addition of a waterfront promenade attached to the bulkhead, and upgrades to existing utilities to support the project. During construction, three existing piers will be demolished and four of the existing piers and docks will be partially demolished to build the bulkhead and some will be rebuilt, which will add 400 square feet (sf) of new pier in front of the King Street Park. The Project site is located along the tidal Potomac River and stretches along the waterfront from Duke Street to Queen Street in Old Town Alexandria.

The proposed Flood Mitigation System has multiple components which work together to reduce flooding in the Core Area. The bulkhead is designed to keep the Potomac River from inundating the Core Area, while a local storm sewer system is employed to avoid nuisance flooding by routing water to pump stations which will pump stormwater into the river. A bypass storm sewer system is proposed to divert upstream drainage areas directly to the Potomac River to alleviate strain on the local storm system and pump stations. These flood mitigation measures are proposed to reduce the risk of flooding in the Core Area up to the 10-year flood elevation of 6.0 feet. The following describes each of the proposed elements to the Flood Mitigation System:

- A vertical, structural bulkhead to an elevation of 6.0 feet along the Potomac River within the project area. The proposed bulkhead is generally located east of the existing shoreline and existing bulkhead.

- Two pump station sites (tentatively located in Waterfront Park and Thompson's Alley), each containing a screen, wet well, pumps, backup generator, backup fuel source, discharge piping, mechanical equipment, controls, and all related infrastructure. Each pump station site will include a pair of park pavilion buildings to elevate the pump station equipment above the flood plain, as well as incorporate related park uses including storage, restrooms, and service areas.

- A new Core Area storm sewer inlet and pipe network to collect and convey runoff to the pump station wet wells.

- Two areas are proposed to be dredged with the project. One area is in front of Point Lumley on the south end of the project area and the other is located just upriver in front of the Waterfront Park.

As part of the Flood Mitigation project, three existing piers will be demolished, four of the existing piers and docks will be partially demolished, and some will be rebuilt (Appendix A). A new pier is proposed that will extend beyond the existing pierhead line (Appendix A).

1.2 AREA OF POTENTIAL EFFECTS

The APE recommended for the project is two-fold. The APE for Direct Effects includes all portions of the Project that could have a direct effect on historic resources (i.e. demolition, ground disturbance, etc.). The Direct APE includes not only those land-based impacts but also potential impacts to possible submerged cultural resources. Therefore, the Direct APE extends to the limits of the proposed new pier and the dredge area in the Potomac River. The APE for Indirect Effects includes the entirety of the APE for Direct Effects as well as all properties adjacent to and within view of the proposed Project. Indirect effects often include noise, vibration, and changes in view shed/visual; however, it is anticipated that for this project, the primary concern would be visual. The Indirect APE encompasses properties located within Historic Alexandria but also includes the waterfront opposite the project location and within Washington, DC and Maryland. Attachment 2 illustrates the proposed APEs. While it is noted that the APE for Direct Effects includes the entirely of the Project limits, potential impacts to historic resources have been identified in specific locations including the pump station sites, the storm sewer network, inlet, and pipes. Any work taking place on the existing bulkhead would also be considered part of the APE for Direct Effects. The Proposed APEs are presented in Appendix B.

2.0 PROPOSED RESEARCH PLAN

Pursuant to the approved Scope of Work executed between the City and Stantec on September 11, 2019, the following research plan is presented for review. The task consists of both archaeological and historic architectural survey and the assessment of potential effects the project may have on historic resources.

2.1 RESEARCH QUESTIONS

Stantec prepared a Phase IA Archaeological Assessment for the Limits of Disturbance (LOD) for the Alexandria Waterfront project (Kreisa et al. 2018). The assessment was prepared utilizing available sources of data regarding the history and prehistory of the region and more specifically of the Alexandria waterfront as well as shoreline change in the project location. Sources of information included relevant soil surveys, the Virginia Department of Historic Resources' (VDHR) Virginia Cultural Resource Information System (V-CRIS) database reviews, and OHA/AA files of previously identified cultural resources and surveys (Kreisa et al. 2018). This preliminary overview of readily available resources indicated that potential historic resources are present within the project LOD. A shoreline change map provided by OHA suggested that the Potomac River shoreline was extended to the eastern boundary of the LOD by 1798. The assessment concluded that the Project area has a high potential for archaeological resources, most likely associated with eighteenth- to twentieth-century wharves and various associated structures (Attachment 3).

Historical maps and previously conducted research suggest that numerous wharves, smaller piers, structures on wharves, and structures on the shoreline were present within the terrestrial portion of the LOD itself. The river shoreline map also indicates that the shoreline was extended eastward in the 1940s and 1960s to cover the eighteenth to nineteenth century wharves. The Project is located between Point Lumley on the south and the point of land historically known as West Point on the north as depicted in Appendix C. This waterfront was the focal point for the development of the town of Alexandria which was established in 1749. In Alexandria's earliest days, the area of the proposed flood mitigation system and riverfront promenade lay in the Potomac River. However, siltation of the river became a problem early on and threatened the port. Landowners, supported by the Town Trustees, began a program of cutting the high riverfront banks and then placing the excavated soils along the river behind wood pilings to prevent erosion. This leveled the shoreline and increased waterfront access and acreage in a process known as banking-out. The city then gave adjacent landowners the rights to develop the newly made land.

The Project location, as documented in the archaeological assessment prepared for the project (Kreisa et al., 2018), may potentially contain the archaeological remains of historic features related to the early commerce and economy of the port of Alexandria. Wharves, businesses, and remnants of the commercial hub for the town of Alexandria may be represented archaeologically within the Project location as may the archaeological remains of prehistoric activity along this section of the Potomac River shoreline.

Research questions that may be addressed through the research and potential identification of archaeological and/or historic architectural resources include:

- The archaeological chronology of the LOD. The chronological history of the banking out or infilling of the Alexandria Waterfront project LOD may be documented through archaeological investigation and monitoring within the project location. Non-contiguous stratigraphic profiles may also be present documenting Alexandria's man-made waterfront.

- Historical research has identified that portions of at least 11 wharves and remains of up to 22 structures (dating from the late eighteenth to the early twentieth centuries) are potentially present within the project area. Archaeological research may present an opportunity to assess the archaeology of commercial waterfront development and tell the story of day to day life along the waterfront. Additionally, the remains of sunken vessels, wooden pilings, and other debris associated with the banking-out process may be present within the Project area.

- More global questions that may be addressed during archaeological and or/historical architectural work may include;

    - Resource types and function of resources within the project LOD;

    - Comparison of the Alexandria waterfront economy with similar locations along major waterways in the region; and

    - An assessment of waterfront development and the archaeological signature as compared to the historical record.

2.2 PROPOSED METHODOLOGY

Stantec's Phase IA Archaeological Assessment for the Alexandria Waterfront Project (Kreisa et al. 2018) was conducted utilizing available historical resources to assess the potential for archaeological deposits within the overall Project area. Preliminary overview of readily available resources indicated that potential historic resources were present within the Project's LOD (Kreisa et al. 2018). The following sections outline a proposed guide and Research Plan for archaeological work associated with the Project. It is anticipated that advance work would be limited and that the majority of archaeological work would be conducted in concert with Project construction to minimize ground disturbances and maintain an efficient Project schedule.

2.2.1 Geoarchaeological Review

The feasibility of a geoarchaeology study to understand the chronological development, landscape transformation, and modification of the waterfront from the prehistoric period to modern times is being assessed. The scope of work for a geoarchaeology study could entail a review and synthesis of the results of geotechnical boring studies from this and previous waterfront sites from a geomorphological and cultural perspective and incorporate additional targeted borings and environmental studies if necessary. This would aid in the reconstruction of Alexandria's landscape and paleoenvironment.

A Geoarchaeologist will conduct a study of the chronological development, landscape transformation, and modification of the waterfront from prehistoric period to modern times during pre-construction analysis and review. The geoarchaeologist will review and synthesize results of geotechnical boring studies from this and previous waterfront sites from a cultural perspective and incorporate additional targeted borings if

necessary. This will aid in the placement of archaeological excavation trenches, evaluation, and interpretation of the excavation profiles.

2.2.2 Underwater Archaeological Resource Potential and Review

The Phase IA investigation (Kreisa et al. 2018) addressed the potential for submerged archaeological resources within the Potomac River and the LOD for the project. As noted in the Phase IA, three types of submerged resources may be expected within the LOD including remains or removed wharves or wood piles from piers, pre-Paleoindian or Paleoindian resources, and sunken vessels. However, based on previous research conducted by Shomette (1985) in the portion of the Potomac River adjacent to Alexandria, it has been recommended that there is low potential for the identification of submerged resources of any kind within the LOD.

As summarized in the Phase IA report: "The results of the historic research conducted by Shomette (1985) and the underwater survey conducted by Watts (1986) suggests that there is little potential for unknown submerged resources and there are no known submerged resources within the submerged portion of the AWFM LOD. This is largely due to the documented removal of sunken vessels and dredging of the waterfront during the twentieth century as documented by Shomette (1985). There could remain, however, basal portions of wharves and piers on the river bottom within the submerged portion of the AWFM LOD. More accessible sections of these resources can be documented within the terrestrial portion of the AWFM LOD" (Kreisa et al. 2018: 146).

However, as noted by Watts (1986:24), "silting along the Alexandria central waterfront has been extensive, and sub bottom historic sites could well still exist; their remote sensing signatures undetectable amid the magnetic and acoustic disturbances caused by vessels and waterfront structures." Watts further recommends monitoring during construction along the waterfront.

The technical data collected during the underwater investigations conducted by Watts in 1986 and entitled "Acoustic and Magnetic Remote Sensing and Site Identification Survey along the Alexandria Waterfront between Oronoco and Franklin Streets, and Oronoco Bay" will be reviewed by a qualified underwater archaeologist to assess if the work previously performed is sufficient for the current project or identify if new survey is needed. This review will take place prior to construction and will also include a review of previously documented dredging activity within the Potomac River in the vicinity of the Project. This review will serve as an opportunity to address the potential for submerged cultural resources within the LOD for the Project and also assess the potential disturbance caused by previous dredging activities which may render portions of the project low probability for the identification of submerged resources.

2.2.3 Archaeological Investigations

Stantec's Phase IA Archaeological Assessment for the Alexandria Waterfront project (Kreisa et al. 2018) utilized available historical resources to assess the potential for archaeological deposits within the overall Project area. This overview indicated that potential historic resources were present within the Project's LOD (Kreisa et al. 2018). The following sections outline the process required for conducting archaeological investigations within the Project area and preliminarily identifies where archaeological investigation may be needed based on the available design plans.

The assessment concluded that the Project area has a high potential for archaeological resources, most likely associated with eighteenth- to twentieth-century wharves and various associated structures. Design plans have not yet been finalized; however, the following has been proposed for anticipated work in twelve locations. It is anticipated that a large majority of archaeological work associated with the Project would be conducted in a timeframe to minimize rework and multiple episodes of mechanical excavation and dirt removal in a busy urban environment. Limited advance archaeological work may be conducted to assess stratigraphy to depths allowable by safety regulations and to assess the depth of modern fill levels that would require mechanical excavation prior to the assessment of potential archaeological deposits. Appendix D illustrates the potential impact areas and Table 1 details the project elements and suggested archaeological assessment methodology for each location.

Table 1 Archaeological Investigation Locations with the Project Area

Project Element	Suggested Methodology
Pump Station 1 (North)	Selective hand auger tests; mechanical trenching, monitoring during construction.
Pump Station 2 (South; Waterfront Park)	Selective hand auger tests; mechanical trenching, monitoring during construction.
Storm Water Improvements – Duke Street	Monitoring during construction – existing easement; Selective hand auger tests; mechanical trenching, monitoring during construction.
Storm Water Improvements – Prince Street	Monitoring during construction - existing easement
Storm Water Improvements – King Street	Monitoring during construction - existing easement
Storm Water Improvements – Cameron Street	Monitoring during construction - existing easement
Storm Water/Utility Undergrounding Improvements –Strand Street	Monitoring during construction - existing easement
Storm Water Improvements – Queen Street	Monitoring during construction - existing easement
Storm Water Improvements – N. and S. Union Streets	Monitoring during construction
Bulkhead Improvements	Monitoring during Construction as needed; will be addressed as an architectural resource
Dredging – Potomac River – Pilings for Pier and Promenade Construction	Monitoring during Construction
Promenade Construction	Monitoring during Construction/Existing Pier Demolition

2.2.3.1 Detailed Scope of Work

Separate scopes of work for each of the impact areas listed in Table 1 will be produced as design plans are finalized and final impacts are known. These separate scopes will be written by the archaeological contractor in coordination with Alexandria Archaeology and include the following elements:

- Research Goals;
- Safety and Environmental procedures;

- Excavation methodologies;
- Dewatering plans;
- Deep testing strategies;
- Laboratory and curation methodologies and special studies;
- Archaeological Reporting Requirements and Resource Management Plans.
- Public Interpretation Plans.

Upon acceptance of the Scope of Work the archaeological contractor shall seek the necessary approvals and execution of an Archaeological Preservation Certification which requires the completion of the Approval Checklists and sign off by the City Archaeologist and appropriate City departments.

The following sections detail suggested archaeological methodologies for mechanical excavation and monitoring during construction and are intended to serve as a guideline for preparation of the individual scopes of work and may be augmented or altered to meet the specific needs of each of the impact areas.

2.2.3.2 Archaeological Investigation – Mechanical Excavation and Hand Excavation

Traditional archaeological methods, i.e. shovel testing, would not accurately or efficiently identify the potential for archaeological deposits within the areas identified for investigation due to the limited depth of excavation attainable through hand excavation and is therefore not recommended as a primary methodology for this Project. Mechanically excavated test trenches may be excavated for those areas within the Project LOD that are accessible before construction/ground disturbance begins. The following procedure generally outlines the process for mechanical excavation followed by hand excavation as needed to address potentially significant archaeological deposits. Specific methodologies including number of and width of mechanically excavated trenches would be presented in the Scopes of Work prepared for each impact area.

Mechanical excavation techniques, following selective hand auger tests in locations where prudent and identified during the preparation the Scopes of Work for each impact area, are recommended as the most efficient mode of identifying potential archaeological deposits. Should tests become excessively deep, OSHA standards would be employed where feasible. For initial removal of modern fill, a backhoe bucket with teeth may be utilized; however, if discreet cultural activity layers are identified, a smooth blade bucket would be utilized to further investigate these deposits.

Mechanical excavation would be conducted with a backhoe equipped with a flat-bladed, smooth bucket. OHA/AA staff and consultant archaeologists will direct the excavation of a series of trenches diagonally across the project area. It is recommended that at least one soil strata column profile will be drawn for every trench and photographs will be taken. At any point during the excavation, however, the staff archaeologist can stop the machine excavation if intact buried surface layers or any features are exposed. Work will temporarily halt in this area until the assessment of the feature's significance is complete but can proceed in other areas. The assessment may require additional work (i.e. the hand excavation of shovel test pits or test units). Trenches may be back filled after recordation of the soil

profiles if features/buried surfaces are not located to facilitate easier movement within the project area and safety concerns prior to full soil removal.

Hand Excavation

If a buried surface is identified during machine trenching, construction within the area will stop, and archaeologists will make a determination of the presence of archaeological resources within this surface. Shovel test pits (STPs) will be excavated within the buried surface at 20-foot intervals to identify the extent of the deposits and assess soil stratigraphy. STPs will measure at least 15 inches in diameter and will be excavated by natural soil levels. All soils within the test pits will be screened through 1/4-inch mesh hardware cloth screens and artifacts will be bagged and labeled by unit number and by soil horizon. Soil profiles will be made of representative units, with soil descriptions noted in standard soil terminology. Soil colors will be described using the Munsell Soil Color Chart designations. The location of each shovel test pit will be mapped and documented with field notes.

The hand excavation of 3-x-3-foot test units may be required to test and evaluate potentially significant archaeological features or buried ground surfaces that are located during archaeological stripping or trenching. The test units will be excavated stratigraphically by natural or cultural levels or by arbitrary sub levels. All soils will be screened through ¼-inch mesh hardware cloth. Representative soil profiles will be drawn using the Munsell Soil Color Chart designation. All work will be documented by field notes, sketch plans and photographs. Trenches will be expanded into block excavations to expose and document features exposed within trenches. Determinations about expanding beyond excavation limits will be undertaken in consultation with Alexandria Archaeology.

Resource Management Plan

For archaeological deposits that are identified as potentially significant following the investigative procedure described above, a Resource Management Plan (RMP) will be drafted. RMPs will be written and implemented for all buried features that are discovered during machine trenching and deemed significant by the City Archaeologist. However, in an effort to maintain project schedule, features discovered during monitoring will be recorded and tested without the RMP. While the RMP is under development, the horizontal extent of the feature(s) discovered during this process will be documented (photographed and mapped) in preparation for further investigation in the next phase of archaeological work. Because of the nature of this project, impacts will likely be partial and not feature- or block-wide. Alexandria Archaeology requires in-field sampling of significant, exposed, intact waterlogged wood structures to aid in the development of our understanding of the banking-out process.

Because of the nature of the project, it is assumed that the excavation and sampling of potentially significant archaeological features would be considered mitigation for adverse effects under Section 106 should those features be found eligible for listing on the NRHP. If significant archaeological features warranting additional work outside of that described in the procedures set forth above and to be detailed in the specific Scopes of Work for each impact area, are identified and found eligible for listing on the NRHP, an assessment of effects will be prepared and appropriate mitigation will be identified in consultation with the City of Alexandria, OHA, the USACE, NPS, and the VDHR.

2.2.3.3 Monitoring During Construction

All ground disturbing work will require archaeological monitoring conducted by consultant archaeologists with oversight from Alexandria Archaeology unless disturbance or fill can be verified through field excavation. Monitoring is used when the possibility of archaeological resources exists but there is no satisfactory way to sample the area and no valid way to if determine and where they are located. Additionally, as it appears that all improvements would take place in existing easements, advance archaeological work is not recommended in locations where existing utilities are present and proposed improvements are sited within existing easements. Advance archaeological work as described above will be performed prior to construction in several locations that retain a higher probability for the identification of intact archaeological deposits.

Following the removal of asphalt or any hardscape necessary for the proposed improvements, archaeologists will observe soil removal. If potential for archaeological deposits are identified, the archaeologists will stop work and consult with the City field archaeologists to determine whether documentation, testing, and/or further monitoring are necessary. This process will also be utilized to 'clear' trenching activities in those areas that exhibit substantial disturbance and retain low to no probability for intact archaeological deposits. Trench profiles will be drawn, as warranted. Feature excavation is expected to be relatively minimal, due to the partial nature of the impacts.

Adequate time shall be allotted to document wharves and other structures/features observed. If features are identified, a plan of action or RMP will be prepared and implemented so that work may continue in other locations while archaeological assessment takes place.

Monitoring during dredging will also be considered pursuant to the review of previously conducted underwater survey data and previously documented dredging data as noted in Section 2.2.2 of this plan.

2.2.4 Laboratory Processing and Curation

Archaeological artifacts recovered from significant soil layers within the project area will be retained, cleaned, stabilized (if necessary), catalogued, labeled and packaged in accordance with the guidelines set forth in the *City of Alexandria Archaeological Standards*. A professional conservator must consult during artifact recovery of water-logged artifacts. Field stabilization and pre-conservation methodology shall be as follows and should be detailed in the specific Scopes of Work for impact areas:

- Organic materials: If organic materials are found dry, they should remain dry; if they are found wet, they should remain wet.
- Leather and faunal materials: Damp or wet leather and faunal materials shall be stabilized by spraying a plastic bag with an anti-fungal, such as Lysol, wrapping the artifact in wet paper towels, and placing the wrapped artifact into thick plastic or multiple plastic re-closeable zip top bags to prevent drying out (note: Artifacts should never come into direct contact with the anti-fungal).
- Textiles: Damp or wet textiles shall be removed along with the surrounding soil, wrapped in thick plastic or multiple re-closeable zip top plastic bags to prevent drying out (note: anti-fungal such as Lysol should NOT be used on these materials). Leather and textile materials shall then be kept in a refrigerator until further treatment is possible.

- Wood: Damp or wet wooden artifacts shall be wrapped in black sheeting (3-4 MIL) and secured with duct tape/zip ties/ etc. (note: anti-fungal such as Lysol should NOT be used on wood).
- Metals: Damp or wet metal should be kept wet until processed in the lab.

Materials collected from City property would be returned to the City processed and made ready for curation. At the conclusion of the project, all original photographs, negatives, slides, videotapes, field notes, forms, and other field records will be delivered to Alexandria Archaeology. It is anticipated that artifacts recovered during the investigation are property of the City and will be curated with the OHA/AA. Archaeological collections recovered as a result of a Section 106 compliance project or one required to meet the stipulations of the Archaeological Protection Code must be curated at a facility which meets Federal standards for archaeological curation and collections management as described by 36CFR Part 79. The Alexandria Archaeology Storage Facility meets these standards. Curation facilities should be specified in the Scopes of Work for impact areas, but it is assumed that all artifacts will be returned to the City of Alexandria for curation.

2.2.5 Reporting and Deliverables

At the completion of the architectural assessment and archaeological survey, a report of findings will be prepared. The reports will follow a standard format accepted by the VDHR and meeting the standards of Alexandria Archaeology, and will include:

- Title Page
- Abstract
- Table of Contents
- List of Maps, Illustrations, Tables
- Description of the Area Surveyed
- Survey Strategy (objectives, methods, expected results)
- Findings and Recommendations
- Summary list of identified sites within the project survey area and recommendations
- Bibliography
- Appendices as necessary (e.g., artifact inventory)

Draft versions of the reports will be provided in digital (PDF) format for review by the OHA and the NPS. Upon receipt of a round of comments, final reports will be prepared for submittal. Reports will also be prepared for submittal to the VDHR and/or other consulting parties if requested. The VDHR requires one (1) hard copy and one (1) CD version of each report for review.

If no significant resources are discovered, produce and submit two draft copies of the Archeological Evaluation Report to Alexandria Archaeology, including the public summary document and the text and graphics for the historic marker, if warranted. If significant resources are discovered, the Evaluation Report may be incorporated into the final report that includes implementation of all preservation actions stipulated in the Resource Management Plans. Deliver to Alexandria Archaeology four copies (including one unbound copy) and CD of the final report, final versions and CDs of the public summary and historic marker text and graphics, plus all original field notes, copies of historic documents, photographs, slides, digital images, transcriptions, forms and associated records.

If archaeological sites are identified, VDHR archaeological site numbers will be obtained and a VDHR V-CRIS site form with appropriate supporting material will be completed. Archaeological site forms will be included as an Appendix to the report; however, individual hard copies will not be generated.

The City of Alexandria Archaeological Standards require that a public summary be prepared as part of final documentary/archaeological testing report. The public summary will be between two (2) and six (6) pages along with a few color illustrations. This should be prepared in a style and format that is reproducible for public distribution and use on the City's website. A draft of the summary should be submitted to Alexandria Archaeology for review along with the draft of the summary archaeological report. Upon approval, a master copy (hard copy as well as on CD) will be submitted to Alexandria Archaeology.

3.0 REFERENCES

City of Alexandria
2018 Archaeological Protection Code. Electronic document, https://www.alexandriava.gov/historic/archaeology/default.aspx?id=28146, accessed December 2019.

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2018 *Initial Archaeological Assessment of the Proposed Waterfront Flood Management Project, Alexandria Virginia.* Submitted to the City of Alexandria. Report on file, Office of Historic Alexandria.

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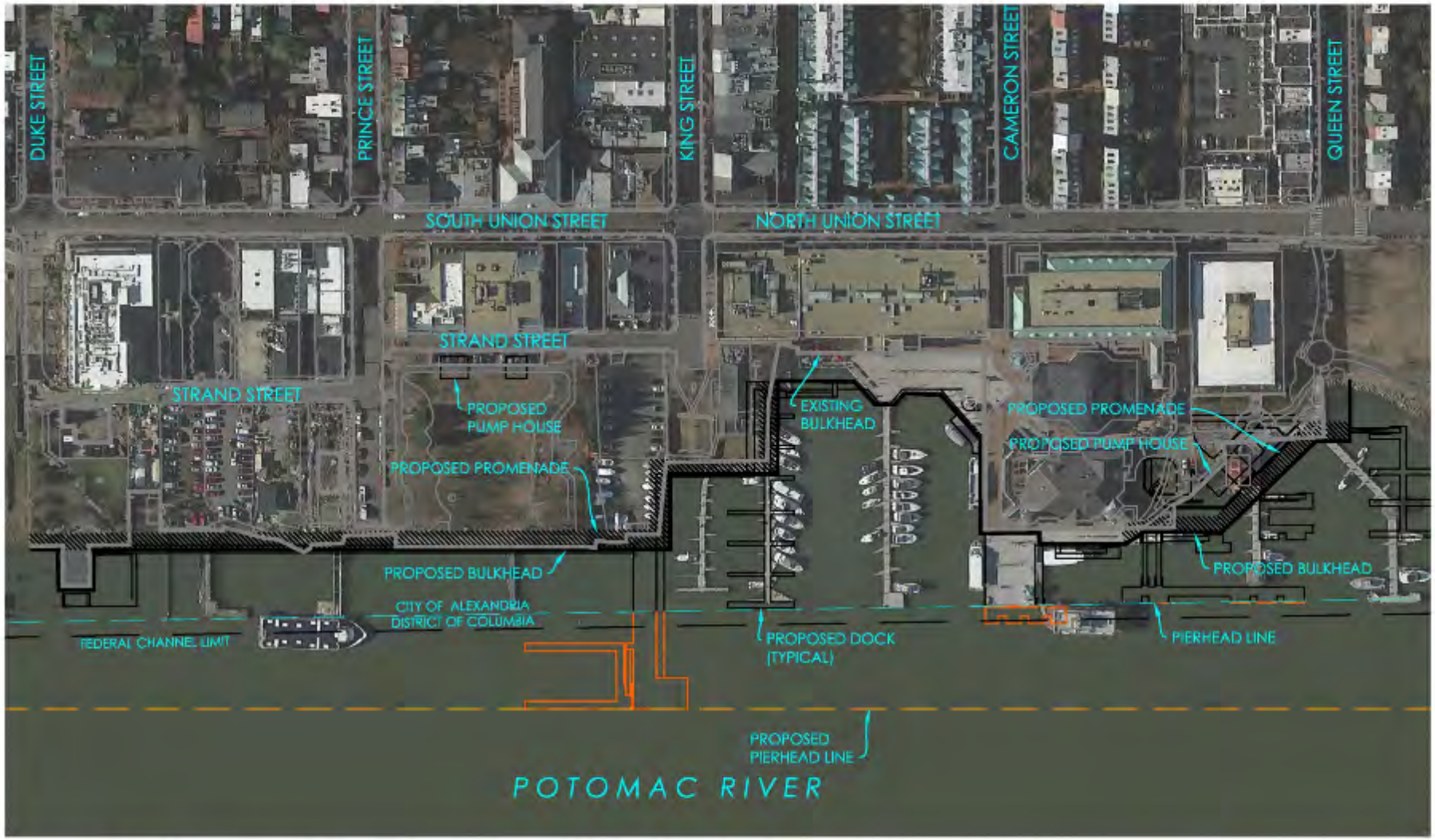
APPENDICES

Appendix A PROJECT LOCATION MAP

PROPOSED IMPROVEMENTS - INSIDE & OUTSIDE PIERHEAD LINE



LEGEND:

- EXISTING PIERHEAD LINE
- EXISTING BULKHEAD
- PROPOSED BULKHEAD
- PROPOSED PROMENADE
- PROPOSED PIERHEAD LINE
- FEDERAL CHANNEL LIMIT
- INSIDE EXISTING PIERHEARD LINE
- PROPOSED DOCK
- OUTSIDE EXISTING PIERHEARD LINE
- PROPOSED DOCK

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Appendix B PROPOSED AREA OF POTENTIAL EFFECTS

Figure No.

Appendix B

Title

Proposed Area of Potential Effects For Direct Effects

Client/Project 2029041842

City of Alexandria, VA
Alexandria Waterfront Improvement and Flood Management Project

Project Location

City of Alexandria, Virginia

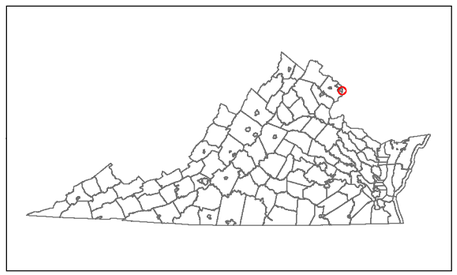
Prepared by ECL on 2020-01-09
TR by MGS on 2020-02-20
IR by EMB on 2020-01-10

N

0 200 400 Feet

(At original document size of 11x17)
1:2,400

Proposed Area of Potential Effects for Direct Effects. APE for Direct Effects is Coterminous with the Limits of the Core Area



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: City of Alexandria GIS, ESRI, Stantec
3. Orthoimagery © Bing Maps
4. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

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Figure No.

Appendix B

Title

Proposed Area of Potential Effects for Indirect Effects

Client/Project 2029041842

City of Alexandria, VA
Alexandria Waterfront Improvement and Flood Management Project

Project Location

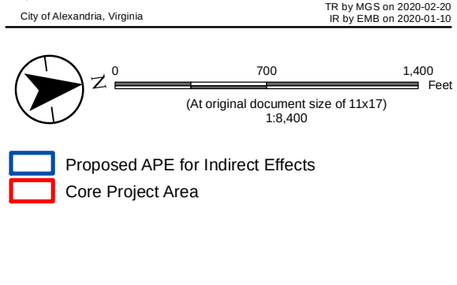
City of Alexandria, Virginia

Prepared by ECL on 2020-01-09
TR by MGS on 2020-02-20
IR by EMB on 2020-01-10

N 0 700 1,400 Feet

(At original document size of 11x17)
1:8,400

Proposed APE for Indirect Effects
Core Project Area



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: City of Alexandria GIS, ESRI, Stantec
3. Orthoimagery © Bing Maps
4. Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

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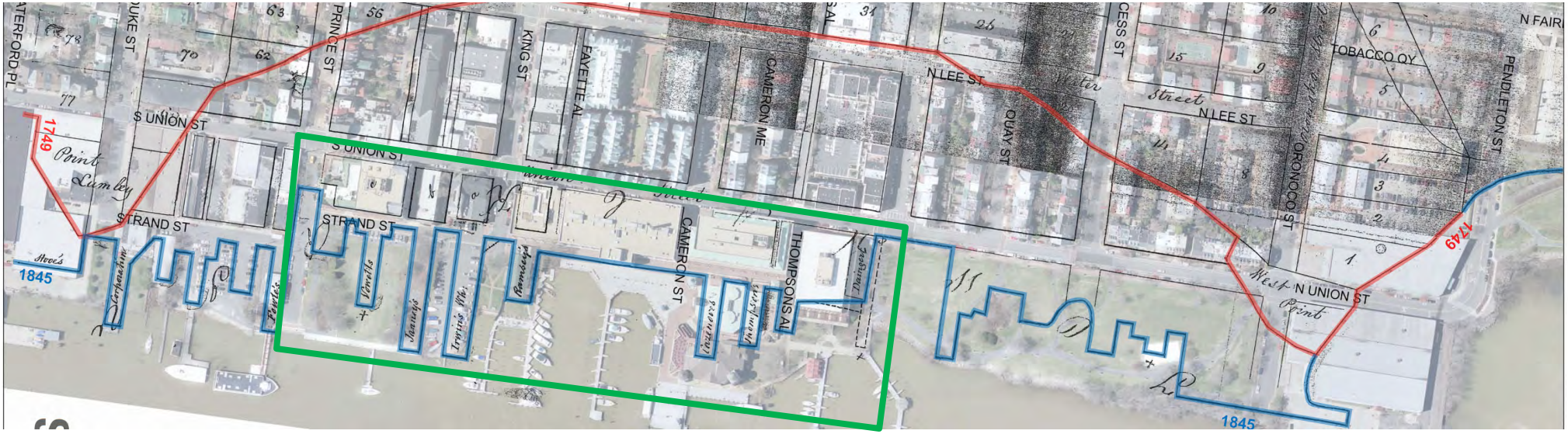
Appendix C SHORELINE CHANGE MAP



Depiction of the 1749 Shoreline (red line) and the 1845 Shoreline (blue line) overlain on a Modern Aerial Photograph of the Alexandria Waterfront Improvement and Flood Management Project Core Area (map provided by OHA for Phase IA Archaeological Assessment – Kreisa, et al. 2018)**. The approximate Project location is denoted in green.**

Appendix D MAP OF POTENTIAL ARCHAEOLOGICAL ASSESMENT AREAS

Figure No.

Appendix D

Title

Archaeological Survey and Monitoring Locations

Client/Project 2029041842

City of Alexandria, VA
Alexandria Waterfront Improvement and Flood Management Project

Project Location

City of Alexandria, Virginia

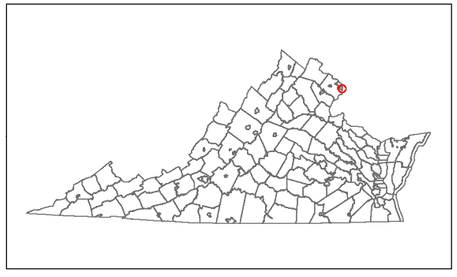
Prepared by ECL on 2020-01-09
TR by MGS on 2020-02-20
IR by EMB on 2020-01-10

N

0 150 300 Feet

(At original document size of 11x17)
1:1,800

- Area of Potential – Selective Advance Excavation; Trenching, Shovel Testing, Test Units; Monitoring as Needed
- Proposed Dredging Area – Potential Location for Monitoring During Dredging
- Proposed Pump Station Location – Selective Advance Excavation; Trenching, Shovel Testing, Test Units
- Proposed Utility/Stormwater Improvement Area – Monitoring During Construction



Notes

1. Coordinate System: NAD 1983 StatePlane Virginia North FIPS 4501 Feet
2. Data Sources: City of Alexandria GIS, ESRI, Stantec
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