STANDARD JOINT PERMIT APPLICATION

United States Army Corps of Engineers (USACE) - Norfolk District
803 Front Street, ATTN: CENAO-WR-R
Norfolk, Virginia 23510-1011
Phone: (757) 201-7652, Fax: (757) 201-7678
Website: http://www.nao.usace.army.mil/Missions/Regulatory.aspx

Virginia Marine Resources Commission (VMRC)
Habitat Management Division
380 Fenwick Road, Building 96
Fort Monroe, VA 23651
Phone: (757) 247-2200, Fax: (757) 247-8062
Website: http://www.mrc.virginia.gov/hmac/hmoverview.shtm

Virginia Department of Environmental Quality (DEQ)
Virginia Water Protection Permit Program
Post Office Box 1105
Richmond, Virginia 23218
Phone: (804) 698-4000
Websites: http://www.deq.virginia.gov/
http://www.deq.virginia.gov/Locations.aspx

The following instructions and information are designed to assist you in applying for permits from federal, state, and local regulatory agencies for work in waters and/or wetlands within the Commonwealth of Virginia. The intent is to provide general information on the permit process, not to act as a complete legal and technical reference. Refer to the applicable laws, regulations, and/or guidance materials of each agency for a complete understanding of each agency's application requirements.

JOINT PERMIT APPLICATION PROCESS

The Joint Permit Application (JPA) process and Standard JPA form are used by the United States Army Corps of Engineers (USACE), the Virginia Marine Resources Commission (VMRC), the Virginia Department of Environmental Quality (DEQ), and the Local Wetlands Boards (LWB) for permitting purposes involving water, wetlands, and dune/beach resources, including water supply and water withdrawals projects (as defined in DEQ Regulation 9 VAC 25-210).

The Tidewater Joint Permit Application form is used for proposed private or commercial aquaculture projects and most commercial and noncommercial projects in **tidal waters, tidal wetlands, and coastal primary sand dunes and beaches in Virginia** that require the review and/or authorization by the LWB, the VMRC, the DEQ, and/or the USACE. The Tidewater JPA may be downloaded from the same web page on which the Standard JPA is located: http://www.nao.usace.army.mil/Missions/Regulatory/JPA.aspx. *If using the Tidewater JPA, follow the instructions provided with that form.*

Please note that some health departments and local agencies, such as local building officials and erosion and sediment control authorities, do not use the Joint Permit Application process or forms and may have different informational requirements. The applicant is responsible for contacting these agencies for information regarding those permitting requirements.

REGULATORY AUTHORITIES OF PARTICIPATING AGENCIES: The USACE regulates activities in waters of the United States, including wetlands, under Section 404 of the Clean Water Act (33 U.S.C. §1344), Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. §403), and Section 103 of the Marine Protection Research and Sanctuaries Act of 1972 (33 U.S.C. §1413).

The VMRC regulates activities on state-owned submerged lands, tidal wetlands, and dunes/beaches under Code of Virginia Title 28.2, Chapters 12, 13, and 14.

The DEQ regulates activities in state surface waters and wetlands under Section 401 of the Clean Water Act (33 U.S.C. §1341), under State Water Control Law (Code of Virginia Title 62.1), and Virginia Administrative Code Regulations 9VAC25-210 et seq., 9VAC25-660 et seq., 9VAC25-670 et seq., 9VAC25-680 et seq., and 9VAC25-690 et seq.

The LWBs regulate activities in tidal wetlands and dunes/beaches under Code of Virginia Title 28.2, Chapters 13 and 14.

LOCAL WETLANDS BOARD CONTACT INFORMATION: Links to LWB information on the Web can be found at http://ccrm.vims.edu/permits_web/guidance/local_wetlands_boards.html.

USACE FIELD OFFICE INFORMATION AND DEQ REGIONAL OFFICE INFORMATION: Answers to technical questions and detailed information about specific aspects of the various permit programs may be obtained from the USACE field office in your project area (please refer to the Contact Information on the Regulatory web page at: http://www.nao.usace.army.mil/Missions/Regulatory.aspx or call 757-201-7652), or from the DEQ regional office in your project area (please refer to http://www.deq.virginia.gov/Locations.aspx or call 804-698-4000). Applicants may also seek assistance with completing the informational requirements and/or submittals from private consulting and/or engineering firms for hire.

CHESAPEAKE BAY PRESERVATION ACT INFORMATION: Development within the 84 Counties, Cities, and Towns of "Tidewater Virginia" (as defined in §62.1-44.15:68 of the Code of Virginia) is subject to the requirements of the Chesapeake Bay Preservation

Act. If your project is located in a Bay Act locality and will involve activities, including land disturbance or removal of vegetation, within a designated Resource Protection Area (RPA), these actions will require approval from your local government and completion of Appendix C. The individual localities, not the DEQ, USACE, or Local Wetlands Boards, are responsible for enforcing Bay Act requirements and, therefore, local approval for any activity in an RPA is not granted through this JPA process. Each Tidewater locality has adopted a program based on the Chesapeake Bay Preservation Act and the *Chesapeake Bay Preservation Area Designation & Management Regulations*.

The Act and regulations require Bay Act local governments to administer specific criteria for the use, development and redevelopment of land within locally designated Chesapeake Bay Preservation Areas. Since the requirements of the Bay Act may affect the ultimate design and construction of projects, applicants should contact their local government as early in the process as possible, in order to ensure that these requirements are considered early in the permitting process, and to avoid unnecessary and costly delays. Individual localities will request information regarding existing vegetation within the RPA as well as a description and site drawings of any proposed activity within the RPA. This information will be used by local staff charged with ensuring compliance with the Bay Act during the local approval process. Any use, development and redevelopment or land disturbance within the RPA must receive local approval PRIOR to the initiation of any land disturbance.

To determine if your project is located in a Bay Act locality (see map on page 31 or http://www.deq.virginia.gov/Programs/Water/ChesapeakeBay/ChesapeakeBayPreservationAct/LocalGovernmentOrdinances.aspx), learn more about Bay Act requirements, or find local government contacts, please visit the Virginia Department of Environmental Quality at http://www.deq.virginia.gov/Programs/Water/ChesapeakeBay/ChesapeakeBayPreservationAct.aspx.

HOW TO APPLY

Sections A through D below provide a general list of information and drawings that are required, depending on the type of project being proposed. Prepare all required drawings or sketches as detailed in the lists provided in Appendix D (Drawings) and according to the sample drawings provided in Appendix D.

Application materials should be submitted to VMRC:

1. ***If by mail or courier, use the address on page 1.***
2. ***If by electronic mail, address the package to: JPA.permits@mrc.virginia.gov. The application must be provided in the .pdf format.***

When completing this form, use the legal name of the applicant, agent, and/or property owner. For DEQ application purposes, *legal name* means the full legal name of an individual, business, or other organization. For an individual, the legal name is the first name, middle initial, last name, and suffix. For an entity authorized to do business in Virginia, the legal name is the exact name set forth in the entity's articles of incorporation, organization or trust, or formation agreement, as applicable. Also provide the name registered with the State Corporation Commission, if required to register. DEQ issues a permit or grants coverage to the so-named individual or business, who becomes the 'permittee'. Correspondence from some agencies, including permits, authorizations, and/or coverage, may be provided via electronic mail. If the applicant and/or agent wish(es) to receive their permit via electronic mail, please remember to include an e-mail address at the requested place in the application.

A. APPLICATIONS FOR PROJECTS INVOLVING IMPACTS TO *TIDAL* WATERS, WETLANDS, AND DUNES/BEACHES (INCLUDING SHORELINE STABILIZATION, PIERS, MARINAS, BEACH NOURISHMENT, BOATHOUSES, BOAT LIFTS, BREAKWATERS, AQUACULTURE ACTIVITIES, DREDGING, ETC.) SHOULD INCLUDE THE FOLLOWING:

- ❖ All *applicable* portions of Sections 1 through 26 of the JPA, including necessary attachments, information required for projects located in CBPA localities as required in Appendix C (a map of CBPA localities can be found on page 31).
- ❖ Adjacent Property Owner's Acknowledgement Forms(1), as detailed in Appendix A or the name and address of the adjacent landowners.
- ❖ An analysis of the functions of wetlands proposed to be impacted may be required by DEQ. (3).
- ❖ A set of 8 ½ x 11 inch drawings. If you cannot include all of your project site on one page at a scale no smaller than 1" = 200', you **must** submit a set of 8 ½ x 11 inch match-line drawings **and** a set of large-sized drawings at a scale no smaller than 1"= 200'. If oversized drawings are used, attach **five** copies of the oversized drawings to your application.
- ❖ In order for projects requiring LWB authorization to be considered complete, applications must include the following information (per Virginia Code 28.2-1302): *"The permit application shall include the following: the name and address of the applicant; a detailed description of the proposed activities; a map, drawn to an appropriate and uniform scale, showing the area of wetlands directly affected, the location of the proposed work thereon, the area of existing and proposed fill and excavation, the location, width, depth and length of any proposed channel and disposal area, and the location of all existing and proposed structures, sewage collection and treatment facilities, utility installations, roadways, and other related appurtenances of facilities, including those on the adjacent uplands; a description of the type of equipment to be used and the means of access to the activity site; the names and addresses of record of adjacent land and known claimants of water rights in or adjacent to the wetland of whom the applicant has notice; an estimate of cost; the primary purpose of the project; and secondary purpose of the proposed project; a complete description of measures to be taken during and after alteration to reduce detrimental offsite effects; the completion date of the proposed work, project, or structure; and such additional materials and documentation as the wetlands board may require."*

B. APPLICATIONS FOR PROJECTS INVOLVING IMPACTS TO *NONTIDAL* WATERS AND/OR WETLANDS *AND*:

1) **WHERE AUTHORIZATION UNDER *STATE PROGRAM GENERAL PERMIT (SPGP)* IS REQUESTED:**

Programmatic general permits may be issued by the USACE in situations where a state, regional, or local authority has a regulatory program in place that provides similar review and regulation of activities in waters as does the USACE. In such cases, the programmatic general permit allows the state, region, or locality to provide the federal authorization, thus avoiding unnecessary duplication of effort by multiple regulatory authorities. In Virginia, DEQ provides authorization for certain activities regulated by the USACE through the State Program General Permit (SPGP). DEQ's authorization under the SPGP is a separate action from that providing coverage under any Virginia Water Protection permit. Certain Residential/Commercial/Institutional Development activities and Linear Transportation activities will be considered for coverage under the current SPGP. Details about the current SPGP can be found at http://www.nao.usace.army.mil/Missions/Regulatory/RBregional.aspx.

- ❖ Mark the "SPGP" checkbox on page 7 of this application.
- ❖ All *applicable* portions of Sections 1 through 26 of the JPA, including necessary attachments.
- ❖ A conceptual compensatory mitigation plan(2).
- ❖ A copy of the confirmed jurisdictional determination or confirmed delineation, including a waters and wetlands boundary map and data sheets(3).
- ❖ All information required for projects located in CBPA localities as required in Appendix C (a map of CBPA localities can be found on page 31).
- ❖ A copy of the FEMA flood insurance rate map or FEMA-approved local floodplain map for the project site (not applicable to <0.1 acre and < 300 linear feet projects by either USACE or DEQ).
- ❖ A set of 8 ½ x 11 inch drawings. If you cannot include all of your project site on one page at a scale no smaller than 1" = 200', you **must** submit a set of 8 ½ x 11 inch match-line drawings **and** a set of large-sized drawings at a scale no smaller than 1"= 200'. If oversized drawings are used, attach **five** copies of the oversized drawings to your application.

2) **WHERE NO SPGP IS REQUESTED:**

- ❖ All *applicable* portions of Sections 1 through 26 of the JPA, including necessary attachments.
- ❖ A conceptual compensatory mitigation plan(2).
- ❖ A copy of the confirmed jurisdictional determination or confirmed delineation, including a waters and wetlands boundary map and data sheets(3).
- ❖ All information required for projects located in CBPA localities as required in Appendix C (a map of CBPA localities can be found on page 31), and a copy of the FEMA flood insurance rate map or FEMA-approved local floodplain map for the project site.
- ❖ An analysis of the functions of wetlands proposed to be impacted may be required by DEQ (4).
- ❖ A set of 8 ½ x 11 inch drawings. If you cannot include all of your project site on one page at a scale no smaller than 1" = 200', you **must** submit a set of 8 ½ x 11 inch match-line drawings **and** a set of large-sized drawings at a scale no smaller than 1"= 200'. If oversized drawings are used, attach **five** copies of the oversized drawings to your application.

C. APPLICATIONS FOR PROJECTS INVOLVING SURFACE WATER WITHDRAWALS or FERC LICENSE OR RELICENSE ASSOCIATED WITH A SURFACE WATER WITHDRAWAL:

- ❖ Mark the "DEQ Reapplication" checkbox on page 7 of this application and provide the current/existing permit number.
- ❖ All *applicable* portions of Sections 1 through 26 of the JPA, including necessary attachments.
- ❖ All *applicable* portions of Part A and B above if the project involves wetland and/or stream impacts.
- ❖ Copy of any pre-application review panel documentation and summary of the issues raised
- ❖ For new or expanded surface water withdrawals proposing to withdraw 90 million gallons a month or greater, a summary of the steps taken to seek public input as required by 9VAC25-210-320 and an identification of the issues raised during the course of the public information meeting process.

D. ANY APPLICATIONS USING THE JPA FORM AS A PRE-CONSTRUCTION NOTIFICATION (PCN) FOR A USACE NATIONWIDE PERMIT:

- ❖ Mark the "PCN" checkbox on page 7 of this application and insert the number of the intended Nationwide permit. If you fail to mark this box, the PCN will be deemed incomplete and the USACE 45-day time clock will not start.
- ❖ All *applicable* portions of Sections 1 through 26 of the JPA, including necessary attachments and all information required for projects located in CBPA localities as required in Appendix C (a map of CBPA localities can be found on page 31).
- ❖ A set of 8 ½ x 11 inch drawings. If you cannot include all of your project site on one page at a scale no smaller than 1" = 200', you **must** submit a set of 8 ½ x 11 inch match-line drawings **and** a set of large-sized drawings at a scale no smaller than 1"= 200'. If oversized drawings are used, attach **five** copies of the oversized drawings to your application.

WHAT HAPPENS NEXT

Upon receipt of an application, VMRC will assign a permit application number to the JPA and will then distribute a copy of the application and any plan copies submitted to the other regulatory agencies that are involved in the JPA process. All agencies will conduct separate but concurrent reviews of your project. Please be aware that each agency must issue a separate permit (or a notification that no permit is required). Note that in some cases, DEQ may be taking an action on behalf of the USACE, such as when the State Program General Permit (SPGP) applies. Make sure that you have received all necessary authorizations, or documentation that no permit is required, from each agency prior to beginning the proposed work.

During the JPA review process, site inspections may be necessary to evaluate a proposed project. Failure to allow an authorized representative of a regulatory agency to enter the property, or to take photographs of conditions at the project site, may result in either the withdrawal or denial of your permit application.

For certain federal and state permit applications, a public notice is published in a newspaper having circulation in the project area, is mailed to adjacent and/or riparian property owners, and/or is posted on the agency's web page. The public may comment on the project during a designated comment period, if applicable, which varies depending upon the type of permit being applied for and the issuing agency. In certain circumstances, the project may be heard by a governing board, such as a Local Wetlands Board, the State Water Control Board, or VMRC in cases where a locality does not have a wetlands board. You may be responsible for bearing the costs for advertisement of public notices.

Public hearings that are held by VMRC occur at their regularly scheduled monthly commission meetings under the following situations: Protested applications for VMRC permits which cannot be resolved; projects costing over $500,000 involving encroachment over state-owned subaqueous land; and all projects affecting tidal wetlands and dunes/beaches in localities without a LWB. All interested parties will be officially notified regarding the date and time of the hearing and Commission meeting procedures. The Commission will usually make a decision on the project at the meeting unless a decision for continuance is made. If a proposed project is approved, a permit or similar agency correspondence is sent to the applicant. In some cases, notarized signatures, as well as processing fees and royalties, are required before the permit is validated. If the project is denied, the applicant will be notified in writing.

PERMIT APPLICATION OR OTHER FEES

DO NOT send any fees with the JPA. *VMRC is not responsible for accounting for fees required by other agencies.* Please consult agency websites or contact agencies directly for current fee information and submittal instructions.

- USACE: Permit application fees are required for USACE Individual (Standard) permits. A USACE project manager will contact you regarding the proper fee and submittal requirements.
- DEQ: Permit application fees required for Virginia Water Protection permits – while detailed in 9VAC25-20 – are conveyed to the applicant by the applicable DEQ office (http://www.deq.virginia.gov/Locations.aspx). Complete the Permit Application Fee Form and submit it per the instructions listed on the form. Instructions for submitting any other fees will be provided to the applicant by DEQ staff.
- VMRC: An application fee of $300 may be required for projects impacting tidal wetlands, beaches and/or dunes when VMRC acts as the LWB. VMRC will notify the applicant in writing if the fee is required. Permit fees involving subaqueous lands are $25.00 for projects costing $10,000 or less and $100 for projects costing more than $10,000. Royalties may also be required for some projects. The proper permit fee and any required royalty is paid at the time of permit issuance by VMRC. VMRC staff will send the permittee a letter notifying him/her of the proper permit fees and submittal requirements.
- LWB: Permit fees vary by locality. Contact the LWB for your project area or their locality website for fee information and submittal requirements. Contact information for LWB may be found at http://ccrm.vims.edu/permits_web/guidance/local_wetlands_boards.html.

INFORMATION REGARDING THREATENED OR ENDANGERED SPECIES

In order to find preliminary information regarding federal or state threatened or endangered species on your project site, you may contact the following four agencies:

United States Fish and Wildlife Service 6669 Short Lane Gloucester, Virginia 23061 Voice: (804) 693-6694 Fax: (804) 693-9032 http://virginiafieldoffice.fws.gov/	NOAA Fisheries Greater Atlantic Region Fisheries Office National Marine Fisheries Service 55 Great Republic Drive Gloucester, MA 01930 Voice: (978) 281-9300 https://www.greateratlantic.fisheries.noaa.gov/contact_us/index.html
Project Review Coordinator Virginia Department of Conservation and Recreation Natural Heritage Division 217 Governor Street Richmond, Virginia 23219 Voice: (804) 786-7951 Fax: (804) 371-2674 http://www.dcr.virginia.gov/natural_heritage/index.shtml	Virginia Department of Game and Inland Fisheries Environmental Services Section 4010 West Broad Street Richmond, Virginia 23230-1104 (804) 367-1000 http://www.dgif.virginia.gov/wildlife/

INFORMATION REGARDING FEMA-MAPPED FLOODPLAINS

You may obtain "Online Hazard Maps" for FEMA-mapped floodplains by visiting https://hazards.fema.gov/femaportal/wps/portal. Local governments also keep paper copies of FEMA maps on hand.

FOOTNOTES

(1) Adjacent Property Owner Notification: When determining whether to grant or deny any permit for the use of state-owned submerged lands, the VMRC must consider, among other things, effects of a proposed project on adjacent or nearby properties. Discussing the proposed project with these property owners can be done on your own using the forms in Appendix A of this package. Local Wetlands Boards (LWB) must also consider the effects on adjacent properties and notify adjoining property owners of the required public hearings for all applications. The completed forms will assist VMRC and LWB in processing the application. The forms in Appendix A may be photocopied if more copies are needed. This information will not be used by DEQ to meet the requirements of notifying riparian land owners.

(2) Compensatory mitigation plans. Conceptual compensatory mitigation plans, when required, should include all information stipulated in Sections 80 B and 116 F of DEQ Regulation 9VAC25-210 for Virginia Water Protection individual permit applicants, or in Sections 60 B and/or 70 of DEQ Regulations 9VAC25-660, 9VAC25-670, 9VAC25-680, or 9VAC25-690 for Virginia Water Protection general permit coverage applicants. Regulations may be obtained from DEQ's web site at http://www.deq.virginia.gov/Programs/Water/WetlandsStreams.aspx. Information on wetland and stream compensatory mitigation is available at http://www.deq.virginia.gov/Programs/Water/WetlandsStreams/Mitigation.aspx. The SPGP applicant is required to provide a conceptual mitigation plan in accordance with the current SPGP (http://www.nao.usace.army.mil/Missions/Regulatory/RBregional.aspx). ***Final*** compensatory mitigation plans will be required *prior to commencement of impacts to waters and/or wetlands* on your project site. If no mitigation is planned, submit a detailed statement as to why no mitigation is planned. For projects requiring a LWB or VMRC tidal wetlands permit, please consult the VMRC Wetlands Mitigation-Compensation Policy and Supplemental Guidelines: 4 VAC 20-390 at http://www.mrc.virginia.gov/regulations/regindex.shtm.

(3) Wetland and waters boundary delineation map: Wetlands/waters delineations must be performed using the USACE "Wetland Delineation Manual, Technical Report Y-87-1, January 1987, Final Report" (Federal Manual) and if applicable, the current version of the Regional Supplement to the Corps of Engineers Wetlands Delineation Manual (Atlantic and Gulf Coastal Plain Region or Eastern Mountains and Piedmont Region. The SPGP applicant is required to provide a Corps-confirmed jurisdictional determination or Corps-confirmed delineation approved for use with a permit application, in accordance with the current SPGP (http://www.nao.usace.army.mil/Missions/Regulatory/RBregional.aspx). Contact the appropriate USACE District office or field office to obtain a delineation confirmation by referencing the Contact Information on the Regulatory web page at: http://www.nao.usace.army.mil/Missions/Regulatory.aspx or call the Regulator of the Day (ROD) at 757-201-7652. If a USACE confirmation is not available at the time of application, it must be submitted as soon as it becomes available during the DEQ permit review. For DEQ application purposes, the requirements for delineations apply to all applications, regardless of the amount of impacts. The information to be submitted is detailed in 9VAC25-210-80 B 1 h and is the same regardless of the type of VWP permit being sought.

(4) An analysis of the functions of wetlands, when required for DEQ permitting purposes, shall assess water quality or habitat metrics and shall be coordinated with DEQ in advance of conducting the analysis. For DEQ permitting purposes, please refer to the requirements in 9VAC25-210-80 C, which are the same regardless of the type of VWP permit being sought.

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FOR AGENCY USE ONLY	
	Notes:
JPA#	

APPLICANTS

PLEASE PRINT OR TYPE ALL ANSWERS. If a question does not apply to your project, please print N/A (not applicable) in the space provided. ***If additional space is needed, attach extra 8 ½ x 11 inch sheets of paper.***

Check all that apply			
☐ Pre-Construction Notification ☑ (PCN) NWP # 3, 13, 18 *(For Nationwide Permits ONLY - No DEQ-VWP permit writer will be assigned)*	☐ SPGP ☐ PASDO-PGP SELF VERIFICATION *(Replaces Regional Permit 17 (RP-17))*	☐ DEQ Reapplication Existing permit number: _____	☐ Receiving federal funds Agency providing funding: _____

PREVIOUS ACTIONS RELATED TO THE PROPOSED WORK (Include all federal, state, and local pre application coordination, site visits, previous permits, or applications whether issued, withdrawn, or denied)

Historical information for past permit submittals can be found online with VMRC - https://webapps.mrc.virginia.gov/public/habitat/ - or VIMS - http://ccrm.vims.edu/perms/newpermits.html

Agency	Action / Activity	Permit/Project number, including any non-reporting Nationwide permits previously used (e.g., NWP 13)	Date of Action	If denied, give reason for denial
City of Alexandria, USACE	Pre-application Meeting	N/A	December 12, 2025	

1. APPLICANT, AGENT, PROPERTY OWNER, AND CONTRACTOR INFORMATION
The applicant(s) is/are the legal entity to which the permit may be issued (see How to Apply at beginning of form). The applicant(s) can either be the property owner(s) or the person/people/company(ies) that intend(s) to undertake the activity. The agent is the person or company that is representing the applicant(s). If a company, please also provide the company name that is registered with the State Corporation Commission (SCC), or indicate no registration with the SCC.

Legal Name(s) of Applicant(s)			Agent (if applicable)		
Alex Haptemariam, P.E., CFM			Sean Bernheisel		
Mailing address			Mailing address		
2331 Mill Rd			12420 Milestone Center Drive Suite 150		
City	State	ZIP Code	City	State	ZIP Code
Alexandria	VA	22314	Germantown	MD	20876
Phone number w/area code	Fax		Phone number w/area code	Fax	
(703)746-3223			(717)682-6957		
Mobile	E-mail		Mobile	E-mail	
(703)822-1337	alex.haptemariam@alexandria.gov			sean.bernheisel@aecom.com	
State Corporation Commission Name and ID number (if applicable)			State Corporation Commission Name and ID number (if applicable)		

Certain permits or permit authorizations may be provided via electronic mail. If the applicant wishes to receive their permit via electronic mail, please provide an e-mail address here: _____

1. APPLICANT, AGENT, PROPERTY OWNER, AND CONTRACTOR INFORMATION (Continued)

Property owner(s) legal name, if different from applicant Alex Haptemariam (City of Alexandria)			Contractor, if known N/A		
Mailing address 2331 Mill Rd			Mailing address		
City Alexandria	State VA	ZIP code 22314	City	State	ZIP code
Phone number w/area code (703)746-3223	Fax		Phone number w/area code	Fax	
Mobile (703)822-1337	E-mail alex.haptemariam@alexandria.gov		Mobile	E-mail	
State Corporation Commission Name and ID number (if applicable)			State Corporation Commission Name ID number (if applicable)		

2. PROJECT LOCATION INFORMATION

(Attach a copy of a detailed map, such as a USGS topographic map or street map showing the site location and project boundary, so that it may be located for inspection. Include an arrow indicating the north direction. Include the drainage area if the SPGP box is checked on Page 7.)

Street Address (911 address if available) 3210 King Street, Alexandria, VA	City/County/ZIP Code 22303
Subdivision City of Alexandria Park Property (Chinquapin Park)	Lot/Block/Parcel # # 41.02-02-02

Name of water body(ies) within project boundaries and drainage area (acres or square miles).
Taylor Run (Watershed 333 acres)

Tributary(ies) to: Cameron Run and Hunting Creek
Basin: Potomac River Sub-basin: Cameron Run
(*Example: Basin: James River Sub-basin: Middle James River*)

Special Standards (based on DEQ Water Quality Standards 9VAC25-260 et seq.): _____

Project type (check one)
_____ Single user (private, non-commercial, residential)
X Multi-user (community, commercial, industrial, government)
_____ Surface water withdrawal

Latitude and longitude at center of project site (decimal degrees): 38.822209 / -77.081161
(Example: 37.33164/-77.68200)

USGS topographic map name: Alexandria

8-digit USGS Hydrologic Unit Code (HUC) for your project site (See http://cfpub.epa.gov/surf/locate/index.cfm): HUC10:02070010
If known, indicate the 10-digit and 12-digit USGS HUCs (see http://consapps.dcr.virginia.gov/htdocs/maps/HUExplorer.htm) :
HUC10:0207001003 HUC12:020700100302

Name of your project (*Example: Water Creek driveway crossing*) Taylor Run Stream Stabilization

Is there an access road to the project? ☑ Yes ☐ No. If yes, check all that apply: ☑ public ☐ private ☐ improved ☐ unimproved

Total size of the project area (in acres): _____

2. PROJECT LOCATION INFORMATION (Continued)

Provide driving directions to your site, giving distances from the best and nearest visible landmarks or major intersections:

From I-395 take Exit 5 for King Street (VA-7 East) toward Alexandria. Merge onto King Street East toward Old Town Alexandria. Continue on King Street for about 1.5-2 miles. Turn right into park entrance, Chinquapin Drive. The project is located along Taylor Run, within the limits of Chinquapin Park walking trail about 800 feet southwest of the parking lot.

Does your project site cross boundaries of two or more localities (i.e., cities/counties/towns)? ☐ Yes ☑ No

If so, name those localities:

3. DESCRIPTION OF THE PROJECT, PROJECT PRIMARY AND SECONDARY *PURPOSES*, PROJECT *NEED*, INTENDED USE(S), AND ALTERNATIVES CONSIDERED (Attach additional sheets if necessary)

- The purpose and need must include any new development or expansion of an existing land use and/or proposed future use of residual land.
- Describe the physical alteration of surface waters, including the use of pilings (#, materials), vibratory hammers, explosives, and hydraulic dredging, when applicable, and *whether or not tree clearing will occur* (include the area in square feet and time of year).
- Include a description of alternatives considered and measures taken to avoid or minimize impacts to surface waters, including wetlands, to the maximum extent practicable. Include factors such as, but not limited to, alternative construction technologies, alternative project layout and design, alternative locations, local land use regulations, and existing infrastructure
- For utility crossings, include both alternative routes and alternative construction methodologies considered
- For surface water withdrawals, public surface water supply withdrawals, or projects that will alter in stream flows, include the water supply issues that form the basis of the proposed project.

The Taylor Run Infrastructure Stabilization Design Project (Project) is located in the City of Alexandria,
Virginia. The goal of the project is to implement a 'minimal stabilization' approach to protect at-risk infrastructure and provide stream stabilization along approximately 265 linear feet of non-continuous stream necessary to provide long-term infrastructure protection. Proposed stabilization measures include constructing gravity retaining walls to stabilize stream banks and protect the exposed sanitary infrastructure, replacement of deteriorated outfall headwalls, encasement of exposed sanitary sewer pipes, establishment of a plunge at the start of the project reach, and install boulder cascades to dissipate energy through the project areas supporting long term stability and reduced project grading extents.

Date of proposed commencement of work (MM/DD/YYYY)	Date of proposed completion of work (MM/DD/YYYY)
03/01/2027	09/02/2027
Are you submitting this application at the direction of any state, local, or federal agency? x Yes ____ No City of Alexandria	Has any work commenced or has any portion of the project for which you are seeking a permit been completed? ____ Yes x No

If you answered "yes" to either question above, give details stating when the work was completed and/or when it commenced, who performed the work, and which agency (if any) directed you to submit this application. In addition, you will need to clearly differentiate between completed work and proposed work on your project drawings.

No work has begun.

Are you aware of any unresolved violations of environmental law or litigation involving the property? ____ Yes X No
(If yes, please explain)

4. PROJECT COSTS

Approximate cost of the entire project, including materials and labor: $ 650,000

Approximate cost of only the portion of the project affecting state waters (channelward of mean low water in tidal areas and below ordinary high water mark in nontidal areas): $ 200,000

5. PUBLIC NOTIFICATION (Attach additional sheets if necessary)

Complete information for all property owners adjacent to the project site and across the waterway, if the waterway is less than 500 feet in width. If your project is located within a cove, you will need to provide names and mailing addresses for all property owners within the cove. If you own the adjacent lot, provide the requested information for the first adjacent parcel beyond your property line. Per Army Regulation (AR 25-51) outgoing correspondence must be addressed to a person or business.

Failure to provide this information may result in a delay in the processing of your application by VMRC.

Property owner's name	Mailing address	City	State	ZIP code
FIRST BAPTIST CHURCH	2932 KING ST	ALEXANDRIA	VA	22302
REMSKI SARAH	1117 ROAN LN	ALEXANDRIA	VA	22302-3419
GOULD SUZANNE	1111 ROAN LN	ALEXANDRIA	VA	22302-3419
TRACY DAVID P OR LISA B	1105 ROAN LN	ALEXANDRIA	VA	22302-3419
SINCLAIR JOHN R TR JOHN R SINCLAIR TRUST	1101 ROAN LN	ALEXANDRIA	VA	22302-3419
CITY OF ALEXANDRIA (ALEXANDRIA CITY HIGH SCHOOL)	PO BOX 178	ALEXANDRIA	VA	22313-1500

Name of newspaper having general circulation in the area of the project: Alexandria Times

Address and phone number (including area code) of newspaper 908 King Street Suite 200 Alexandria VA 22314; (703)739-0001

Have adjacent property owners been notified with forms in Appendix A? _____Yes X No (attach copies of distributed forms)

6. THREATENED AND ENDANGERED SPECIES INFORMATION

Please provide any information concerning the potential for your project to impact state and/or federally threatened and endangered species (listed or proposed). Attach correspondence from agencies and/or reference materials that address potential impacts, such as database search results or confirmed waters and wetlands delineation/jurisdictional determination. Include information when applicable regarding the location of the project in Endangered Species Act-designated or -critical habitats. Contact information for the U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration, Virginia Dept. of Game and Inland Fisheries, and the Virginia Dept. of Conservation and Recreation-Division of Natural Heritage can be found on page 4 of this package.

7. HISTORIC RESOURCES INFORMATION

Note: Historic properties include but are not limited to archeological sites, battlefields, Civil War earthworks, graveyards, buildings, bridges, canals, etc. Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the USACE from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the USACE, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant.

Are any historic properties located within or adjacent to the project site? ____ Yes X No _____ Uncertain
If Yes, please provide a map showing the location of the historic property within or adjacent to the project site.

Are there any buildings or structures 50 years old or older located on the project site? ____ Yes X No _____ Uncertain
If Yes, please provide a map showing the location of these buildings or structures on the project site.

Is your project located within a historic district? ____ Yes X No ____ Uncertain

If Yes, please indicate which district: _____

7. HISTORIC RESOURCES INFORMATION (Continued)

Has a survey to locate archeological sites and/or historic structures been carried out on the property?
___ Yes ___ No _x_ Uncertain

If Yes, please provide the following information: Date of Survey: _____

Name of firm: _____

Is there a report on file with the Virginia Department of Historic Resources? ____ Yes ____ No X Uncertain

Title of Cultural Resources Management (CRM) report: _____

Was any historic property located? ____ Yes ____ No X Uncertain

8. WETLANDS, WATERS, AND DUNES/BEACHES IMPACT INFORMATION

Report each impact site in a separate column. If needed, attach additional sheets using a similar table format. Please ensure that the associated project drawings clearly depict the location and footprint of each numbered impact site. For dredging, mining, and excavating projects, use Section 17.

	Impact site number 1	Impact site number 2	Impact site number 3	Impact site number 4	Impact site number 5
Impact description (use all that apply): F=fill EX=excavation S=Structure T=tidal NT=non-tidal TE=temporary PE=permanent PR=perennial IN=intermittent SB=subaqueous bottom DB=dune/beach IS=hydrologically isolated V=vegetated NV=non-vegetated MC=Mechanized Clearing of PFO (*Example: F, NT, PE, V)*	See impact plate 4 PR PE TE F-Rip Rap	See impact plate 5 PR PE TE F-Rip Rap	See impact plate 6 PR PE TE F-Rip Rap	See impact plate 7 PR PE TE F-Rip Rap	
Latitude / Longitude (in decimal degrees)	38.833832, -77.081935	38.822347, -77.081365	38.821214, -77.080432	38.820650, -77.08064	
Wetland/waters impact area (square feet / acres)					
Dune/beach impact area (square feet)					
Stream dimensions at impact site (length and average width in linear feet, and area in square feet)	Temp: length (lf): 17 average width (lf): 3-6 area (sf): 396 Perm: length (lf): 16 average width (lf): 3-6 area (sf): 274	Temp: length (lf): 101 average width (lf): 3-6 area (sf): 2,040 Perm: length (lf): 40 average width (lf): 3-6 area (sf): 731	Temp: length (lf): 104 average width (lf): 3-6 area (sf): 1,507 Perm: length (lf): 87 average width (lf): 3-6 area (sf): 467	Temp: length (lf): 148 average width (lf): 3-6 area (sf): 2,251 Perm: length (lf): 51 average width (lf): 3-6 area (sf): 831	
Volume of fill below Mean High Water or Ordinary High Water (cubic yards)	393 CY	314 CY	64 CY	158 CY	

8. WETLANDS/WATERS IMPACT INFORMATION (Continued)					
Cowardin classification of impacted wetland/water or geomorphological classification of stream *Example wetland: PFO; Example stream: 'C' channel and if tidal, whether vegetated or non-vegetated wetlands per Section 28.2-1300 of the Code of Virginia*	R5UBH	R5UBH	R5UBH	R5UBH	
Average stream flow at site (flow rate under normal rainfall conditions in cubic feet per second) and method of deriving it (gage, estimate, etc.)	0.52 cfs baseflow, 191.11 cfs bankfull (H&H study)	0.52 cfs baseflow, 191.11 cfs bankfull (H&H study)	0.52 cfs baseflow, 191.11 cfs bankfull (H&H study)	0.52 cfs baseflow, 191.11 cfs bankfull (H&H study)	
Contributing drainage area in acres or square miles (*VMRC cannot complete review without this information*)	0.39 square miles	0.39 square miles	0.39 square miles	0.39 square miles	
DEQ classification of impacted resource(s): Estuarine Class II Non-tidal waters Class III Mountainous zone waters Class IV Stockable trout waters Class V Natural trout waters Class VI Wetlands Class VII https://law.lis.virginia.gov	Non-tidal waters Class III	Non-tidal waters Class III	Non-tidal waters Class III	Non-tidal waters Class III	
For DEQ permitting purposes, also submit as part of this section a wetland and waters boundary delineation map – see (3) in the Footnotes section in the form instructions.					
For DEQ permitting purposes, also submit as part of this section a written disclosure of all wetlands, open water, or streams that are located within the proposed project or compensation areas that are also under a deed restriction, conservation easement, restrictive covenant, or other land-use protective instrument.					

9. APPLICANT, AGENT, PROPERTY OWNER, AND CONTRACTOR CERTIFICATIONS

READ ALL OF THE FOLLOWING CAREFULLY BEFORE SIGNING

PRIVACY ACT STATEMENT: The Department of the Army permit program is authorized by Section 10 of the Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act, and Section 103 of the Marine Protection Research and Sanctuaries Act of 1972. These laws require that individuals obtain permits that authorize structures and work in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters prior to undertaking the activity. Information provided in the Joint Permit Application will be used in the permit review process and is a matter of public record once the application is filed. Disclosure of the requested information is voluntary, but it may not be possible to evaluate the permit application or to issue a permit if the information requested is not provided.

CERTIFICATION: I am hereby applying for permits typically issued by the DEQ, VMRC, USACE, and/or Local Wetlands Boards for the activities I have described herein. I agree to allow the duly authorized representatives of any regulatory or advisory agency to enter upon the premises of the project site at reasonable times to inspect and photograph site conditions, both in reviewing a proposal to issue a permit and after permit issuance to determine compliance with the permit.

In addition, I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

9. APPLICANT, AGENT, PROPERTY OWNER, AND CONTRACTOR CERTIFICATIONS (Continued)

Is/Are the Applicant(s) and Owner(s) the same? ☐ *Yes* ☐ *No*

Legal name & title of Applicant Alex Haptemariam, P.E, CFM	Second applicant's legal name & title, if applicable
Applicant's signature	Second applicant's signature
Date	Date
Property owner's legal name, if different from Applicant	Second property owner's legal name, if applicable
Property owner's signature, if different from Applicant	Second property owner's signature
Date	Date

CERTIFICATION OF AUTHORIZATION TO ALLOW AGENT(S) TO ACT ON APPLICANT'S(S') BEHALF (IF APPLICABLE)

I (we), Alex Haptemariam, P.E, CFM _____ (and) _____ ,
APPLICANT'S LEGAL NAME(S) – *complete the second blank if more than one Applicant*

hereby certify that I (we) have authorized Sean Bernheisel _____ (and) _____
AGENT'S NAME(S) – *complete the second blank if more than one Agent*

to act on my (our) behalf and take all actions necessary to the processing, issuance, and acceptance of this permit and any and all standard and special conditions attached. I (we) hereby certify that the information submitted in this application is true and accurate to the best of my (our) knowledge.

Applicant's signature	Second applicant's signature, if applicable
Date	Date
Agent's signature and title	Second agent's signature and title, if applicable
Date	Date

CONTRACTOR ACKNOWLEDGEMENT (IF APPLICABLE)

I (we), _____ (and) _____ ,
APPLICANT'S LEGAL NAME(S) – *complete the second blank if more than one Applicant*

have contracted _____ (and) _____
CONTRACTOR'S NAME(S) – *complete the second blank if more than one Contractor*

to perform the work described in this Joint Permit Application, signed and dated _____.

I (we) will read and abide by all conditions as set forth in all federal, state, and local permits as required for this project. I (we) understand that failure to follow the conditions of the permits may constitute a violation of applicable federal, state, and local statutes and that we will be liable for any civil and/or criminal penalties imposed by these statutes.
In addition, I (we) agree to make available a copy of any permit to any regulatory representative visiting the project site to ensure permit compliance. If I (we) fail to provide the applicable permit upon request, I (we) understand that the representative will have the option of stopping our operation until it has been determined that we have a properly signed and executed permit and are in full compliance with all of the terms and conditions.

Contractor's name or name of firm (printed/typed)	Contractor's or firm's mailing address	
Contractor's signature and title	Contractor's license number	Date
Applicant's signature	Second applicant's signature, if applicable	
Date	Date	



END OF GENERAL INFORMATION

The following sections are activity-specific. Fill out only the sections that apply to your particular project.

10. PRIVATE PIERS, MARGINAL WHARVES, AND UNCOVERED BOAT LIFTS

Regional Permit 17 (RP-17), authorizes the installation and/or construction of open-pile piers, mooring structures/devices, fender piles, covered boathouses/boatslips, boatlifts, osprey pilings/platforms, accessory pier structures, and certain devices associated with shellfish gardening, for private use, subject to strict compliance with all conditions and limitations further set out in the RP-17 enclosure located at http://www.nao.usace.army.mil/Missions/Regulatory/RBregional/. In addition to the information required in this JPA, prospective permittees seeking authorization under RP-17 must complete and submit the 'Regional Permit 17 Checklist' with their JPA. A copy of the 'Regional Permit 17 Checklist' is found in Appendix B of this application package. If the prospective permittee answers "yes" (or "N/A", where applicable) to all of the questions on the 'Regional Permit 17 Checklist', the permittee is in compliance with RP-17 and will not receive any other written authorization from the Corps but may not proceed with construction until they have obtained all necessary state and local permits. ***Note: If the prospective permittee answers "no" to any of the questions on the 'Regional Permit 17 Checklist' then their proposed structure(s) does not meet the terms and conditions of RP-17 and written authorization from the Corps is required before commencement of any work.***

If the prospective permittee answers "no" to any of the questions on the 'Regional Permit 17 Checklist' then their proposed structure(s) does not meet the terms and conditions of RP-17 and written authorization from the Corps is required before commencement of any work. In those circumstances, the following information must be included in the application and/or on the drawings in order for the application to be considered complete:

1. The applicant **MUST** provide written justification/need for the encroachment if the proposed structure(s) will extend greater than one-fourth of the distance across the waterway measured from either mean high water to mean high water (including all channelward wetlands) or ordinary high water to ordinary high water (including all channelward wetlands). The measurement should be based on the narrowest distance across the waterway regardless of the orientation of the proposed structure(s).
2. The applicant **MUST** provide written justification/need if the proposed structure(s) is greater than five (5) feet wide or there will be less than four (4) feet elevation between the decking and the vegetated wetlands substrate.
3. The Corps **MAY** require depth soundings across the waterway at increments designated by the Corps project manager. Inclusion of depth sounding data in the original JPA submittal is highly recommended in order to expedite permit evaluation. Depth soundings are typically taken at 10-foot increments for waterways less than 200 feet wide and 20-foot increments for waterways greater than 200 feet wide. Please include the date and time the measurements were taken, whether the data was collected at mean low water (MLW) or MHW, and how the soundings were taken (e.g., tape, range finder, etc.).

Number of vessels to be moored at the pier or wharf: _____	Do you have an existing pier on your property? ____Yes____ No If yes, will it be removed? ____Yes ____No Is your lot platted to the mean low water shoreline? ____Yes ____No

In the spaces provided below, give the type (e.g., sail, power, skiff, etc.), size, and registration number of the vessel(s) to be moored

TYPE	LENGTH	WIDTH	DRAFT	REGISTRATION #

11. BOATHOUSES, GAZEBOS, COVERED BOAT LIFTS, AND OTHER ROOFED STRUCTURES OVER WATERWAYS

Number of vessels to be moored at the proposed structure: _____	Will the sides of the structure be enclosed? _____Yes _____No Area covered by the roof structure _____ square feet

In the spaces provided below, give the type (e.g., sail, power, skiff, etc.), size, and registration number of the vessel(s) to be moored

TYPE	LENGTH	WIDTH	DRAFT	REGISTRATION #

12. MARINAS AND COMMERCIAL, GOVERNMENTAL, AND COMMUNITY PIERS

Have you obtained the Virginia Department of Health's approval for sanitary facilities? _____Yes _____No
You will need to obtain this authorization or a variance before a VMRC permit will be issued.

Will petroleum products or other hazardous materials be stored or handled at the facility? _____Yes _____No
If your answer is yes, please attach your spill contingency plan.

Will the facility be equipped to off-load sewage from boats? _____Yes _____No

EXISTING: wet slips: _____ dry storage: _____	*PROPOSED:* wet slips: _____ dry storage: _____

13. FREE STANDING MOORING PILES, OSPREY NESTING POLES, MOORING BUOYS, AND DOLPHINS (not associated with piers)

Number of vessels to be moored: _____	Type and number of mooring(s) proposed: _____

In the spaces provided below, give the type (e.g., sail, power, skiff, etc.), size, and registration number of the vessel(s) to be moored

TYPE	LENGTH	WIDTH	DRAFT	REGISTRATION #

Give the name and complete mailing address(es) of the owner(s) of the vessel(s) if not owned by applicant (attach extra sheets if needed):

Do you plan to reach the mooring from your own upland property? _____Yes _____No
If "no," explain how you intend to access the mooring.

14. BOAT RAMPS

Will excavation be required to construct the boat ramp? _____Yes _____No. If "yes," will any of the excavation occur below the plane of the ordinary high water mark/mean high water line or in wetlands? _____Yes _____No. If "yes," you will need to fill out Section 17 for this excavation.
Where will you dispose of the excavated material?

_____

What type of design and materials will be used to construct the ramp (open pile design with salt treated lumber, concrete slab on gravel bedding, etc.)?

Location of nearest public boat ramp	Driving distance to that public ramp _____miles

Will other structures be constructed concurrent with the boat ramp installation? _____Yes _____No
If "yes," please fill out the appropriate sections of this application associated with those other activities.

15. TIDAL/NONTIDAL SHORELINE STABILIZATION STRUCTURES (INCLUDING BULKHEADS AND ASSOCIATED BACKFILL, RIPRAP REVETMENTS AND ASSOCIATED BACKFILL, MARSH TOE STABILIZATION, GROINS, JETTIES, AND BREAKWATERS, ETC.) Information on non structural, vegetative alternatives (i.e., Living Shoreline) for shoreline stabilization is available at http://ccrm.vims.edu/coastal_zone/living_shorelines/index.html.

Is any portion of the project maintenance or replacement of an existing and currently serviceable structure? _____Yes _____No
If yes, give length of existing structure: _____ linear feet

If your maintenance project entails replacement of a bulkhead, is it possible to construct the replacement bulkhead within 2 feet channelward of the existing bulkhead? _____Yes _____No If not, please explain below:

Length of proposed structure, including returns: _____linear feet

Average channelward encroachment of the structure from Mean high water/ordinary high water mark: _____ feet Mean low water: _____feet	*Maximum* channelward encroachment of the structure from Mean high water/ordinary high water mark: _____ feet Mean low water: _____feet
Maximum channelward encroachment form the back edge of the Dune _____feet	*Maximum* channelward encroachment from the back edge of the Beach _____feet

Describe the type of construction including all materials to be used (including all fittings). Will filter cloth be used? ____Yes ____No

What is the source of the backfill material? _____

What is the composition of the backfill material? _____

If rock is to be used, give the average volume of material to be used for every linear foot of construction: _____cubic yards
What is the volume of material to be placed below the plane of ordinary high water mark/mean high water? _____cubic yards

For projects involving stone:
Average weight of core material (bottom layers): _____pounds per stone (Class_____)
Average weight of armor material (top layers): _____pounds per stone (Class_____)

Are there similar shoreline stabilization structures in the vicinity of your project site? _____Yes _____No
If so, describe the type(s) and location(s) of the structure(s):

If you are building a groin or jetty, will the channelward end of the structure be marked to show a hazard to navigation? _____Yes _____No	Has your project been reviewed by the Shoreline Erosion Advisory Service (SEAS)? _____Yes _____No If yes, please attach a copy of their comments.

16. BEACH NOURISHMENT

Source of material and composition (percentage sand, silt, clay): _____	Volume of material: _____cubic yards

Area to be covered _____ square feet channelward of mean low water _____square feet channelward of mean high water

_____ square feet landward of mean low water _____square feet channelward of mean high water

Mode of transportation of material to the project site (truck, pipeline, etc.):

16. BEACH NOURISHMENT (Continued)

Describe the type(s) of vegetation proposed for stabilization and the proposed planting plan, including schedule, spacing, monitoring, etc. Attach additional sheets if necessary.

17. DREDGING, MINING, AND EXCAVATING

FILL OUT THE FOLLOWING TABLE FOR DREDGING PROJECTS

	NEW dredging				**MAINTENANCE dredging**			
	Hydraulic		Mechanical (clamshell, dragline, etc.)		Hydraulic		Mechanical (clamshell, dragline, etc.)	
	Cubic yards	Square feet	Cubic yards	Square feet	Cubic yards	Square feet	Cubic yards	Square feet
Vegetated wetlands								
Non-vegetated wetlands								
Subaqueous land								
Totals								

Is this a one-time dredging event? ☐ Yes _____ No If "no", how many dredging cycles are anticipated: _____
(____ initial cycle in cu. yds.) (_____ subsequent cycles in cu. yds.)

Composition of material (percentage sand, silt, clay, rock):
Provide documentation (i.e., laboratory results or analytical reports) that *dredged* material from on-site areas is free of toxics. If not free of toxics, provide documentation of proper disposal (i.e., bill of lading from commercial supplier or disposal site).

Please include a dredged material management plan that includes specifics on how the dredged material will be handled and retained to prevent its entry into surface waters or wetlands. If on-site dewatering is proposed, please include plan view and cross-sectional drawings of the dewatering area and associated outfall.

Will the dredged material be used for any commercial purpose or beneficial use? _____Yes _____No
If yes, please explain:

If this is a maintenance dredging project, what was the date that the dredging was last performed? _____
Permit number of original permit: _____ *(It is important that you attach a copy of the original permit.)*

17. DREDGING, MINING, AND EXCAVATING (Continued)

For mining projects: On separate sheets of paper, explain the operation plans, including: 1) the frequency (e.g., every six weeks), duration (i.e., April through September), and volume (in cubic yards) to be removed per operation; 2) the temporary storage and handling methods of mined material, including the dimensions of the containment berm used for upland disposal of dredged material and the need (or no need) for a liner or impermeable material to prevent the leaching of any identified contaminants into ground water; 3) how equipment will access the mine site; and 4) verification that dredging: a) will not occur in water body segments that are currently on the effective Section 303(d) Total Maximum Daily Load (TMDL) priority list (available at http://www.deq.virginia.gov/Programs/Water/WaterQualityInformationTMDLs/TMDL/TMDLDevelopment/TMDLProgramPriorities.aspx) or that have an approved TMDL; b) will not exacerbate any impairment; and c) will be consistent with any waste load allocation/limit/conditions imposed by an approved TMDL (see, "What's in my backyard" or subsequent spatial files at http://www.deq.virginia.gov/ConnectWithDEQ/VEGIS.aspx to determine the extent of TMDL watersheds and impairment segments).

Have you applied for a permit from the Virginia Department of Mines, Minerals and Energy? _____Yes _____No If Yes:
Existing permit number:_____ Date permit issued: _____

Contributing drainage area: _____square miles	Average stream flow at site (flow rate under normal rainfall conditions): _____cfs

18. FILL (not associated with backfilled shoreline structures) AND OTHER STRUCTURES (other than piers and boathouses) IN WETLANDS OR WATERS, OR ON DUNES/BEACHES

Source and composition of fill material (percentage sand, silt, clay, rock):

Rip rap/boulder/block wall

Provide documentation (i.e., laboratory results or analytical reports) that *fill* material from *off-site* locations is free of toxics. If not free of toxics, provide documentation of proper disposal (i.e., bill of lading from commercial supplier or disposal site). Documentation is not necessary for fill material obtained from on-site areas.

Explain the purpose of the filling activity and the type of structure to be constructed over the filled area (if any):

Proposed stabilization measures include constructing gravity retaining walls to stabilize stream banks and protect the exposed sanitary infrastructure, replacement of deteriorated outfall headwalls, encasement of exposed sanitary sewer pipes, establishment of a plunge and install boulder cascades to dissipate energy through the project areas supporting long term stability and reduced project grading extents.

Describe any structure that will be placed in wetlands/waters or on a beach dune and its purpose:

See above

Will the structure be placed on pilings? ____ Yes x ____ No	Total area occupied by any structure. 4,388 _____ Square Feet total sf new rip rap in WUS
How far will the structure be placed channelward from the back edge of the dune? _____feet	How far will the structure be placed channelward from the back edge of the beach? _____feet

19. NONTIDAL STREAM CHANNEL MODIFICATIONS FOR RESTORATION OR ENHANCMENT, or TEMPORARY OR PERMANENT RELOCATIONS

If proposed activities are being conducted for the purposes of compensatory mitigation, please attach separate sheets of paper providing all information required by the most recent version of the stream assessment methodology approved by the Norfolk District of the U.S. Army Corps of Engineers and the Virginia Department of Environmental Quality, in lieu of completing the questions below. Required information outlined by the methodology can be found at:
http://www.nao.usace.army.mil/Missions/Regulatory/UnifiedStreamMethodology.aspx *or*
http://www.deq.virginia.gov/Programs/Water/WetlandsStreams/Mitigation.aspx.

For all projects proposing stream restoration provide a completed Natural Channel Design Review Checklist and Selected Morphological Characteristics form. These forms and the associated manual can be located at:
https://www.fws.gov/chesapeakebay/StreamReports/NCD%20Review%20Checklist/Natural%20Channel%20Design%20Checklist%20Doc%20V2%20Final%2011-4-11.pdf

Has the stream restoration project been designed by a local, state, or federal agency? ____ Yes ____ No. If yes, please include the name of the agency here: _____.

Is the agency also providing funding for this project? _____ Yes _____ No

Stream dimensions at impact site (length and average width in linear feet, and area in square feet):
L: _____(feet) AW:_____ (feet) Area:_____ (square feet)

Contributing drainage area: _____acres *or* _____square miles

19. NONTIDAL STREAM CHANNEL MODIFICATIONS FOR RESTORATION OR ENHANCMENT, or TEMPORARY OR PERMANENT RELOCATIONS (Continued) **19. NONTIDAL STREAM CHANNEL MODIFICATIONS FOR RESTORATION OR ENHANCMENT, or TEMPORARY OR PERMANENT RELOCATIONS (Continued)19. NONTIDAL STREAM CHANNEL MODIFICATIONS FOR RESTORATION OR ENHANCMENT, or TEMPORARY OR PERMANENT RELOCATIONS (Continued)**

Existing average stream flow at site (flow rate under normal rainfall conditions): _____cfs	Proposed average stream flow at site after modifications (flow rate under normal rainfall conditions): _____cfs

Explain, in detail, the method to be used to stabilize the banks:

Explain the composition of the existing stream bed (percent cobble, rock, sand, etc.):

Will low-flow channels be maintained in the modified stream channel? _____Yes _____No.
Describe how:

Will any structure(s) be placed in the stream to create riffles, pools, meanders, etc.? _____Yes _____No
If yes, please explain:

20. UTILITY CROSSINGS

Type of crossing: _____overhead _____trenched _____directionally-drilled

Method of clearing corridor of vegetation (check all that apply): ☐ mechanized land clearing that disturbs the soil surface
☐ cutting vegetation above the soil surface

Describe the materials to be used in the installation of the utility line (including gravel bedding for trenched installations, bentonite slurries used during direction-drilling, etc.) and a sequence of events to detail how the installation will be accomplished (including methods used for in-stream and dry crossings).

Will the proposed utility provide empty conduits for any additional utilities that may propose to co-locate at a later date? ____Yes ____ No.

For overhead crossings over navigable waterways (including all tidal waterways), please indicate the height of other overhead crossings or bridges over the waterway relative to mean high water, mean low water, or ordinary high water mark:

Nominal system voltage, if project involves power lines: _____

Total number of electrical circuits: _____

20. UTILITY CROSSINGS (Continued)

Will there be an excess of excavated material? _____Yes _____No
If so, describe the method that will be undertaken to dispose of, and transport, the material to its permanent disposal location and give that location:

Will any excess material be stockpiled in wetlands? _____Yes _____No
If so, will the stockpiled material be placed on filter fabric or some other type of impervious surface? _____Yes _____No

Will permanent access roads be placed through wetlands/streams? ____Yes _____No
If yes, will the roads be (check one) ☐ at grade ☐ above grade?

Will the utility line through wetlands/waters be continually maintained (e.g. via mowing or herbicide)? ____Yes _____No
If maintained, what is the maximum width? _____feet

21. ROAD CROSSINGS

Have you conducted hydraulic studies to verify the adequacy of the culverts? _____Yes _____No
If so, please attach a copy of the hydraulic study/report.
Virginia Department of Transportation (VDOT) standards require that the backwater for a 100 year storm not exceed 1 foot for all road, culvert, and bridge projects within FEMA-designated floodplains. Virginia Department of Environmental Quality (DEQ) requires pipes and culverts 24 inches or less in diameter to be countersunk three inches below the natural stream bed elevations, and pipes and culverts greater than 24 inches to be countersunk at least six inches below the natural stream bed elevations. Hydraulic capacity is determined based on the reduced capacity due to the countersunk position.

Will the culverts be countersunk below the stream bottom? _____Yes _____No. If no, explain:

If the project entails a bridged crossing and there are similar crossings in the area, what is the vertical distance above mean high water, mean low water, or ordinary high water mark of those similar structures? _____feet above _____
For all bridges proposed over navigable waterways (including all tidal water bodies), you will be required to contact the U.S. Coast Guard to determine if a permit is required of their agency.

On separate sheets of paper, describe the materials to be used, the method of construction (including the use of cofferdams), the sequence of construction events, and if bedrock conditions may be encountered. Include cross-sections and profile plans of the culvert crossings including wing walls or rip rap.

22. IMPOUNDMENTS, DAMS, AND STORMWATER MANAGEMENT FACILITIES
If the impoundment or dam is a component of a water withdrawal project, also complete Sections 24 through 26.

Will the proposed impoundment, dam, or stormwater management facility be used for agricultural purposes (e.g., in the operation of a farm)? For DEQ permitting purposes, a farm is considered to be a property or operation that produces goods for market.
___ Yes ___ No

What type of materials will be used in the construction (earth, concrete, rock, etc.)? _____

What is the source of these materials? _____

Provide the dimensions of proposed impoundment, dam, or stormwater management facility, including the height and width of all structures.

Storage capacity* of impoundment: _____acre-feet *should be given for the normal pool of recreational or farm ponds, or design pool for stormwater management ponds or reservoirs (the elevation the pond will be at for the design storm, e.g., 10-year, 24-hour storm)	Surface area** of impoundment: _____acres **should be given for the normal pool of recreational or farm ponds, or design pool for stormwater management ponds or reservoirs (the elevation the pond will be at for the design storm, e.g., 10-year, 24-hour storm)

22. IMPOUNDMENTS, DAMS, AND STORMWATER MANAGEMENT FACILITIES (Continued)

Is the proposed project excluded from the Virginia Dam Safety Regulations? ___ Yes ___ No ___ Uncertain

If not excluded, does your proposed project comply with the Virginia Dam Safety Regulations? ___ Yes ___ No ___ Uncertain

Does the proposed design include a vegetation management area per §10.1-609.2? ___ Yes ___ No ___ Uncertain
If your answer to these questions is no or uncertain, you should contact the Virginia Department of Conservation and Recreation's Dam Safety Program at (804) 371-6095, or reference the regulations on the Web at
http://www.dcr.virginia.gov/dam_safety_and_floodplains/index.shtml

For stormwater management and flood control facilities:

Design storm event: _____year storm Retention time: _____hours

Current average flow (flow rate under normal rainfall conditions): _____cfs

Method used to derive average flow: _____

Proposed peak outflow for the design storm provided above: _____cfs

Has the facility been designed as an Enhanced Extended Detention Basin or an Extended Detention Basin in accordance with the Minimum Standard 3.07 of the Virginia Stormwater Management Handbook, Volume I (published by the Virginia Department of Conservation and Recreation, 1999), or in accordance with the latest version of this handbook? _____Yes _____No

Will the impoundment structure be designed to pass a minimum flow at all times? _____Yes _____No

If so, please give the minimum rate of flow: _____cfs

What is the drainage area upstream of the proposed impoundment? _____square miles

How much of your proposed impoundment structure will be located on the stream bed? _____square feet

What is the area of vegetated wetlands that will be excavated and/or back-flooded by the impoundment? _____ square feet

What is the *area and length* of streambed that will be excavated and/or back-flooded by the impoundment? _____ square feet
_____ linear feet

Are fish ladders being proposed to accommodate the passage of fish? _____Yes _____No

23. OUTFALLS NOT ASSOCIATED WITH PROPOSED WATER WITHDRAWAL ACTIVITIES

Type and size of pipe(s): _____

Daily rate of discharge: _____mgd

If the discharge will be thermally-altered, provide the maximum temperature: _____

Contributing drainage area: _____square miles Average daily stream flow at site:_____cfs

Have you received a Virginia Discharge Elimination System (VPDES) permit for the proposed project? ___ Yes ___ No.

If yes, please provide the VPDES permit number: _____.

If no, is there a permit action pending? ___ Yes ___ No. If pending, what is the facility name? _____.

The following sections are typically related to surface water withdrawal activities; Federal Energy Regulatory Commission license projects; or impacts likely to require instream flow limits. Examples of such projects include, but are not limited to, reservoirs, irrigation projects, power generation facilities, and public water supply facilities that may or may not have associated features, such as dams, intake pipes, outfall structures, berms, etc.

If completing these sections, enter "N/A" in any section that does not apply to the project.

24. INTAKES, OUTFALLS, AND WATER CONTROL STRUCTURES (INCLUDING ALL PROPOSED WATER WITHDRAWAL ACTIVITIES)

For intakes:

Type and size of pipe(s): _____

Type and size of pump(s): _____

Average and Maximum daily rate of withdrawal: _____ and _____ mgd

Velocity of withdrawal: _____ fps

Screen mesh size:_____ inches / _____ mm

If other sizing units, please specify:

_____

Contributing drainage area at withdrawal point(s):

_____ square miles

Average daily stream flow at withdrawal point(s) (flow rate under normal rainfall conditions): _____ cfs

Method(s) used to derive average daily stream flow

_____

Average annual stream flow at withdrawal point(s):

_____ cfs

Latitude and longitude of withdrawal point(s) (degrees, minutes, seconds): _____

For outfalls:

Type, size, and hydraulic capacity (under normal conditions) of pipe(s): _____, _____, and _____

Daily rate of discharge: _____ mgd

If the discharge will be thermally-altered, provide the maximum temperature: _____

Contributing drainage area at discharge point(s):

_____ square miles

Average daily stream flow at discharge point(s) (flow rate under normal rainfall conditions): _____cfs

Method(s) used to derive average daily stream flow

_____

Latitude and longitude of discharge point(s) (degrees, minutes, seconds): _____

For intakes and dams, use the table below to provide the <u>median</u> monthly stream flows in cubic feet per second (cfs) at the water intake or dam site (not at the stream gage; if there is not a gage at the intake or dam site, you will need to interpolate flows to the intake or dam site based upon the most closely related watershed in which there is an operational stream gage monitored by the United States Geologic Survey (USGS)). Median flow is the value at which half of the measurements are above and half of the measurements are below. Median is also sometimes referred to as the '50% exceedence flow'. The median flow generally must be calculated from USGS historical data. Please do not provide *mean (average)* flow.

Month	Median flow (cfs)	Month	Median flow (cfs)
January		July	
February		August	
March		September	
April		October	
May		November	
June		December	

24. INTAKES, OUTFALLS, AND WATER CONTROL STRUCTURES (Continued)

Describe the stream flow gages used, USGS stream flow gage site number and site name (e.g., USGS 01671100 Little River near Doswell, VA), the type of calculations used (such as drainage area correction factors), and the period of record that was used to calculate the median flows provided in the table above. Generally, the period of record should span a minimum of 30 years.

For interbasin transfer of water resources proposed from either the Chowan River, New River, Potomac River, Roanoke River, Big Sandy River, or Tennessee River basins to another river basin, provide the following information:

Destination location (discharge point) of the transfer:
8-digit USGS Hydrologic Unit Code (HUC) (See http://cfpub.epa.gov/surf/locate/index.cfm): _____ If known, indicate the 10-digit and 12-digit USGS HUCs (see http://consapps.dcr.virginia.gov/htdocs/maps/HUExplorer.htm):

_____ _____

Latitude and Longitude: _____- _____- _____/ _____- _____- _____

Provide any available historical low-flows at the intake or dam site.

Describe how the proposed withdrawal at the intake or dam site will impact stream flows in terms of rates, volumes, frequency, etc. (e.g., percent of the flow to be withdrawn, percent of withdrawal returned to the original source, etc.).

Describe how the withdrawal of water will vary over time. For example, will the withdrawal vary by the time of year, by the time of day, or by the time of week? Examples of projects that should describe variable withdrawals include, but are not limited to: power plant cooling withdrawals that increase and decrease seasonally; golf course irrigation; municipal water supply; nurseries; ski resorts that use water for snowmaking; and resorts with weekend or seasonal variations.

24. INTAKES, OUTFALLS, AND WATER CONTROL STRUCTURES (Continued)

Provide the amount of water that will be lost due to consumptive use. For the purpose of this application, consumptive use means the withdrawal of surface waters without recycling of said waters to their source or basin of origin. Examples of consumptive uses are water that is evaporated in cooling towers or by other means in power plants; irrigation water (all types); residential water use that takes place outside of the home; and residential water use both inside and outside of homes for residences served by septic systems. Projects that propose a transfer of water from one river basin to another and/or localities that sell water to other jurisdictions, should document the portion of the withdrawal that is not returned to the originating watershed.

Proposed monthly consumptive volume (million gallons): _____

Attach a map showing the *location* of the withdrawal and of the return of flow, and provide the *amount* of the return flow (million gallons).

For withdrawals proposed on an impoundment, provide a description of flow or release control structures. Include type of structure, rate of flow, size, capacity, invert elevation of outfall pipes referenced to the normal pool elevation, and the mechanism used to control release. Provide a description of available water storage facilities. Include the volume, depth, normal pool elevation, unusable storage volume and dimensions. If applicable, stage-storage relationship at the impounding structure (the volume of water in the impoundment at varying stages of water depth) and volume or rate of withdrawals from the storage facility.

25. WATER WITHDRAWAL USE(S), NEED, AND ALTERNATIVES *(Attach additional sheets if needed.)*

Describe the proposed use(s) and need for the surface water and information on how demand for surface water was determined. *Golf courses* must provide documentation to justify the amount of water withdrawal, such as the amount of acreage under irrigation, the acreage of fairways versus greens, type of turf grass, evapotranspiration, and irrigation efficiency. *Agricultural* users must supply documentation justifying their requested withdrawal amount, such as type of crop, livestock, or other agriculture animal, number of animals, watering needs, acres irrigated, inches of water applied, and frequency of application. *Other users* of withdrawals for purposes other than those described above must provide sufficient documentation to justify the requested withdrawal amounts.

25. WATER WITHDRAWAL USE(S), NEED, AND ALTERNATIVES (Continued)

Provide the following information at the water intake or dam site. Specify the units of measurement (e.g., million gallons per day, gallons per minute, cubic feet per second, etc.).

Proposed maximum instantaneous withdrawal _____

Proposed average daily withdrawal _____

Proposed maximum daily withdrawal _____

Proposed maximum monthly withdrawal _____

Proposed maximum annual withdrawal _____

Describe how the above withdrawals were calculated, including the relevant assumptions made in that calculation and the documentation or resources used to support the calculations, such as population projections, population growth rates, per-capita use, new uses, changes to service areas, and if applicable, evapotranspiration data and irrigation data.

For surface water withdrawals, public water supply withdrawals, and projects that will alter instream flows, provide information to establish the local water supply need. Attach additional sheets if needed.

EXISTING	PROJECTED
Existing supply sources, yields, and demands: _____ Peak day withdrawal: _____ Average daily withdrawal: _____ Safe yield: _____ Lowest daily flow of record: _____ Types of water uses (residential, public water supply, commercial, industrial, agricultural): _____ Existing water conservation measures and drought response plan, including what conditions trigger implementation: _____	Projected demands over a minimum 30-year planning period: _____ Projected demands in local or regional water supply plan (9VAC25-780 et seq.) or demand for the project service area, if that is smaller in area: _____ Statistical population (growth) trends: _____ Projected demands by type of water use: _____ Projected demands without water conservation measures: _____ Projected demands with long-term water conservation measures: _____

For surface water withdrawals other than public water supply, provide information or documentation that demonstrates alternate sources of water are available for the proposed project during times of reduced instream flow.

25. WATER WITHDRAWAL USE(S), NEED, AND ALTERNATIVES (Continued)

Provide information from the State Water Resources Plan (http://www.deq.virginia.gov/Programs/Water/WaterSupplyWaterQuantity/WaterSupplyPlanning/StateWaterResourcesPlan.aspx) and the local or regional water supply plan that covers the area in which the proposed water withdrawal project is located (http://www.deq.virginia.gov/Portals/0/DEQ/Water/WaterSupplyPlanning/SWRP%20Final/App%20A%20Water%20Supply%20Plans%20and%20Participating%20Localities.pdf). Include information from the plan that pertains to projected demand, analysis of alternatives, and water conservation measures. Discuss any discrepancies between the water supply plan and the proposed project. For projects that propose a transfer of water resources from the Chowan River, New River, Potomac River, Roanoke River, Big Sandy River, or Tennessee River basins to another river basin, information should be provided from the water supply plans for both the source and receiving basins. Attach additional sheets if needed.

Provide an alternatives analysis for the proposed water withdrawal project, including the required range of alternatives to be analyzed; a narrative outlining the opportunities and status of regional efforts undertaken; and the criteria used to evaluate each alternative. The analysis must address all of the criteria contained in 9VAC25-360.

Describe any existing, flow-dependent beneficial uses along the affected stream reach. Include both instream and offstream uses. Describe the stream flow necessary to protect existing beneficial uses, how the proposed withdrawal will impact existing beneficial uses, and any measures proposed to mitigate any adverse impacts that may arise. For projects that propose a transfer of water resources from the Chowan River, New River, Potomac River, Roanoke River, Big Sandy River, or Tennessee River basins to another river basin, this analysis should include both the source and receiving basins. For the purposes of this application, beneficial instream uses include, but are not limited to, the protection of fish and wildlife habitat; maintenance of waste assimilation; recreation; navigation; and cultural and aesthetic values. Offstream beneficial uses include, but are not limited to, domestic uses (including public water supply); agricultural uses; electric power generation; commercial uses; and industrial uses.

Describe the aquatic life known to be present along the affected stream reach. Describe aquatic life that may be impacted by the proposed water withdrawal. Include the species' habitat requirements. For projects that propose a transfer of water resources from either the Chowan River, New River, Potomac River, Roanoke River, Big Sandy River, or Tennessee River basins to another river basin, this analysis should include both the source and receiving basins.

26. PUBLIC COMMENTS/ISSUES FOR MAJOR WATER WITHDRAWALS OR INTERBASIN TRANSFERS

For new or expanded surface water supply projects, use separate sheets of paper to summarize the steps taken to seek public input per 9VAC25-210-320, and identify the issues raised during the public information process.

For transfer of water resources proposed from either the Chowan River, New River, Potomac River, Roanoke River, Big Sandy River, or Tennessee River basins to another river basin, if public input was not required per 9VAC25-210-320, summarize on separate sheets of paper any coordination and/or notice provided to the public, local/state government, and interested parties in the affected river basins and identify any issues raised.

APPENDIX A

Adjacent Property Owner's Acknowledgement Form

I, _____, own land next to/ across the water from/ in the same cove
(print adjacent property owner's name)

as the land of _____.
(print applicant's name)

I have reviewed the applicant's project drawings dated _____ to be submitted for all
(date of drawings)

necessary federal, state, and local permits.

_____ I have no comment regarding the proposal

_____ I do not object to the proposal

_____ I object to the proposal

The applicant has agreed to contact me for additional comments if the proposal changes prior to construction of the project.

(Before signing this form, please be sure that you have checked the appropriate option above)

_____
Adjacent property owner's signature

_____
Date

NOTE: IF YOU OBJECT TO THE PROPOSAL, THE REASON(S) YOU OPPOSE THE PROJECT MUST BE SUBMITTED TO VMRC IN WRITING. AN OBJECTION WILL NOT NECESSARILY RESULT IN A DENIAL OF A PERMIT FOR THE PROPOSED WORK. HOWEVER, VALID COMPLAINTS WILL BE GIVEN FULL CONSIDERATION DURING THE PERMIT REVIEW PROCESS.

APPENDIX A

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DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, NORFOLK DISTRICT

23-SPGP-PASDO SELF-VERIFICATION FORM

CATEGORY A PIER STRUCTURES

Expires: August 21, 2028

Please review the 23-SPGP-PASDO before completing this form. This can only be used for proposed PRIVATE USE structures that comply with the terms and conditions of the 23-SPGP-PASDO located on the Corps website: https://www.nao.usace.army.mil/Missions/Regulatory/RBregional/ .

1. Has the permittee reviewed the 23-SPGP-PASDO and verified that the proposed structures are in compliance with all the terms, conditions, and limitations of 23-SPGP-PASDO?
   ☐ YES ☐ NO
2. Are the proposed structures for private use only?
   ☐ YES ☐ NO
3. To avoid adverse effects to navigation, do the proposed structures extend no more than one-fourth of the distance across the waterway measured from either mean high water (MHW) to MHW (including all channelward wetlands) or ordinary high water (OHW) to OHW (including all channelward wetlands)?
   ☐ YES ☐ NO
4. If the proposed structures cross wetland vegetation, are they an open-pile design that has a maximum width of five (5) feet and a minimum height of four (4) feet between the decking and the wetland substrate?
   ☐ YES ☐ NO ☐ N/A
5. Do the proposed structures include no more than two (2) lifts and no more than two (2) boat slips?
   ☐ YES ☐ NO ☐ N/A
6. Is the open-sided roof structure designed to shelter a boat no more than 700 square feet and/or is the open-sided roof structure or gazebo structure designed to shelter a pier no more than 400 square feet?
   ☐ YES ☐ NO ☐ N/A
7. Are all piles associated with the proposed structure non-steel, no more than 12” in diameter, and will there be no more than 25 piles installed channelward of MHW?
   ☐ YES ☐ NO
8. When operationally feasible, is all work occurring behind cofferdams, turbidity curtains, or other methods used to control turbidity?
   ☐ YES ☐ NO
9. If the proposed structures are to be located within an anadromous fish use area, will the prospective permittee adhere to the anadromous fish use area time of year restriction (TOYR) prohibiting in-water work from occurring between February 15 through June 30 of any given year if 1) piles are to be installed with a cushioned impact hammer and there are fewer than 492 feet between the most channelward pile and mean low water (MLW) on the opposite shoreline; or 2) piles are to be installed with a vibratory hammer and there are fewer than 384 feet between the most channelward pile and MLW on the opposite shoreline? https://services.dwr.virginia.gov/fwis/ .
   ☐ YES ☐ NO ☐ N/A
10. Is all work occurring outside of submerged aquatic vegetation (SAV) mapped by the Virginia Institute of Marine Sciences’ (VIMS) most recent survey year and 5-year composite? https://mobjack.vims.edu/sav/savwabmap/
    ☐ YES ☐ NO
11. Has the permittee ensured the construction of the proposed structures will not affect federally listed threatened or endangered species or designated critical habitat?
    NOAA PRD: https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-consultations-greater-atlantic-region ; and
    US Fish and Wildlife Service: https://ipac.ecosphere.fws.gov/
    ☐ YES ☐ NO

12. Will the proposed structures be located outside of the following waterbodies: Broad Creek in Middlesex County, Fisherman's Cove in Norfolk, or the Salt Ponds in Hampton?
    ☐ YES ☐ NO
13. Is your project located outside of the Section 408 Review Area boundaries for civil works projects (e.g. federal navigation channels, flood risk management projects, or aquatic ecosystem restoration projects) as depicted on the "Norfolk District Section 408 Review Layer" in the Norfolk District Section 408 Map? https://www.nao.usace.army.mil/408Review/
    ☐ YES ☐ NO
14. Is your project located outside of any federal property? Federal property can be located on the "NAO Real Estate Data – CWLDM Land Parcel Area" layer on the Norfolk District Section 408 Map? https://www.nao.usace.army.mil/408Review/ .
    ☐ YES ☐ NO
15. Will the proposed structures be located outside of any Designated Trout Waters? https://services.dwr.virginia.gov/fwis/
    ☐ YES ☐ NO
16. If the proposed structures include floatation units, will the floating sections be braced so they will not rest on the bottom during periods of low water?
    ☐ YES ☐ NO ☐ N/A
17. Does the permittee recognize this form does not authorize any dredging or filling of waters of the United States (including wetlands) and does not imply that future dredging proposals or any other structures will be approved by the Corps?
    ☐ YES ☐ NO

If you have answered "NO" to any of the questions above, then the Category A Self-Verification of the 23-SPGP-PASDO does NOT apply, and you are required to obtain written authorization from the Corps prior to performing the work.

If you answered "YES" (or "N/A, where applicable) to all of the questions above, you are in compliance with the Category A Self-Verification of the 23-SPGP-PASDO. Please sign below and submit this self-verification form with your completed Joint Permit Application (JPA). This signed form serves as your letter of authorization from the Corps. You WILL NOT receive any other written authorization from the Corps; however, you MAY NOT proceed with construction until you have obtained all other necessary state and local permits.

By signing below, I certify that I have read and understand all conditions of the Army Corps of Engineers Norfolk District Regulatory Branch 23-SPGP-PASDO, dated August 22, 2023. I accept all of the terms and conditions of the permit, including the limits of federal liability contained in the 23-SPGP-PASDO enclosure. I acknowledge that structures authorized under this permit may be exposed to waves caused by passing vessels. The permittee is solely responsible for the integrity of the permitted structures and any resulting wave damage to such structures or moored vessels. I accept that the United States is not liable in any way for such damage and that the permittee will not seek to involve the United States in any actions or claims regarding such damage.

Proposed work location:

_____ _____

Signature of Property Owner(s) or Agent

_____

_____ _____

Date VMRC Number

APPENDIX C

Chesapeake Bay Preservation Act Information

Please answer the following questions to determine if your project is subject to the requirements of the Bay Act Regulations:

1. Is your project located within Tidewater Virginia? X Yes ____No (See map on page 31) - If the answer is "no", the Bay Act requirements do not apply; if "yes", then please continue to question #2.

2. Please indicate if the project proposes to impact any of the following Resource Protection Area (RPA) features:

   ____ Tidal wetlands,

   ____ Nontidal wetlands connected by surface flow and contiguous to tidal wetlands or water bodies with perennial flow,

   ____ Tidal shores,

   ____ Other lands considered by the local government to meet the provisions of subsection A of 9VAC25-830-80 and to be necessary to protect the quality of state waters (contact the local government for specific information),

   X ____ A buffer area not less than 100 feet in width located adjacent to and landward of the components listed above, and along both sides of any water body with perennial flow.

If the answer to question #1 was "yes" and any of the features listed under question #2 will be impacted, compliance with the Chesapeake Bay Preservation Area Designation and Management Regulations is required. **The Chesapeake Bay Preservation Area Designation and Management Regulations** are enforced through locally adopted ordinances based on the Chesapeake Bay Preservation Act (CBPA) program. Compliance with state and local CBPA requirements mandates the submission of a ***Water Quality Impact Assessment (WQIA)*** for the review and approval of the local government. Contact the appropriate local government office to determine if a WQIA is required for the proposed activity(ies).

The individual localities, not the DEQ, USACE, or the Local Wetlands Boards, are responsible for enforcing the CBPA requirements and, therefore, local permits for land disturbance are not issued through this JPA process. **Approval of this wetlands permit does not constitute compliance with the CBPA regulations nor does it guarantee that the local government will grant approval for encroachments into the RPA that may result from this project.**

Notes for all projects in RPAs

Development, redevelopment, construction, land disturbance, or placement of fill within the RPA features listed above requires the approval of the locality and may require an exception or variance from the local Bay Act ordinance. Please contact the appropriate local government to determine the types of development or land uses that are permitted within RPAs.

Pursuant to 9VAC25-830-110, *on-site delineation of the RPA is required for all projects in CBPAs*. Because USGS maps are not always indicative of actual "in-field" conditions, they may not be used to determine the site-specific boundaries of the RPA.

Notes for shoreline erosion control projects in RPAs

Re-establishment of woody vegetation in the buffer will be required by the locality to mitigate for the removal or disturbance of buffer vegetation associated with your proposed project. Please contact the local government to determine the mitigation requirements for impacts to the 100-foot RPA buffer.

Pursuant to 9VAC25-830-140 5 a (4) of the Virginia Administrative Code, shoreline erosion projects are a permitted modification to RPAs provided that the project is based on the "best technical advice" and complies with applicable permit conditions. In accordance with 9VAC25-830-140 1 of the Virginia Administrative Code, the locality will use the information provided in this Appendix, in the project drawings, in this permit application, and as required by the locality, to make a determination that:

1. Any proposed shoreline erosion control measure is necessary and consistent with the nature of the erosion occurring on the site, and the measures have employed the "best available technical advice"
2. Indigenous vegetation will be preserved to the maximum extent practicable
3. Proposed land disturbance has been minimized
4. Appropriate mitigation plantings will provide the required water quality functions of the buffer (9VAC25-830-140 3)
5. The project is consistent with the locality's comprehensive plan
6. Access to the project will be provided with the minimum disturbance necessary.

TIDEWATER VIRGINIA



APPENDIX D

Sample Drawings

On the following pages, you will find lists of information required on drawings, as well as sample drawings in plan and cross-sectional views. While the lists attempt to capture all required information for drawings, please verify your submittal with the applicable agency regulations. For DEQ drawing definitions and requirements, see Sections 10 and 80 of 9VAC25-210; and in Section 60 of the general permit regulations 9VAC25-660, 9VAC25-670, 9VAC25-680, and 9VAC25-690. Please be advised that some Local Wetlands Boards (LWB) require you to have a licensed engineer certify the drawings. You should contact your LWB to determine their specific requirements. Failure to include all necessary information on your drawings may mean that your application is not considered complete by one or more agencies.

All projects will require the submittal of plan view and cross-sectional view drawings. Drawings should be drawn to a scale no smaller than 1 inch = 200 feet. The number of sets of drawings to be submitted is detailed in the HOW TO APPLY section starting on page 2 of this package. Drawings can be computer-generated or hand-drawn. The sample drawings demonstrate the **general** format necessary, *but for ease of viewing, not all of the required information is shown in the sample drawings***.**

Plan view *drawings should contain the following general informational items:*

- ❖ Name of project
- ❖ North arrow
- ❖ Scale
- ❖ Waterway name, if designated
- ❖ Existing topographic or bathymetric contours
- ❖ Proposed topographic or bathymetric contours
- ❖ Width of waterway from the mean high water level to the mean high water level (tidal areas), or the ordinary high water mark to the ordinary high water mark (nontidal areas)
- ❖ Direction of flood and ebb (tidal areas), and/or direction of flow in nontidal areas (if applicable)
- ❖ Mean low water level and mean high water level (tidal areas), or ordinary high water mark (nontidal areas)
- ❖ Landward limit of the dune or beach at the site
- ❖ Limits of proposed impacts to surface waters, such as fill areas, riprap scour protection placement, and dredged areas; the amount of such impacts in square feet and acres; and the latitude/longitude (decimal degrees) at each impact site
- ❖ All delineated wetlands and all surface waters on the site, including the Cowardin classification (i.e., emergent, scrub-shrub, or forested) for those surface waters and waterway name, if designated

AND Plan view *drawings should also contain the following specific informational items* ***if they apply to the project****:*

Resource Impact/Protection-Specific Items:

- ❖ Limits of: existing*, non-delineated* wetlands, open water, or streams, including submerged aquatic vegetation (SAV), riffle/pool complexes, or bars; Chesapeake Bay Preservation Act Resource Protection Area(s) (RPA), including the 100-foot buffer; proposed clearing within the RPA buffer; and any areas that are under a deed restriction, conservation easement, restrictive covenant, or other land use protective instrument (i.e., protected areas)
- ❖ Location and type of existing vegetation within the 100-foot RPA buffer and location of proposed wetland planting areas (as restoration for temporary impacts or mitigation for permanent impacts)
- ❖ Historic/cultural resources
- ❖ Threatened/Endangered resources

Structure/Project-Specific Items:

- ❖ Existing and proposed structures, labeled as ‘existing’ and ‘proposed’, and their dimensions. These items may include pier(s), including L-heads, T-heads, platforms, and/or decks; roof(s) on roofed structures located over waterways, including boathouses; gasoline storage tanks and/or structures for collecting and handling hazardous material, including settling tanks for travel lift washdown water, paint chips, etc.; return walls; tie-ins to existing bulkhead(s) or riprap; utility line easement(s); utility line/road right(s)-of-way; aerial transmission line structure(s), including towers, poles, platforms, etc.; onsite or offsite dredged material disposal areas, including location of all berms, spillways, erosion and sediment control measures, outfall pipes, and aprons; temporary stockpiles of excavated material; temporary construction access facilities; risers and/or emergency spillways, labeled with their proposed invert elevations; design pool/normal pool for stormwater management ponds/impoundments/reservoirs; intakes and/or outfalls, including splash aprons, relative to mean high water, mean low water, or ordinary high water mark(s); anchoring devices and weights (mooring buoys), including the total swing radius
- ❖ Channelward encroachment of proposed structure(s) from mean high water and mean low water, or from ordinary high water mark
- ❖ For piers that cover ¼ or more of the waterway width: depth soundings, taken at the mean low water level (tidal areas) or the ordinary high water mark (nontidal areas)
- ❖ Distance(s) between structure(s) (piers, boathouses, catwalks, etc.) and mooring pile(s)
- ❖ Minimum distance between dredge cut and vegetated wetlands
- ❖ Latitude and longitude of all mooring structures, in degrees, minutes, and seconds
- ❖ End points and turning points along proposed bulkhead(s), labeled as such

- For bulkheads, measurements from each end point and each turning point along proposed bulkhead(s) to two fixed points of reference (labeled as such)
- Structure or method used to contain fill (hay bales, silt fences, etc.)
- Dimensions of impoundment, dam, or stormwater management facility and area of any vegetative management areas

Cross-sectional view drawings, and when required profile view* drawings, *should contain the following General Informational items:*

- Name of project
- North arrow
- Scale
- Waterway name
- Mean low water and mean high water lines (tidal areas), and/or ordinary high water mark (nontidal areas)
- Direction of flood and ebb (tidal areas), and/or direction of flow in nontidal areas (if applicable)
- Existing contours of the bottom (depths relative to mean low water or ordinary high water mark) and the bank itself
- Existing contours of the dune or beach
- Existing and proposed elevations
- Location of all existing and proposed structures
- Limits of proposed impacts to surface waters, such as fill areas, riprap scour protection placement, and dredged areas; the amount of such impacts in square feet and acres; and the latitude/longitude (decimal degrees) at each impact site

AND Cross-sectional view drawings, and when required profile view* drawings, *should also contain the following specific informational items* ***if they apply to the project****:*

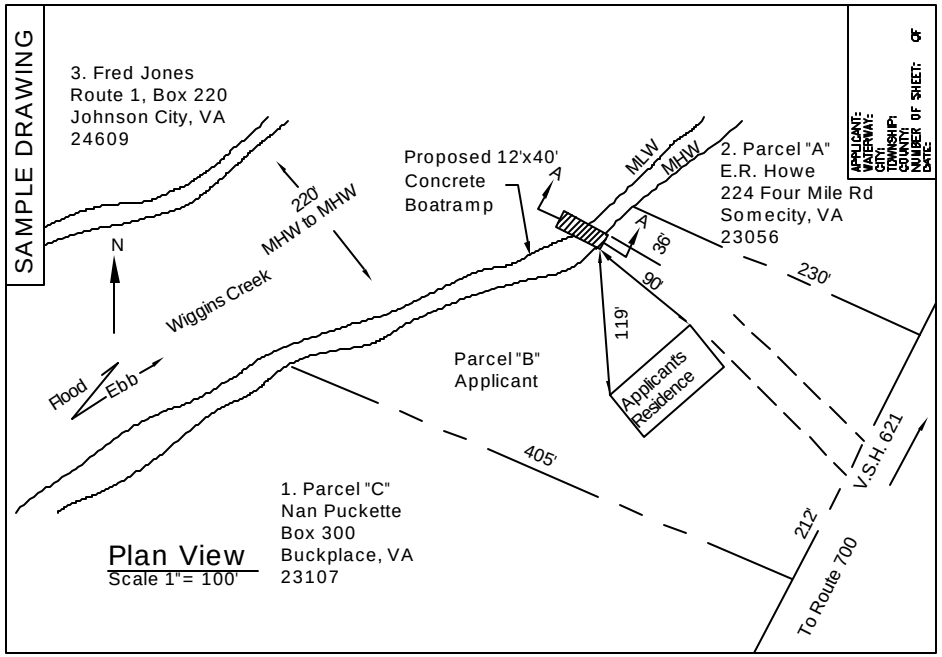
Resource impact/protection-specific Items:

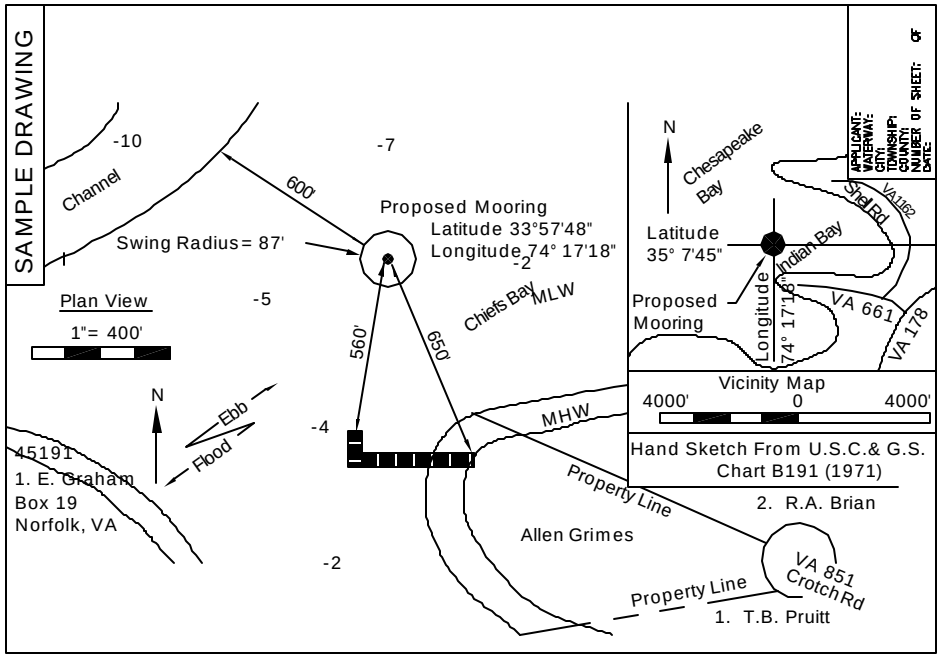
- Limits of: existing*, non-delineated* wetlands, open water, or streams, including submerged aquatic vegetation (SAV), riffle/pool complexes, or bars; Chesapeake Bay Preservation Act Resource Protection Area(s) (RPA), including the 100-foot buffer; and proposed clearing within the RPA buffer
- Riprap scour protection
- Proposed wetland planting areas, relative to mean high water and mean low water (tidal areas), or ordinary high water mark (nontidal areas)
- Depth of buried toe of riprap or marsh toe stabilization
- Base width, top width, and slope of stone/concrete stabilization structures

Structure/Project-Specific Items:

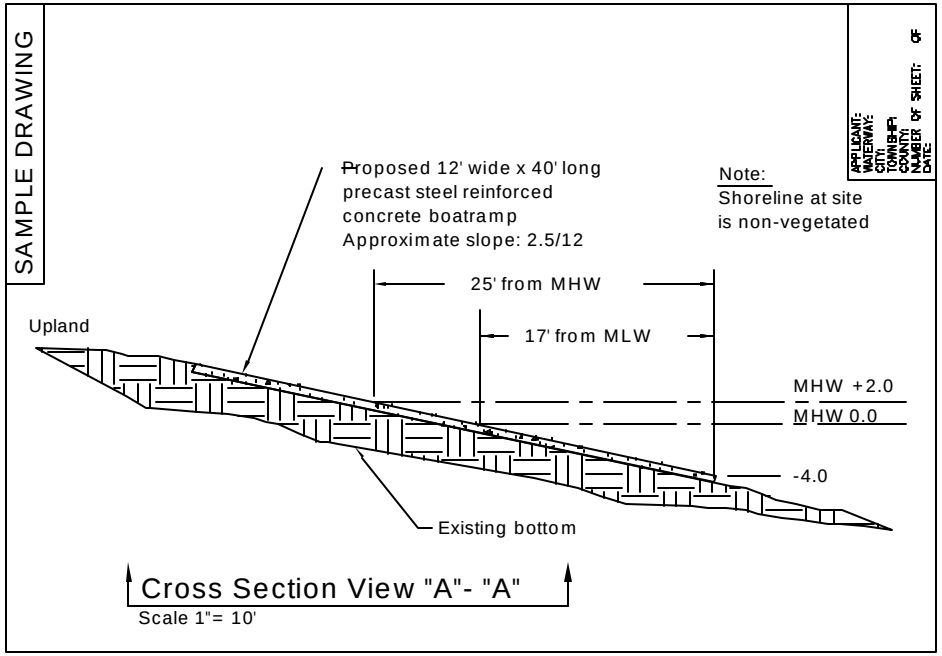
- Existing and proposed structures, labeled as ‘existing’ and ‘proposed’, and their dimensions. These items may include fill areas, labeled with square footage(s) or acreage(s) over vegetated wetlands and subaqueous bottom; berms, spillways, erosion and sediment control measures, outfall pipes, and aprons at onsite or offsite dredged material disposal area(s); bank grades; deadmen, sheeting, knee braces, etc., as used in the construction of bulkheads; filter cloth; weep holes; intakes and/or outfalls, including splash aprons, relative to mean high water, mean low water, or ordinary high water mark; risers and/or emergency spillways; low-flow channels; culverts, including their proposed invert elevations and diameters; anchoring systems for aquaculture structures; type of chain used to secure mooring buoys to subaqueous bottom
- For dredge projects, proposed contours of the bottom (depth relative to mean low water or ordinary water level)
- Bottom width of proposed dredge cut, projected side slope of cut, and estimated top width of cut
- Ponding depth of onsite or offsite dredged material disposal area
- Minimum distance between pier decking and vegetated wetland substrate (a.k.a. the “mud line”)
- Water depth below mean low water at the end of proposed boat ramps
- Depth of penetration of pilings and/or sheeting (bulkheads)
- Elevation of any proposed fill (including backfill)
- Structure or method used to contain fill (hay bales, silt fences, etc.)
- Design pool/normal pool elevation for stormwater management facilities/impoundments/reservoirs
- Vertical distance from the water surface (relative to mean high water or ordinary high water mark) for all aerial crossings (bridges or overhead utility lines) over navigable water bodies
- Depth below bottom of water body for submarine utility crossings
- Dimensions of impoundment, dam, or stormwater management facility through a cross-section of the structure(s); bottom elevation(s) of basin created; depth of pool; and depth(s) to structure(s) on the bottom.

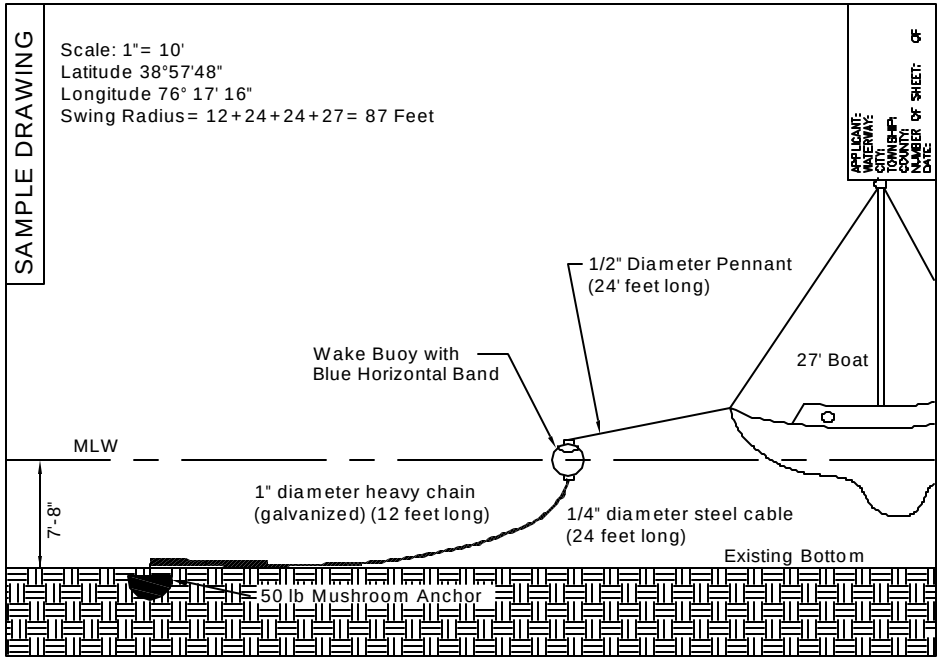
** Profile drawing or drawings with the information noted in Appendix D may be required by DEQ on a case-by-case basis to demonstrate minimization of impacts. When required, any application that proposes piping or culverting stream flows shall provide a longitudinal profile of the pipe or culvert position and stream bed thalweg, or shall provide spot elevations of the stream thalweg at the beginning and end of the pipe or culvert, extending to a minimum of 10 feet beyond the limits of proposed impact.*


SAMPLE DRAWING
APPLICANT:
WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:
3. Fred Jones
Route 1, Box 220
Johnson City, VA
24609
Proposed 12'x40'
Concrete
Boatramp
220'
MHW to MHW
MLW
MHW
2. Parcel "A"
E.R. Howe
224 Four Mile Rd
Somecity, VA
23056
N
Wiggins Creek
36'
90'
230'
119'
Parcel "B"
Applicant
Applicants
Residence
Flood
Ebb
405'
V.S.H. 621
212'
1. Parcel "C"
Nan Puckette
Box 300
Buckplace, VA
23107
To Route 700
Plan View
Scale 1"= 100'


SAMPLE DRAWING
APPLICANT:
WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:
-10
-7
Channel
600'
Swing Radius= 87'
Proposed Mooring
Latitude 33°57'48"
Longitude 74° 17'18"
-2
Plan View
1"= 400'
-5
Chiefs Bay
MLW
560'
650'
N
Ebb
Flood
-4
45191
1. E. Graham
Box 19
Norfolk, VA
MHW
Property Line
2. R.A. Brian
Allen Grimes
-2
VA 851
Crotch Rd
Property Line
1. T.B. Pruitt
N
Chesapeake
Bay
Shed Rd
VA1162
Latitude
35° 7'45"
Indian Bay
Proposed
Mooring
Longitude
74° 17'16"
VA 661
VA 178
Vicinity Map
4000'
0
4000'
Hand Sketch From U.S.C.& G.S.
Chart B191 (1971)

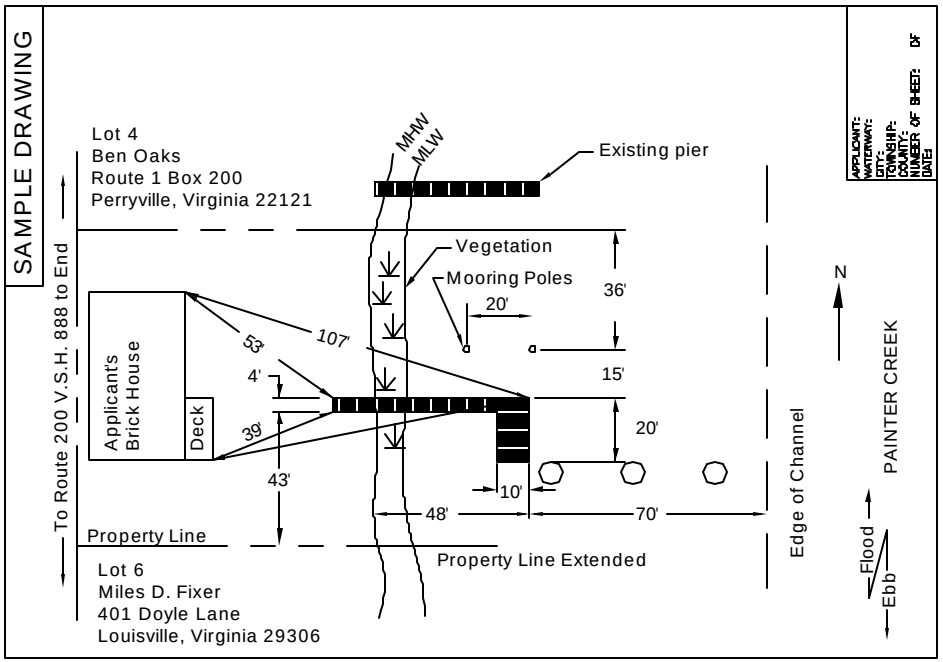
Boat Ramps


SAMPLE DRAWING
APPLICANT:
WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:
Proposed 12' wide x 40' long
precast steel reinforced
concrete boatramp
Approximate slope: 2.5/12
Note:
Shoreline at site
is non-vegetated
25' from MHW
17' from MLW
Upland
MHW +2.0
MHW 0.0
-4.0
Existing bottom
Cross Section View "A"- "A"
Scale 1"= 10'


SAMPLE DRAWING
APPLICANT:
WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:
Scale: 1"= 10'
Latitude 38°57'48"
Longitude 76° 17' 16"
Swing Radius= 12+24+24+27= 87 Feet
1/2" Diameter Pennant
(24' feet long)
Wake Buoy with
Blue Horizontal Band
27' Boat
MLW
7'-8"
1" diameter heavy chain
(galvanized) (12 feet long)
1/4" diameter steel cable
(24 feet long)
Existing Bottom
50 lb Mushroom Anchor

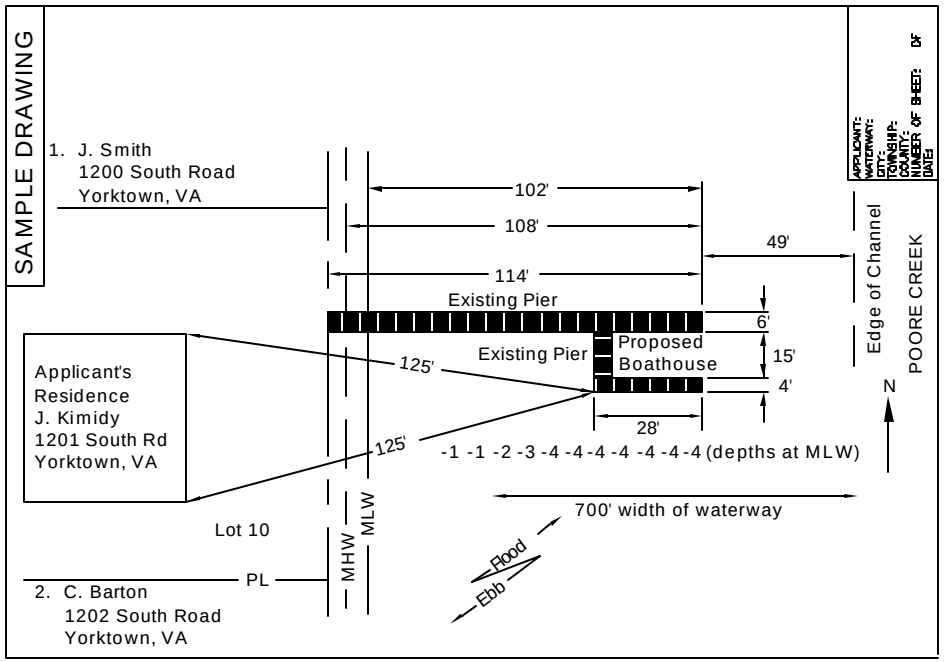
SAMPLE DRAWING

APPLICANT:
WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:



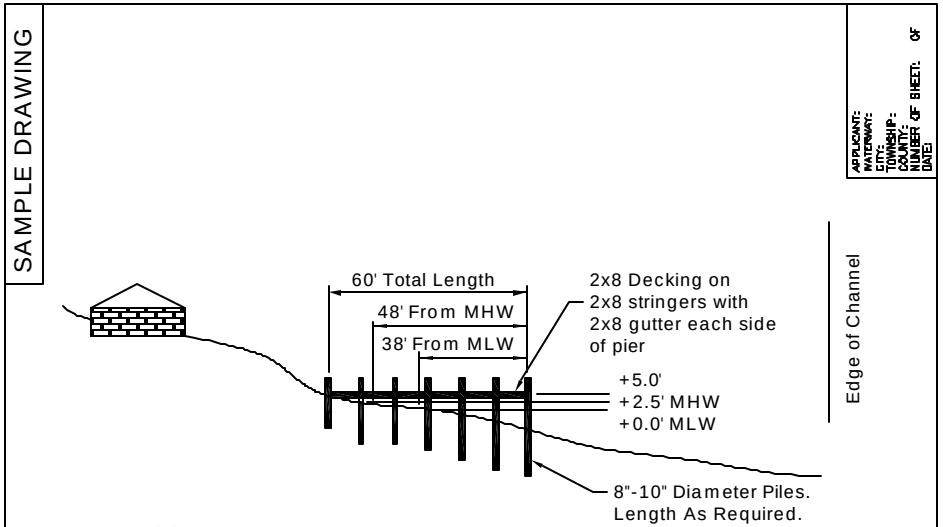
SAMPLE DRAWING

APPLICANT:
WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:



SAMPLE DRAWING

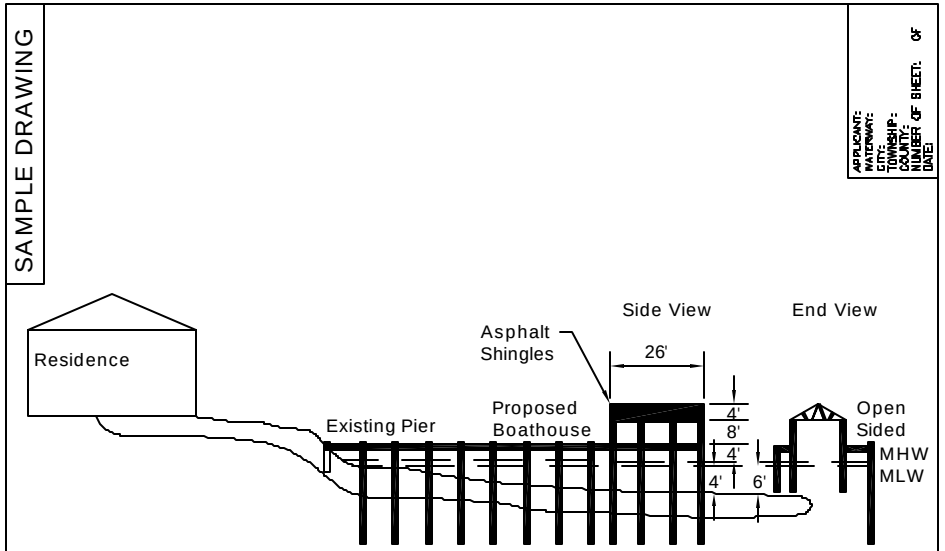
APPLICANT:
WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:



Materials:
1. All piers and lumber to be salt treated
2. All nails, bolts and hardware to be galvanized

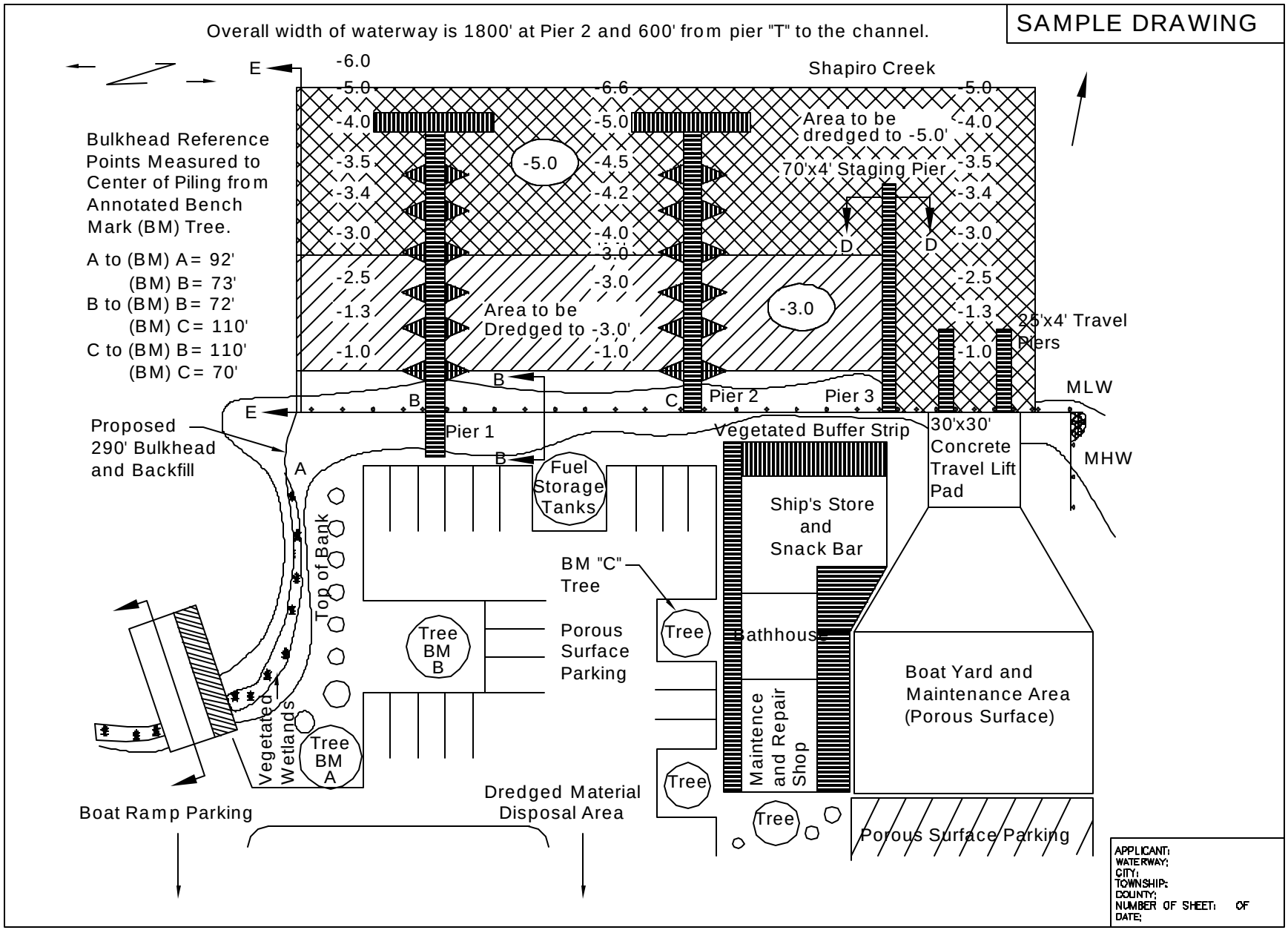
SAMPLE DRAWING

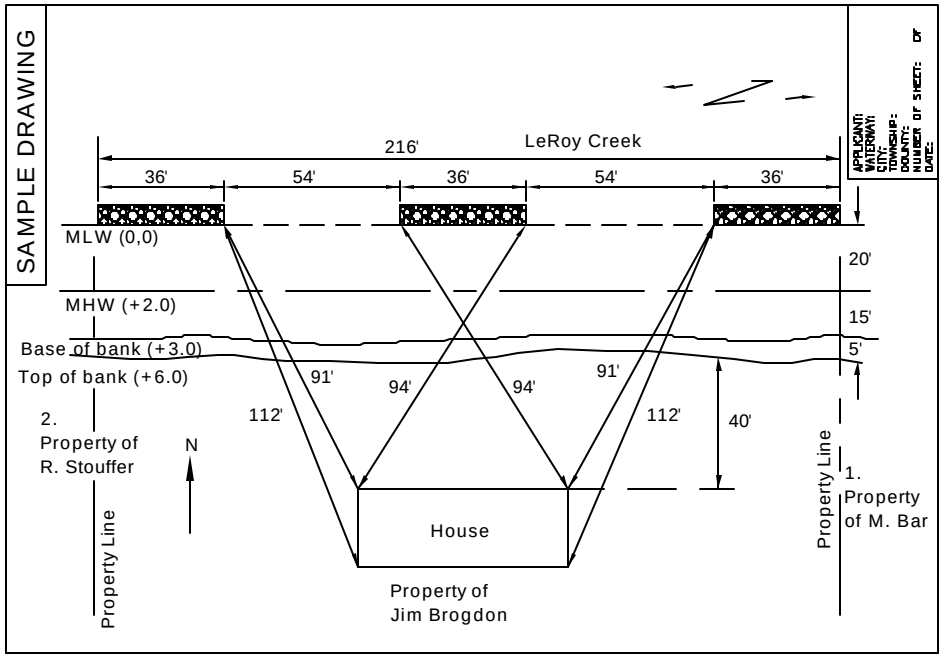
APPLICANT:
WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:

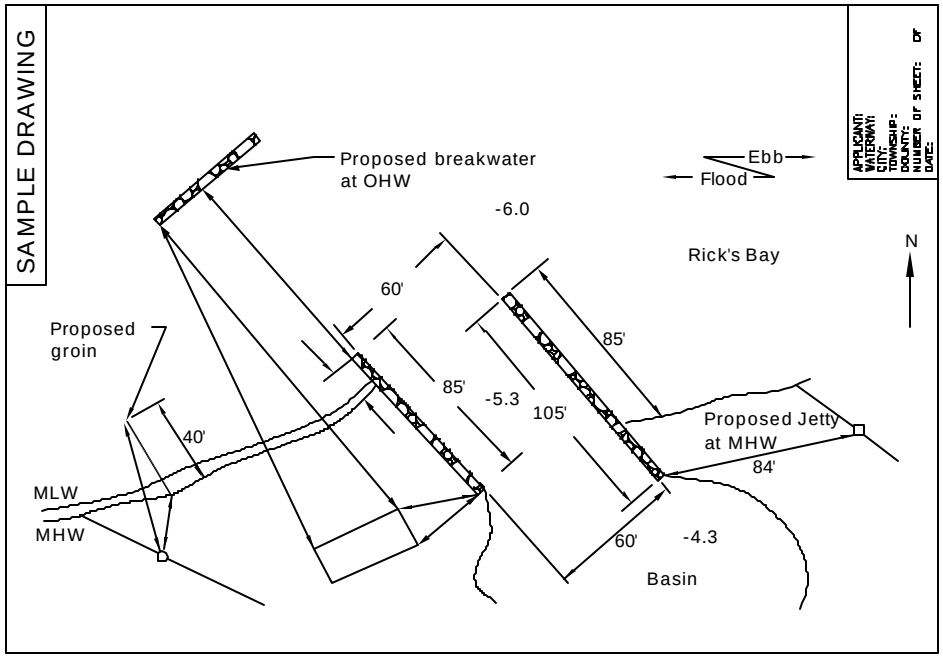


Marinas

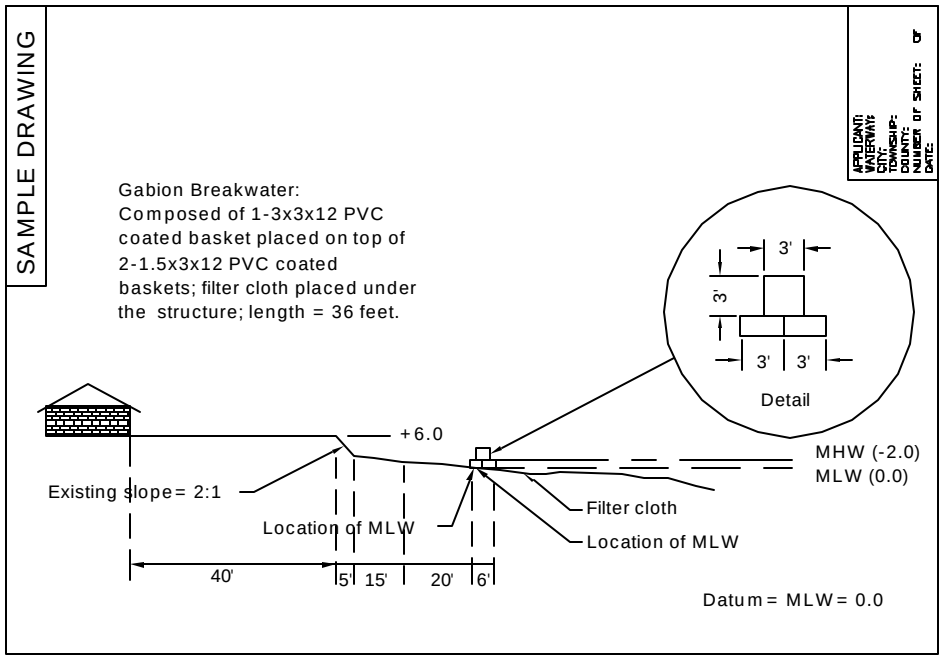
SAMPLE DRAWING

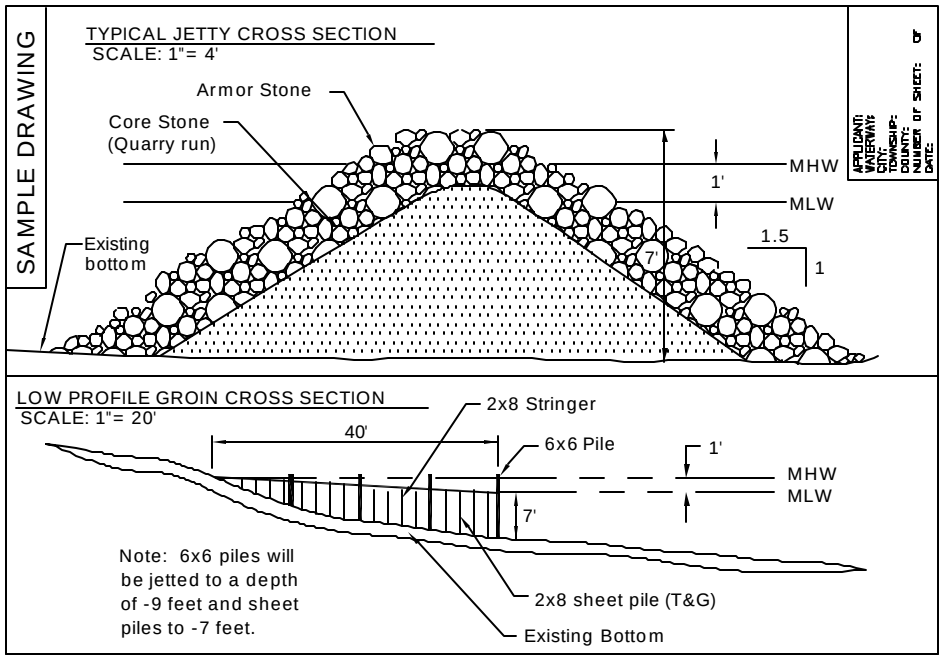




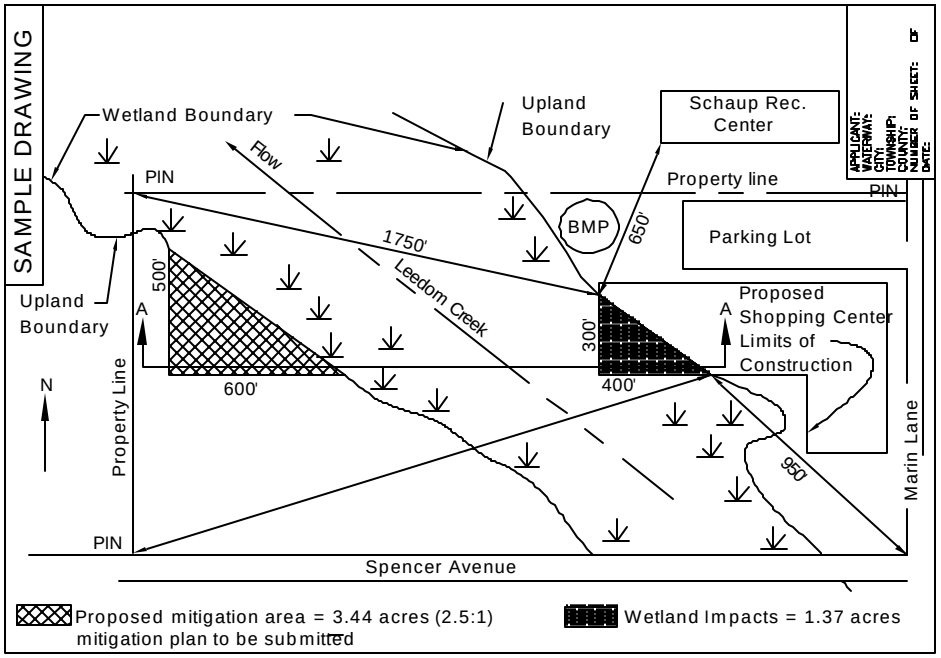


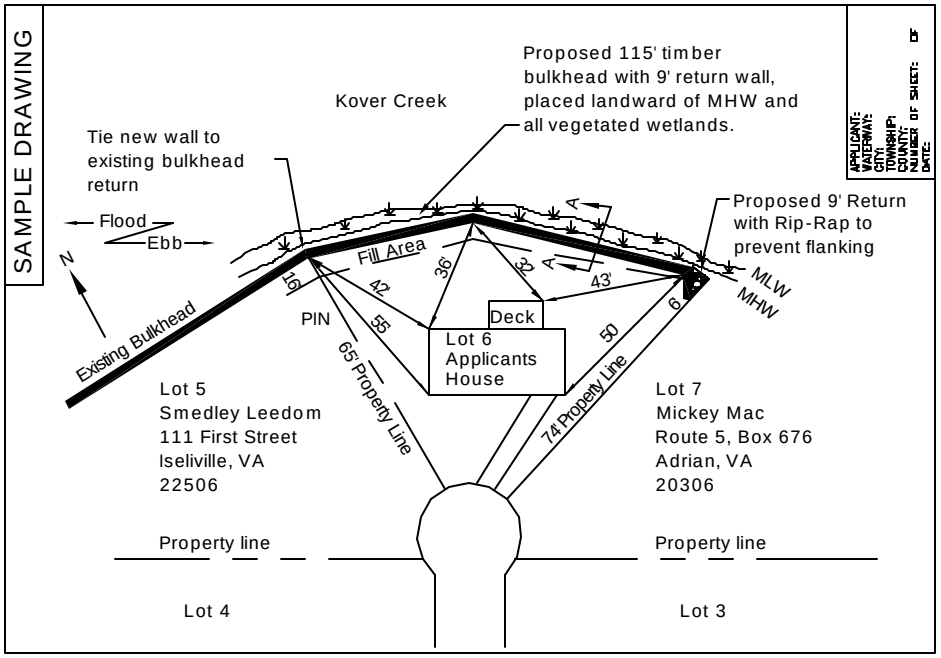
Breakwaters

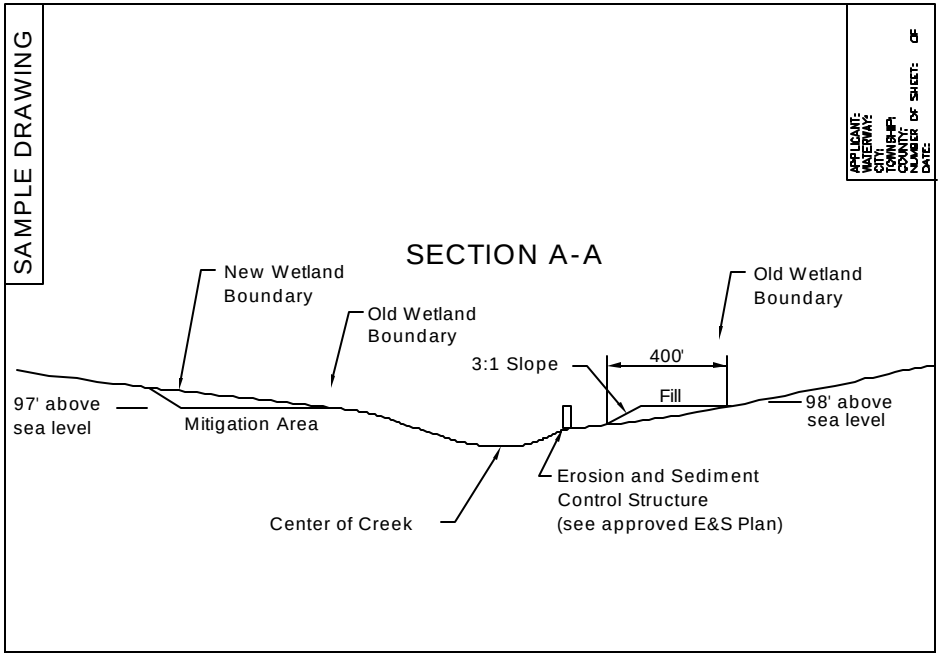


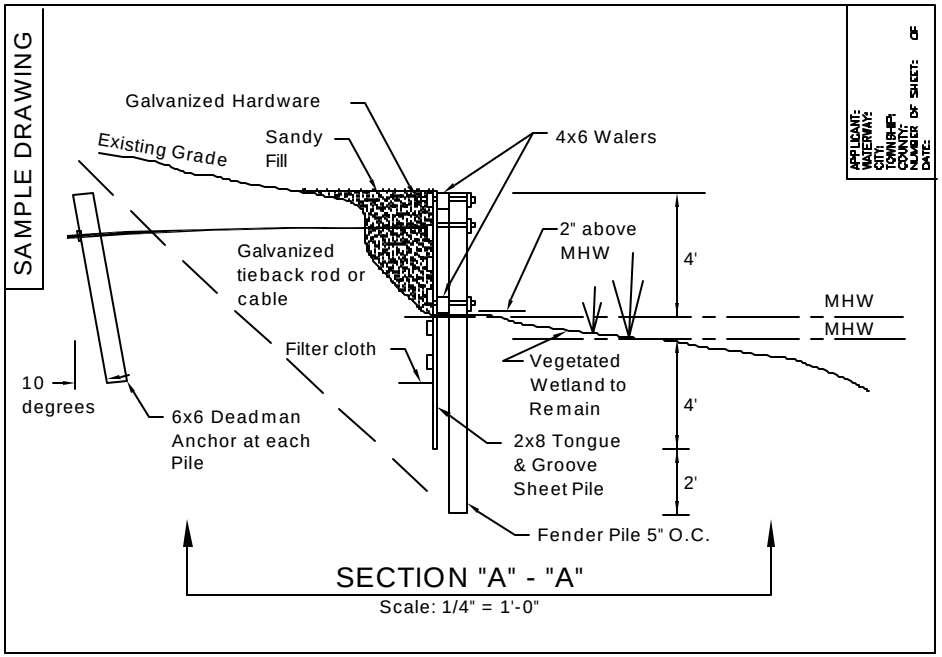


Filling Waters/Wetlands

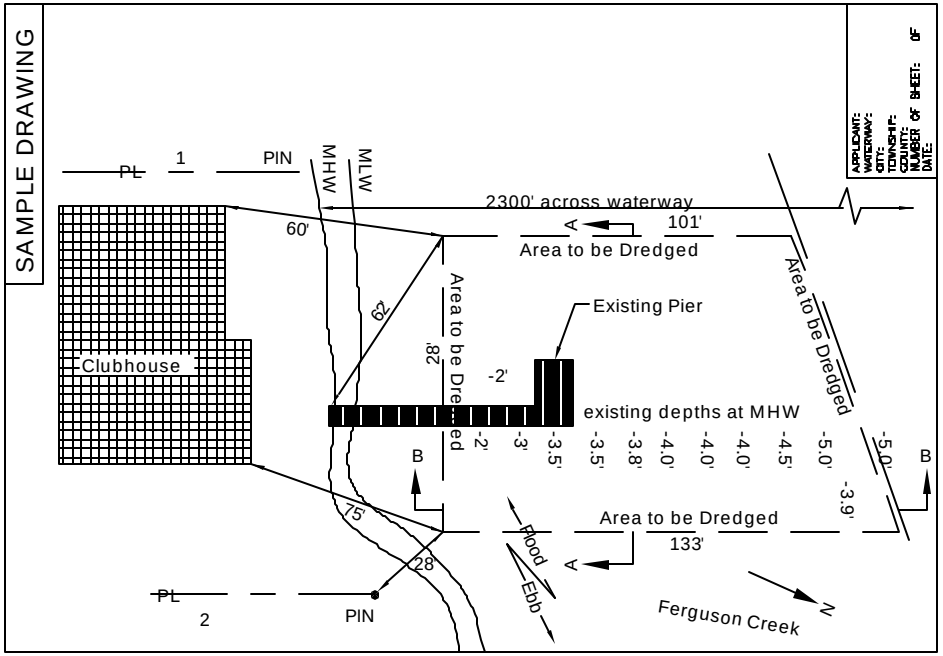


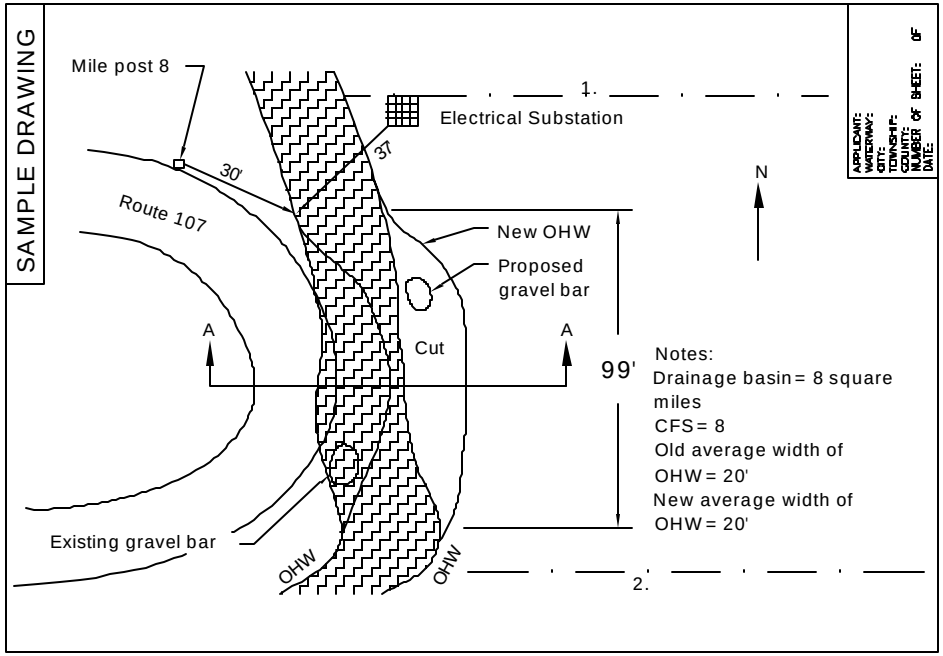


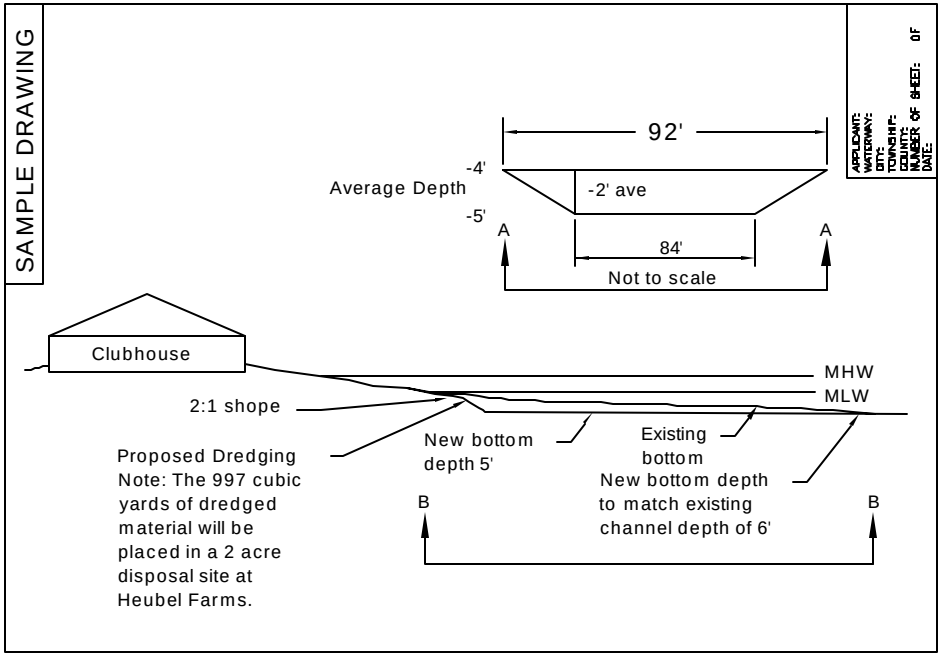


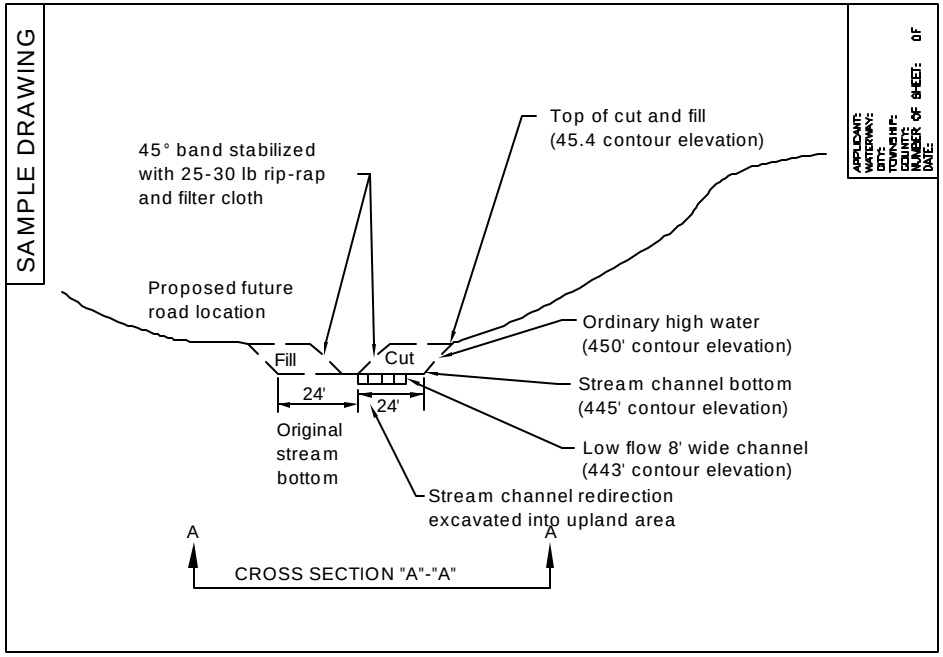


Bulkheads and Associated Backfill


SAMPLE DRAWING
APPLICANT:
WATERWAY:
DIT:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:
PL 1
PIN
MHW
MLW
2300' across waterway
60'
A
101'
Area to be Dredged
Area to be Dredged
Area to be Dredged
82'
Existing Pier
Clubhouse
-2'
existing depths at MHW
-2' -3' -3.5' -3.5' -3.8' -4.0' -4.0' -4.0' -4.5' -5.0'
-5.0'
-3.9'
B
B
75'
Area to be Dredged
133'
28
Flood
Ebb
A
PL 2
PIN
Ferguson Creek
N


SAMPLE DRAWING
APPLICANT:
WATERWAY:
DIT:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:
Mile post 8
1.
Electrical Substation
30'
37'
N
Route 107
New OHW
Proposed gravel bar
A
A
Cut
99'
Notes:
Drainage basin = 8 square miles
CFS = 8
Old average width of OHW = 20'
New average width of OHW = 20'
Existing gravel bar
OHW
OHW
2.


SAMPLE DRAWING
APPLICANT:
WATERWAY:
DIT:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:
92'
-4'
Average Depth
-2' ave
-5'
A
A
84'
Not to scale
Clubhouse
MHW
MLW
2:1 shope
Proposed Dredging
Note: The 997 cubic yards of dredged material will be placed in a 2 acre disposal site at Heubel Farms.
New bottom depth 5'
Existing bottom
New bottom depth to match existing channel depth of 6'
B
B


SAMPLE DRAWING
APPLICANT:
WATERWAY:
DIT:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:
45° band stabilized with 25-30 lb rip-rap and filter cloth
Top of cut and fill (45.4 contour elevation)
Proposed future road location
Ordinary high water (450' contour elevation)
Fill
Cut
24'
24'
Stream channel bottom (445' contour elevation)
Original stream bottom
Low flow 8' wide channel (443' contour elevation)
Stream channel redirection excavated into upland area
A
A
CROSS SECTION "A"-"A"

SAMPLE DRAWING

APPLICANT:
WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:

SAMPLE DRAWING

APPLICANT:
WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:

SAMPLED RAWING

APPLICANT:
WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:

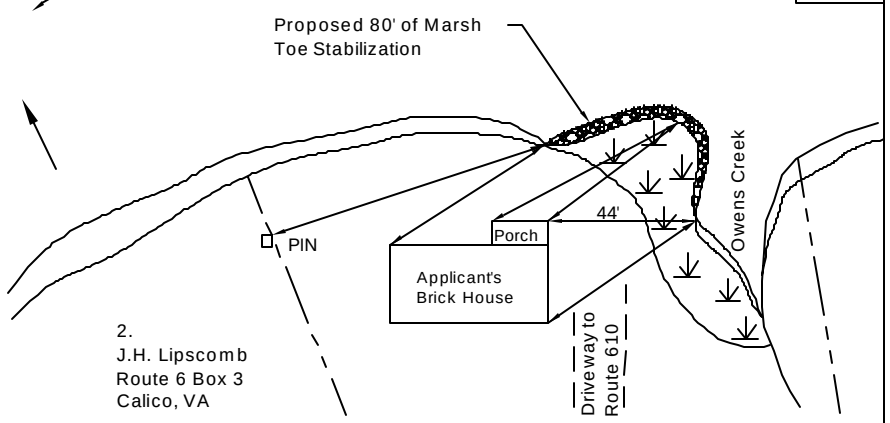
Note: Pump station and Pumphouse
to be installed above flood plain elevation.
Ordinary high water = 135'
Intake structure = 123'

SAMPLED RAWING

APPLICANT:
WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:

SAMPLE DRAWING

APPLICANT:
WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEETS: OF
DATE:

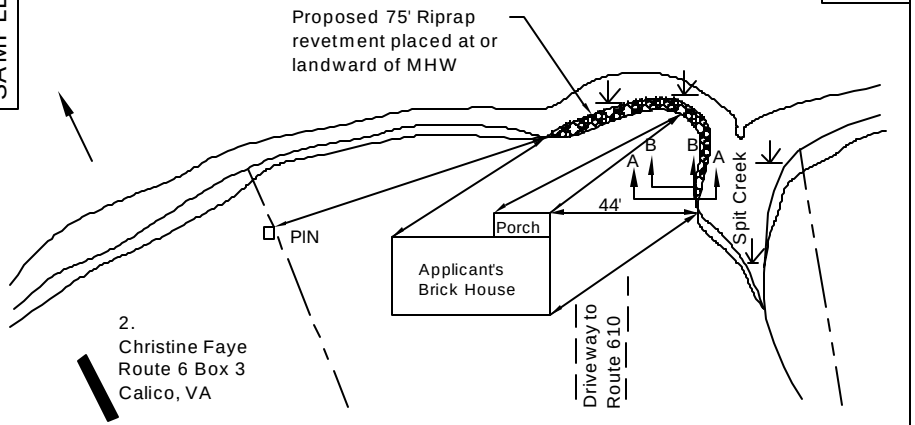


Marsh Toe Stabilization

SAMPLE DRAWING

APPLICANT:
WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEETS: OF
DATE:

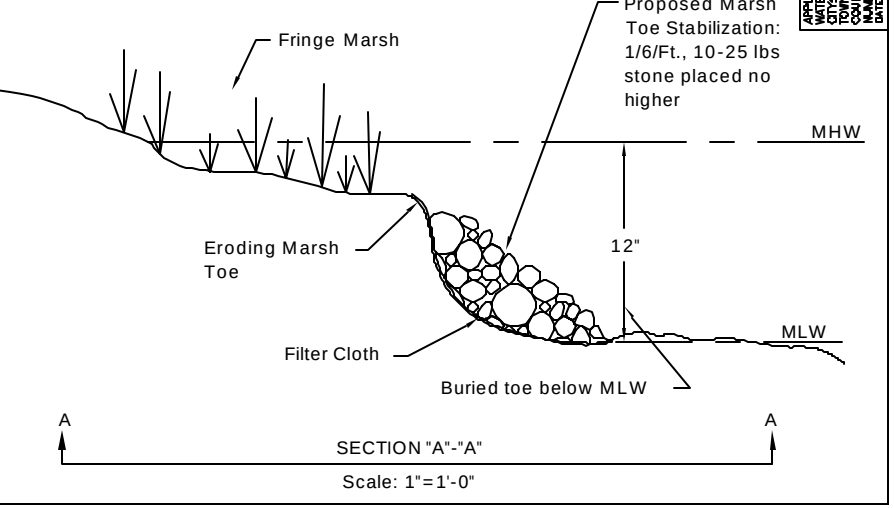
Scale: 1'=40'



Riprap Revetment & Associated Backfill

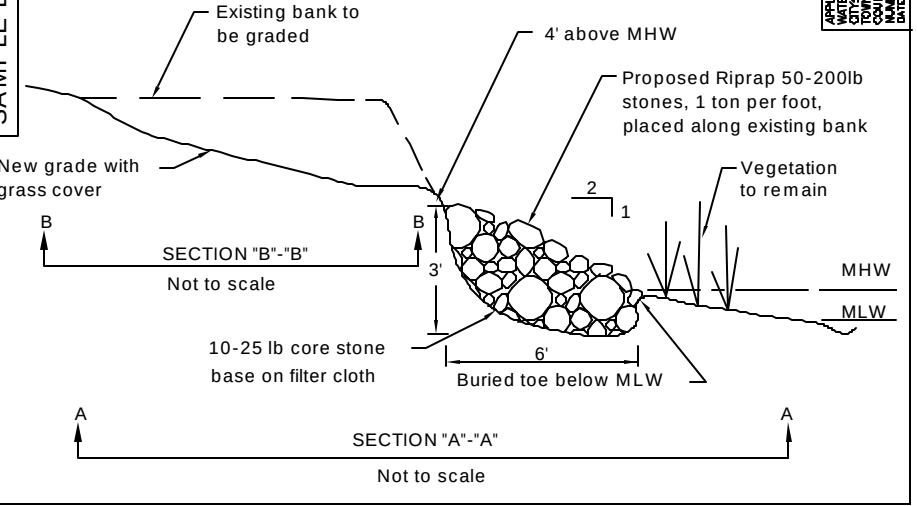
SAMPLE DRAWING

APPLICANT:
WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEETS: OF
DATE:



SAMPLE DRAWING

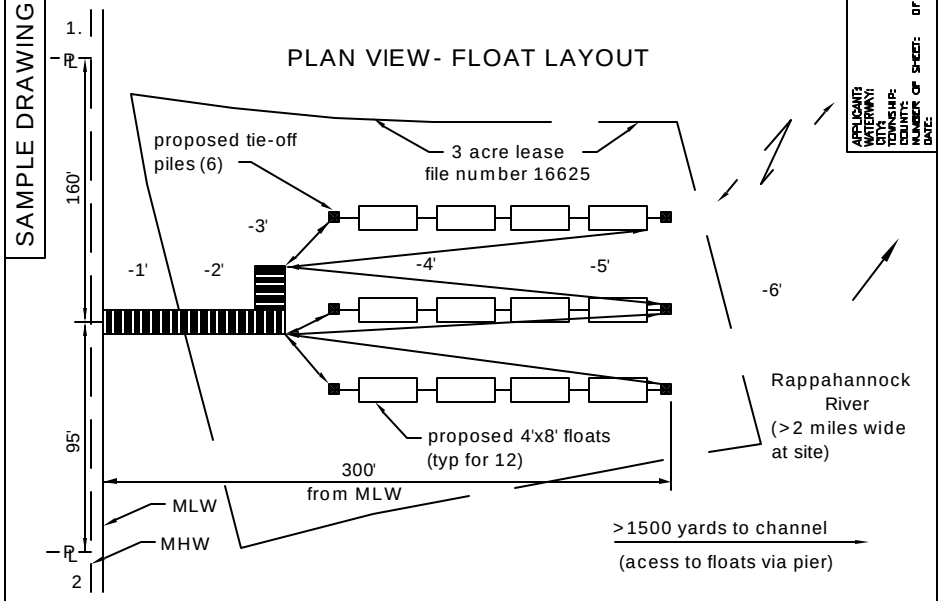
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WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEETS: OF
DATE:



SAMPLE DRAWING

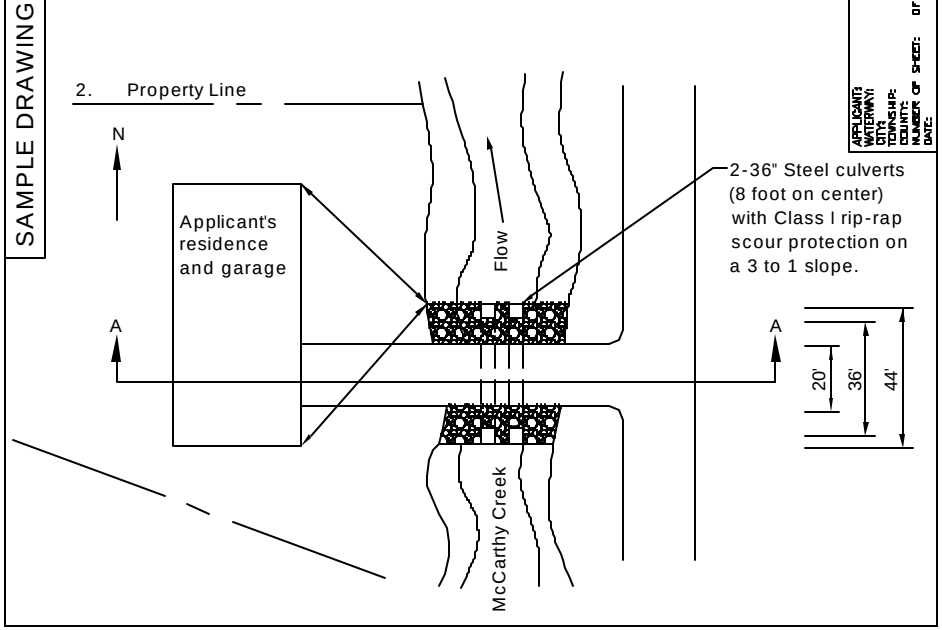
APPLICANT:
WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:

PLAN VIEW- FLOAT LAYOUT



SAMPLE DRAWING

APPLICANT:
WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:

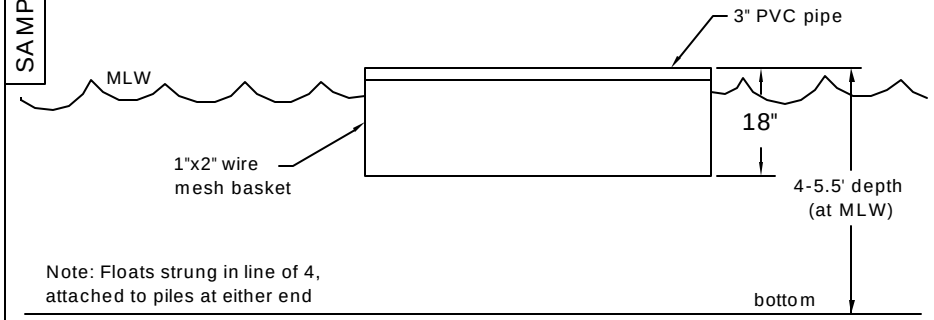


Private & Commercial Aquaculture Activities

SAMPLE DRAWING

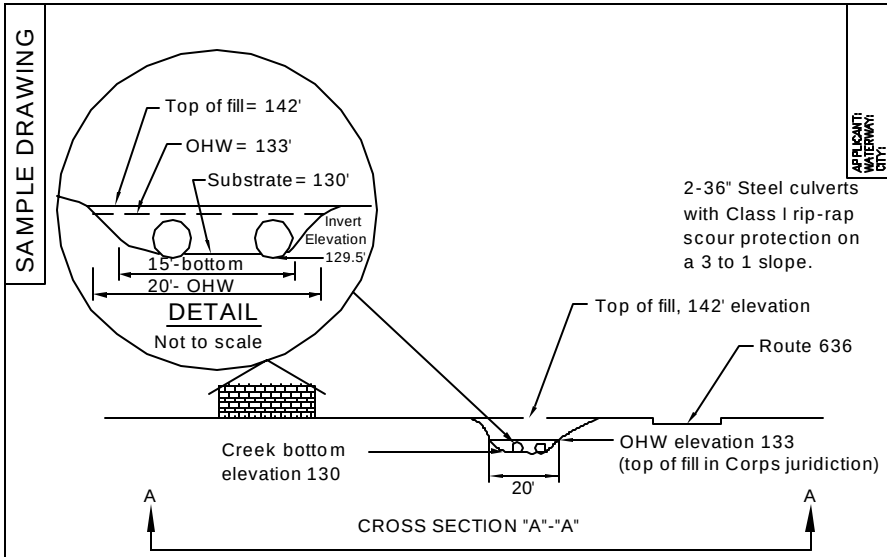
APPLICANT:
WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:

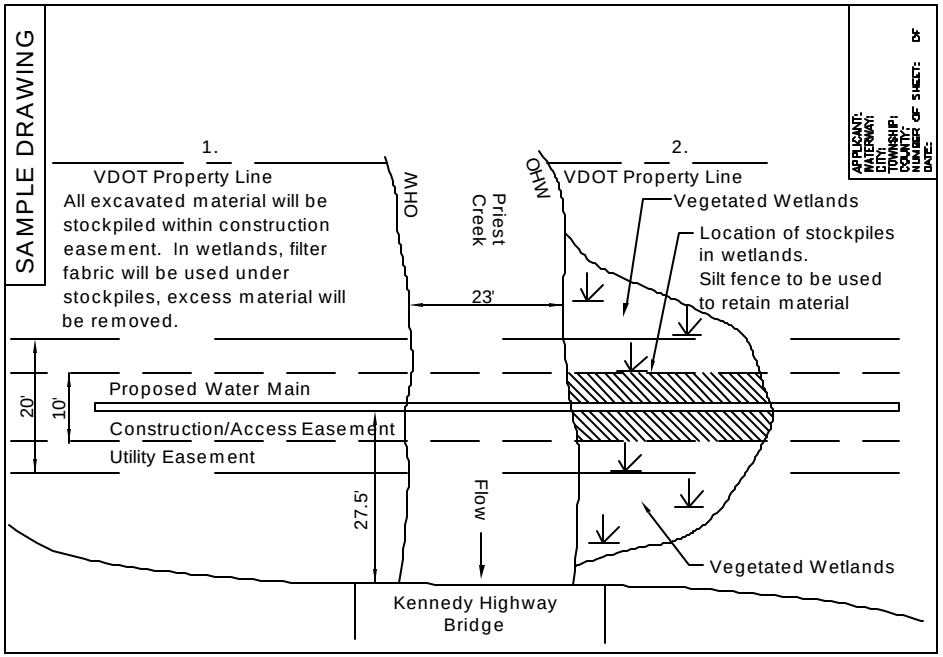
SECTION VIEW- FLOAT DETAILS

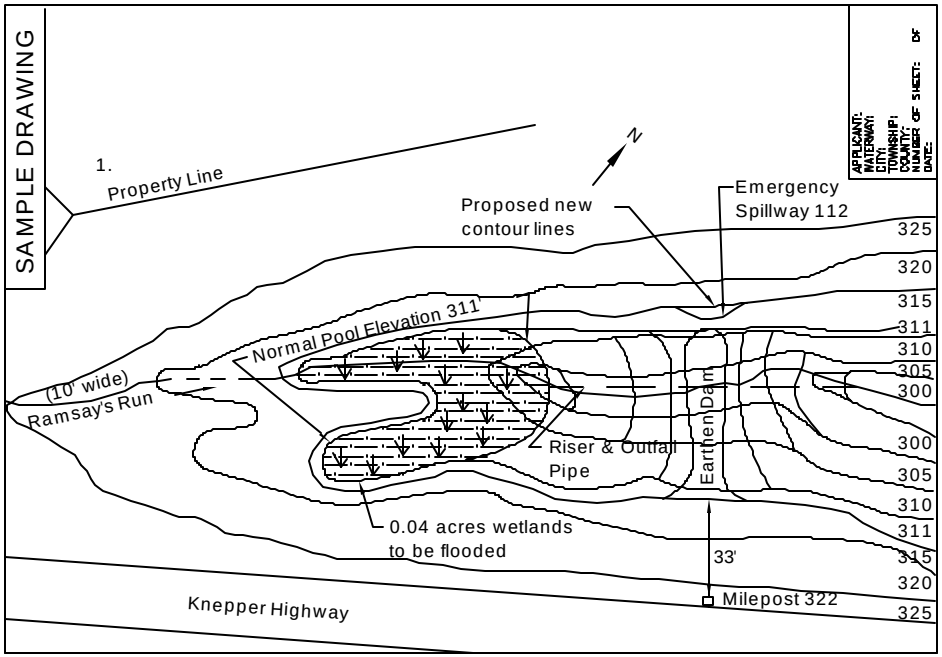


SAMPLE DRAWING

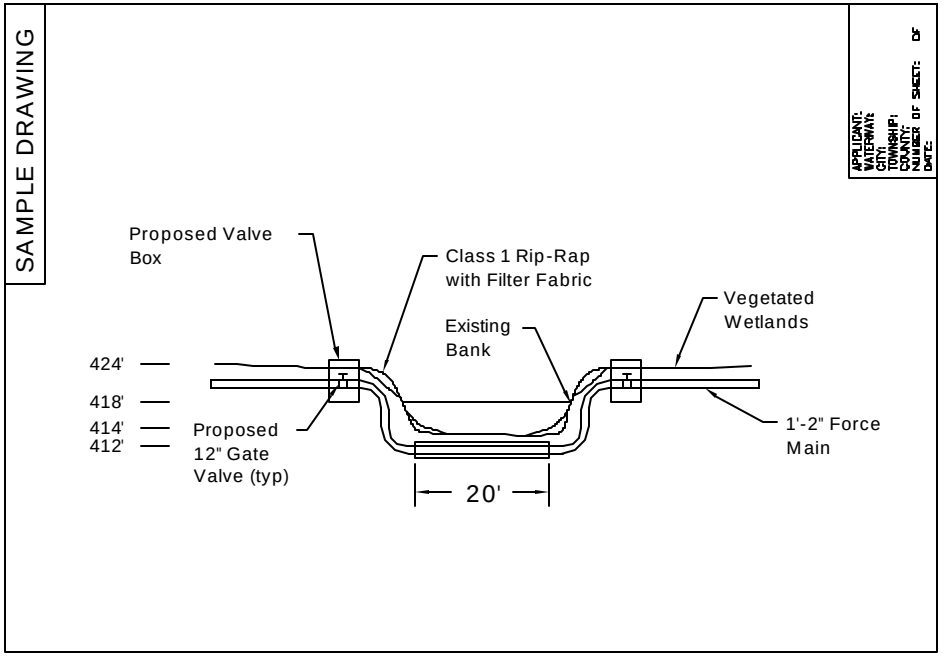
APPLICANT:
WATERWAY:
CITY:
TOWNSHIP:
COUNTY:
NUMBER OF SHEET: OF
DATE:

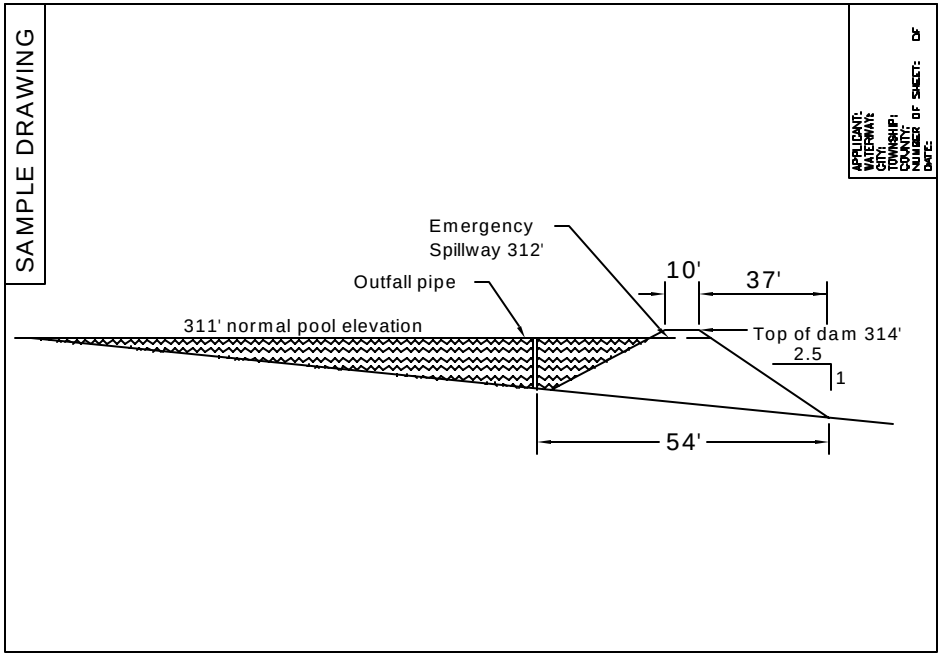






Utility Crossings





AECOM
12420 Milestone Center Drive #150
Germantown, Maryland 20876
www.aecom.com

Memorandum

To	Alex Haptemariam, City of Alexandria	Pages	6
CC	Brandon Alderman, AECOM		
Subject	Wetland Delineation Memorandum Taylor Run Infrastructure Stabilization Project Alexandria, Virginia		
From	Sean Bernheisel/Lauren Palmieri, AECOM Environmental Specialist		
Date	April 17, 2025 (REV: October 2026)		

Introduction

The City of Alexandria has retained the services of AECOM to provide design, engineering and construction support related to the above referenced project. The project includes stabilization and channel modifications to the Taylor Run stream to address areas of active erosion, protect existing stormwater and sanitary sewer infrastructure, and improve overall stream stability. The proposed actions have been divided into four distinct areas, each addressing specific infrastructure vulnerabilities. A wetland and Waters of the U.S. (WUS) delineation was conducted within a study area that incorporates the four distinct areas and beyond, to capture all locations of potential access which may be required to complete the project. The study area is roughly located between Chinquapin Drive and King Street and is approximately 8.08 acre (**Figure 1**).

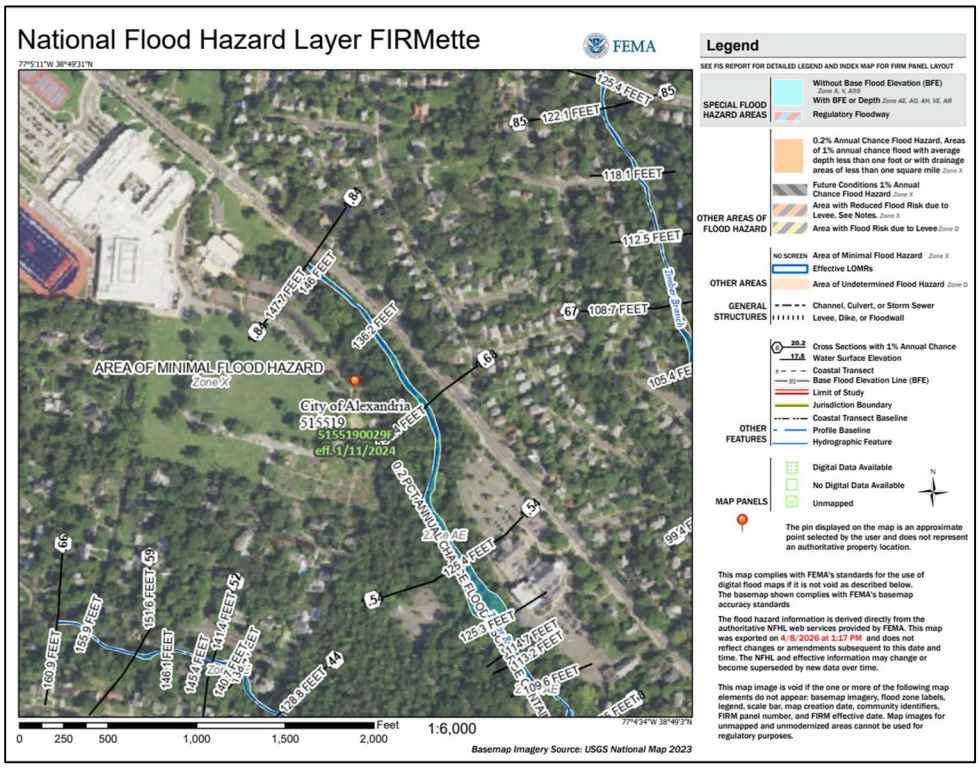
Figure 1: Project Location Map



Published Resource Review

Taylor Run is within the Mid-Atlantic Region within the Middle Potomac-Anacostia-Occoquan (HUC8: 02070010), Cameron Run-Potomac River (HUC10:0207001003), and Cameron Run (HUC12: 020700100302) watersheds. The stream discharges into Holmes Run, which ultimately flows into the Potomac River and then the Chesapeake Bay. The City of Alexandria local data viewer also identifies The study area is located on Federal Emergency Management Administration Flood Insurance Rate Map (FEMA FIRM) panel: 5155190029F (effective date January 11, 2024) which shows the area is located within a mapped FEMA 100-year floodplain, Zone AE, associated with Taylor Run (**Figure 2**). National Wetland Inventory (NWI) data identifies Taylor Run as a riverine system (R5UBH) with an associated 0.27 acre linear freshwater forested/shrub wetland habitat (PFO1A). Dominant soils within the study area are Sassafras-Neabsco complex soils and are not classified as hydric.

Figure 2: Floodplain Map



Methodology

A wetland and WUS delineation has been completed in accordance with the U.S. Army Corps of Engineers (USACE) *Wetland Delineation Manual* (USACE, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region Version 2.0* (USACE, 2010), which describe the three-parameter approach to delineating typical wetlands (hydrophytic vegetation, hydric soils, and wetland hydrology) and the approach for delineating atypical wetlands.

AECOM used the *Field Indicators of Hydric Soils in the United States* Version 9.0, (USDA NRCS, 2024) and the *Atlantic Gulf and Coastal Plain Region 2022 National Wetland Plant List* (USACE, 2020) to further determine the presence of hydric soil indicators and the wetland indicator status of plants, respectively, within the study area. Wetland boundaries were located using sub-meter accuracy global positioning system (GPS) equipment. Wetland and upland determination data points were collected in the field to support the upland/wetland boundary determination. Delineated resources were classified in accordance with the *Classification of Wetlands and Deepwater Habitats of the United States* (USFWS, 1979), commonly referred to as the Cowardin Classification System.

Results

On April 6, 2026 AECOM Environmental Scientists delineated one palustrine emergent wetland (PEM), two palustrine forested wetlands (PFO), one perennial WUS, one intermittent WUS, and multiple ephemeral drainage channels. **Attachment A** contains the wetland delineation resource maps, and **Attachment B** contains upland and wetland determination data sheets, **Attachment C**

contains a photographic log of identified resources, and **Attachment D** contains the Soil Report. The following provides a summary description of regulated resources identified within the study area.

INT 1

INT 1 (R4SB5) is an unnamed intermittent tributary to Taylor Run located within Chinquapin Park along the right downstream bank of Taylor Run. The channel originates at the southeastern edge of WET C, where sheet flow moves through the wetland and concentrates at a root grade control to form a defined channel. From there, the stream flows beneath a pedestrian footbridge and discharging into Taylor Run. Flow within the channel is supported by seepage from WET C as well as overland runoff from the adjacent trail. The substrate consists primarily of silt and cobble, particularly where the channel enters Taylor Run. Stream banks are moderately defined at the point of entry. INT 1 received a total of 22 points under the Fairfax County stream assessment protocol and 27.5 points under the NCDWQ methodology (following a delineation in 2020), indicating that the feature functions as an intermittent stream[1].

TAYLOR RUN (2,040 LF)

Taylor Run, an R5UB1 perennial stream, flows generally northwest to southeast through the study area. The stream daylights through a 72-inch RCP in the northwest and exits the study area through twin 60-inch RCPs under a parking lot for the adjacent First Baptist Church of Alexandria. A sanitary sewer line which runs through Chinquapin Park crosses Taylor Run just before the stream flows onto church property.

The stream receives flow from a variety of sources including groundwater, overland flow, one intermittent channel, several ephemeral channels, and multiple stormwater outfalls. The channel substrate varies throughout its length within the study area. Within Chinquapin Park, upstream of the sanitary sewer crossing, the substrate consists of riprap, boulders, and concrete structures with some cobble and sand. Downstream of the sanitary sewer, within the church property, the substrate consists of cobble, sand, and silt. A large debris pile, consisting of large trees, limbs, and other debris constricts flow before the stream enters the twin 60-inch RCPs.

The stream corridor is primarily forested with woody vegetation extending to the top of the banks. Despite the forested buffer there is evidence of scour, with vertical banks exceeding 10 feet high in many locations. The stream channel ranges from 10 to 20 feet wide and water depths range from 2 inches to greater than 2 feet in the scour pool below the 72-inch RCP.

WET A (1,021 ft²)

WET A is a PFO wetland located at the northwestern end of Chinquapin Park along the west side of an existing pedestrian trail. The wetland tree stratum is dominated by red maple (*Acer rubrum*); the sapling shrub stratum by slippery elm (*Ulmus rubra*) and sweet gum (*Liquidambar styraciflua*) and the woody vine stratum is dominated by poison ivy (*Toxicodendron radicans*) and Virginia creeper (*Parthenocissus quinquefolia*). Hydrology indicators include presence of reduced iron and geomorphic position. The soil profile meets the criteria of an F3 Depleted Matrix hydric soil indicator with a matrix at least 6 inches thick with 60% or more having a chroma 2 or less within the first 10 inches of the soil surface. There are prominent redox concentrations overall.

[1] Stream assessment forms were not completed during this 2026 delineation.

WET B (1,996 ft²)
WET B is a PEM wetland located at a large footbridge along the west side of the trail through Chinquapin Park. The wetland tree stratum has a few scattered tulip poplar (*Liriodendron tulipifera*) comprising no more than 5% of the total vegetation within the wetland sample plot and the woody vine stratum is dominated by poison ivy. Approximately 20% of the wetland is not vegetated. Hydrology indicators include presence of reduced iron, a sparsely vegetated concave surface, and geomorphic position. The soil profile meets the criteria of an F3 Depleted Matrix hydric soil indicator with a matrix at least 6 inches thick with 60% or more chroma 2 or less within the first 10 inches of the soil surface.

WET C (13,546 ft²)
WET C is a PFO acid seepage wetland located about 1,000 feet from the trail entrance within an area of relatively undisturbed forest along the west side of the trail. A spur trail to the Chinquapin Park Community Gardens diverges from the main trail at the southern end of this wetland. The wetland tree stratum is dominated by red maple and tulip poplar (*Liriodendron tulipifera*) comprising approximately 15% of the total vegetation within the wetland sample plot. The wetland shrub/sapling stratum is dominated by black gum (Nyssa sylvatica), red maple, and arrowwood (*Viburnum dentatum*) and and the wetland herbaceous stratum is dominated by skunk cabbage (*Symplocarpus foetidus*) and fowl mann grass (*Glyceria striata*). Hydrology indicators include surface water, a high water table, water-stained leaves, geomorphic position, FAC-Neutral test, and drainage patterns. The soil profile meets the criteria of a Histosol (A1).

Conclusion
AECOM conducted a field delineation of wetlands and WUS within the Taylor Run study area on April 6 of 2026. This delineation provided confirmation of wetland and WUS boundaries from the previous delineation. During previous review, the USACE-Norfolk District determined WETA and WETC are regulated wetlands and Taylor Run, INT1, EPH3 and EPH 6 are regulated waters. At this time, the USACE considered WET B to be disturbed and did not satisfy hydric soil parameters. However, invesigations in 2026 reveal no disturbance and soils to exhibit hydric conditions. Concurrence from the USACE regarding the jurisdictional status of this wetland will be sought through the Joint Permit Application process. Proposed access to the site, limits of disturbance, and identified construction staging areas are able to avoid impacts to identified resources. Erosion and sediment control best management practices are recommended around the limits-of-disturbance to these resources and potential drainage/discharge into Taylor Run.

Appendix A: Figures

Taylor Run Stream Restoration Project Location Map – 4/6/2026



CLEVELAND ST

KING ST

QUINCY ST

CH NQUAP N PARK

72" RCP

15" RCP

TAYLOR RUN

Perennial - 2040 LF

SCROGGINS RD

10" PVC

36" RCP

WETA
PFO
1,021 SF/ 0.02 AC

Foot Br dge

CH NQUAP N DR

CONCRETE DITCH

36" CMP

WETB
PEM
1,996 SF/ 0.05 AC

KING ST

EPH1
Ephemera
105 LF

12" CMP

21" RCP

MATCHL NE TO SHEET 2

Study Area

Stream Flow Direction Indicator

Stream Line

AECOM Delineated Wetland

Resource Protection Area

Storm Drain

FEMA 100 Year Floodplain

Wetland Data Point

Upland Data Point

Trails

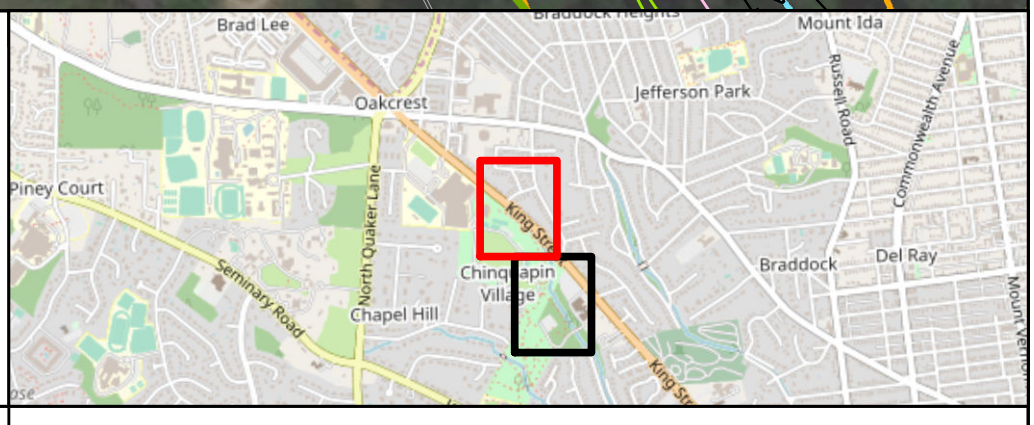
Bridge Structure

Park Boundary

Sanitary Sewer

1 inch = 100 feet

0 50 100 200 Feet



Taylor Run
City Of Alexandria, Virginia
Environmental Field Survey
Wetland and Waters of the U.S. Delineation

AECOM

Note: UTILITY FEATURE LOCATIONS
ARE APPROXIMATE
NOT INTENDED FOR DESIGN
UTILITY NETWORK MAY BE INCOMPLETE

MATCHLINE TO SHEET 1

CHINQUAPIN DR

Foot Bridge

CONCRETE DITCH

27" RCP

24" RCP

EPH2
Ephemeral
109 LF

KING ST

Foot Bridge

INT1
Intermittent
48 LF

WETC
PFO
13,546 SF/ 0.31 AC

Foot Bridge

15"PVC

EPH3
Ephemeral
72 LF

ROAN LN

EPH4
Ephemeral
43 LF

EPH5
Ephemeral
17 LF

EPH6
Ephemeral
66 LF

CONCRETE DITCH

TAYLOR RUN

15" RCP

Perennial
-2040 LF

EPH7
Intermittent
70 LF

CHINQUAPIN PARK

60" RCP (X2)

NOTE: Taylor Run and Resource Protection Area Continues South Past Project Study Area

Study Area
Stream Flow Direction Indicator
Stream Line
AECOM Delineated Wetland
Resource Protection Area
Storm Drain

FEMA 100 Year Floodplain
Wetland Data Point
Upland Data Point
Trails
Bridge Structure
Park Boundary
Sanitary Sewer

Ü
1 inch = 100 feet

0 50 100 200 Feet

Vicinity Map



Taylor Run
City Of Alexandria, Virginia
Environmental Field Survey
Wetland and Waters of the U.S. Delineation

AECOM

Note: UTILITY FEATURE LOCATIONS ARE APPROXIMATE
NOT INTENDED FOR DESIGN
UTILITY NETWORK MAY BE INCOMPLETE

Appendix B: Photograph Log

PHOTOGRAPHIC LOG

Project Site: Taylor Run Stream Stabilization, City of Alexandria, Virginia

Project No.: 60742359

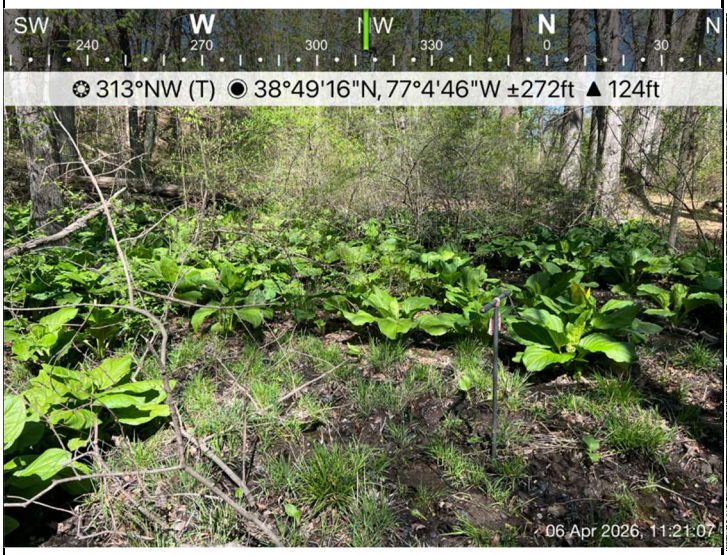
Photograph No.: 01	**Date:** 4/6/2026
Direction photograph taken: Northwest **Description:** Upland C facing upstream between King Street and WET C.	



Photograph No.: 02	**Date:** 4/6/2026
Direction photograph taken: Southeast **Description:** Upland C facing downstream between King Street and WET C.	



Photograph No.: 03	**Date:** 4/6/2026
Direction photograph taken: Northwest **Description:** WET C adjacent to pedestrian trail and west of Taylor Run.	



Photograph No.: 04	**Date:** 4/6/2026
Direction photograph taken: South **Description:** WET C hydrology and concave surface.	



Project Site: Taylor Run Stream Stabilization, City of Alexandria, Virginia

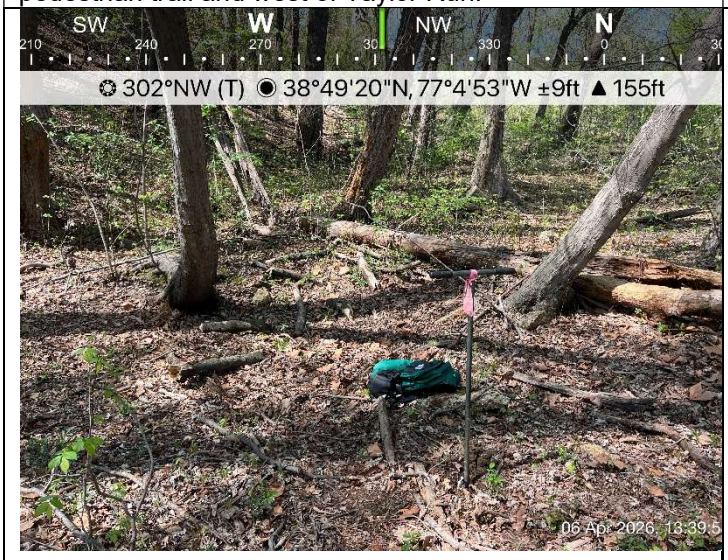
Photograph No.: 05	**Date:** 4/6/2026
Direction photograph taken: West **Description:** UPL B facing west adjacent to pedestrian trail and west of Taylor Run.	



Photograph No.: 06	**Date:** 4/6/2026
Direction photograph taken: East **Description:** UPL B facing east.	



Photograph No.: 07	**Date:** 4/6/2026
Direction photograph taken: Northwest **Description:** WET A facing northwest adjacent to pedestrian trail and west of Taylor Run.	



Photograph No.: 08	**Date:** 4/6/2026
Direction photograph taken: Northeast **Description:** View of Taylor Run manhole repair location facing northeast.	



Project Site: Taylor Run Stream Stabilization, City of Alexandria, Virginia

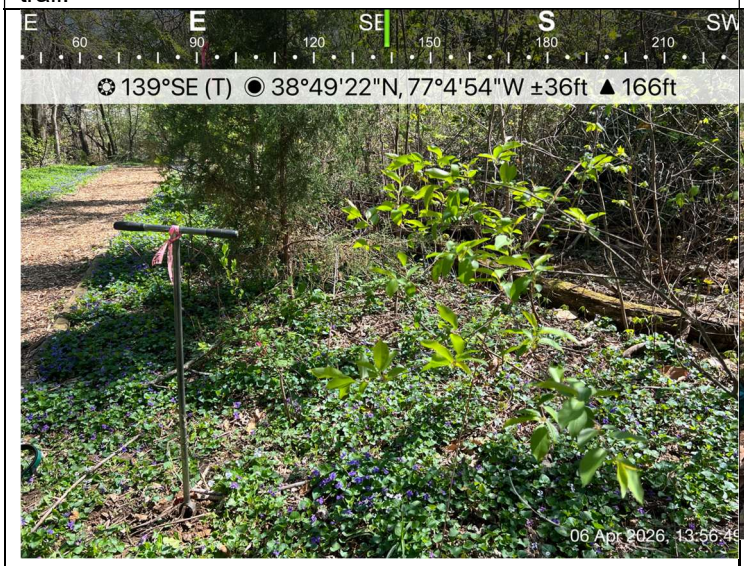
Photograph No.: 09	**Date:** 4/6/2026
Direction photograph taken: Northeast **Description:** Taylor Run facing downstream.	



Photograph No.: 10	**Date:** 4/6/2026
Direction photograph taken: Southwest **Description:** UPL A facing southwest away from the pedestrian trail and Taylor Run.	



Photograph No.: 11	**Date:** 4/6/2026
Direction photograph taken: None **Description:** UPL A facing southeast adjacent to pedestrian trail.	



Photograph No.: 12	**Date:** 4/6/2026
Direction photograph taken: Northeast **Description:** WET B facing northeast towards pedestrian bridge.	



Project Site: Taylor Run Stream Stabilization, City of Alexandria, Virginia

Photograph No.: 13	**Date:** 4/6/2026
Direction photograph taken: South **Description:** WET B facing east towards pedestrian bridge.	



Appendix C: USACE Wetland Determination Data Forms

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Taylor Run Stream Restoration City/County: City of Alexandria Sampling Date: 4/6/2026

Applicant/Owner: City of Alexandria State: VA Sampling Point: UPL A

Investigator(s): Sean Bernheisel, Lauren Palmieri Section, Township, Range:

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR or MLRA): LRR T, MLRA 153B Lat: -38.8227190 Long: 77.0819180 Datum: NAD83

Soil Map Unit Name: Sassafras-Neabsco complex, 2 to 7 percent slopes (92B) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ____	Depth (inches): ____
Water Table Present?	Yes ____	No ____	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ____	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UPL A

Tree Stratum (Plot size: 30' diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ulmus americana*	10	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	10	=Total Cover	
50% of total cover: 5	20% of total cover: 2		
Sapling Stratum (Plot size: 30' diameter)			
1. *Prunus serotina*	3	No	FACU
2. *Juniperus virginiana*	5	No	FACU
3. *Acer rubrum*	25	Yes	FAC
4.			
5.			
6.			
	33	=Total Cover	
50% of total cover: 17	20% of total cover: 7		
Shrub Stratum (Plot size: 30' diameter)			
1.			
2.			
3.			
4.			
5.			
6.			
		=Total Cover	
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30' diameter)			
1. *potentilla indica*	10	No	FACU
2. *Toxicodendron radicans*	5	No	FAC
3. *Viola sororia*	70	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	85	=Total Cover	
50% of total cover: 43	20% of total cover: 17		
Woody Vine Stratum (Plot size: 30' diameter)			
1.			
2. *Parthenocissus quinquefolia*	3	Yes	
3. *Rubus allegheniensis*	2	Yes	UPL
4.			
5.			
	5	=Total Cover	
50% of total cover: 3	20% of total cover: 1		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	110	x 3 =	330
FACU species	18	x 4 =	72
UPL species	2	x 5 =	10
Column Totals:	130 (A)		412 (B)
Prevalence Index = B/A =			3.17

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: UPL A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/3	100					Mucky Loam/Clay	silt loam
5-18	10YR 4/3	55					Mucky Loam/Clay	silt loam
	10YR 5/6	35						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) **(MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(MLRA 149A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Taylor Run Stream Restoration City/County: City of Alexandria Sampling Date: 4/6/2026

Applicant/Owner: City of Alexandria State: VA Sampling Point: UPL B

Investigator(s): Sean Bernheisel, Lauren Palmieri Section, Township, Range:

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0-1

Subregion (LRR or MLRA): LRR T, MLRA 153B Lat: -38.8217013 Long: 77.0808220 Datum: NAD83

Soil Map Unit Name: Sassafras-Neabsco complex, 2 to 7 percent slopes (92B) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No ____	Depth (inches): ____
Water Table Present?	Yes ____	No ____	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ____	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants. Sampling Point: UPL B

Tree Stratum (Plot size: 30' diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liriodendron tulipifera*	20	Yes	FACU
2.			
3.			
4.			
5.			
6.			
	20	=Total Cover	
50% of total cover: 10	20% of total cover: 4		
Sapling Stratum (Plot size: 30' diameter)			
1. *Liriodendron tulipifera*	25	Yes	FACU
2. *Acer negundo*	10	Yes	FAC
3. *Fraxinus pennsylvanica*	2	No	FACW
4.			
5.			
6.			
	37	=Total Cover	
50% of total cover: 19	20% of total cover: 8		
Shrub Stratum (Plot size: 30' diameter)			
1.			
2.			
3.			
4.			
5.			
6.			
		=Total Cover	
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30' diameter)			
1. *Reynoutria japonica*	10	No	UPL
2. *Toxicodendron radicans*	2	No	FAC
3. *Viola sororia*	15	Yes	FAC
4. *Allium vineale*	25	Yes	
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	52	=Total Cover	
50% of total cover: 26	20% of total cover: 11		
Woody Vine Stratum (Plot size: 30' diameter)			
1.			
2. *Parthenocissus quinquefolia*	3	No	
3.			
4.			
5.			
	3	=Total Cover	
50% of total cover: 2	20% of total cover: 1		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)
Prevalence Index = B/A =	

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: UPL B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/2	100					Loamy/Clayey	organic loam
8-12	10YR 5/6	100					Mucky Loam/Clay	silt loam

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(MLRA 149A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Taylor Run Stream Restoration City/County: City of Alexandria Sampling Date: 4/6/2026

Applicant/Owner: City of Alexandria State: VA Sampling Point: UPL C

Investigator(s): Sean Bernheisel, Lauren Palmieri Section, Township, Range:

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): concave Slope (%): 0-1

Subregion (LRR or MLRA): LRR T, MLRA 153B Lat: 38.8203013 Long: -77.099058 Datum: NAD83

Soil Map Unit Name: Sassafras-Neabsco complex, 2 to 7 percent slopes (92B) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes ____	No X	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No 3	Depth (inches): ____
Water Table Present?	Yes X	No 10	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ____	Depth (inches): ____

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: UPL C

Tree Stratum (Plot size: 30' diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Platanus occidentalis*	15	Yes	FACW
2. *Acer rubrum*	15	Yes	FAC
3. *Liriodendron tulipifera*	10	Yes	FACU
4.			
5.			
6.			
	40	=Total Cover	
50% of total cover: 20	20% of total cover: 8		

Sapling Stratum (Plot size: 30' diameter)			
1. *Ulmus americana*	5	Yes	
2. *Linderia benzoin*	3	Yes	
3.			
4.			
5.			
6.			
	8	=Total Cover	
50% of total cover: 4	20% of total cover: 2		

Shrub Stratum (Plot size: 30' diameter)			
1.			
2.			
3.			
4.			
5.			
6.			
		=Total Cover	
50% of total cover:	20% of total cover:		

Herb Stratum (Plot size: 30' diameter)			
1. *Euonymus fortunei*	40	Yes	UPL
2. *Parthenocisus quinquefolia*	1	No	
3. *Galium aparine*	5	No	FACU
4. *Duchesnea indica*	3	No	
5.	1	No	FACU
6. *Allaria petiolata*			
7.			
8.			
9.			
10.			
11.			
	50	=Total Cover	
50% of total cover: 25	20% of total cover: 10		

Woody Vine Stratum (Plot size: 30' diameter)			
1.			
2. *Rubus pensilvanicus*	3	Yes	
3. *Smilax rotundifolia*	5	Yes	FAC
4.			
5.			
	8	=Total Cover	
50% of total cover: 4	20% of total cover: 2		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 37.5% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	20	x 3 =	60
FACU species	16	x 4 =	64
UPL species	40	x 5 =	200
Column Totals:	91 (A)		354 (B)
Prevalence Index = B/A =			3.89

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** ___ **No** X

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: UPL C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					Mucky Loam/Clay	organic loam
4-14	10YR 5/4	60					Mucky Loam/Clay	
	10YR 3/2	40					Mucky Loam/Clay	
15-18	10YR 5/4	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Organic Bodies (A6) **(LRR P, T, U)**
___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
___ Muck Presence (A8) **(LRR U)**
___ 1 cm Muck (A9) **(LRR P, T)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Coast Prairie Redox (A16) **(MLRA 150A)**
___ Sandy Mucky Mineral (S1) **(LRR O, S)**
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR P, S, T, U)**
___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
___ Thin Dark Surface (S9) **(LRR S, T, U)**
___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
___ Loamy Mucky Mineral (F1) **(LRR O)**
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) **(LRR U)**
___ Depleted Ochric (F11) **(MLRA 151)**
___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
___ Umbric Surface (F13) **(LRR P, T, U)**
___ Delta Ochric (F17) **(MLRA 151)**
___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR O)**
___ 2 cm Muck (A10) **(LRR S)**
___ Coast Prairie Redox (A16) **(MLRA 149A)**
___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Taylor Run Stream Stabilization City/County: City of Alexandria Sampling Date: 4/6/2026

Applicant/Owner: City of Alexandria State: MD Sampling Point: WET A

Investigator(s): Sean Bernheisel, Lauren Palmieri Section, Township, Range:

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): concave Slope (%): 0-1

Subregion (LRR or MLRA): LRR T, MLRA 153B Lat: -38.8224016 Long: 77.0814420 Datum: NAD83

Soil Map Unit Name: Sassafras-Neabsco complex, 2 to 7 percent slopes (92B) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- X Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WET A

Tree Stratum (Plot size: 30' diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	30	Yes	FAC
2.			
3.			
4.			
5.			
6.			
	30	=Total Cover	
50% of total cover: 15		20% of total cover: 6	
Sapling Stratum (Plot size: 30' diameter)			
1. *Ulmus rubra*	3	No	FAC
2. *Liquidambar styraciflua*	1	No	FAC
3.			
4.			
5.			
6.			
	4	=Total Cover	
50% of total cover: 2		20% of total cover: 1	
Shrub Stratum (Plot size: 30' diameter)			
1.			
2.			
3.			
4.			
5.			
6.			
		=Total Cover	
50% of total cover:		20% of total cover:	
Herb Stratum (Plot size: 30' diameter)			
1. *Ulmus rubra*	1	No	FAC
2. *Liriodendron tulipifera*	3	No	FACU
3. *Lindera benzoin*	1	No	FACW
4. *Toxicodendron radicans*	10	Yes	FAC
5. *Ulmus americana*	5	Yes	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	20	=Total Cover	
50% of total cover: 10		20% of total cover: 4	
Woody Vine Stratum (Plot size: 30' diameter)			
1.			
2. *Parthenocissus quinquefolia*	3	No	
3.			
4.			
5.			
	3	=Total Cover	
50% of total cover: 2		20% of total cover: 1	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	50	x 3 =	150
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column Totals:	54 (A)		164 (B)
Prevalence Index = B/A =			3.04

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: WET A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/2	80	5YR 4/4	20	C		Mucky Loam/Clay	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5)
___ Organic Bodies (A6) **(LRR P, T, U)**
___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
___ Muck Presence (A8) **(LRR U)**
___ 1 cm Muck (A9) **(LRR P, T)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Coast Prairie Redox (A16) (**MLRA 150A)**
___ Sandy Mucky Mineral (S1) **(LRR O, S)**
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Dark Surface (S7) **(LRR P, S, T, U)**
___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
___ Thin Dark Surface (S9) **(LRR S, T, U)**
___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
___ Loamy Mucky Mineral (F1) **(LRR O)**
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Marl (F10) **(LRR U)**
___ Depleted Ochric (F11) **(MLRA 151)**
___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
___ Umbric Surface (F13) **(LRR P, T, U)**
___ Delta Ochric (F17) **(MLRA 151)**
___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR O)**
___ 2 cm Muck (A10) **(LRR S)**
___ Coast Prairie Redox (A16) **(MLRA 149A)**
___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ____ **No** ____

Remarks:

The presence of a reduced matrix within 12 inches of the soil surface indicates that this soil is hydric based on the hydric soil definition: ”a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part”.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Taylor Run Stream Stabilization City/County: City of Alexandria Sampling Date: 4/6/2026

Applicant/Owner: City of Alexandria State: MD Sampling Point: WET B

Investigator(s): Sean Bernheisel, Lauren Palmieri Section, Township, Range:

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR or MLRA): LRR T, MLRA 153B Lat: -38.8221323 Long: 77.0811171 Datum: NAD83

Soil Map Unit Name: Sassafras-Neabsco complex, 2 to 7 percent slopes (92B) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- X Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (inches): ____
Water Table Present?	Yes ____	No X	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No X	Depth (inches): ____

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WET B

Tree Stratum (Plot size: 30' diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Liriodendron tulipifera*	5	Yes	FACU
2.			
3.			
4.			
5.			
6.			
	5	=Total Cover	
50% of total cover: 3	20% of total cover: 1		
Sapling Stratum (Plot size: 30' diameter)			
1.			
2. *Acer rubrum*	10	Yes	FAC
3. *Ilex opaca*	8	Yes	FAC
4. *Prunus serotina*	3	No	FACU
5.			
6.			
	21	=Total Cover	
50% of total cover: 11	20% of total cover: 5		
Shrub Stratum (Plot size: 30' diameter)			
1.			
2.			
3.			
4.			
5.			
6.			
		=Total Cover	
50% of total cover:	20% of total cover:		
Herb Stratum (Plot size: 30' diameter)			
1. *Toxicodendron radicans*	25	Yes	FAC
2. *Hemerocallis fulva*	5	No	UPL
3. *Ulmus americana*	1	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	31	=Total Cover	
50% of total cover: 16	20% of total cover: 7		
Woody Vine Stratum (Plot size: 30' diameter)			
1.			
2. *Parthenocissus quinquefolia*	15	Yes	
3.			
4.			
5.			
	15	=Total Cover	
50% of total cover: 8	20% of total cover: 3		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)
Prevalence Index = B/A =	

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: WET B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 4/2	75	2.5YR 4/6	25			Loamy/Clayey	refusal at 12"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(MLRA 149A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ____ **No** ____

Remarks:

The presence of a reduced matrix within 12 inches of the soil surface indicates that this soil is hydric based on the hydric soil definition: ”a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part”.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Atlantic and Gulf Coastal Plain Region
See ERDC/EL TR-10-20; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Taylor Run Stream Stabilization City/County: City of Alexandria Sampling Date: 4/6/2026

Applicant/Owner: City of Alexandria State: MD Sampling Point: WET C

Investigator(s): Sean Bernheisel, Lauren Palmieri Section, Township, Range:

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): concave Slope (%): 0-1

Subregion (LRR or MLRA): LRR T, MLRA 153B Lat: -38.8217260 Long: 77.0808281 Datum: NAD83

Soil Map Unit Name: Sassafras-Neabsco complex, 2 to 7 percent slopes (92B) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No ____	**Is the Sampled Area within a Wetland?** **Yes** X **No** ____
Hydric Soil Present?	Yes X No ____	
Wetland Hydrology Present?	Yes X No ____	

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ Marl Deposits (B15) **(LRR U)**
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Moss Trim Lines (B16)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)
- ___ Sphagnum Moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No 3	Depth (inches): ____
Water Table Present?	Yes X	No 10	Depth (inches): ____
Saturation Present? (includes capillary fringe)	Yes ____	No ____	Depth (inches): ____

Wetland Hydrology Present? **Yes** X **No** ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Iron reduction present in standing water ~10 ft east from sampling point. The site is situated at the toe of slope and within floodplain and limits of manmade stormwater management facility.

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: WET C

Tree Stratum (Plot size: 30' diameter)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer rubrum*	10	Yes	FAC
2. *Liriodendron tulipifera*	15	Yes	FACU
3.			
4.			
5.			
6.			
	25	=Total Cover	
50% of total cover: 13		20% of total cover: 5	

Sapling Stratum (Plot size: 30' diameter)			
1. *Acer rubrum*	5	Yes	FAC
2. *Nyssa sylvatica*	5	Yes	FAC
3.			
4.			
5.			
6.			
	10	=Total Cover	
50% of total cover: 5		20% of total cover: 2	

Shrub Stratum (Plot size: 30' diameter)			
1. *Viburnum dentatum*	20	Yes	FAC
2. *Clethra alnifolia*	15	Yes	FACW
3.			
4.			
5.			
6.			
	35	=Total Cover	
50% of total cover: 18		20% of total cover: 7	

Herb Stratum (Plot size: 30' diameter)			
1. *Symplocarpus foetidus*	20	Yes	OBL
2. *Onoclea sensibilis*	5	No	FACW
3. *Athyrium filix-femina*	2	No	UPL
4. *Clethra alnifolia*	3	No	FACW
5. *Glyceria striata*	20	Yes	OBL
6.			
7. *Impatiens capensis*	1	No	FACW
8.			
9.			
10.			
11.			
	51	=Total Cover	
50% of total cover: 26		20% of total cover: 11	

Woody Vine Stratum (Plot size: 30' diameter)			
1.			
2. *Parthenocissus quinquefolia*	1	Yes	
3. *Rosa multiflora*	2	Yes	FACU
4. *Smilax rotundifolia*	2	Yes	FAC
5.			
	5	=Total Cover	
50% of total cover: 3		20% of total cover: 1	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 72.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	24	x 2 =	48
FAC species	42	x 3 =	126
FACU species	17	x 4 =	68
UPL species	2	x 5 =	10
Column Totals:	125 (A)		292 (B)

Prevalence Index = B/A = 2.34

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? **Yes** X **No** ___

Remarks: (If observed, list morphological adaptations below.)

SOIL

Sampling Point: WET C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/2	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- X Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ Organic Bodies (A6) **(LRR P, T, U)**
- ___ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ___ Muck Presence (A8) **(LRR U)**
- ___ 1 cm Muck (A9) **(LRR P, T)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Coast Prairie Redox (A16) (**MLRA 150A)**
- ___ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7) **(LRR P, S, T, U)**
- ___ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ___ Thin Dark Surface (S9) **(LRR S, T, U)**
- ___ Barrier Islands 1 cm Muck (S12) **(MLRA 153B, 153D)**
- ___ Loamy Mucky Mineral (F1) **(LRR O)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Marl (F10) **(LRR U)**
- ___ Depleted Ochric (F11) **(MLRA 151)**
- ___ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ___ Umbric Surface (F13) **(LRR P, T, U)**
- ___ Delta Ochric (F17) **(MLRA 151)**
- ___ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 149A, 153C, 153D)**
- ___ Very Shallow Dark Surface (F22) **(MLRA 138, 152A in FL, 154)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR O)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Coast Prairie Redox (A16) **(MLRA 149A)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, 150B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, T)**
- ___ Anomalous Bright Floodplain Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22) **(outside MLRA 138, 152A in FL, 154)**
- ___ Barrier Islands Low Chroma Matrix (TS7) **(MLRA 153B, 153D)**
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ____ **No** ____

Remarks:

Appendix D: USDA NRCS Web Soil Survey

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Alexandria City, Virginia

Taylor Run Stream Restoration Soil Report



April 14, 2026

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:2,670 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Alexandria City, Virginia
Survey Area Data: Version 15, Sep 5, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 1, 2023—Sep 1, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
66	Kingstowne sandy clay loam, 0 to 45 percent slopes	0.7	8.9%
92B	Sassafras-Neabsco complex, 2 to 7 percent slopes	7.0	87.0%
95	Urban land	0.3	4.2%
Totals for Area of Interest		**8.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The

delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Alexandria City, Virginia

66—Kingstowne sandy clay loam, 0 to 45 percent slopes

Map Unit Setting

National map unit symbol: 226lt
Landscape: Coastal plains
Elevation: 0 to 510 feet
Mean annual precipitation: 37 to 49 inches
Mean annual air temperature: 45 to 67 degrees F
Frost-free period: 185 to 212 days
Farmland classification: Not prime farmland

Map Unit Composition

Kingstowne and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kingstowne

Setting

Landscape: Coastal plains
Landform: Marine terraces
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Earthy fill of fluviomarine deposits

Typical profile

H1 - 0 to 4 inches: sandy clay loam
H2 - 4 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 45 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 24 to 79 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F149AY170MD - Well Drained Fine-Loamy Upland
Hydric soil rating: No

92B—Sassafras-Neabsco complex, 2 to 7 percent slopes

Map Unit Setting

National map unit symbol: 226m5
Landscape: Coastal plains
Elevation: 50 to 390 feet
Mean annual precipitation: 37 to 49 inches
Mean annual air temperature: 45 to 67 degrees F
Frost-free period: 185 to 212 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Sassafras and similar soils: 50 percent
Neabsco and similar soils: 30 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sassafras

Setting

Landscape: Coastal plains
Landform: Terraces
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Fluviomarine deposits

Typical profile

H1 - 0 to 9 inches: sandy loam
H2 - 9 to 40 inches: sandy clay loam
H3 - 40 to 70 inches: gravelly sandy loam

Properties and qualities

Slope: 2 to 7 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F149AY170MD - Well Drained Fine-Loamy Upland
Hydric soil rating: No

Description of Neabsco

Setting

Landscape: Coastal plains
Landform: Hillslopes
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Fluviomarine deposits

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 17 inches: clay loam
H3 - 17 to 36 inches: loam
H4 - 36 to 52 inches: clay loam
H5 - 52 to 72 inches: very gravelly sandy loam

Properties and qualities

Slope: 2 to 7 percent
Depth to restrictive feature: 14 to 30 inches to fragipan
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 14 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D
Ecological site: F149AY130NJ - Moist Loamy Upland
Hydric soil rating: No

95—Urban land

Map Unit Setting

National map unit symbol: 226m7
Landscape: Coastal plains
Mean annual precipitation: 28 to 58 inches
Mean annual air temperature: 87 to 89 degrees F
Frost-free period: 175 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 95 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landscape: Coastal plains
Anthropogenic Feature: Urban land

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s

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Appendix E Site Photographs

AECOM

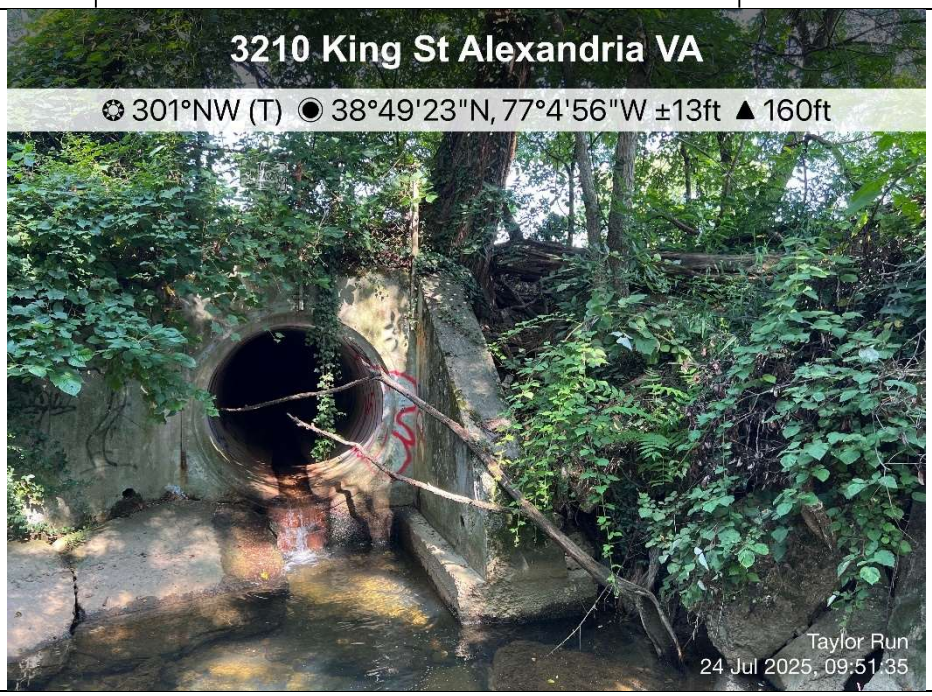
SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
1	07/24/25

Direction Photo Taken:
Upstream

Description:
72-inch outfall condition. Gully next to right wingwall (look upstream) and beginning of plunge pool (Project Area 1)



AECOM

SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
2	07/24/25

Direction Photo Taken:
Right Bank

Description:
Left wingwall (looking upstream) condition. (Project Area 1)



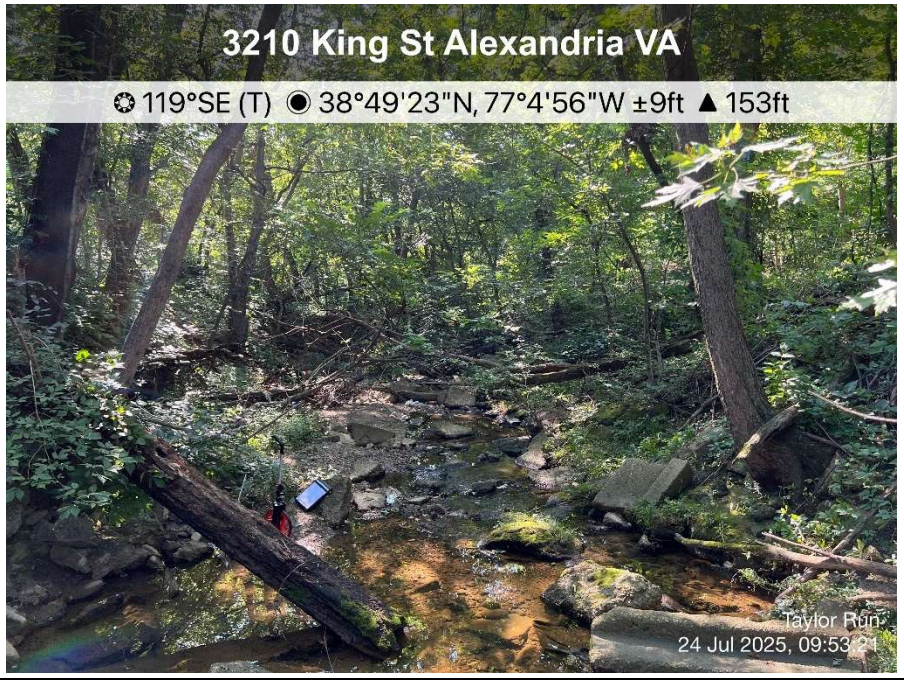
SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
3	07/24/25

Direction Photo Taken:
Downstream

Description:
Downstream condition of stream with concrete debris, unstable (soon to fall) trees, woody debris build up



SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
4	07/24/25

Direction Photo Taken:
Left Bank

Description:
Concrete debris in the channel, downstream of Project Area 1



SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
5	07/24/25

Direction Photo Taken:
Left Bank

Description:
Fallen trees causing debris build up in the channel. View from left bank. Between Project Area 1 and 2



SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
6	07/24/25

Direction Photo Taken:
Downstream

Description:
Concrete debris in the channel, fallen trees, bank erosion and woody debris build up in channel between Project Area 1 and 2



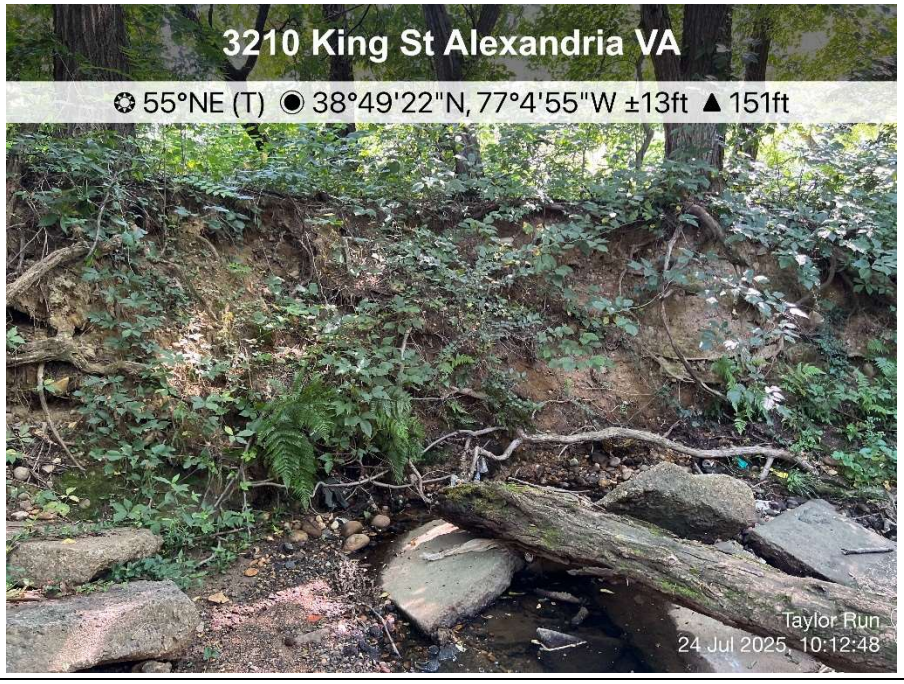
SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
7	07/24/25

Direction Photo Taken:
Left Bank

Description:
Eroding channel bank between Project Area 1 and 2



SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
8	07/24/25

Direction Photo Taken:
Downstream

Description:
Falling trees and debris build up in the stream between Project Area 1 and 2



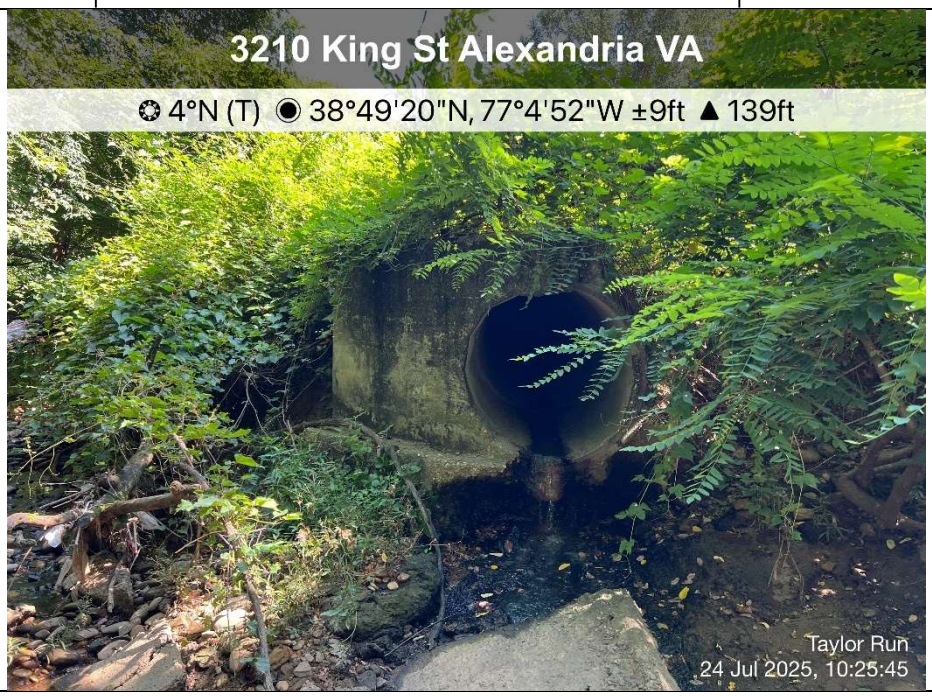
SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
9	07/24/25

Direction Photo Taken:
Left Bank

Description:
36-inch outfall showing undercut of headwall and erosion of the left side



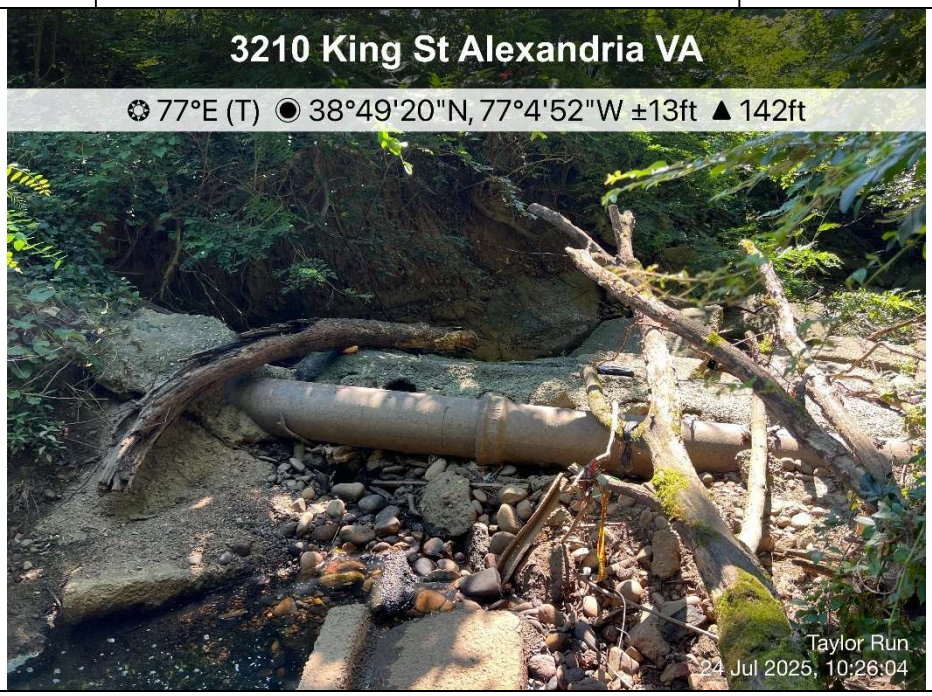
SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
10	07/24/25

Direction Photo Taken:
Downstream

Description:
Exposed sanitary sewer pipe next to 36-inch outfall (Project Area 2)



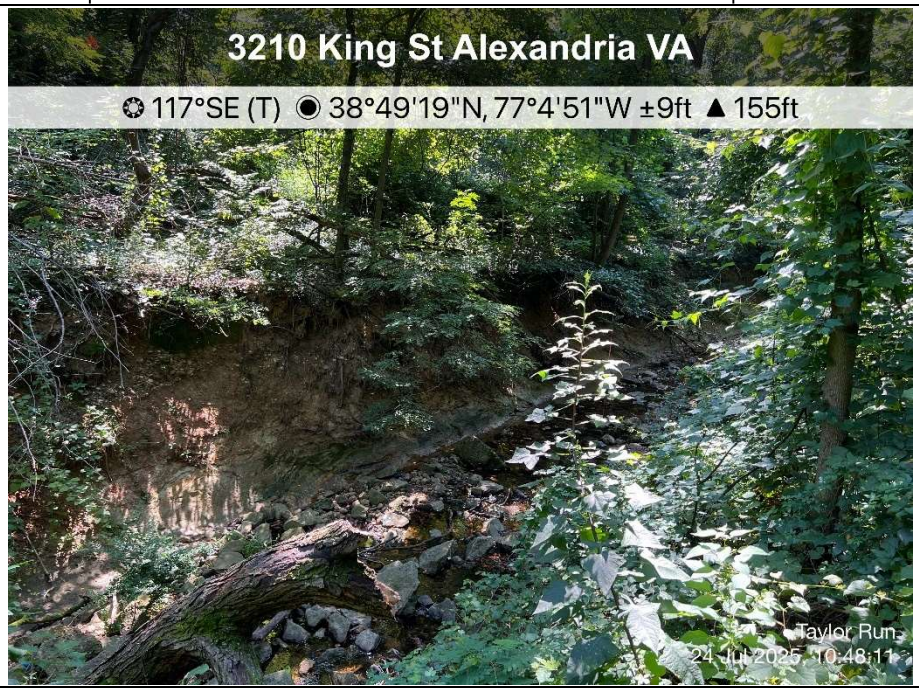
SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
11	07/24/25

Direction Photo Taken:
Left Bank

Description:
Severe bank erosion immediately downstream from the 36-inch outfall (Project Area 2)



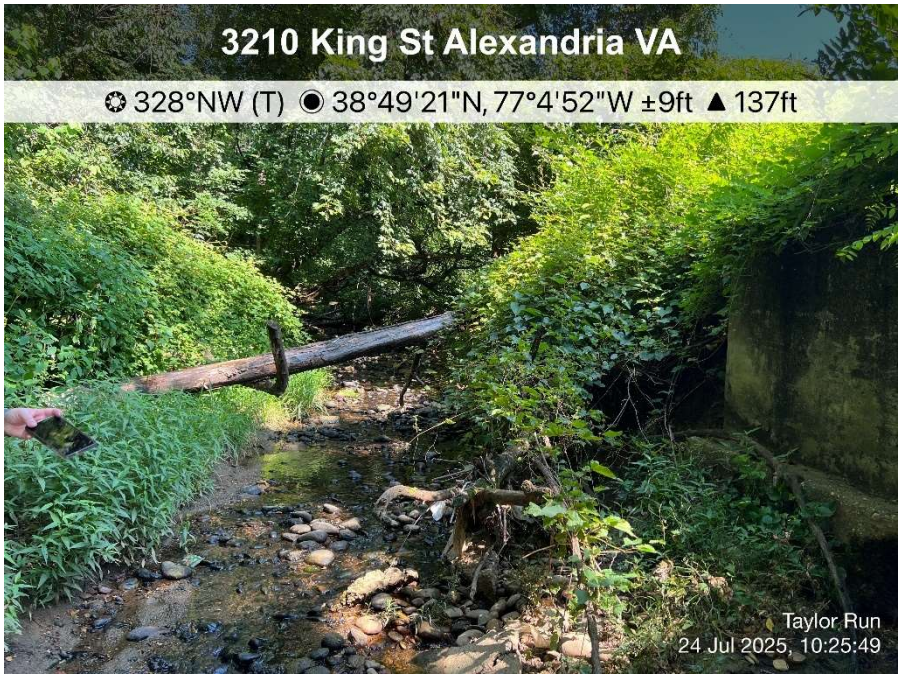
SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
12	07/24/25

Direction Photo Taken:
Upstream

Description:
Upstream stream condition, standing at the 36-inch outfall. Fallen tree(s) due to bank instability (Project Area 2)



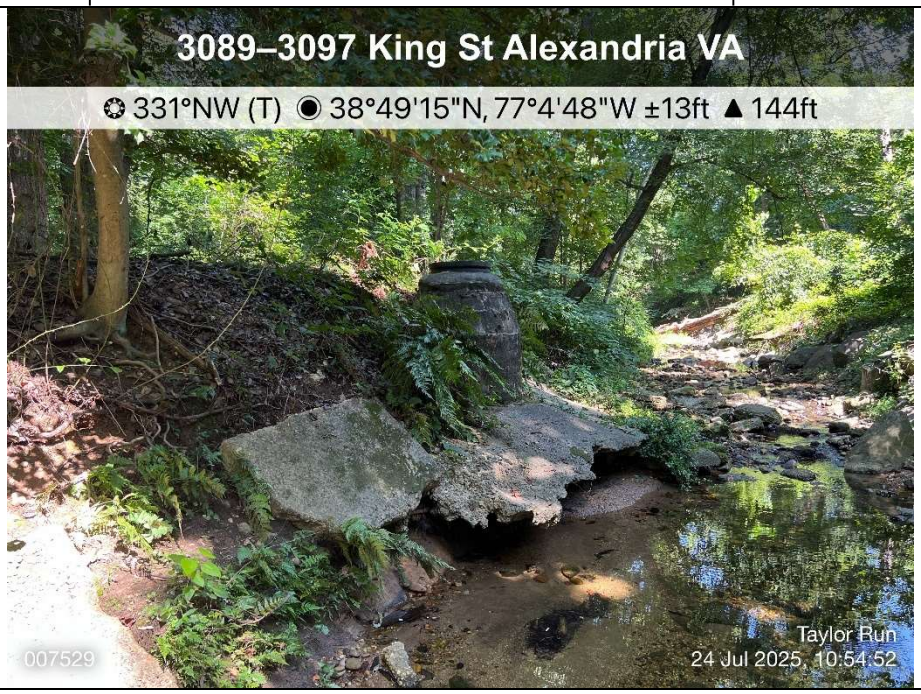
SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
13	07/24/25

Direction Photo Taken:
Upstream/Right Bank

Description:
Exposed sanitary sewer manhole with undercut of concrete skirt



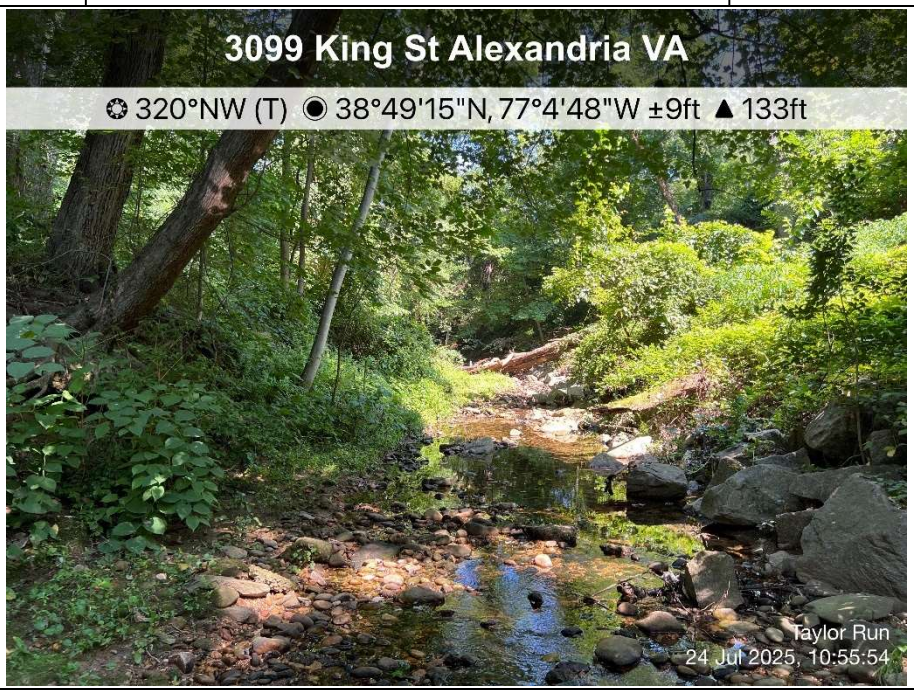
SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
14	07/24/25

Direction Photo Taken:
Downstream

Description:
Upstream stream condition from exposed sanitary sewer manhole (Project Area 3)



AECOM

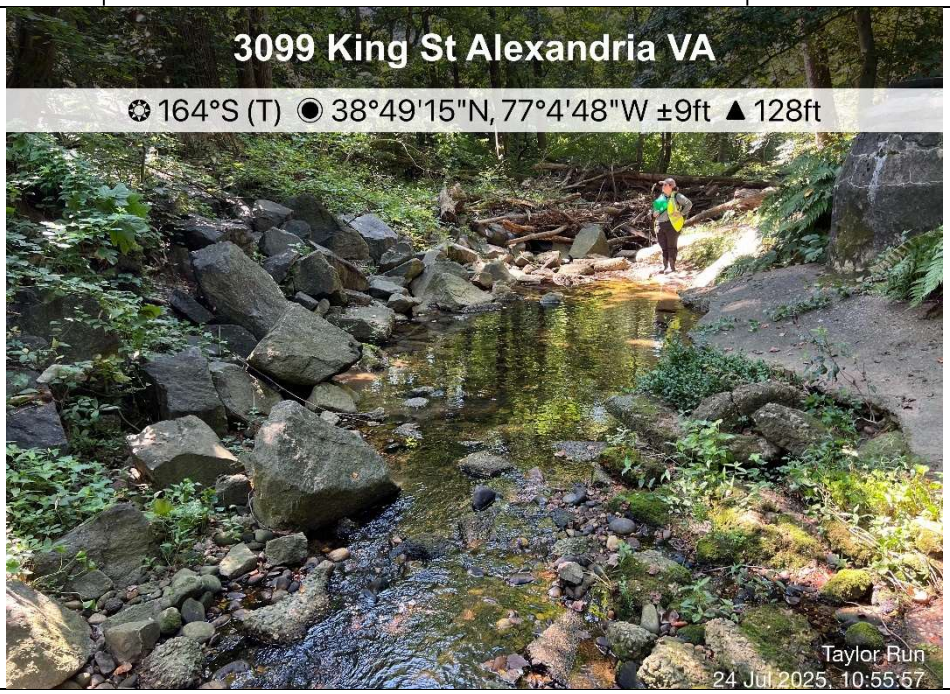
SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
15	07/24/25

Direction Photo Taken:
Downstream

Description:
Downstream conditions of the exposed sanitary sewer manhole. Woody Debris build up in the back. (Project Area 3)



AECOM

SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
16	07/24/25

Direction Photo Taken:
Upstream

Description:
Woody debris build up between Project Area 3 and Project Area 4. Falling trees from bank instalbility



AECOM

SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
17	07/24/25

Direction Photo Taken:
Left Bank

Description:
Exposed root exposure of champion tree (Project Area 4)



AECOM

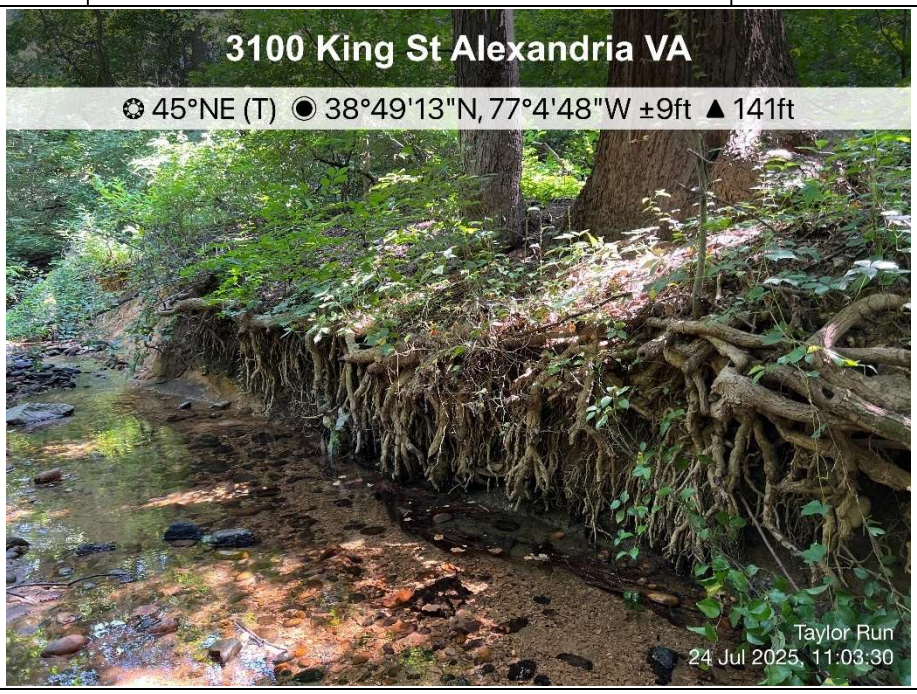
SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
18	07/24/25

Direction Photo Taken:
Upstream/Left Bank

Description:
Horizontal extent of root exposure of the champion tree (Project Area 4)



SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
19	07/24/25

Direction Photo Taken:
Downstream/Left Bank

Description:
Leaning sheet pile wall and build of debris within the channel (Project Area 4)



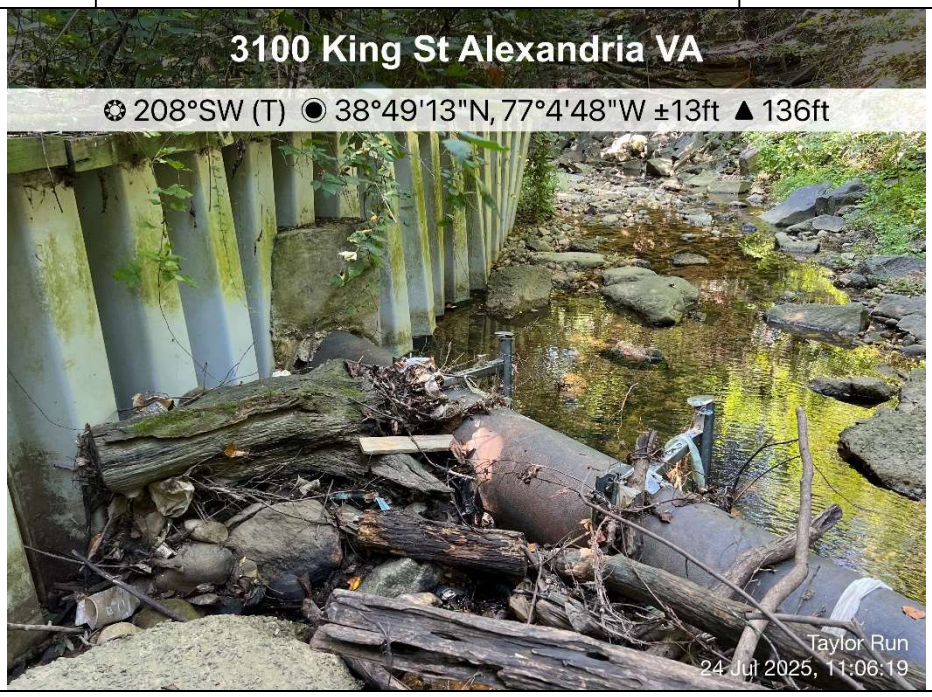
SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
20	07/24/25

Direction Photo Taken:
Downstream

Description:
Exposed sanitary sewer pipe near sheet pile wall (Project Area 4)



AECOM

SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
21	07/24/25

Direction Photo Taken:
Upstream Left Bank

Description:
Exposed roots, stream bank erosion and gully formed from trail side runoff



AECOM

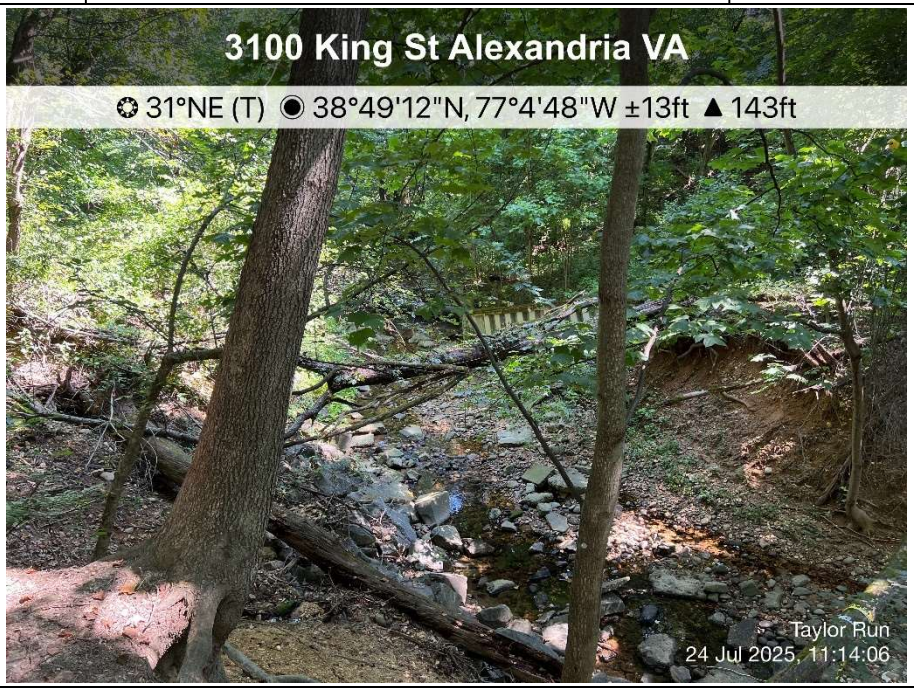
SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
22	07/24/25

Direction Photo Taken:
Upstream

Description:
Condition of right bank, downstream of study extent



SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
23	07/24/25

Direction Photo Taken:
Downstream

Description:
Condition of the stream downstream of study extent



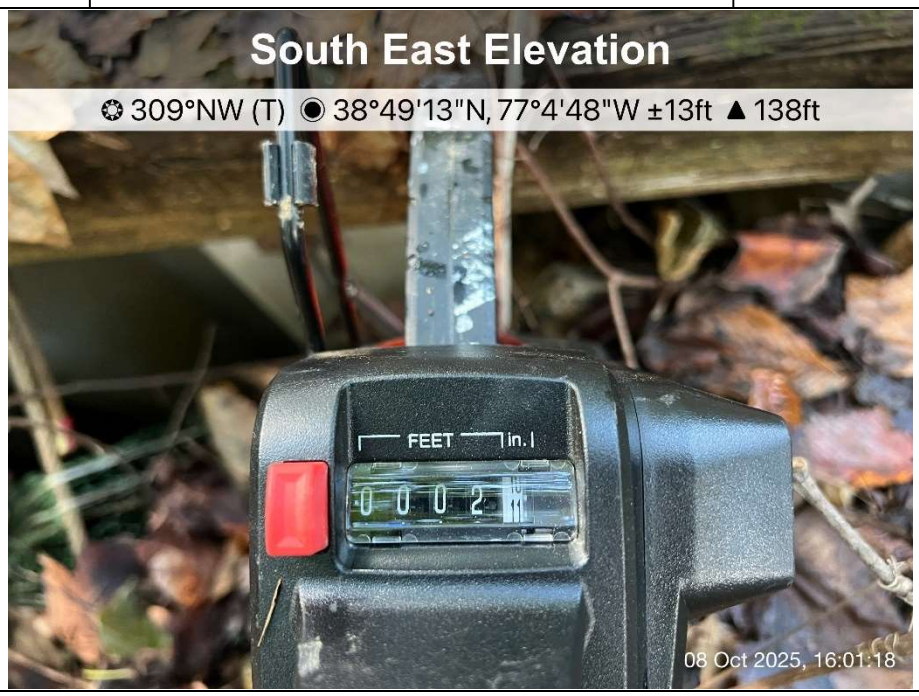
SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
24	10/08/25

Direction Photo Taken:
Right Bank

Description:
From center of sanitary manhole it is 2 feet from the sheet pile wall



SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
25	10/08/25

Direction Photo Taken:
Downstream

Description:
Outer extent of sanitary sewer manhole is 10 inches from the sheet pile wall



SITE PHOTOGRAPH LOG

Project Name:		Project No.
Taylor Run Stream Restoration		60742359

Photo No.	Date:
26	10/08/25

Direction Photo Taken:
Right Bank

Description:

Sanitary Sewer manhole is 19 feet from the start of the sheet pile wall



IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Project information

NAME

Taylor Run Infrastructure Stabilization

LOCATION

Alexandria County, Virginia



DESCRIPTION

None

Local office

Virginia Ecological Services Field Office

(804) 693-6694

6669 Short Lane
Gloucester, VA 23061-4410

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9045	Endangered
Tricolored Bat Perimyotis subflavus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

NOT FOR CONSULTATION

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate avoidance and minimization measures, as described in the various links on this page.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

There are Bald Eagles and/or Golden Eagles in your project area.

Measures for Proactively Minimizing Eagle Impacts
For information on how to best avoid and minimize disturbance to nesting bald eagles, please review the National Bald Eagle Management Guidelines. You may employ the timing and activity-specific distance recommendations in this document when designing your project/activity to avoid and minimize eagle impacts. For bald eagle information specific to Alaska, please refer to Bald Eagle Nesting and Sensitivity to Human Activity.

The FWS does not currently have guidelines for avoiding and minimizing disturbance to nesting Golden Eagles. For site-specific recommendations regarding nesting Golden Eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

If disturbance or take of eagles cannot be avoided, an incidental take permit may be available to authorize any take that results from, but is not the purpose of, an otherwise lawful activity. For assistance making this determination for Bald Eagles, visit the Do I Need A Permit Tool. For assistance making this determination for golden eagles, please consult with the appropriate Regional Migratory Bird Office or Ecological Services Field Office.

Ensure Your Eagle List is Accurate and Complete
If your project area is in a poorly surveyed area in IPaC, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to bald or golden eagles on your list, see the "Probability of Presence Summary" below to see when these bald or golden eagles are most likely to be present and breeding in your project area.

Review the FAQs
The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

NOT FOR CONSULTATION

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

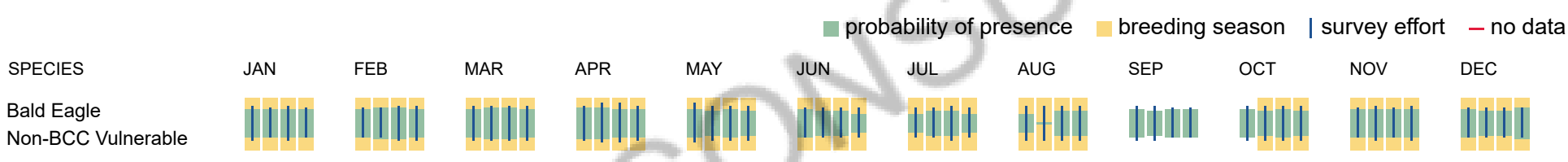
Breeding Season ( )
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle (Bald and Golden Eagle Protection Act requirements may apply).

Proper interpretation and use of your eagle report
On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

NOT FOR CONSULTATION

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Migratory birds

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service).

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Measures for Proactively Minimizing Migratory Bird Impacts

Your IPaC Migratory Bird list showcases birds of concern, including Birds of Conservation Concern (BCC), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the Nationwide avoidance and minimization measures for birds document, and any other project-specific avoidance and minimization measures suggested at the link Measures for avoiding and minimizing impacts to birds for the birds of concern on your list below.

Ensure Your Migratory Bird List is Accurate and Complete

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles document, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

Review the FAQs
The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Aug 31
Black-billed Cuckoo Coccyzus erythropthalmus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9399	Breeds May 15 to Oct 10
Blue-winged Warbler Vermivora cyanoptera This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Jun 30

NOT FOR CONSULTATION

Bobolink Dolichonyx oryzivorus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Canada Warbler Cardellina canadensis This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10
Cerulean Warbler Setophaga cerulea This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/2974	Breeds Apr 29 to Jul 20
Chimney Swift Chaetura pelagica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25
Eastern Whip-poor-will Antrostomus vociferus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20
Grasshopper Sparrow Ammodramus savannarum perpallidus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8329	Breeds Jun 1 to Aug 20
Kentucky Warbler Geothlypis formosa This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 20
King Rail Rallus elegans This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/8936	Breeds May 1 to Sep 5
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Pectoral Sandpiper Calidris melanotos This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Prairie Warbler Setophaga discolor This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Prothonotary Warbler Protonotaria citrea This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 1 to Jul 31
Red-headed Woodpecker Melanerpes erythrocephalus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
Rusty Blackbird Euphagus carolinus This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Scarlet Tanager Piranga olivacea This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 10 to Aug 10

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Semipalmated Sandpiper Calidris pusilla This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Short-billed Dowitcher Limnodromus griseus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9480	Breeds elsewhere
Willet Tringa semipalmata This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Apr 20 to Aug 5
Wood Thrush Hylocichla mustelina This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Aug 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

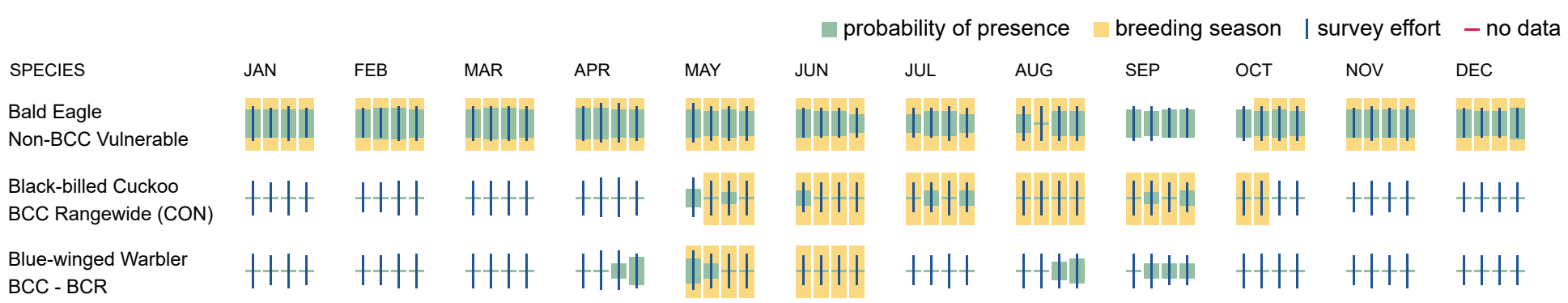
Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

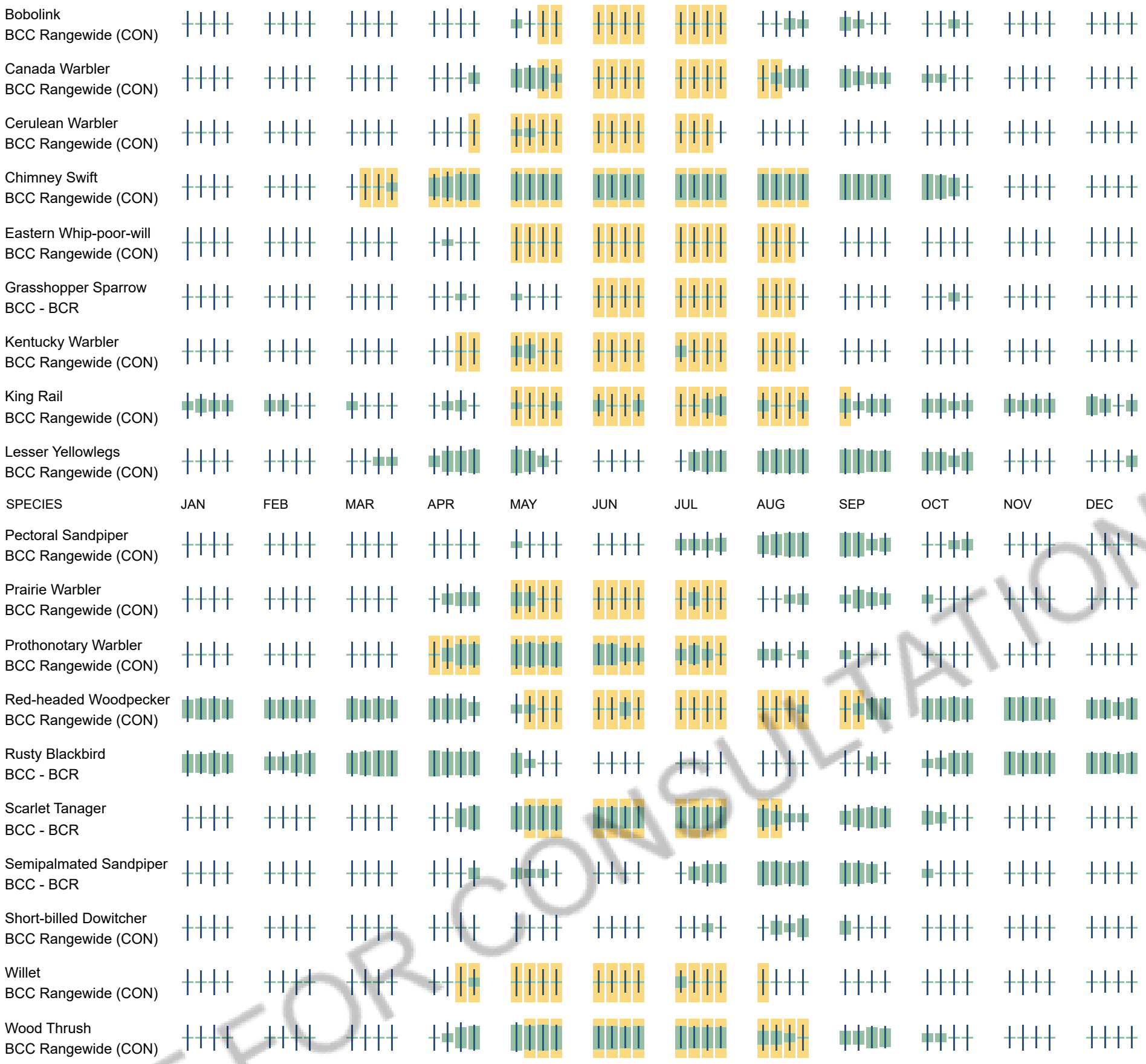
To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



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Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Avoidance & Minimization Measures for Birds describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the Bald and Golden Eagle Protection Act and those species marked as “Vulnerable”. See the FAQ “What are the levels of concern for migratory birds?” for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle (Bald and Golden Eagle Protection Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the Rapid Avian Information Locator (RAIL) Tool.

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Bald and Golden Eagle Protection Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ “Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds”.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs
Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()

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A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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Virginia Department of Wildlife Resources
An official website Here's how you know

Find a Commonwealth Resource

Virginia Department of Wildlife Resources

Search VA DWR Go

VaFWIS Search Report Compiled on 4/20/2026, 7:56:42 AM

Observations reported or potential habitat occurs within a **3 mile radius around point 38.8230770 -77.0823435** in **013 Arlington County, 059 Fairfax County, 510 Alexandria City, VA**

View Map of Site Location

747 Known or Likely Species ordered by Status Concern for Conservation
(displaying first 45) (45 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name
050022	FESE	Ia	Bat, Northern Long-eared	Myotis septentrionalis
010032	FESE	Ib	Sturgeon, Atlantic	Acipenser oxyrinchus
060029	FTST	IIa	Lance, yellow	Elliptio lanceolata
050020	SE	Ia	Bat, little brown	Myotis lucifugus
060006	SE	Ib	Floater, brook	Alasmidonta varicosa
050027	FPSE	IIIa	Bat, Tricolored	Perimyotis subflavus
030062	ST	Ia	Turtle, wood	Glyptemys insculpta
040096	ST	Ia	Falcon, peregrine	Falco peregrinus
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus
100155	ST	Ia	Skipper, Appalachian grizzled	Pyrgus wyandot
040379	ST	Ib	Sparrow, Henslow's	Centronyx henslowii
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans
100248	FP	Ia	Fritillary, Regal	Speyeria idalia idalia
100079	FP	IIIa	Butterfly, Monarch	Danaus plexippus
030012	CC	IIIa	Rattlesnake, timber	Crotalus horridus
030063	CC	IIIa	Turtle, spotted	Clemmys guttata
040372		c	Crossbill, red	Loxia curvirostra
040304		c	Warbler, Swainson's	Limnothlypis swainsonii
010077		Ia	Shiner, bridle	Notropis bifrenatus
040029		Ia	Heron, little blue	Egretta caerulea caerulea
040040		Ia	Ibis, glossy	Plegadis falcinellus
040204		Ia	Owl, American Barn	Tyto furcata
040383		Ia	Sparrow, vesper	Pooecetes gramineus
040306		Ia	Warbler, golden-winged	Vermivora chrysoptera
040140		Ia	Woodcock, American	Scolopax minor
010045		Ib	Herring, blueback	Alosa aestivalis
040216		Ib	Nighthawk, common	Chordeiles minor
040105		Ib	Rail, king	Rallus elegans
040340		Ib	Warbler, Canada	Cardellina canadensis
010168		II	Bass, striped	Morone saxatilis
010131		IIa	Eel, American	Anguilla rostrata
040364		IIa	Dickcissel	Spiza americana

040052		IIa	Duck, American black	Anas rubripes
040033		IIa	Egret, snowy	Egretta thula
040098		IIa	Kestrel, American	Falco sparverius sparverius
040377		IIa	Sparrow, savannah	Passerculus sandwichensis
040181		IIa	Tern, common	Sterna hirundo
040320		IIa	Warbler, cerulean	Setophaga cerulea
060071		IIa	Lampmussel, yellow	Lampsilis cariosa
010040		IIb	Shad, American	Alosa sapidissima
040167		IIb	Gull, American Herring	Larus smithsonianus
040028		IIb	Heron, green	Butorides virescens
040180		IIb	Tern, Forster's	Sterna forsteri
070020		IIc	Amphipod, Pizzini's	Stygobromus pizzinii
100154		IIc	Butterfly, Persius duskywing	Erynnis persius persius

To view **All 747 species** View 747

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; CC=Collection Concern

**I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier
Virginia Widlife Action Plan Conservation Opportunity Ranking:
a - On the ground management strategies/actions exist and can be feasibly implemented.; b - On the ground actions or research needs have been identified but cannot feasibly be implemented at this time.; c - No on the grou

Anadromous Fish Use Streams (2 records)

Stream ID	Stream Name	Reach Status	Anadromous Fish Species			View Map
			Different Species	Highest TE*	Highest Tier**	
C25	Fourmile run	Confirmed	2		II	Yes
P42	Cameron run	Potential	0			Yes

Impediments to Fish Passage

N/A

Threatened and Endangered Waters

N/A

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests

N/A

Habitat Predicted for Aquatic WAP Tier I & II Species (1 Reach) View Map Combined Reaches from Below of Habitat Predicted for WAP Tier I & II Aquatic Species

Stream Name	Tier Species						View Map
	Highest TE*	BOVA Code	Status*	Tier**	Common Name	Scientific Name	
Holmes Run (20700102)		010077		Ia	Shiner, bridle	Notropis bifrenatus	Yes

Habitat Predicted for Terrestrial WAP Tier I & II Species (2 Species) View Map of Combined Terrestrial Habitat Predicted for 2 WAP Tier I & II Species Listed Below
ordered by Status Concern for Conservation

BOVA Code	Status*	Tier**	Common Name	Scientific Name	View Map
040105		Ib	Rail, king	Rallus elegans	Yes
040038			Bittern, American	Botaurus lentiginosus	Yes

Virginia Breeding Bird Atlas Blocks (8 records) View Map of All Query Results
Virginia Breeding Bird Atlas Blocks

BBA ID	Atlas Quadrangle Block Name	Breeding Bird Atlas Species	View Map

		Different Species	Highest TE*	Highest Tier**	
54194	Alexandria, CE	49		II	Yes
54193	Alexandria, CW	27		II	Yes
54192	Alexandria, NE	32		II	Yes
54191	Alexandria, NW	58		II	Yes
54196	Alexandria, SE	74		I	Yes
54195	Alexandria, SW	95		I	Yes
53194	Annandale, CE	49		II	Yes
53192	Annandale, NE	49		I	Yes

Public Holdings: (2 names)

Name	Agency	Level
George Washington Memorial National Parkway	National Park Service	Federal
Cameron Station Military Reservation	U.S. Dept. of Army	Federal

Summary of BOVA Species Associated with Cities and Counties of the Commonwealth of Virginia:

FIPS Code	City and County Name	Different Species	Highest TE	Highest Tier
013	Arlington	458	FESE	I
059	Fairfax	559	FESE	I
510	Alexandria City	475	FESE	I

USGS 7.5' Quadrangles:
Annandale
Alexandria

USGS NRCS Watersheds in Virginia:

N/A

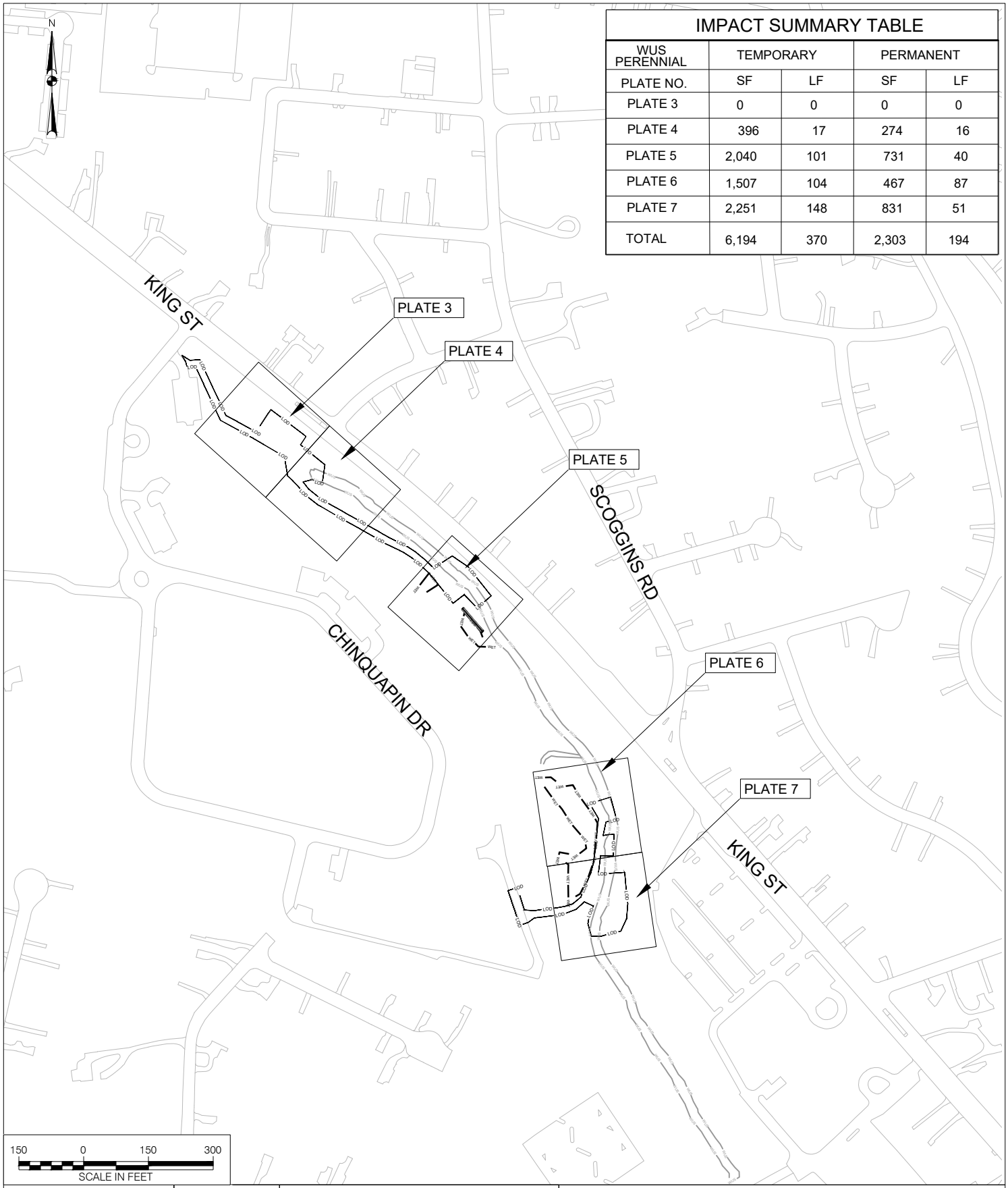
USGS National 6th Order Watersheds Summary of Wildlife Action Plan Tier I, II, III, and IV Species:

HU6 Code	USGS 6th Order Hydrologic Unit	Different Species	Highest TE	Highest Tier
PL24	Potomac River-Pimmit Run	68	FPSE	I
PL25	Potomac River-Fourmile Run	67	FPST	I
PL26	Cameron Run	69	FPST	I
PL28	Potomac River-Little Hunting Creek	71	FPST	I

Compiled on 4/20/2026, 7:56:43 AM V4946692.0 report=V searchType= R dist= 4827 poi= 38.8230770 -77.0823435

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Visitor 4946692

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IMPACT SUMMARY TABLE				
WUS PERENNIAL	TEMPORARY		PERMANENT	
PLATE NO.	SF	LF	SF	LF
PLATE 3	0	0	0	0
PLATE 4	396	17	274	16
PLATE 5	2,040	101	731	40
PLATE 6	1,507	104	467	87
PLATE 7	2,251	148	831	51
TOTAL	6,194	370	2,303	194

AECOM

CITY OF ALEXANDRIA VIRGINIA

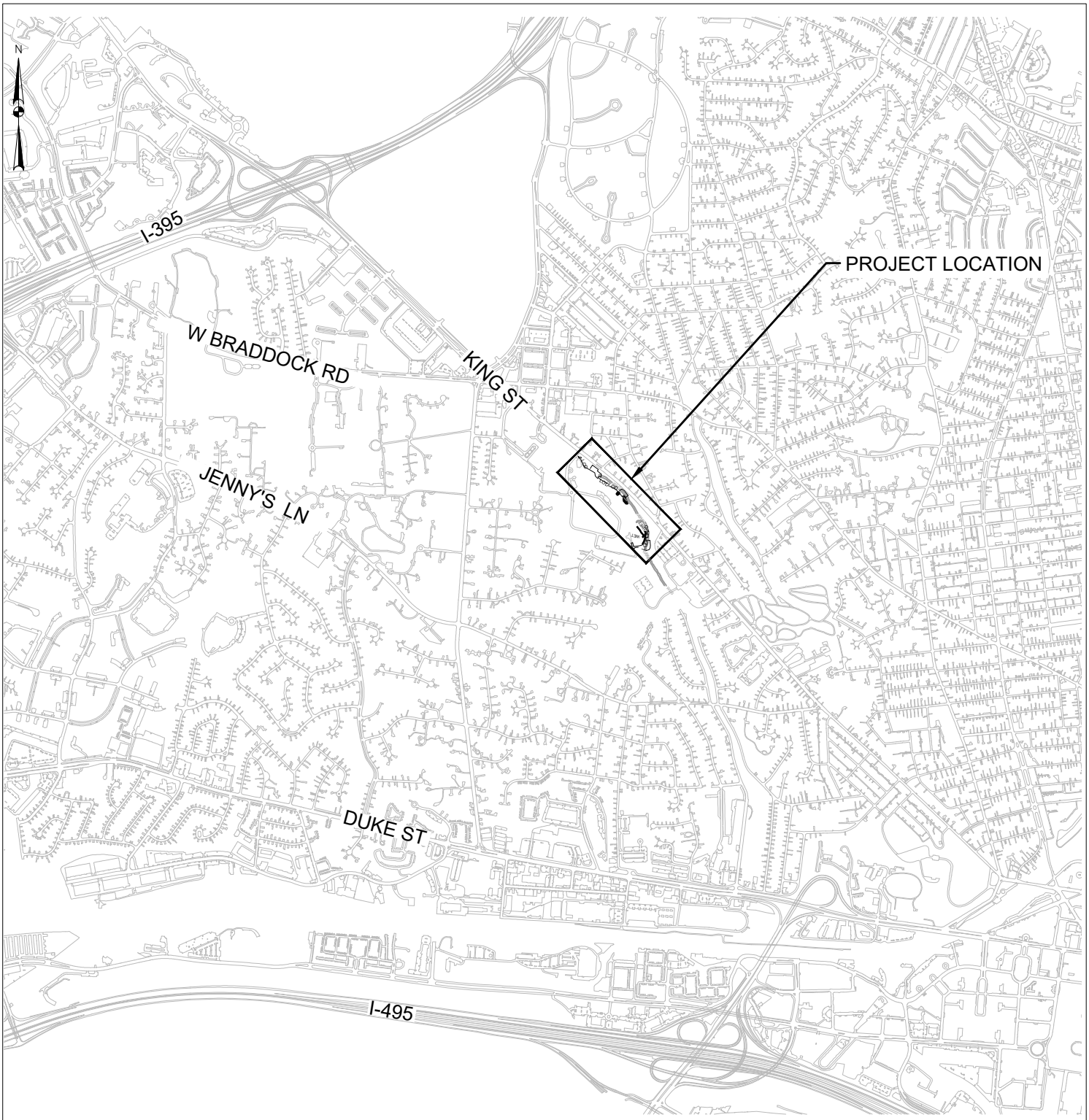
TAYLOR RUN STREAM STABILIZATION

CITY OF ALEXANDRIA, VIRGINIA

KEY MAP

DATE: OCTOBER 2026

SCALE: 1"=300' PLATE 2 OF 7



1000 0 1000 2000
SCALE IN FEET

AECOM

CITY OF ALEXANDRIA VIRGINIA

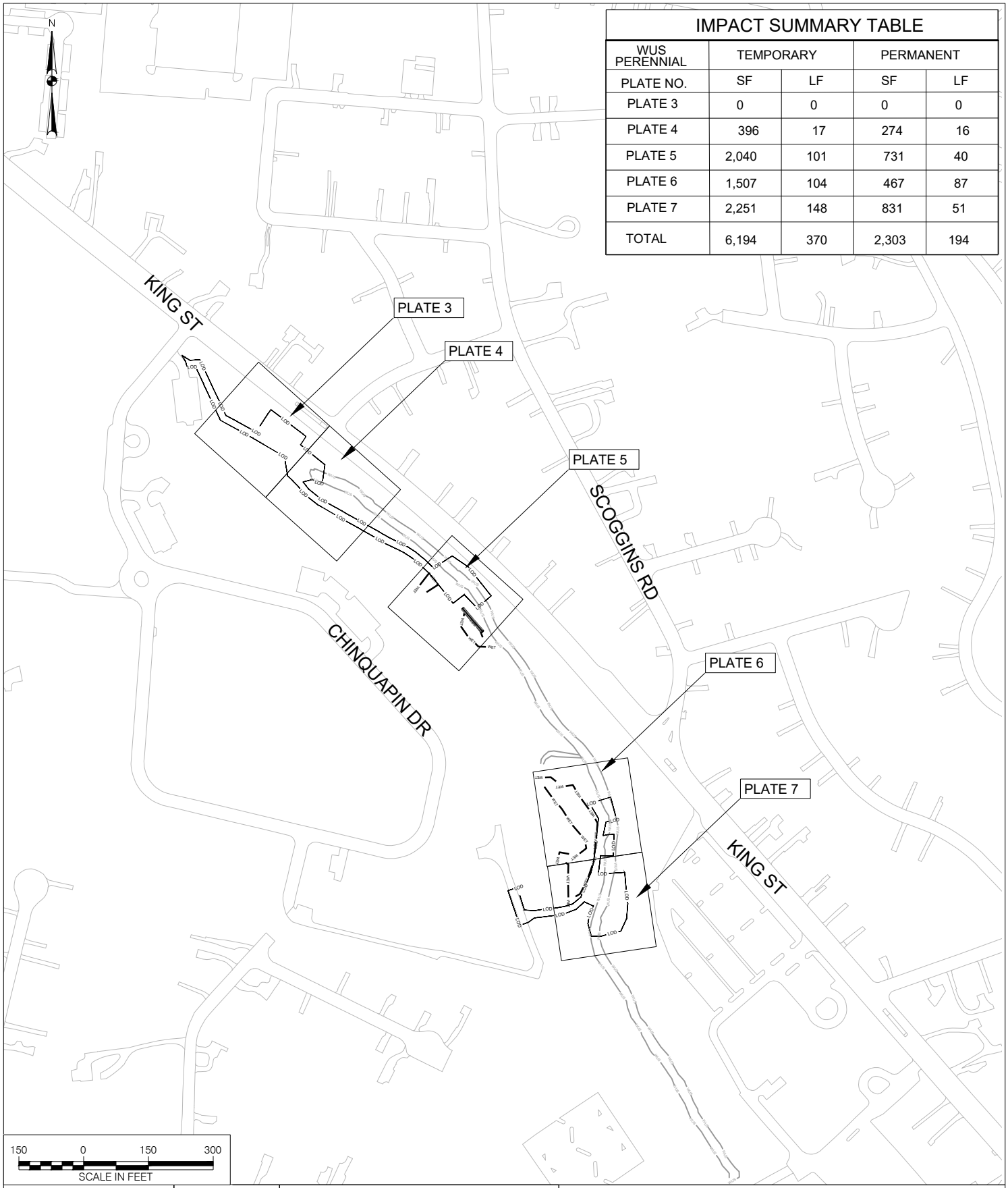
TAYLOR RUN STREAM STABILIZATION

CITY OF ALEXANDRIA, VIRGINIA

VICINITY MAP

DATE: OCTOBER 2026

SCALE: 1"=2,000' PLATE 1 OF 7



IMPACT SUMMARY TABLE				
WUS PERENNIAL	TEMPORARY		PERMANENT	
PLATE NO.	SF	LF	SF	LF
PLATE 3	0	0	0	0
PLATE 4	396	17	274	16
PLATE 5	2,040	101	731	40
PLATE 6	1,507	104	467	87
PLATE 7	2,251	148	831	51
TOTAL	6,194	370	2,303	194

AECOM

CITY OF ALEXANDRIA VIRGINIA

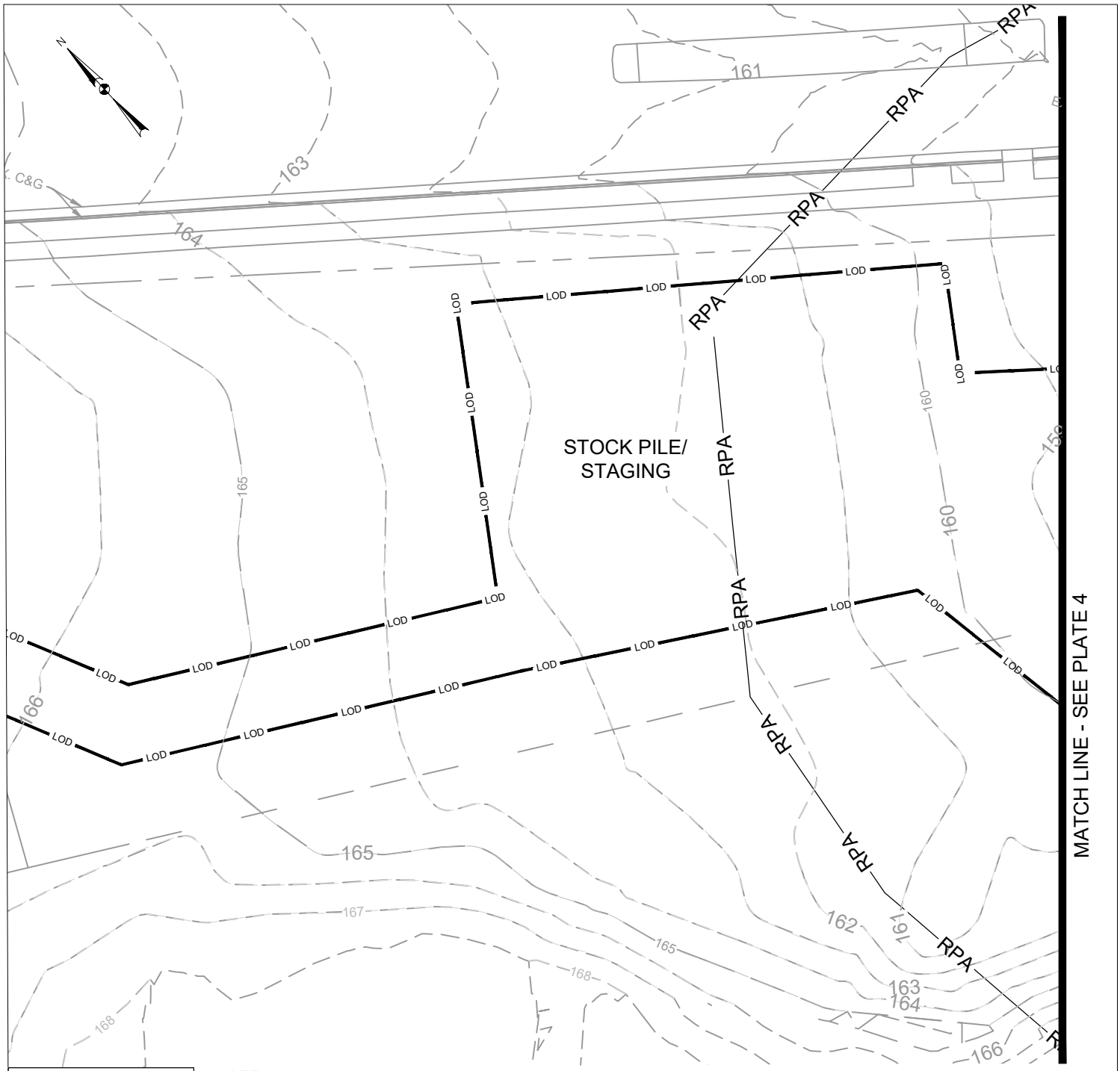
TAYLOR RUN STREAM STABILIZATION

CITY OF ALEXANDRIA, VIRGINIA

KEY MAP

DATE: OCTOBER 2026

SCALE: 1"=300' PLATE 2 OF 7



0 15 30
SCALE IN FEET

NOTE:
NO RESOURCE IMPACTS ON THIS PLATE.

LEGEND

RESOURCE PROTECTION AREA — RPA —
LIMIT OF DISTURBANCE — LOD — 100-YR FLOODPLAIN — 100 YR —
WATER OF THE U.S. — WUS — WETLAND
WETLAND IMPACTS TEMP PERM
WUS IMPACT TEMP PERM

IMPACT PLATE

	TEMPORARY	PERMANENT
WUS PERENNIAL (SF/LF)	0	0
NON-TIDAL WETLAND (SF)	0	0

AECOM

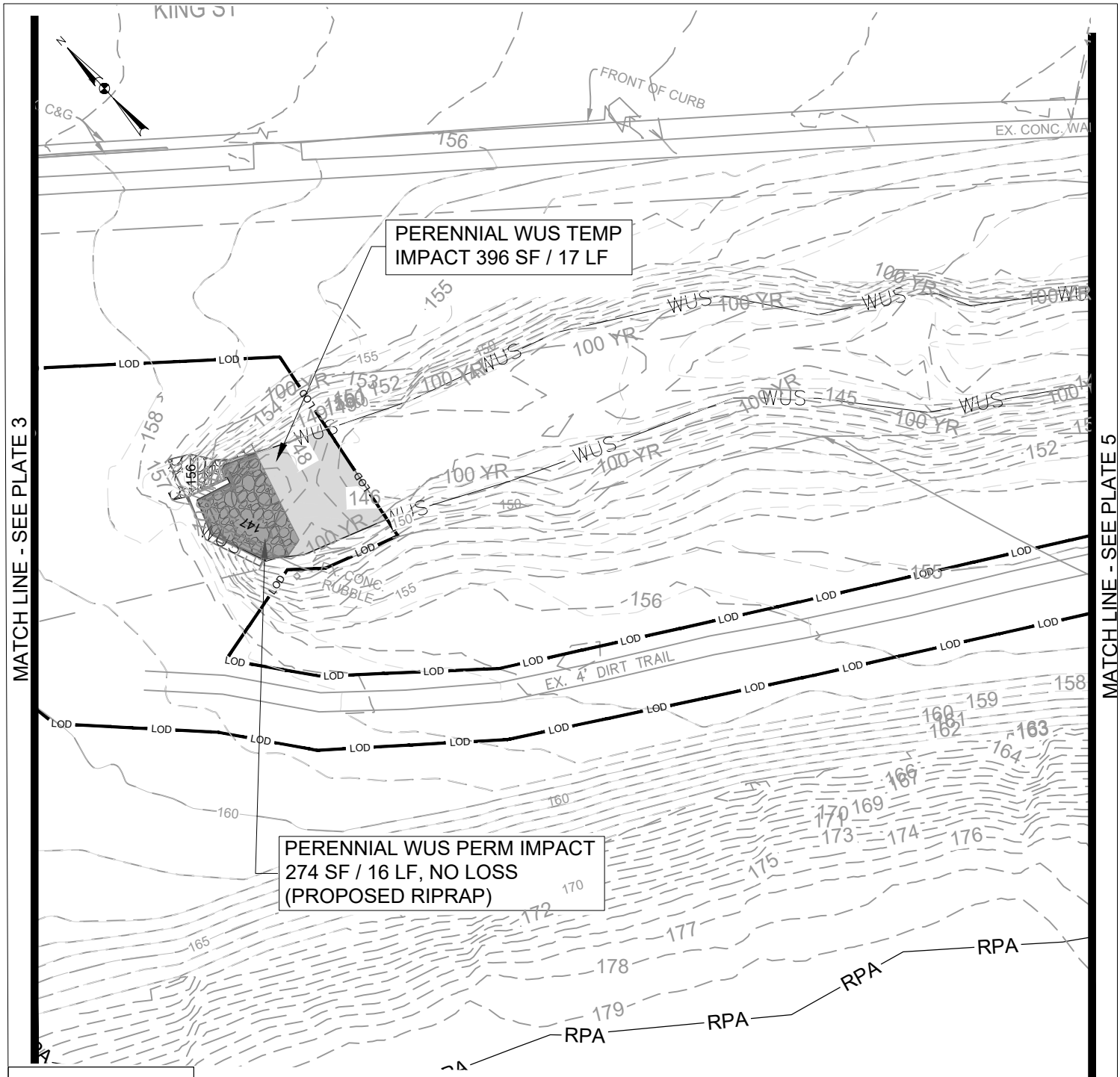
CITY OF ALEXANDRIA VIRGINIA

TAYLOR RUN STREAM STABILIZATION

CITY OF ALEXANDRIA, VIRGINIA

DATE: OCTOBER 2026

SCALE: 1"= 30' PLATE 3 OF 7



LEGEND

RESOURCE PROTECTION AREA — RPA —
LIMIT OF DISTURBANCE — LOD — 100-YR FLOODPLAIN — 100 YR —
WATER OF THE U.S. — WUS — WETLAND
WETLAND IMPACTS TEMP PERM
WUS IMPACT TEMP PERM

IMPACT PLATE

	TEMPORARY	PERMANENT
WUS PERENNIAL (SF/LF)	396/17	274/16
NON-TIDAL WETLAND (SF)	0	0

AECOM

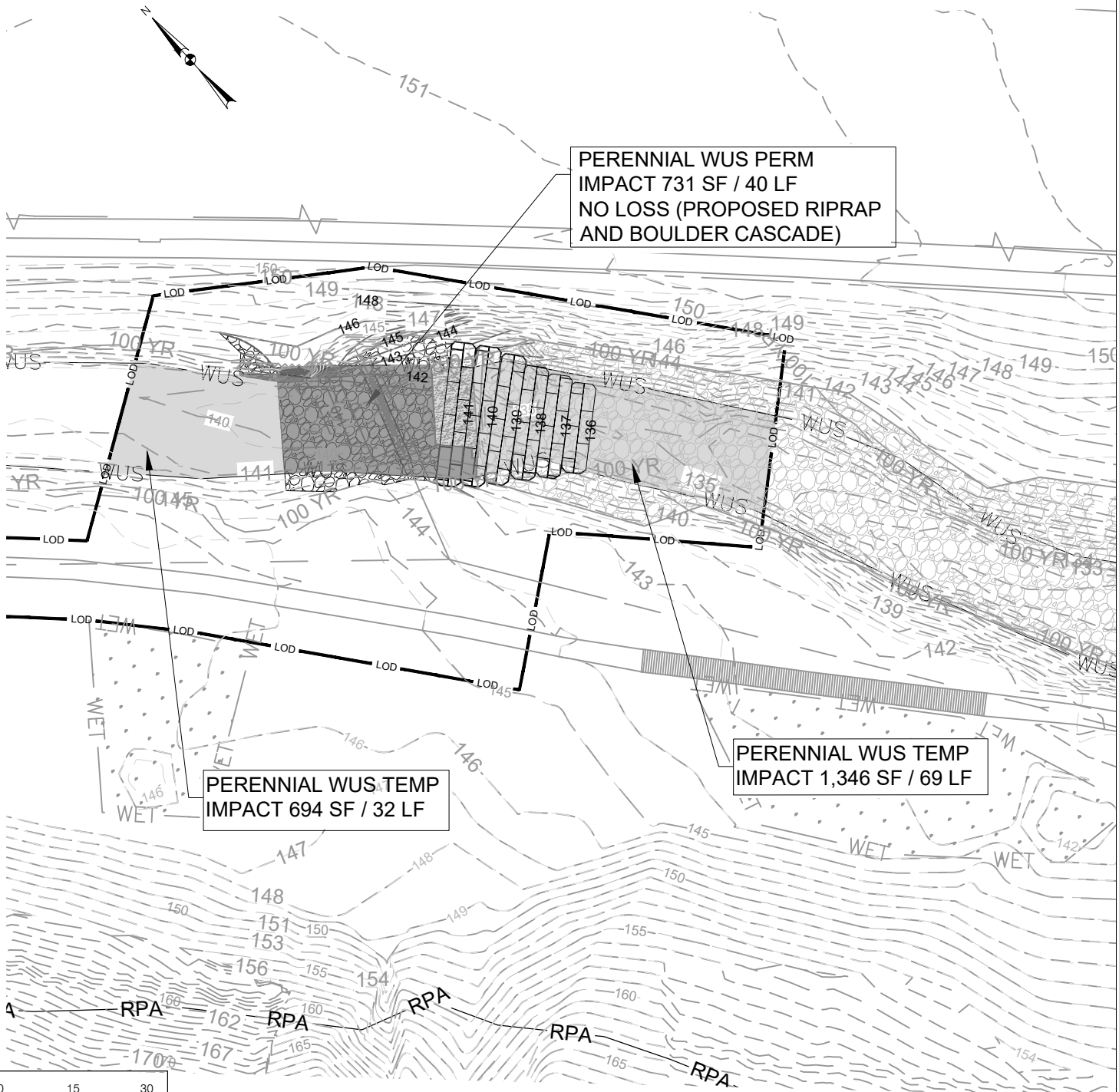
CITY OF ALEXANDRIA VIRGINIA

TAYLOR RUN STREAM STABILIZATION

CITY OF ALEXANDRIA, VIRGINIA

DATE: OCTOBER 2026

SCALE: 1"= 30' PLATE 4 OF 7



LEGEND

RESOURCE PROTECTION AREA — RPA —
LIMIT OF DISTURBANCE — LOD — 100-YR FLOODPLAIN — 100 YR —
WATER OF THE U.S. — WUS — WETLAND
WETLAND IMPACTS TEMP PERM
WUS IMPACT TEMP PERM

IMPACT PLATE

	TEMPORARY	PERMANENT
WUS PERENNIAL (SF/LF)	2,040/101	731/40
NON-TIDAL WETLAND (SF)	0	0

AECOM

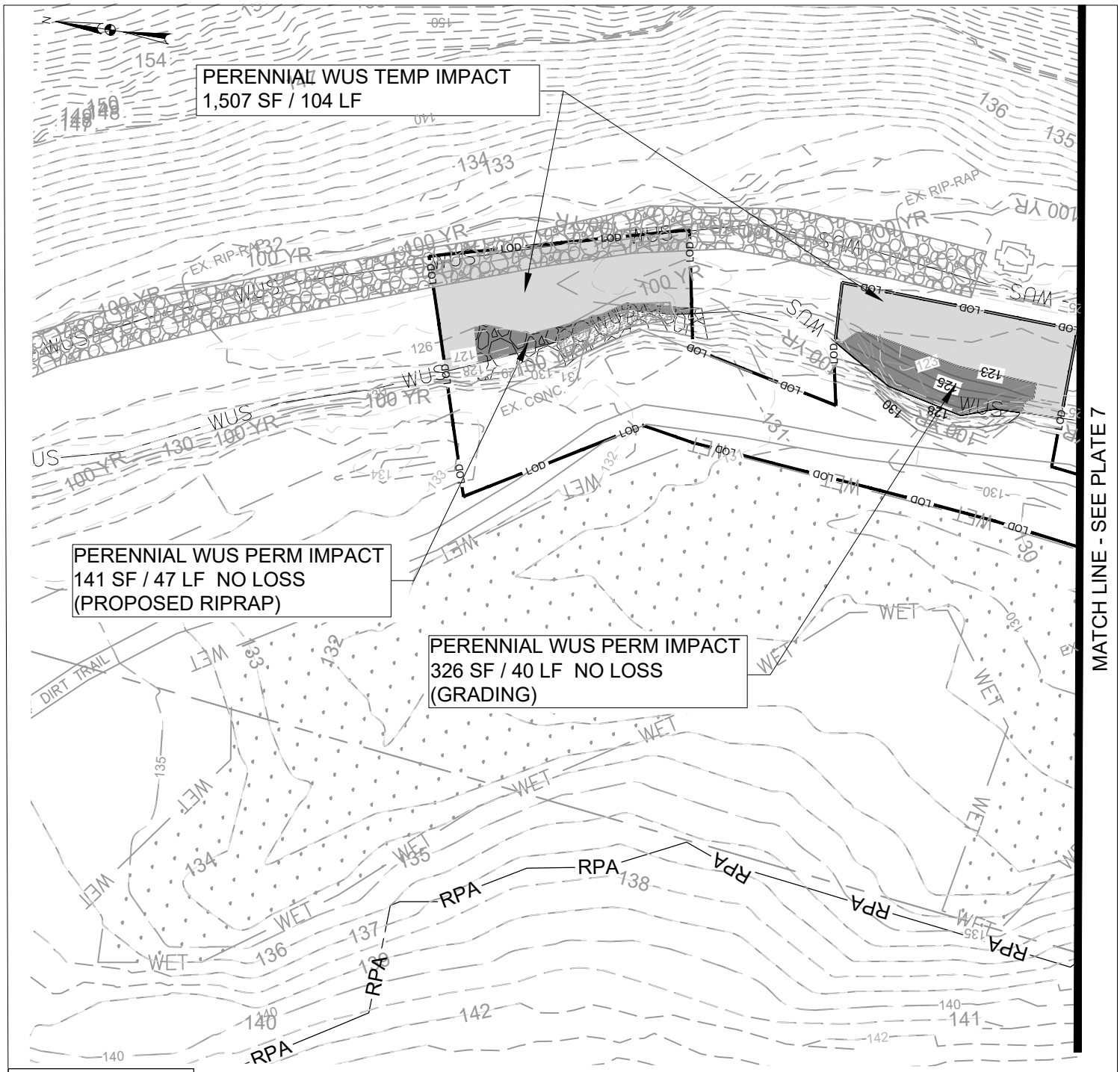
CITY OF ALEXANDRIA VIRGINIA

TAYLOR RUN STREAM STABILIZATION

CITY OF ALEXANDRIA, VIRGINIA

DATE: OCTOBER 2026

SCALE: 1"= 30' PLATE 5 OF 7



LEGEND

RESOURCE PROTECTION AREA — RPA —
LIMIT OF DISTURBANCE — LOD — 100-YR FLOODPLAIN — 100 YR —
WATER OF THE U.S. — WUS — WETLAND
WETLAND IMPACTS TEMP PERM
WUS IMPACT TEMP PERM

IMPACT PLATE

	TEMPORARY	PERMANENT
WUS PERENNIAL (SF/LF)	1,507/104	467/87
NON-TIDAL WETLAND (SF)	0	0

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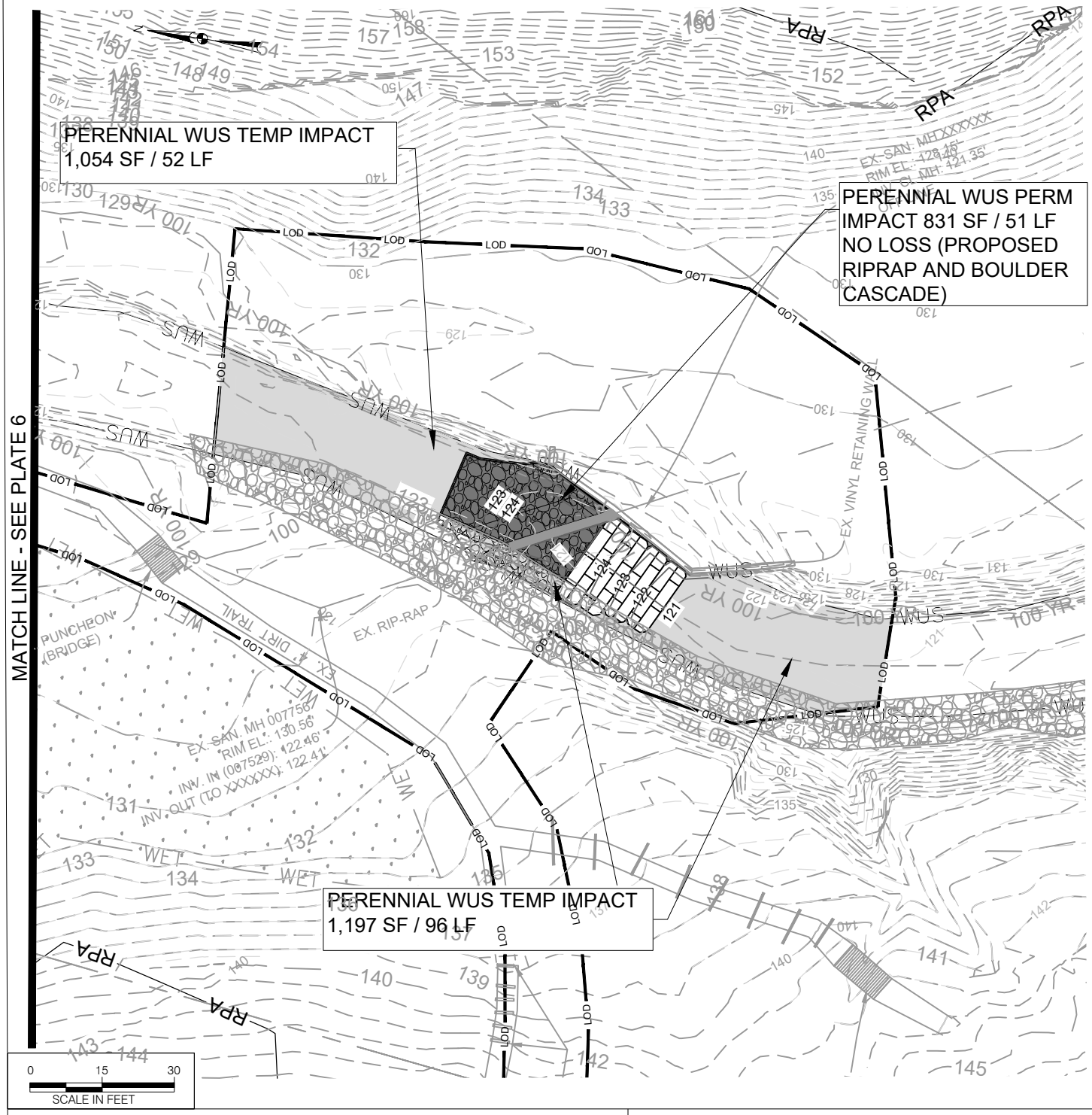
CITY OF ALEXANDRIA VIRGINIA

TAYLOR RUN STREAM STABILIZATION

CITY OF ALEXANDRIA, VIRGINIA

DATE: OCTOBER 2026

SCALE: 1"= 30' PLATE 6 OF 7



LEGEND

RESOURCE PROTECTION AREA — RPA —
LIMIT OF DISTURBANCE — LOD — 100-YR FLOODPLAIN — 100 YR —
WATER OF THE U.S. — WUS — WETLAND — WET —
WETLAND IMPACTS TEMP PERM
WUS IMPACT TEMP PERM

IMPACT PLATE

	TEMPORARY	PERMANENT
WUS PERENNIAL (SF/LF)	2,251/148	831/51
NON-TIDAL WETLAND (SF)	0	0

AECOM

CITY OF ALEXANDRIA VIRGINIA

TAYLOR RUN STREAM STABILIZATION

CITY OF ALEXANDRIA, VIRGINIA

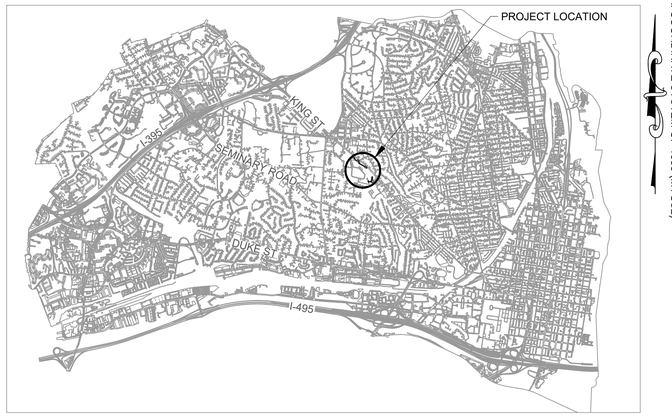
DATE: OCTOBER 2026

SCALE: 1"= 30' PLATE 7 OF 7

CITY OF ALEXANDRIA, VIRGINIA

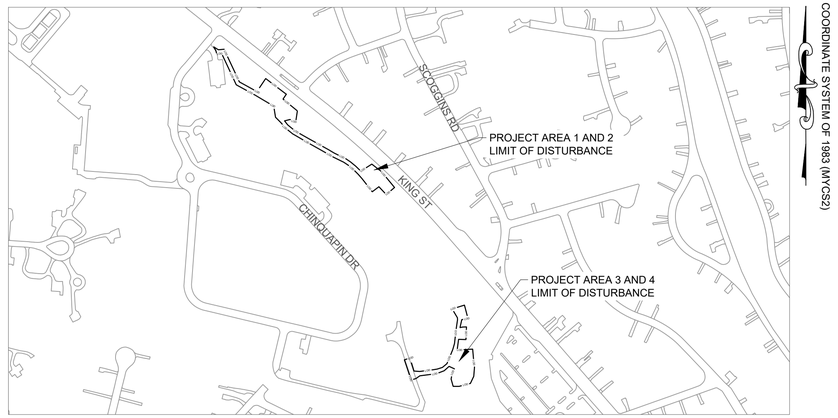
TAYLOR RUN INFRASTRUCTURE STABILIZATION

60% DESIGN



LOCATION MAP

SCALE 1" = 4000'



VICINITY MAP

SCALE 1" = 300'

TOTAL DISTURBED AREA: 53,433 SF (1.2 AC)
INCREASE IN IMPERVIOUS AREA: 0 SF (0 AC)
OCTOBER 30, 2026

va811.com Dig With CARE

KNOW WHAT'S BELOW.
CALL BEFORE YOU DIG.
DIAL 811 IN VIRGINIA OR
1-800-552-7001

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

POINT OF CONTACT:
BRANDON ALDERMAN, CERP
BRANDON.ALDERMAN@AECOM.COM

PROJECT DESCRIPTION:
THE OBJECTIVE OF THIS PROJECT IS TO PROVIDE A MINIMAL STABILIZATION APPROACH ALONG TAYLOR RUN TO PROTECT THE CITY'S COMPROMISED STORMWATER AND SANITARY SEWER INFRASTRUCTURE.

DEPARTMENT OF TRANSPORTATION & ENVIRONMENTAL SERVICES.

APPROVED

X DATE:

DIRECTOR

RECOMMENDED FOR APPROVAL

X DATE:

DEPUTY DIRECTOR OF OPERATIONS

RECOMMENDED FOR APPROVAL

X DATE:

DEPUTY DIRECTOR OF INFRASTRUCTURE & ENVIRONMENT QUALITY

RECOMMENDED FOR APPROVAL

X DATE:

DEPUTY DIRECTOR OF RIGHT-OF-WAY & DEVELOPMENT SERVICES

RECOMMENDED FOR APPROVAL

X DATE:

DEPUTY DIRECTOR OF TRANSPORTATION

DEPARTMENT OF RECREATION, PARKS, AND CULTURAL ACTIVITIES

APPROVED

X DATE:

DIVISION CHIEF RPCA

DEPARTMENT OF PROJECT IMPLEMENTATION

APPROVED

X DATE:

DIRECTOR

RECOMMENDED FOR APPROVAL

X DATE:

DIVISION CHIEF

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DESCRIPTION	DATE

ALEXANDRIA PROJECT NO.: 23086
DATE OF PLAN ISSUANCE:
CONSULTANT PROJECT ID.: 60742359
DESIGNED BY: SB, TN DATE: 10/2026
DRAWN BY: SB, TN DATE: 10/2026
CHECKED BY: BA DATE: 10/2026
APPROVED BY: BA DATE: 10/2026

SEAL:

COVER SHEET

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING:
G-01

SCALE:
N/A

SHEET:
01 OF 52

APPROACH TO LIMIT
PROJECT AREA BEGINS AT
RECREATION CENTER,
APPROXIMATELY 1,500 LINEAR
LINEAR FEET WILL BE
IMPACTED. THE PROJECT TERMINATES DOWNSTREAM OF THE EXISTING SHEET PILE WALL.
DISREPAIR AND AN
CAUSING THEM TO FALL,
ROOT ZONE OF A
SEWER MAIN, WITH

AREA (SFHA) AND IS
SURROUNDING AREA IS HIGHLY

VERTICAL DATUM: NAVD88 (FOR ALL SOURCES: GIS, AERIAL TOPOGRAPHY, SURVEY)
UTILITY INFORMATION INFORMATION, AS SHOWN ON THIS PLAN, IS A COMBINATION OF GIS DIGITAL DATA, AERIAL TOPOGRAPHY, AND SURVEY PROVIDED BY THE CITY OF ALEXANDRIA, QUANTUM SPATIAL, AND WETLAND STUDIES AND SOLUTIONS (WSSI), RESPECTIVELY. FOR EXACT LOCATIONS OF EXISTING UNDERGROUND UTILITIES NOTIFY "VA811" AT 811 OR 1-800-552-7001, 72 HOURS

LOCATION AND DEPTH OF ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION CONTRACTOR/ENGINEER SHOULD DIG TEST PITS BY HAND

SITE TOPOGRAPHY WAS SURVEYED AND PROVIDED BY THE CITY OF ALEXANDRIA, QUANTUM SPATIAL, AND RICE ASSOCIATES FOR A TARGET HORIZONTAL MAP SCALE OF 1"=20' AT A CONTOUR

RICE ASSOCIATES SURVEYED THE TOPOGRAPHY, EXISTING SANITARY SEWER STRUCTURE LOCATIONS, CULVERTS, STORM DRAINS, AND ADDITIONAL FEATURES FROM 05/22/2025 THROUGH

"CITY" MEANS THE CITY OF ALEXANDRIA, A MUNICIPAL CORPORATION OF VIRGINIA AND ITS

THE SUBJECT SITE IS LOCATED ON CITY OF ALEXANDRIA ASSESSMENT MAPS NO. 032.04 AND 041.02,

LEGAL DESCRIPTION: LOTS 600 SUBDIVISION OF THE PROPERTY OF T C WILLIAMS HIGH SCHOOL

SASSAFRAS-NEABSCO SOILS ARE SANDY LOAM, WITH A MEDIUM EROSION POTENTIAL. THE SOIL DRAINAGE IS CLASSIFIED AS MARGINAL DUE TO PERCHED GROUNDWATER ABOVE RESTRICTIVE

TOPOGRAPHIC INFORMATION FOR THE SUBJECT SITES IS FROM FIELD SURVEYS PROVIDED BY AERIAL TOPOGRAPHY AND RICE ASSOCIATES SURVEY (SEE EXISTING CONDITIONS SURVEY NOTES). THE BOUNDARY INFORMATION FOR THE SUBJECT SITES IS BASED ON FIELD SURVEYS PROVIDED BY DIGITAL GIS DATA FROM THE CITY OF ALEXANDRIA, WSSI, AND RICE ASSOCIATES (SEE EXISTING

CONSTRUCTION PERMITS ARE REQUIRED FOR THIS PROJECT. THE APPROVED SITE PLAN MUST BE ATTACHED TO THE PERMIT APPLICATION THAT FULLY DETAILS THE CONSTRUCTION AS WELL AS LAYOUTS AND SCHEMATICS OF THE MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS.
ALL PUBLIC AND PRIVATE EASEMENTS OR ALL KNOWN PUBLIC AND PRIVATE EASEMENTS, INCLUDING ALL UTILITY, EGRESS, AND CONSERVATION RESTRICTIONS ARE SHOWN. THE APPLICANT SHALL NOT CONSTRUCT ANY PERMANENT STRUCTURES OVER ANY EXISTING OR PROPOSED PUBLIC AND/OR PRIVATE EASEMENTS UNLESS OTHERWISE APPROVED BY THE PLANNING

ALL NEW CONSTRUCTION SHALL CONFORM TO THE CURRENT STANDARDS AND SPECIFICATIONS OF THE CITY OF ALEXANDRIA AND/OR THE VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT)

ALL STREET CUT AND PATCH WORK LOCATED IN PUBLIC RIGHT-OF-WAYS, REQUIRED FOR ANY UTILITY INSTALLATION SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE CITY OF ALEXANDRIA STANDARDS AND SPECIFICATIONS AND TO THE SATISFACTION OF THE DIRECTOR OF

CONTRACTOR MUST ENSURE THAT THERE IS NO DISTURBANCE ON ADJACENT PROPERTIES WITHOUT RECORDED EASEMENT OR NOTARIZED LETTER OF PERMISSION FROM THE ADJACENT

ALL REQUIRED STATE AND FEDERAL PERMITS, WHICH COULD INCLUDE PERMITS FROM THE VIRGINIA DEPARTMENT OF CONSERVATION AND RECREATION (VDCR), VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY (VDEQ), VIRGINIA DEPARTMENT OF HISTORIC RESOURCES (VDHR), UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA), ARMY CORPS OF ENGINEERS AND VIRGINIA MARINE RESOURCES, MUST BE IN PLACE FOR ALL PROJECT CONSTRUCTION AND MITIGATION WORK PRIOR TO RELEASE OF THE FINAL SITE PLAN. THIS INCLUDES THE STATE REQUIREMENT FOR A VIRGINIA STORMWATER MANAGEMENT PROGRAM (VSMP) GENERAL PERMIT FOR DISCHARGES OF STORMWATER FROM CONSTRUCTION ACTIVITIES FOR LAND DISTURBING ACTIVITIES GREATER THAN 2,500. INFORMATION REGARDING THE VSMP GENERAL PERMIT CAN BE

PERMITS FROM THE CITY OF ALEXANDRIA OFFICE OF ENVIRONMENTAL QUALITY (OEQ), TRANSPORTATION AND ENVIRONMENTAL SERVICES (T&ES), AND BUILDING AND FIRE CODE ADMINISTRATION SHALL BE OBTAINED BY THE APPLICANT, AS REQUIRED AND DOCUMENTED HEREIN. THE CONTRACTOR CAN CONTACT ALEXANDRIA FIRE AND CODE ADMINISTRATION DEPARTMENT AT (703) 838-4644 OR (703) 746-4200 FOR ANY QUESTIONS OR ADDITIONAL

ANY WORK IN THE PUBLIC RIGHT OF WAY SHALL REQUIRE A SEPARATE PERMIT FROM THE DIRECTOR, TRANSPORTATION AND ENVIRONMENTAL SERVICES. THE CONTRACTOR CAN CONTACT THE DEPARTMENT OF TRANSPORTATION AND ENVIRONMENTAL SERVICES AT (703) 746-4035 FOR

THERE IS NO OBSERVABLE EVIDENCE OF CEMETERIES OR BURIAL GROUNDS ON THIS PROPERTY.

NO DEMOLITION SHALL BEGIN UNTIL ALL EROSION AND SEDIMENT AND TREE PROTECTION CONTROLS ARE IN PLACE AND ARE APPROVED BY AN EROSION AND SEDIMENT CONTROL INSPECTOR OF THE DEPARTMENT OF TRANSPORTATION AND ENVIRONMENTAL SERVICES.
ALL WORK SHALL BE PERFORMED IN STRICT COMPLIANCE WITH THE MOST CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS, INCLUDING BUT NOT LIMITED TO ENVIRONMENTAL PROTECTION AGENCY (EPA), OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA), VIRGINIA OCCUPATIONAL AND SAFETY HEALTH COMPLIANCE PROGRAM (VOSH ENFORCEMENT), VIRGINIA OVERHEAD HIGH VOLTAGE LINE SAFETY ACT, NATIONAL EMISSIONS STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS), AND NATIONAL INSTITUTE

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COORDINATION OF WORK WITH REPRESENTATIVE UTILITY COMPANIES AND FOR THE IMPLEMENTATION OF REQUIRED

THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE UPON ENCOUNTERING ANY HAZARDOUS MATERIALS DURING DEMOLITION AND/OR CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL DOCUMENT SAME TO THE OWNER'S REPRESENTATIVE AND

SHEETING AND SHORING REQUIRED FOR DEEP EXCAVATIONS AND TRENCHES SHALL BE DESIGNED AND SEALED/CERTIFIED BY THE CONTRACTOR OR THE CONTRACTOR'S ENGINEER AND APPROVED BY THE APPROPRIATE AUTHORITIES HAVING JURISDICTION PRIOR TO EXCAVATION AND TRENCHING ACTIVITIES BEING PERFORMED. COMPLY WITH OSHA AND OTHER APPLICABLE SAFETY CODES

DURING EXCAVATION AND TRENCHING ACTIVITIES AND WHILE AN EXCAVATION OR TRENCH REMAINS OPEN AT THE PROJECT SITE.
6. PRIOR TO REMOVAL OF MATERIALS OVER EXISTING UTILITY SYSTEMS, THE CONTRACTOR SHALL DOCUMENT AND PHOTOGRAPH EXISTING CONDITIONS AND, IF AT VARIANCE WITH CONDITIONS AS REPRESENTED ON THE PLANS, NOTIFY THE OWNER'S REPRESENTATIVE AND OBTAIN DIRECTIONS AS TO THE APPROPRIATE ACTION(S) TO BE TAKEN.
7. THE CONTRACTOR SHALL BACKFILL EXCAVATED AREAS WITH APPROVED MATERIALS/ CLEAN FILL AS PER THE REQUIREMENTS OF VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT).
8. PRIOR TO COMMENCING NEW WORK, THE CONTRACTOR SHALL PROTECT FROM DAMAGE ALL EXISTING ADJACENT AREAS. ALL ADJACENT AREAS DAMAGED DURING DEMOLITION AND/OR CONSTRUCTION ACTIVITIES SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE CITY .
9. DURING DEMOLITION AND/OR CONSTRUCTION ACTIVITIES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE UPON ENCOUNTERING ANY EXISTING UTILITIES AND/OR UTILITY SYSTEM STRUCTURES NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL DOCUMENT THE SAME AND FORWARD THE INFORMATION TO THE RESIDENT ENGINEER/ OWNER'S REPRESENTATIVE, AND OBTAIN DIRECTION AS TO THE APPROPRIATE ACTION(S) TO BE TAKEN.
10. THE CONTRACTOR OR APPLICANT SHALL WORK WITH THE CITY STAFF TO REUSE THE EXISTING, LEFTOVER, UNUSED, AND/OR DISCARDED BUILDING MATERIALS AS PART OF THE DEMOLITION PROCESS OR THE CONSTRUCTION DEBRIS MUST BE REMOVED TO AN APPROVED LANDFILL

PRESERVATION & PROTECTION OF EXISTING VEGETATION NOTES

1. ALL PLANS ARE TO BE APPROVED BY, AND QUESTION ABOUT PLANNING DETAILS SHOULD BE DIRECTED TO THE CITY ARBORIST AT RPCA-URBANFORESTRY@ALEXANDRIA.GOV.
2. VEGETATION TO BE REMOVED SHALL BE APPROVED BY THE CITY ARBORIST
3. PROVIDE, IMPLEMENT AND FOLLOW A TREE CONSERVATION AND PROTECTION PROGRAM THAT IS DEVELOPED TO THE SATISFACTION OF THE CITY ARBORIST.
4. PROTECTION PROGRAM SHALL BE AUTHORED BY AN ARBORIST CERTIFIED BY THE INTERNATIONAL SOCIETY OF ARBORICULTURE.
5. LOCATION AND METHOD FOR PROTECTION AND PRESERVATION OF EXISTING TREES ON ALL PLAN SHEETS INCLUDING DEMOLITION, SEDIMENT AND EROSION CONTROL, SITE PLAN AND LANDSCAPE PLAN
6. PROVIDE PROTECTION OF EXISTING VEGETATION IN COMPLIANCE WITH LANDSCAPE GUIDELINES OF THE CITY.
7. LOCATION AND METHOD FOR PROTECTION AND PRESERVATION OF EXISTING TREES SHALL BE APPROVED IN-FIELD BY THE CITY ARBORIST PRIOR TO COMMENCEMENT OF GROUP DISTURBING ACTIVITIES RCPA ALSO RESERVES THE RIGHT TO CONDUCT THESE APPROVALS
8. CONTRACTOR MUST PROVIDE DOCUMENTATION OF COMMUNICATION WITH THE ADJACENT PROPERTY OWNER(S) VERIFYING NOTIFICATION OF CONSTRUCTION IMPACT, POTENTIAL FOR LOSS, AND AGREED UPON REMEDIAL MEASURES PERTAINING TO THE EXISTING TREE(S) ON ADJACENT PROPERTIES THAT WILL BE AFFECTED BY PROJECT WORK.
9. PROVIDE SPECIFIC CONSTRUCTION STAGING INFORMATION THAT INDICATES THE METHODS, AND PROCEDURES TO BE IMPLEMENTED FOR PROTECTION OF EXISTING ON-SITE AND OFF-SITE VEGETATION.
10. TREE PROTECTION SHALL BE PROVIDED AS INDICATED ON THE PLANS. PROTECTION SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO THE DRIP LINE OF THE TREES TO BE SAVED. THE CONTRACTOR WILL CONSULT THE SITE INSPECTOR BEFORE THE CONSTRUCTION STARTS. TREE PROTECTION FENCING MUST BE ESTABLISHED AND APPROVED BY THE CITY ARBORIST BEFORE ANY CLEARING OR CONSTRUCTION/DEMOLITION CAN BE STARTED. TO THE EXTENT POSSIBLE ALL TREE PROTECTION SHALL BE INSTALLED AT THE DROP LINE OF THE TREE(S).

RODENT ABATEMENT NOTE

PRIOR TO THE ISSUANCE OF A DEMOLITION PERMIT OR LAND DISTURBANCE PERMIT, A RODENT ABATEMENT PLAN SHALL BE SUBMITTED TO THE CITY OF ALEXANDRIA BUILDING AND FIRE CODE ADMINISTRATION THAT WILL OUTLINE STEPS THAT WILL BE TAKEN TO PREVENT THE SPREAD OF RODENTS FROM THE CONSTRUCTION SITE TO THE SURROUNDING COMMUNITY AND SEWERS. THE CONTRACTOR CAN CONTACT ALEXANDRIA BUILDING AND FIRE CODE ADMINISTRATION DEPARTMENT AT (703) 838-4644 OR (703) 746-4200 FOR ANY QUESTIONS OR ADDITIONAL INFORMATION. ENSURE THE RODENT ABATEMENT PLAN MITIGATES RISK TO FISH AND WILDLIFE.

UTILITY WORK NOTES

UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWING MINIMUM STANDARDS DESCRIBED IN SECTION 9VAC25-875 OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH) AND ADDITIONAL APPLICABLE PRACTICES FOLLOWED BY THE CITY:
1. ALL PRIVATE UTILITIES SHALL BE LOCATED OUTSIDE OF THE PUBLIC RIGHT-OF-WAY AND PUBLIC UTILITY EASEMENTS UNLESS THE UTILITY OWNERS HAVE FRANCHISE AGREEMENT WITH THE CITY OF ALEXANDRIA; HOWEVER, NO ELECTRIC TRANSFORMERS AND SWITCH GEARS/CONTROL BOXES SHALL BE PLACED IN THE PUBLIC RIGHT OF WAY.
2. ALL THE EXISTING AND PROPOSED PUBLIC AND PRIVATE UTILITIES AND EASEMENTS SHALL BE SHOWN AND A DESCRIPTIVE NARRATION OF VARIOUS UTILITIES SHALL BE PROVIDED ON THE PLAN.
3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN UTILITY SERVICES AT ALL TIMES DURING CONNECTION AND/OR CONSTRUCTION. ANY DISRUPTIONS TO UTILITIES TO REMAIN WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR OR REPLACE IN KIND WITH NO ADDITIONAL EXPENSE TO THE CITY.
4. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
5. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
6. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY AS CONFIRMED BY THE CITY.
7. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ACCORDANCE WITH THE CITY STANDARDS AND SPECIFICATIONS TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
8. SHOULD UTILITY CONSTRUCTION BE PERFORMED AFTER COMPLETING EARTHWORK, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACHIEVING 98 PERCENT OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY (ASTM D-1557) COMPACTION IN ALL TRENCH BACKFILL.
9. RE-STABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE VIRGINIA REGULATIONS §9VAC25-875 EROSION AND SEDIMENT CONTROL REGULATIONS, VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH).
10. APPLICABLE SAFETY REGULATIONS SHALL BE COMPLIED WITH.
11. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL CONTROL MEASURES AS NECESSARY TO PREVENT EROSION AND SEDIMENTATION, AS DETERMINED BY THE DIRECTOR OF T&ES, CITY OF ALEXANDRIA.
12. A REMEDIATION PLAN SHALL BE SUBMITTED DETAILING HOW CONTAMINATED SOILS AND/OR GROUNDWATER WILL BE DEALT WITH, INCLUDING PLANS TO REMEDIATE UTILITY CORRIDORS.
13. UTILITY CORRIDORS IN CONTAMINATED SOIL SHALL BE OVER EXCAVATED BY 2 FEET AND BACKFILLED WITH "CLEAN" SOIL.
14. GRADING CAN BE PERFORMED ON INSTALLATION OF UTILITIES.
15. ALL NEW INSTALLATIONS AND/OR REINSTALLATIONS OF UTILITIES SUCH AS ELECTRICAL LINES, GAS PIPES, COMMUNICATION CABLES INCLUDING WATER AND SEWER LATERALS BOTH ON PRIVATE PROPERTY AND IN THE PUBLIC RIGHT-OF-WAY IN THE CITY OF ALEXANDRIA SHALL BE PROVIDED WITH 3" AND 6" WIDE 5 MIL OVERALL THICKNESS DETECTABLE UNDERGROUND WARNING TAPES (DUWT). THE 3" DUWT SHALL BE INSTALLED AT DEPTHS OF 12" TO 18" AND 6" WIDE AT A DEPTH OF 24" SO AS TO MAKE UNDERGROUND INSTALLATIONS EASY TO FIND USING A NON-FERROUS LOCATOR. THE DUWT SHALL BE WITH ALUMINUM BACKING OR SOLID ALUMINUM CORE LAMINATED WITH A PROTECTIVE CLEAR FILM ON BOTH SIDES, SEALING AND PROTECTING THE GRAPHICS FROM UNDERGROUND MOISTURE, ACIDS, ALKALIS, AND OTHER SOIL SUBSTANCES. ALL DUWT TAPES SHALL BE PRINTED IN BLACK INK ON AMERICAN PUBLIC WORKS ASSOCIATION (APWA) APPROVED COLORS TO MEET OR EXCEED INDUSTRY STANDARDS. THE FOLLOWING ARE THE APWA COLOR CODES:

UTILITY CONTACTS

DOMINION ENERGY (MICHAEL SHIPE)	571-203-5242
VERIZON COMMUNICATIONS (BRIAN HARLOW)	703-819-6822
COMCAST (AMY GOAD)	301-625-3407
WASHING GAS (MICHAEL STABLEIN)	703-750-4270
PEPCO	202-833-7500
VIRINIGA AMERICAN WATER (STEVEN CHEN)	703-706-3889
SANITARY SEWER - CITY OF ALEXANDRIA	703-746-4014

COLOR	CODES
RED	C-UTION BURIED ELECTRIC POWER LINES, C-BLES, CONDIUTS, -ND LIGHTING C-BLES
YELLOW	C-UTION G-S, OIL, STE-M, PETROLEUM, OR G-SEOUS M-TERI-LS
OR-NGE	C-UTION COMMUNIC-TIONS, -L-RM OR SIGN-L LINES, C-BLES, OR CONDUITS
BLUE	C-UTION POT-BLE W-TER
PURPLE	C-UTION RECL-IMED W-TER, IRRIG-TION -ND SLURRY LINES
GREEN	C-UTION SEWER, DR-IN LINES, -ND FORCE M-IN

CONSTRUCTION NOTES

THE EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE BASED UPON AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL UTILITIES BEFORE COMMENCING WORK AND FOR ANY DAMAGES WHICH MAY OCCUR BY HIS FAILURE TO LOCATE OR PRESERVE THESE UNDERGROUND UTILITIES. IF DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHOULD ENCOUNTER UTILITIES OTHER THAN THOSE SHOWN ON THE PLANS, HE SHALL IMMEDIATELY NOTIFY THE ENGINEER AND TAKE NECESSARY ACTION AND PROPER STEPS TO PROTECT THE FACILITY AND ASSURE THE CONTINUATION OF SERVICE.
1. THE CONTRACTOR SHALL DIG TEST PITS AS REQUIRED FOLLOWING NOTIFICATION AND MARKING OF ALL EXISTING UTILITIES TO VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES TEST HOLES TO BE PERFORMED AT LEAST 30 DAYS PRIOR TO START OF CONSTRUCTION. ANY DISCREPANCIES ARE TO BE REPORTED IMMEDIATELY TO THE OWNER AND ENGINEER. REDESIGN AND APPROVAL BY REVIEWING AGENCIES SHALL BE OBTAINED, IF REQUIRED.
2. CONSTRUCTION VEHICLES ACCESS TO THE SITE WILL BE BETWEEN 9 AM AND 2 PM TO AVOID SCHOOL AND RUSH HOUR TRAFFIC.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE OWNER AND THE ENGINEER OF ANY CHANGES OR CONDITIONS ATTACHED TO PERMITS OBTAINED FROM ANY AUTHORITY ISSUING PERMITS.
4. THE CONTRACTOR SHALL VISIT THE SITE AND SHALL VERIFY EXISTING CONDITIONS PRIOR TO STARTING CONSTRUCTION.
5. THE CONTRACTOR SHALL CLEAR THE SITE OF ALL TREES, BUILDINGS, FOUNDATIONS, ETC., WITHIN THE LIMITS OF CONSTRUCTION UNLESS OTHERWISE SPECIFIED, AND SHALL BE RESPONSIBLE FOR ENSURING THAT EXISTING UTILITIES ARE DISCONNECTED.
6. ALL AREAS, ON OR OFF-SITE, WHICH ARE DISTURBED BY THIS CONSTRUCTION AND WHICH ARE NOT PAVED OR BUILT UPON, SHALL BE ADEQUATELY STABILIZED TO CONTROL EROSION AND SEDIMENTATION. THE MINIMUM ACCEPTABLE STABILIZATION SHALL CONSIST OF PERMANENT GRASS, SEED MIXTURE TO BE AS RECOMMENDED BY THE CITY AGENT. ALL SLOPES 3:1 AND GREATER SHALL BE SODDED AND PEGGED OR OTHERWISE STABILIZED IN A MANNER APPROVED BY THE CITY OF ALEXANDRIA.
7. EXISTING WELLS SHALL BE PERMANENTLY ABANDONED IN ACCORDANCE WITH VIRGINIA STATE WATER CONTROL BOARD (VSWCB) REQUIREMENTS.
8. EXISTING SEPTIC FIELDS SHALL BE ABANDONED IN ACCORDANCE WITH VIRGINIA HEALTH DEPARTMENT STANDARDS AND SPECIFICATIONS.
9. ALL OVER HEAD POLE LINES SHALL BE RELOCATED AS REQUIRED BY THE OWNING UTILITY COMPANIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAKING ALL ARRANGEMENTS AND COORDINATING ALL WORK REQUIRED FOR THE NECESSARY RELOCATIONS.
10. EXISTING PHYSICAL FEATURES ARE TO REMOVED BY THE CONTRACTOR AS REQUIRED.
11. THE DISTURBED LAND WHERE WORK HAS BEEN COMPLETED MUST BE ADEQUATELY STABILIZED ON A DAILY BASIS. THE OWNER AND/OR CONSTRUCTION ACTIVITY OPERATOR MUST DESIGN, INSTALL, IMPLEMENT, AND MAINTAIN POLLUTION PREVENTION MEASURES TO:
    11.1. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM EQUIPMENT AND VEHICLE WASHING, WHEEL WASH WATER, AND OTHER WASH WATERS;
    11.2. MINIMIZE THE EXPOSURE OF BUILDING MATERIALS, BUILDING PRODUCTS, CONSTRUCTION WASTES, TRASH, LANDSCAPE MATERIALS, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE, AND OTHER MATERIALS PRESENT ON-SITE TO PRECIPITATION AND TO STORMWATER;
    11.3. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM SPILLS AND LEAKS AND IMPLEMENT CHEMICAL SPILL AND LEAK PREVENTION AND RESPONSE PROCEDURES; AND
    11.4. PROHIBIT THE DISCHARGE OF FUELS, OILS, OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE.
12. TOPS OF EXISTING STRUCTURES WHICH REMAIN IN USE ARE TO BE ADJUSTED IN ACCORDANCE WITH THE GRADING PLAN. ALL PROPOSED STRUCTURE TOP ELEVATIONS ARE TO BE VERIFIED BY THE CONTRACTOR WITH THE SITE GRADING PLANS. IN CASE OF CONFLICT, THE GRADING PLAN SHALL SUPERSEDE PROFILE ELEVATIONS. MINOR ADJUSTMENTS TO MEET FINISHED GRADE ELEVATIONS, IF REQUIRED, SHALL BE MADE IN THE FIELD WITH THE APPROVAL OF SITE INSPECTOR OF THE DEPARTMENT OF TRANSPORTATION AND ENVIRONMENTAL SERVICES.
13. EXISTING CONSTRUCTION SHALL BE REMOVED TO NEAREST JOINT. NEW CONSTRUCTION SHALL BE PROVIDED AS SHOWN AND ANY DAMAGED AREA SHALL BE REPAIRED TO MATCH CONDITIONS EXISTING PRIOR TO CONSTRUCTION.
14. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE SURE THAT ANY EXISTING LANDSCAPING WHICH IS TO BE RELOCATED ON THE SITE WILL BE CAREFULLY STORED IN A DESIGNATED AREA BEFORE BEING REPLANTED, COORDINATION WITH THE OWNER FOR MUTUALLY AGREEABLE STORAGE LOCATIONS FOR LANDSCAPE MATERIAL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF PLANT MATERIAL THAT FOES NOT SURVIVE STORAGE AND REPLANTING.
15. CONSTRUCTION STAKEOUT SHALL BE UNDER THE DIRECT SUPERVISION OF A LICENSED LAND SURVEYOR IN THE COMMONWEALTH OF VIRGINIA.
16. SMOOTH GRADE SHALL BE MAINTAINED FROM THE CENTERLINE OF THE EXISTING ROAD TO THE PROPOSED ENTRANCE AND/OR CURB & GUTTER TO PRECLUDE THE FORMING OF FALSE AND/OR THE PONDING OF WATER ON THE ROADWAY.
17. ALL STRIPPING TO MEET THE REQUIREMENTS OF MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS.
18. ALL EROSION CONTROLS SHALL CONFORM TO THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCHB) AND MUST BE SUBMITTED AND APPROVED BY T&ES.
19. ALL EARTHWORK OPERATIONS ARE TO BE PERFORMED UNDER THE FULL TIME, ON-SITE TESTING IN ACCORDANCE WITH CONSTRUCTION SPECIFICATIONS AND GEOTECHNICAL REPORT REQUIREMENTS.
20. THE CONTRACTOR MUST ENSURE THAT POSITIVE DRAINAGE OCCURS ON SITE TO PREVENT PONDING OR DRAINAGE PROBLEMS ON ADJACENT PROPERTIES.
21. CONTRACTOR SHALL ENSURE ALL DISCHARGES ARE IN ACCORDANCE WITH CITY OF ALEXANDRIA CODE TITLE 5, CHAPTER 6, ARTICLE B.
22. DEWATERING AND OTHER CONSTRUCTION RELATED DISCHARGE LIMITS TO THE SEWER SYSTEM ARE REGULATED BY ALEXRENEW PRETREATMENT. CONTRACTOR IS REQUIRED TO CONTACT ALEXRENEW'S PRETREATMENT COORDINATOR AT 703-721-3500 X2020.
23. CONTRACTOR MUST ENSURE THAT THERE IS NO DISTURBANCE ON ADJACENT PROPERTIES.
24. IT IS THE CONTRACTORS RESPONSIBILITY TO MAINTAIN UTILITY SERVICES AT ALL TIMES DURING CONNECTION AND/OR CONSTRUCTION.
25. THE CONTRACTOR IS RESPONSIBLE WITH ALL TRAFFIC CONTROL DURING CONSTRUCTION. NO SIDE AND/OR CROSS WALK SHALL BE CLOSED DURING CONSTRUCTION. IF ANY SIDE AN/OR CROSS WALKS NEED TO BE CLOSED TO FACILITATE THE CONSTRUCTION THEN THE CONTRACTOR SHALL PROVIDE A SIDE AN/OR CROSS WALK CLOSURE PLAN TO THE SATISFACTION OF THE DIRECTOR OF T&ES, CITY OF ALEXANDRIA.

ENVIRONMENTAL SITE ASSESSMENT NOTES

1. THE MAJORITY OF PROPOSED WORK IS WATER DEPENDENT AND IS LOCATED WITHIN THE RESOURCE PROTECTION AREA. MINOR TEMPORARY IMPACTS TO ISOLATED OVERBANK WETLANDS WILL OCCUR FROM PROPOSED MEASURES. THE CITY DEPARTMENT OF TRANSPORTATION AND ENVIRONMENTAL SERVICES, OFFICE OF ENVIRONMENTAL QUALITY MUST BE NOTIFIED IF UNUSUAL OR UNANTICIPATED CONTAMINATION OR UNDERGROUND STORAGE TANKS, DRUMS, AND CONTAINERS ARE ENCOUNTERED AT THE SITE. IF THERE IS ANY DOUBT ABOUT PUBLIC SAFETY OR A RELEASE TO THE ENVIRONMENT, THE ALEXANDRIA FIRE DEPARTMENT MUST BE CONTACTED IMMEDIATELY BY CALLING 911. THE TANK OR CONTAINER'S REMOVAL, ITS CONTENTS, ANY SOIL CONTAMINATION AND RELEASES TO THE ENVIRONMENT WILL BE HANDLED IN ACCORDANCE WITH FEDERAL, STATE, AND CITY REGULATIONS.
2. ALL WELLS TO BE DEMOLISHED IN THIS PROJECT, INCLUDING MONITORING WELLS MUST BE CLOSED IN ACCORDANCE WITH STATE WELL REGULATION. CONTACT JOE FIANDER AND COORDINATE WITH THE ALEXANDRIA HEALTH DEPARTMENT AT 703-838-4400 EXT 255.
3. CONSTRUCTION ACTIVITIES ARE PERMITTED TO OCCUR BETWEEN THE FOLLOWING HOURS:
    - MONDAY THROUGH FRIDAY FROM 8 AM TO 6 PM AND
    - SATURDAYS FROM 10 AM TO 5 PM.
    - NO CONSTRUCTION ACTIVITIES ARE PERMITTED ON SUNDAYS.

    PILE DRIVING IS FURTHER RESTRICTED TO THE FOLLOWING HOURS:
    - MONDAY THROUGH FRIDAY FROM 9 AM TO 6 PM AND
    - SATURDAYS FROM 10 AM TO 4 PM.

    CONSTRUCTION VEHICLE ACCESS
    - BETWEEN 9 AM AND 2 PM TO AVOID SCHOOL AND RUSH HOUR TRAFFIC.

RESOURCE PROTECTION AREA NOTES

1. THE SUBJECT PROPERTY LIES WITHIN A CITY OF ALEXANDRIA RESOURCE PROTECTION AREA (RPA). FIELD DEMARCATION/VERIFIED 50 FEET AND 100 FEET RESOURCE PROTECTION AREA LINES ARE SHOWN ON THE SITE PLAN.
2. DEVELOPMENT AND USES PROPOSED IN THE RPA ARE IN COMPLIANCE WITH REQUIREMENTS OF ARTICLE 13-07 OF THE ALEXANDRIA ZONING ORDINANCE (AZO).

FLOODPLAIN NOTES

1. THE SUBJECT LIES WITHIN 100-YEAR FLOOD PLAIN WATER SURFACE ELEVATIONS (WSE) AND THE 100-YEAR FLOOD PLAIN WSE IS SHOWN ON THE SITE PLAN PER THE DEMARCATION OF THE CURRENT FLOOD INSURANCE RATE MAP (FIRM) PUBLISHED BY FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA).
2. THE PLAN DEMONSTRATES THE COMPLIANCE WITH FLOOD PLAIN ORDNANCE SECTION 6-300 TO SECTION 6-311 OF ARTICLE VI SPECIAL AND OVERLAY ZONES OF THE ALEXANDRIA ZONING ORDINANCE (AZO).

ARCHAEOLOGY NOTES

1. ALL REQUIRED ARCHAEOLOGICAL PRESERVATION MEASURES SHALL BE COMPLETED PRIOR TO GROUND-DISTURBING ACTIVITIES (SUCH AS CORING, GRADING, FILLING, VEGETATION REMOVAL, UNDERGROUNDING UTILITIES, PILE DRIVING, LANDSCAPING AND OTHER EXCAVATIONS AS DEFINED IN SECTION 2-151 OF THE ZONING ORDINANCE) OR A RESOURCE MANAGEMENT PLAN MUST BE IN PLACE TO PRESERVE AND/OR RECOVER SIGNIFICANT RESOURCES IN CONCERT WITH CONSTRUCTION ACTIVITIES. TO CONFIRM, CALL ALEXANDRIA ARCHAEOLOGY AT (703) 838-4399.
2. CALL ALEXANDRIA ARCHAEOLOGY (703-838-4399) TWO WEEKS BEFORE THE STARTING DATE OF ANY GROUND DISTURBANCE SO THAT AN INSPECTION OR MONITORING SCHEDULE FOR CITY ARCHAEOLOGISTS CAN BE ARRANGED.
3. THE APPLICANT SHALL CALL ALEXANDRIA ARCHAEOLOGY IMMEDIATELY (703-838-4399) IF ANY BURIED STRUCTURAL REMAINS (WALL FOUNDATIONS, WELLS, PRIVIES, CISTERNS, ETC.) OR CONCENTRATIONS OF ARTIFACTS ARE DISCOVERED DURING DEVELOPMENT. WORK MUST CEASE IN THE AREA OF THE DISCOVERY UNTIL A CITY ARCHAEOLOGIST COMES TO THE SITE AND RECORDS THE FINDS.
4. THE APPLICANT SHALL NOT ALLOW ANY METAL DETECTION AND/OR ARTIFACT COLLECTION TO BE CONDUCTED ON THE PROPERTY, UNLESS AUTHORIZED BY ALEXANDRIA ARCHAEOLOGY. FAILURE TO COMPLY SHALL RESULT IN PROJECT DELAYS.

SUBMITTALS

1. CONTRACTOR SHALL DEVELOP A WORKFLOW PLAN AND CONSTRUCTION SCHEDULE FOR SUBMITTAL TO THE PROJECT ENGINEER FOR REVIEW AND APPROVAL A MINIMUM OF ONE (1) WEEK PRIOR TO THE PRE-CONSTRUCTION MEETING. THE PROPOSED WORKFLOW PLAN SHALL DESCRIBE/DELINEATE THE CONTRACTORS PROPOSED CONSTRUCTION ACCESS PATHS, ALTERNATIVE TEMPORARY STOCKPILE LOCATIONS, AND ALTERATIVE MEANS AND METHODS. THE PROPOSED CONSTRUCTION SCHEDULE SHALL INCLUDE SUBMITTAL REVIEW TIME, KEY CONSTRUCTION AND CRITICAL PATH TASKS, PHASING OF WORK FLOW, WETHER CONTINGENCY, AS-BUILT SURVEY COORDINATION, PLANING PERIOD AND SUBSTANTIAL AND/OR FINAL COMPLETION MILESTONES.
2. CONTRACTOR SHALL PROVIDE EXPERIENCE QUALIFICATIONS TO THE PROJECT ENGINEER IDENTIFYING THE KEY PERSONNEL TO BE WORKING ON THE PROJECT, INCLUDING THEIR PROJECT MANAGER, AND SUPERINTENDENT. CONTRACTORS SHALL ALSO SPECIFIC THE MINIMUM NUMBER OF DAILY CREW/STAFF AND EQUIPMENT TO BE EXPECTED ONSITE DURING CONSTRUCTION.
3. CONTRACTOR SHALL BE RESPONSIBLE TO SUBMIT THREE (3) COPIES OF THE MATERIAL CERTIFICATION TO THE PROJECT ENGINEER FOR REVIEW ON ANY CONSTRUCTION MATERIALS USED ON THE PROJECT SITE. THE CERTIFICATION SHALL STATE THAT THE PRODUCE IS MANUFACTURED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS AND THE APPROVED SHOP DRAWING OR DETAIL. AS APPLICABLE, ANY MATERIALS ORDERED OR WORK PERFORMED WITH SAID MATERIALS BY THE CONTRACTOR BEFORE THE PROJECT ENGINEER HAS REVIEWED AND APPROVED THE RESPECTIVE MATERIAL CERTIFICATIONS SHALL BE AT THE RISK OF THE CONTRACTOR.
4. REVIEW TIME FOR THE SPECIFIED SUBMITTALS SHALL BE CLEARLY NOTED IN THE CONSTRUCTION SCHEDULE. ALLOW A MINIMUM OF ONE (1) WEEK TO REVIEW TIME FOR EACH SUBMITTAL PACKAGE.

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

DATE	BY	REVISIONS DESCRIPTION

ALEXANDRIA PROJECT NO.: 23086
DATE OF PLAN ISSUANCE:
CONSULTANT PROJECT ID.: 60742359
DESIGNED BY: SB, TN DATE: 10/2026
DRAWN BY: SB, TN DATE: 10/2026
CHECKED BY: BA DATE: 10/2026
APPROVED BY: BA DATE: 10/2026

SEAL:

GENERAL NOTES

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING: G-02
SCALE: N/A
SHEET: 02 OF 52

EXISTING STREAM CENTERLINE

EXISTING WATERS OF THE UNITED STATES

EXISTING STORM DRAIN MANHOLE

EXISTING SANITARY MANHOLE

EXISTING PEDESTRIAN BRIDGE

EXISTING 100 YEAR WATER SURFACE ELEVATION

EXISTING DEBRIS BUILDUP LIMITS

RESOURCE PROTECTION AREA (100')

PROPOSED LIMIT OF DISTURBANCE

PROPOSED STREAM CENTERLINE

PROPOSED CHAIN LINK FENCE

PROPOSED CONCRETE ENCASEMENT

PROPOSED BOULDER CASCADE

HIGH VISIBILITY CHAIN LINK FENCE

CONSTRUCTION ACCESS PATH

STONE CONSTRUCTION ENTRANCE WITH WASH RACK

TEMPORARY SANDBAG DIVERSION

SANITARY AND STORMWATER FEATURE IDS

SANITARY SEWER

007531 SANITARY MANHOLE
RIM = 128.53'
18" DIP INV. IN = 117.43' (FROM #50035)
18" RCP INV. OUT = 117.42' (TO S.E.)

500035 SANITARY MANHOLE
RIM = 128.19'
18" DIP INV. IN = NOT VISIBLE (FROM #007756)
18" DIP INV. OUT = NOT VISIBLE (TO #007531)
PIPES OFFSET
B.O.S. = 121.29'

007756 SANITARY MANHOLE
RIM = 130.57'
15" DIP INV. IN = 122.47' (FROM #007529)
18" DIP INV. OUT = 122.42' (TO #007531)

007529 SANITARY MANHOLE
RIM = 132.42'
15" DIP INV. IN = 125.52' (FROM #007530)
15" DIP INV. OUT = 125.50' (TO #500035)

007530 SANITARY MANHOLE
RIM = 136.04'
15" DIP INV. IN = 128.59' (FROM #000041)
15" DIP INV. OUT = 128.54' (TO #007529)

000041 SANITARY MANHOLE
RIM = 145.13'
12" DIP INV. IN = 139.23' (FROM N.E.)
15" DIP INV. IN = 138.08' (FROM #000042)
15" DIP INV. OUT = 137.98' (TO #007530)

000047 SANITARY MANHOLE
RIM = 150.65'
12" DIP INV. IN = 139.85' (FROM NORTH)
12" DIP INV. IN = 139.85' (FROM N.E.)
12" DIP INV. OUT = 139.80' (TO #000041)

000042 SANITARY MANHOLE
RIM = 152.10'
15" DIP INV. IN = 144.25' (FROM #000040)
15" DIP INV. OUT = 144.23' (TO #000041)

000040 SANITARY MANHOLE
RIM = 166.94'
18" PVC (GIS) INV. IN = 150.34' (FROM N.E.)
(PIPE SIZE NOT VISIBLE)
15" RCP INV. IN = 150.12' (FROM S.W.)
15" RCP INV. OUT = 150.09' (TO #000042)
(TRANSITION TO DIP NOT VISIBLE)

STORM SEWER

RA-1 STORM MANHOLE
RIM = 151.14'
21" RCP INV. IN = 142.54' (FROM WEST)
21" RCP INV. OUT = 139.59' (TO RA-2)

RA-2 21" RCP INV. OUT = 133.67" (FROM RA-1)

RA-3 HEADWALL
15" CMP INV. = 138.14' (TO RA-4)

RA-4 ENDWALL
15" CMP INV. = 137.04' (FROM RA-3)

014476 36" CMP INV. = 138.59' (FROM #000030)
(TRANSITION FROM 27" RCP NOT VISIBLE)

000030 STORM MANHOLE
RIM = 153.54'
12" RCP INV. IN = 151.44' (FROM S.E.)
18" RCP INV. IN = 147.84' (FROM S.E.)
27" RCP INV. OUT = 144.94' (TO #014476)
(TRANSITION TO 36" CMP NOT VISIBLE)

000018 STORM MANHOLE
RIM = 150.10'
GIS INV. IN = NOT VISIBLE (FROM N.E.)
18" RCP INV. IN = NOT VISIBLE (FROM #000106)
36" RCP INV. IN = 143.95' (FROM NORTH)
36" RCP INV. OUT = 144.00' (TO #000140)
(STRUCTURE IS SURCHARGED)

000106 CURB DROP INLET
RIM = 149.45'
18" RCP INV. OUT = 144.90' (TO #000018)

000140 ENDWALL (BROKEN)
36" RCP INV. = 141.81' (FROM #000018)

000124 ENDWALL
72" RCP INV. = 148.55' (FROM #000015)

000015 STORM MANHOLE
RIM = 160.04'
15" RCP INV. IN = NOT VISIBLE (FROM S.W.)
72" RCP INV. IN = NOT VISIBLE (FROM N.W.)
72" RCP INV. OUT = NOT VISIBLE (TO #000124)
B.O.S. = 149.44'

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DATE	DESCRIPTION

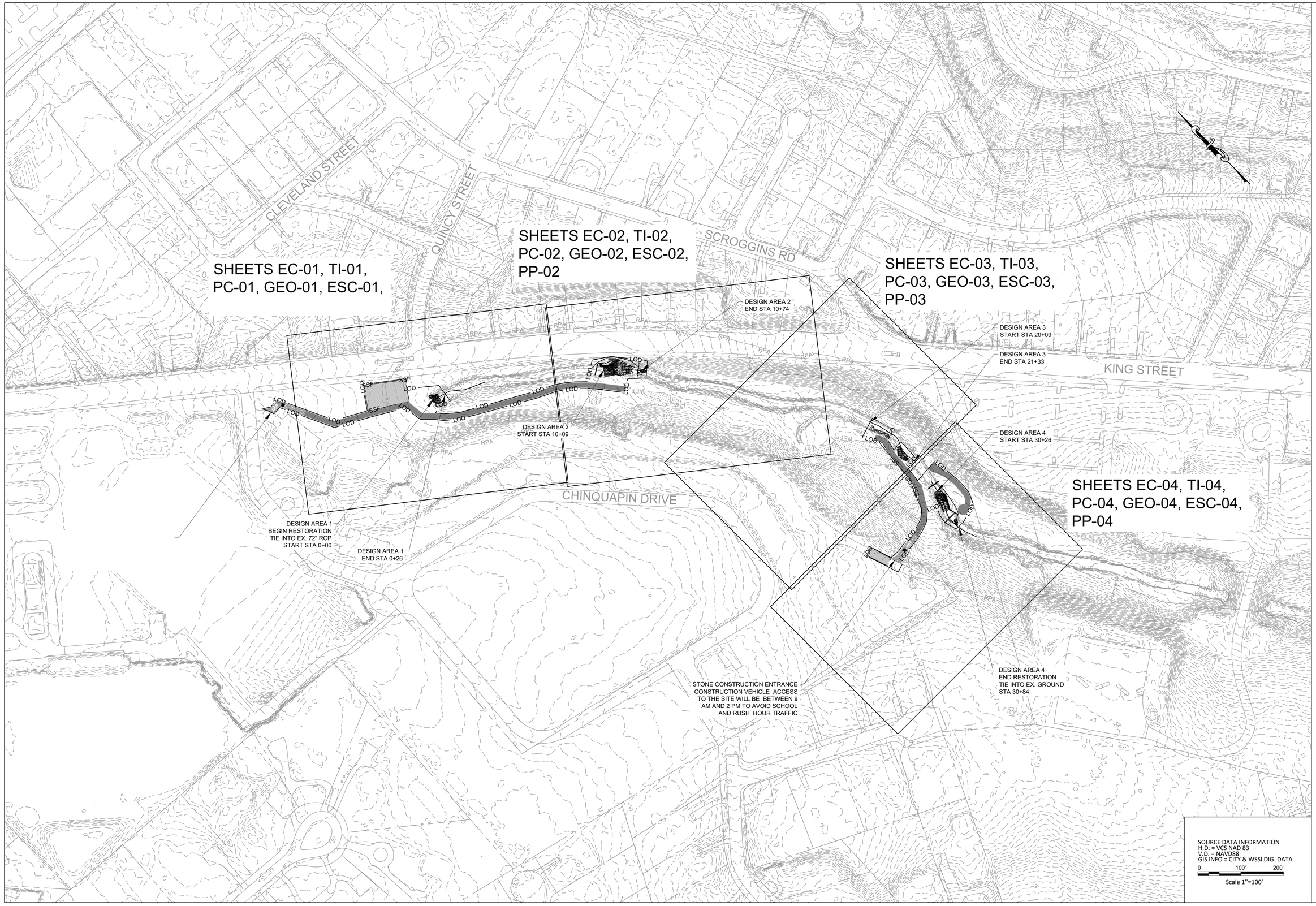
ALEXANDRIA PROJECT NO.: 23086
DATE OF PLAN ISSUANCE:
CONSULTANT PROJECT ID.: 60742359
DESIGNED BY: SB, TN DATE: 10/2026
DRAWN BY: SB, TN DATE: 10/2026
CHECKED BY: BA DATE: 10/2026
APPROVED BY: BA DATE: 10/2026

SEAL:

LEGEND

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING: G-03
SCALE: N/A
SHEET: 03 OF 52



NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA

DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

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SEAL:

OVERALL SITE PLAN

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING:
O-01

SCALE:
1:100

SHEET:
04 OF 52

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA

CITY OF ALEXANDRIA VIRGINIA

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EXISTING CONDITIONS AND DEMOLITION PLAN

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING:
EC-01

SCALE:
1:20

SHEET:
05 OF 52

DEMOLISH AND DISPOSE OF EXISTING ENDWALL

APPROXIMATELY 12 LF OF 12" DIP PIPE EXPOSED IN STREAM TO BE PROTECTED

REMOVE EXISTING CONCRETE DEBRIS AS NECESSARY TO PLACE ARMOURED UTILITY PROTECTION AND BOULDER CASCADE

KING ST

EX. CONC. WALK

AREA OF DEBRIS BUILDUP

MILE MARKER 0.1

EX. 4' DIRT TRAIL

EX. 8' ASP. TRAIL

EX. 4' ASP. TRAIL

MATCH LINE - SEE SHEET EC-03

SOURCE DATA INFORMATION
H.D. = VCS NAD 83
V.D. = NAVD88
GIS INFO = CITY & WSSI DIG. DATA

0 20' 40'
Scale 1"=20'

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
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EXISTING CONDITIONS AND DEMOLITION PLAN

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12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING:
EC-02
SCALE:
1:20
SHEET:
06 OF 52

MATCH LINE - SEE SHEET EC-02

MATCH LINE - SEE SHEET EC-04

CHINQUAPIN DR

SCROGGINS ROAD

KING ST

EX. VOLLEYBALL COURT

EX. 8' ASP. TRAIL

EX. 4' DIRT TRAIL

TOP= 140.58'

TOP= 140.65'

RA-3

RA-4

15" CMP

TW= 138.77'

RA-1

21" RCP

RA-2

21" RCP

AREA OF DEBRIS BUILDUP

AREA OF DEBRIS BUILDUP

UNDERCUT CONC

MILE MARKER 0.2

007530

007529

DEMOLISH EXISTING MANHOLE CONCRETE SKIRT

VERIFY ELEVATION AND CONDITION OF EXISTING SANITARY SEWER MANHOLE. CONTRACTOR TO INSPECT AND DOCUMENT WITH PHOTOS CONDITION PRIOR TO START OF WORK. DOCUMENTATION MUST BE PROVIDED TO THE CITY PRIOR TO THE COMMENCING OF WORK . EXISTING SANITARY SEWER MANHOLE TO BE PROTECTED.

REMOVE AND DISPOSE OF EXISTING WOODY DEBRIS BUILDUP

SOURCE DATA INFORMATION
H.D. = VCS NAD 83
V.D. = NAVD88
GIS INFO = CITY & WSSI DIG. DATA

0 20' 40'
Scale 1"=20'

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
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EXISTING CONDITIONS AND DEMOLITION PLAN

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING:
EC-03

SCALE:
1:20

SHEET:
07 OF 52

MATCH LINE - SEE SHEET EC-03

REMOVE AND DISPOSE OF EXISTING WOODY DEBRIS BUILDUP

APPROXIMATELY 23 LF OF 18" SANITARY DIP PIPE EXPOSED IN STREAM TO BE PROTECTED

APPROXIMATELY 63 LF OF EXISTING VINYL CLAD RETAINING WALL TO BE PROTECTED

SIGN W/ METAL PLACARD

EXPOSED PIPE TOP= 123.32'

AREA OF DEBRIS BUILDUP TOP= 123.08'

STRUCTURE IS OFFSET

VINYL CLAD RET. WALL

EX. 6"x6" TIMBER STAIRS

EX. 6"x6" TIMBERS (TYP.)

EX. 4' DIRT TRAIL

18" DIP

18" RCP

SOURCE DATA INFORMATION
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V.D. = NAVD88
GIS INFO = CITY & WSSI DIG. DATA

0 20' 40'
Scale 1"=20'

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EXISTING CONDITIONS AND DEMOLITION PLAN

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING:
EC-04

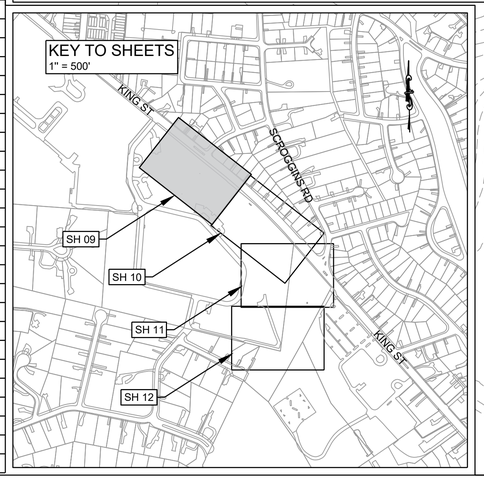
SCALE:
1:20

SHEET:
08 OF 52

				DBH
				24
				25
_	_____	_____	___	22
_	_____	_____	___	22
_	_____	_____	___	22
_	_____	_____	_	6
_	_____	_____	_	6
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				7,6
				13,12
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				18
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				12
				8
				10
				42
				10
				25
				11,7
				7
				14
				15
				21
				8
				15
				12

Tree #	Common Name	Scientific Name	Condition	DBH
337	Unknown tree	-	Dead	11
338	Silver maple	Acer saccharinum	4	24
339	Unknown tree	-	Dead	10
340	*White mulberry*	*Morus alba*	*Dead*	*12*
341	*Norway maple*	*Acer platanoides*	*Dead*	*14*
342	Silver maple	Acer saccharinum	4	38
343	Mulberry	Morus sp.	Dead	16
344	Black walnut	Juglans nigra	4	18
345	Slippery elm	Ulmus rubra	3	8
346	Black locust	Robinia pseudoacacia	Dead	14
347	Unknown snag	-	Dead	9
348	Black locust	Robinia pseudoacacia	Dead	14
349	Unknown snag	-	Dead	9
350	Unknown snag	-	Dead	9
351	Slippery elm	Ulmus rubra	4	13
352	Black locust	Robinia pseudoacacia	Dead	19
353	*White mulberry*	*Morus alba*	*4*	*13*
354	Unknown snag	-	Dead	6
355	Black cherry	Prunus serotina	4	20
356	Unknown snag	-	Dead	8
357	Unknown snag	-	Dead	12
358	Unknown snag	-	Dead	13
359	Unknown snag	-	Dead	9
360	Unknown snag	-	Dead	9
361	*Norway maple*	*Acer platanoides*	*4*	*11*
362	*White mulberry*	*Morus alba*	*Dead*	*9*
363	Unknown snag	-	Dead	9
364	Unknown snag	-	Dead	9
365	Black cherry	Prunus serotina	4	24
366	Unknown tree	-	Dead	9
367	Black locust	Robinia pseudoacacia	4	22
368	Green ash	Fraxinus pennsylvanica	Dead	26
369	Silver maple	Acer saccharinum	3	12
370	Black cherry	Prunus serotina	4	10
371	*White mulberry*	*Morus alba*	*4*	*16*
372	*Norway maple*	*Acer platanoides*	*Dead*	*8*
373	Unknown snag	-	Dead	13
374	Unknown tree	-	Dead	11
375	Slippery elm	Ulmus rubra	4	14
395	Unknown tree	-	Dead	11

NOTES:
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2. TREES ARE TO BE TRIMMED ALONG THE ACCESS PATH AND STOCKPILE AREAS TO ALLOW FOR EQUIPMENT AND VEHICLE CLEARANCE WHERE NECESSARY.
3. ALL TREES TO BE REMOVED SHALL BE FLUSH CUT WITH STUMPS AND ROOTS LEFT IN PLACE FOR STABILIZATION AND HABITAT UNLESS THE AREA REQUIRES GRADING.
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7. THE CONTRACTOR WILL IDENTIFY WHICH TREES HAVE POTENTIAL FOR DAMAGE DUE TO CONSTRUCTION ACTIVITIES. THESE TREES WILL BE PLANKED PER TRUNK ARMORING DETAIL ON SHEET ESC-06. THE CITY MAY REQUEST FOR ADDITIONAL TREES TO BE PLANKED AT THEIR DISCRETION.





SOURCE DATA INFORMATION
H.D. = VCS NAD 83
V.D. = NAVD88
GIS INFO = CITY & WSSI DIG. DATA
0 20' 40'
Scale 1"=20'

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DATE	DESCRIPTION

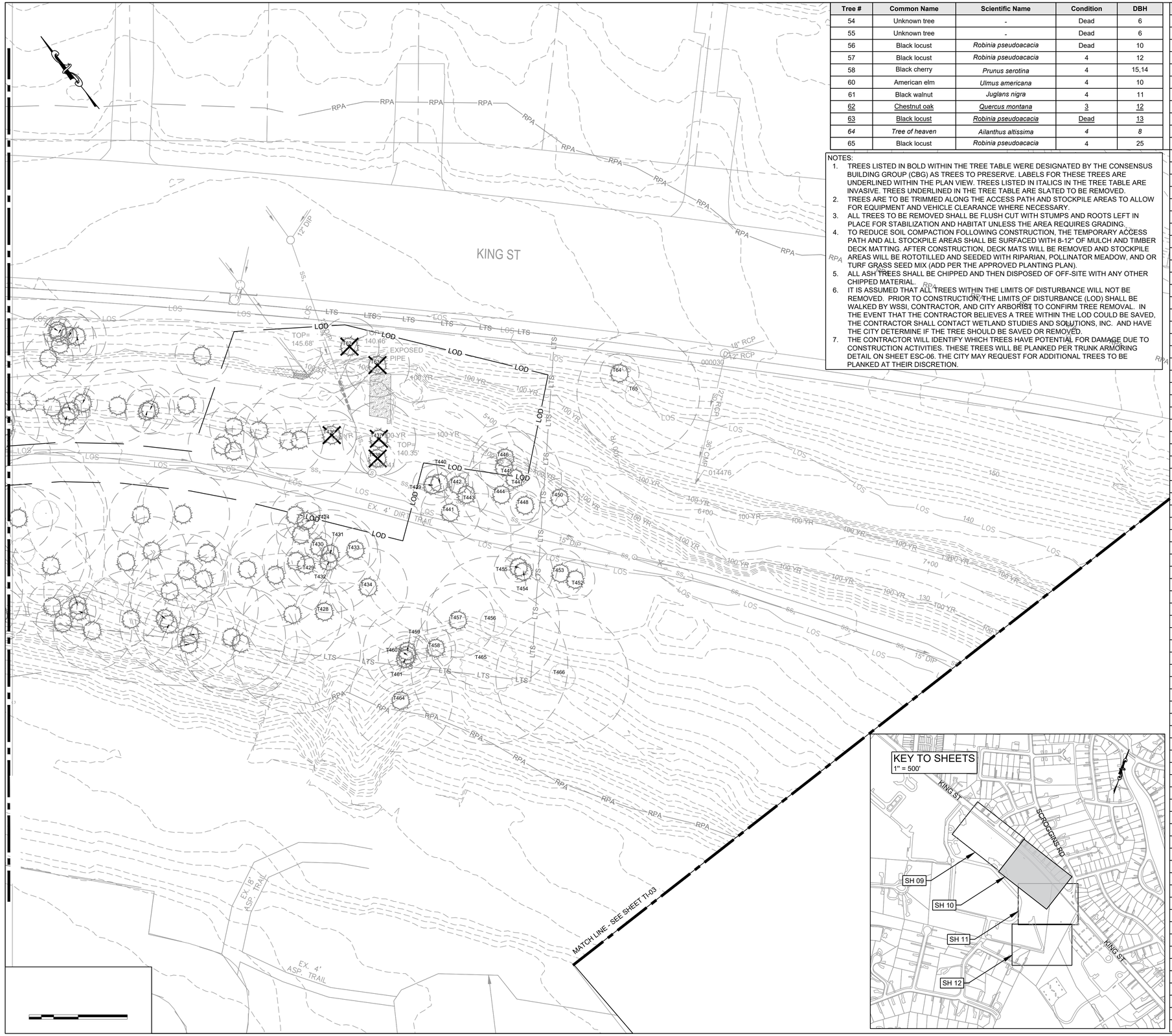
ALEXANDRIA PROJECT NO.: 23086
DATE OF PLAN ISSUANCE: 60742359
CONSULTANT PROJECT ID.: 60742359
DESIGNED BY: SB TN DATE: 10/2026
DRAWN BY: SB TN DATE: 10/2026
CHECKED BY: BA DATE: 10/2026
APPROVED BY: BA DATE: 10/2026

SEAL:

TREE INVENTORY

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING: TI-01
SCALE: 1:20
SHEET: 09 OF 52



Tree #	Common Name	Scientific Name	Condition	DBH
54	Unknown tree	-	Dead	6
55	Unknown tree	-	Dead	6
56	Black locust	*Robinia pseudoacacia*	Dead	10
57	Black locust	*Robinia pseudoacacia*	4	12
58	Black cherry	*Prunus serotina*	4	15,14
60	American elm	*Ulmus americana*	4	10
61	Black walnut	*Juglans nigra*	4	11
62	Chestnut oak	*Quercus montana*	3	12
63	Black locust	*Robinia pseudoacacia*	Dead	13
64	*Tree of heaven*	*Ailanthus altissima*	*4*	*8*
65	Black locust	*Robinia pseudoacacia*	4	25

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Tree #	Common Name	Scientific Name	Condition	DBH
376	Black locust	*Robinia pseudoacacia*	Dead	19
377	Black locust	*Robinia pseudoacacia*	Dead	15
378	*Sweet cherry*	*Prunus avium*	*Dead*	*8*
379	Unknown snag	-	Dead	8
380	Green ash	*Fraxinus pennsylvanica*	4	6
381	Silver maple	*Acer saccharinum*	4	15
382	*White mulberry*	*Morus alba*	*Dead*	*9*
383	*White mulberry*	*Morus alba*	*Dead*	*10*
384	Silver maple	*Acer saccharinum*	4	7
385	Black cherry	*Prunus serotina*	4	10
386	Slippery elm	*Ulmus rubra*	4	14
387	Unknown snag	-	Dead	9
388	*Norway maple*	*Acer platanoides*	*Dead*	*11*
389	Black cherry	*Prunus serotina*	4	14
390	Black locust	*Robinia pseudoacacia*	4	23
391	American sycamore	*Platanus occidentalis*	3	25
392	Silver maple	*Acer saccharinum*	4	14
393	Silver maple	*Acer saccharinum*	4	26
394	Silver maple	*Acer saccharinum*	3	16
396	Sassafras	*Sassafras albidum*	4	10
397	Sassafras	*Sassafras albidum*	3	11
398	Red maple	*Acer rubrum*	3	16
399	Sassafras	*Sassafras albidum*	3	7
400	Sassafras	*Sassafras albidum*	3	10
401	Tulip poplar	*Liriodendron tulipifera*	4	25
402	Tulip poplar	*Liriodendron tulipifera*	Dead	20,20
404	Tulip poplar	*Liriodendron tulipifera*	3	20
405	Tulip poplar	*Liriodendron tulipifera*	3	12
406	Tulip poplar	*Liriodendron tulipifera*	3	19
407	Red maple	*Acer rubrum*	4	7
408	Tulip poplar	*Liriodendron tulipifera*	3	22
409	Tulip poplar	*Liriodendron tulipifera*	4	23
410	Tulip poplar	*Liriodendron tulipifera*	4	26
411	Maple	*Acer sp.*	4	20
412	Tulip poplar	*Liriodendron tulipifera*	4	26,23
414	Tulip poplar	*Liriodendron tulipifera*	Dead	17
415	Silver maple	*Acer saccharinum*	3	9
416	Slippery elm	*Ulmus rubra*	Dead	13
417	Silver maple	*Acer saccharinum*	4	19
418	Silver maple	*Acer saccharinum*	Dead	15
419	Red maple	*Acer rubrum*	4	9
420	Silver maple	*Acer saccharinum*	4	9
421	Slippery elm	*Ulmus rubra*	4	14
422	Green ash	*Fraxinus pennsylvanica*	Dead	7
423	Silver maple	*Acer saccharinum*	4	21
424	Slippery elm	*Ulmus rubra*	4	8
425	Slippery elm	*Ulmus rubra*	4	10
426	Slippery elm	*Ulmus rubra*	4	10
427	Silver maple	*Acer saccharinum*	4	14
428	Unknown snag	-	Dead	12
429	Red maple	*Acer rubrum*	4	9
430	Slippery elm	*Ulmus rubra*	4	6
431	Silver maple	*Acer saccharinum*	3	16
432	Silver maple	*Acer saccharinum*	4	21
433	Silver maple	*Acer saccharinum*	4	9
434	Unknown tree	-	Dead	16
436	Unknown tree	-	Dead	10
437	Slippery elm	*Ulmus rubra*	4	15
438	Willow oak	*Quercus alba*	3	7
439	American elm	*Ulmus americana*	4	8
440	Black cherry	*Prunus serotina*	Dead	6
441	Black locust	*Robinia pseudoacacia*	Dead	12
442	Unknown snag	-	Dead	6
443	*White mulberry*	*Morus alba*	*4*	*9*
444	Black cherry	*Prunus serotina*	Dead	16
445	Unknown tree	-	Dead	10
446	Red maple	*Acer rubrum*	4	13
447	Slippery elm	*Ulmus rubra*	4	19
448	Unknown tree	-	Dead	6
450	Red maple	*Acer rubrum*	4	8
452	American elm	*Ulmus americana*	Dead	8
453	Slippery elm	*Ulmus rubra*	4	10
454	Slippery elm	*Ulmus rubra*	Dead	12
455	American elm	*Ulmus americana*	Dead	6
456	Tulip poplar	*Liriodendron tulipifera*	3	27
457	Red maple	*Acer rubrum*	4	15
458	American beech	*Fagus grandifolia*	3	8
459	American beech	*Fagus grandifolia*	3	18
460	American beech	*Fagus grandifolia*	3	8
461	Unknown snag	-	Dead	11
464	Unknown snag	-	Dead	21
466	Black oak	*Quercum velutina*	3	27
465	Chestnut oak	*Quercus montana*	2	32

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DATE	DESCRIPTION

ALEXANDRIA PROJECT NO.:	23086
DATE OF PLAN ISSUANCE:	
CONSULTANT PROJECT ID.:	60742359
DESIGNED BY: SB, TN DATE:	10/2026
DRAWN BY: SB, TN DATE:	10/2026
CHECKED BY: BA DATE:	10/2026
APPROVED BY: BA DATE:	10/2026

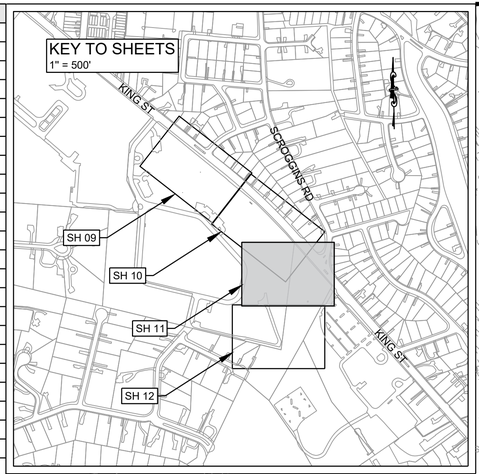
SEAL:

TREE INVENTORY

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING: TI-02
SCALE: 1:20
SHEET: 10 OF 52

				DBH
				30
				22
				6
				28
				11
				35
				7
				20,16
				11
				16
				7
				9
				7
				8
				19
				6
				14
				9
				44
				6,14
				14
				6
				8
				24
				34
				14
				44
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				11
				24
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				25
				14
				37
				7
				8
				21,28,42
				7
				19
				10
				9
				16



NOTES:

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NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DATE	DESCRIPTION

ALEXANDRIA PROJECT NO.: 23086
DATE OF PLAN ISSUANCE:
CONSULTANT PROJECT ID.: 60742359
DESIGNED BY: SB_TN DATE: 10/2026
DRAWN BY: SB_TN DATE: 10/2026
CHECKED BY: __BA__ DATE: 10/2026
APPROVED BY: __BA__ DATE: 10/2026

SEAL:

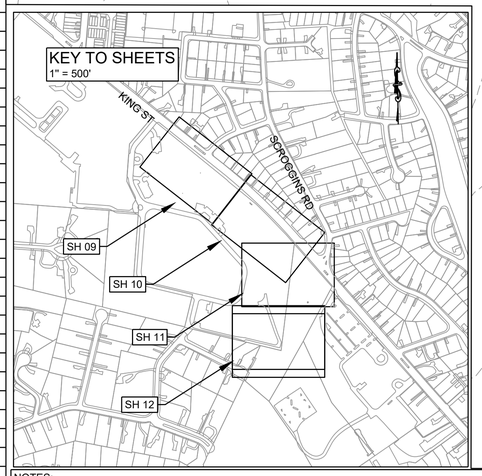
TREE INVENTORY

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING: TI-03
SCALE: N/A
SHEET: 11 OF 52

				DBH
				17
				11
				18
				42
—	———	———	—	8
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				24
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				12
				18
				12
				26
				7
				7
				7

MATCH LINE - SEE SHEET TI-03



NOTES:
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Tree #	Common Name	Scientific Name	Condition	DBH
676	Tulip poplar	*Liriodendron tulipifera*	3	6
677	Red maple	*Acer rubrum*	3	8
679	Black gum	*Nyssa sylvatica*	3	8,9
680	Red maple	*Acer rubrum*	3	9
1001	Red maple	*Acer rubrum*	2	21
1002	Willow oak	*Quercus alba*	2	11
1004	American elm	*Ulmus americana*	3	8
1006	American elm	*Ulmus americana*	3	23
1087	Red maple	*Acer rubrum*	2	24
1109	Black gum	*Nyssa sylvatica*	3	12
1110	Black cherry	*Prunus serotina*	3	6
1111	Sassafras	*Sassafras albidum*	3	46
1115	American elm	*Ulmus americana*	2	8
1116	American elm	*Ulmus americana*	2	8
1117	Tulip poplar	*Liriodendron tulipifera*	3	47
1118	Black cherry	*Prunus serotina*	4	10
1119	Sweet gum	*Liquidambar styraciflua*	3	8
1120	American elm	*Ulmus americana*	2	7
1121	Red maple	*Acer rubrum*	1	13
1122	River Berch	*Betula nigra*	3	21
1123	American elm	*Ulmus americana*	1	10
1150	Black cherry	*Prunus serotina*	4	17
1157	Maple	*Acer sp.*	4	12

Tree #	Common Name	Scientific Name	Condition	DBH
1162	Red maple	*Acer rubrum*	1	18
1163	Black cedar	*Juniperus nigra*	4	16
1173	American elm	*Ulmus americana*	4	9
1174	Sweet gum	*Liquidambar styraciflua*	2	11
1176	Red maple	*Acer rubrum*	1	9
1177	Tulip poplar	*Liriodendron tulipifera*	2	8
1178	American elm	*Ulmus americana*	2	16
1179	American elm	*Ulmus americana*	2	15
1180	Swamp white oak	*Quercus bicolor*	1	14
1181	Black locust	*Robinia pseudoacacia*	4	17
1182	American elm	*Ulmus americana*	4	10
1183	American elm	*Ulmus americana*	3	11
1184	American elm	*Ulmus americana*	1	28
1185	American elm	*Ulmus americana*	3	7
1186	Willow oak	*Quercus alba*	1	51
1187	Red maple	*Acer rubrum*	1	9

Tree #	Common Name	Scientific Name	Condition	DBH
1188	Black gum	*Nyssa sylvatica*	4	10
1189	Black gum	*Nyssa sylvatica*	4	10
1190	American elm	*Ulmus americana*	1	28
1191	Honey or Black locust spa.	-	3	18
1192	American elm	*Ulmus americana*	3	7
1193	Red maple	*Acer rubrum*	3	15
1194	Tulip poplar	*Liriodendron tulipifera*	1	32
1195	Red maple	*Acer rubrum*	1	8 | 13
1196	Tulip poplar	*Liriodendron tulipifera*	1	8
1197	White oak	*Quercus alba*	1	13
1198	Swamp white oak	*Quercus bicolor*	2	35
1199	American elm	*Ulmus americana*	3	12

SOURCE DATA INFORMATION
H.D. = VCS NAD 83
V.D. = NAVD88
GIS INFO = CITY & WSSI DIG. DATA
0 20' 40'
Scale 1"=20'

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

DATE	REVISIONS BY	DESCRIPTION

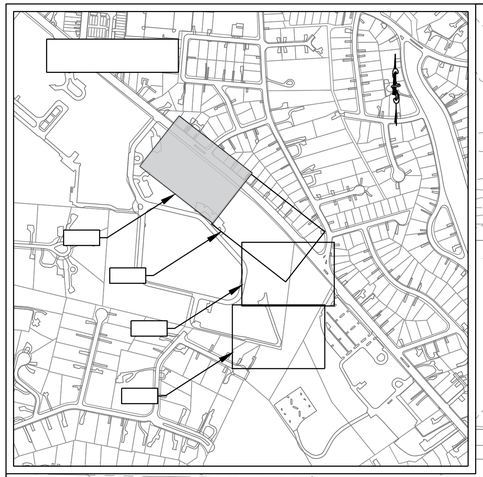
ALEXANDRIA PROJECT NO.: 23086
DATE OF PLAN ISSUANCE:
CONSULTANT PROJECT ID.: 60742359
DESIGNED BY: SB_TN DATE: 10/2026
DRAWN BY: SB_TN DATE: 10/2026
CHECKED BY: __BA__ DATE: 10/2026
APPROVED BY: __BA__ DATE: 10/2026

SEAL:

TREE INVENTORY

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING:
TI-04
SCALE:
N/A
SHEET:
12 OF 52



QUINCY ST

KING ST

EX. CONC. WALK

CAMERA POLE NO#

PROPOSED 366 SF VDOT CLASS II RIPRAP PLACEMENT TO FILL EXISTING SCOUR HOLE BEHIND WINGWALL AND AT CULVERT OUTLET

EXISTING FENCE TO BE REPLACED IN KIND FOLLOWING INSTALLATION OF STONE VENEER ON ENDWALL

EXISTING HEADWALL TO REMAIN STONE VENEER TO BE INSTALLED ON ENDWALL FACE, WING WALLS, AND TOP OF STRUCTURE

SIGN W/ MILE PLACARD
MILE MARKER 0.0

DESIGN AREA 1

EX. CHAIN LINKED SAFETY FENCE

EX. 4' DIRT TRAIL

EX. BRICK BUILDING (INDOOR POOL)

EX. TENNIS COURTS

EX. 10' CHAIN LINKED FENCE AROUND TENNIS COURTS

EX. TENNIS COURTS

EX. ASPHALT PARKING LOT

MATCH LINE - SEE SHEET PC-02

SOURCE DATA INFORMATION
H.D. = VCS NAD 83
V.D. = NAVD88
GIS INFO = CITY & WSSI DIG. DATA

0 20' 40'
Scale 1"=20'

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DESCRIPTION	DATE

ALEXANDRIA PROJECT NO.: 23086
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SEAL:

PROPOSED CONDITIONS

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING:
PC-01

SCALE:
1:20

SHEET:
13 OF 52

PROPOSED 682 SF
VDOT CLASS II
RIPRAP PLACEMENT

PROPOSED BOULDER CASCADE
INSTALL PER DETAIL 1, SHEET DE-01

KING ST

KEY TO SHEETS
1" = 500'

MATCH LINE - SEE SHEET PC-03

SOURCE DATA INFORMATION
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0 20' 40'
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CITY OF ALEXANDRIA, VIRGINIA
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301 KING STREET, ROOM 4100
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SEAL:

PROPOSED CONDITIONS

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING:
PC-02

SCALE:
1:20

SHEET:
14 OF 52

MATCH LINE - SEE SHEET 14

MATCH LINE - SEE SHEET 16

CHINQUAPIN DR

KING ST

SCROGGINS ROAD

EX. VOLLEYBALL COURT

EX. 8' ASP. TRAIL

EX. 4' DIRT TRAIL

TOP= 140.58'

TOP= 140.65'

15" CMP

RA-1

RA-2

RA-3

RA-4

21" RCP

TW= 139.77'

SD

SS

WUS

WUS-TR

WUS-TS

100 YR

100-YR

100-TR

100-TS

WET

RPA

LTS

THALWEG

EARTHEN TRAIL

MILE MARKER 0.2

007529

007530

VERIFY ELEVATION AND CONDITION OF EXISTING SANITARY SEWER MANHOLE.
EXISTING SANITARY SEWER MANHOLE TO BE PROTECTED.
132.42' RIM (APPROX.)

351 SF PROPOSED VDOT CLASS III RIP RAP
GROUT IN PLACE

PROPOSED BANK REPAIR
GRADE BANK AT 2H:1V
PLACE TYPE D SSM AND SEED

LOD

21+00

21+42

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0 20' 40'
Scale 1"=20'

NOT FOR CONSTRUCTION

SEAL:

CITY OF ALEXANDRIA, VIRGINIA
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301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

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PROPOSED CONDITIONS

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12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING:
PC-03
SCALE:
1:20
SHEET:
15 OF 52

MATCH LINE - SEE SHEET 15

PROPOSED FLAP GATE FOR PIPE CULVERTS
INSTALL PER DETAIL 3, SHEET DE-02
CONTRACTOR SHALL VERIFY PIPE SIZE PRIOR TO INSTALLATION

PROPOSED ARMOURED UTILITY PROTECTION WITH PIPE ENCASEMENT
INSTALL PER DETAIL 2, SHEET DE-01

598 SF PROPOSED CLASS II RIPRAP PLACEMENT

EXISTING SHEET PILE WALL TO REMAIN
INSTALL DEADMAN ANCHOR SYSTEM
PER DETAIL 4, SEE SHEET DE-02

SANITARY SEWER MANHOLE
128.19' RIM

PROPOSED BOULDER CASCADE
INSTALL PER DETAIL 1, SHEET DE-01

EX. 6"x6" TIMBER STAIRS

EX. 6"x6" TIMBERS (TYP.)

SIGN W/ METAL PLACARD

18" DIP SS

18" RCP

30+00

31+00

31+74

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PROPOSED CONDITIONS

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(301) 250-2934

DRAWING:
PC-04

SCALE:
1:20

SHEET:
16 OF 52

PROPOSED CONTOURS ARE INTENDED TO DEPICT OVERALL GRADING CONCEPT. EXISTING AND PROPOSED CONDITIONS CONTOURS ARE SHOWN AT 1-FT C.I. DUE TO IRREGULARITY OF ROCK SHAPES, CONTOURS DEPICTING GRADING WITHIN STRUCTURES ARE APPROXIMATE.

TREE PROTECTION FENCE AND/OR CHAIN LINK HIGH VISIBILITY FENCE SHALL BE PLACED AROUND ALL AREAS OF TREES TO BE PRESERVED ADJACENT TO THE LIMITS OF CLEARING AND GRADING.

IT IS ASSUMED THAT ALL TREES WITHIN THE LIMITS OF CLEARING WILL NOT BE REMOVED. PRIOR TO CONSTRUCTION THE LIMITS OF DISTURBANCE (LOD) SHALL BE WALKED BY THE DESIGN TEAM AND CITY STAFF ALONG WITH THE CONTRACTOR TO CONFIRM TREE REMOVAL. IN THE EVENT THAT THE CONTRACTOR BELIEVES A TREE WITHIN THE LOD COULD BE SAVED, THE CONTRACTOR SHALL CONTACT THE DESIGN TEAM AND HAVE THE PROJECT ENGINEER AND CITY ARBORIST DETERMINE

PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE LIMITS OF DISTURBANCE SHALL BE MARKED ON SITE FOR REVIEW WITH THE CITY ARBORIST AND THE CONTRACTOR. ADJUSTMENTS MAY BE MADE WHERE POSSIBLE TO PRESERVE ADDITIONAL CRITICAL ROOT ZONE TO IMPROVE THE SURVIVABILITY OF TREES SHOWN TO BE SAVED. THE LOD SHOULD BE CLEARLY MARKED ON THE

ALL FILL MATERIAL SHALL BE APPROVED BY SITE GEOTECHNICAL ENGINEER. IN THE EVENT THAT SUITABLE FILL MATERIAL IS NOT AVAILABLE ON-SITE, IT SHALL BE THE CONTRACTOR'S

ALL PLACED FILL MATERIAL SHALL BE COMPACTED WITH THE TRACK HOE BUCKET TO A REASONABLE COMPACTION AS DETERMINED BY THE SITE ENGINEER/CITY INSPECTOR (TYPICALLY

FOLLOWING CONSTRUCTION, ALL GRADES (OUTSIDE OF SPECIFIED STABILIZATION AREAS) SHALL BE RETURNED TO EXISTING CONDITIONS AND ANY OTHER DAMAGE TO EXISTING STRUCTURES SHALL BE REPAIRED BY THE CONTRACTOR. BRIDGES ARE TO BE REPLACED IN KIND

ANY DISTURBED

SLOPES NOT GRADED TO 3:1 OR FLATTER SHALL REQUIRE STABILIZATION WITH NATURAL FIBER

STRUCTURAL

OR CONCENTRATIONS OF

WORK MUST CEASE IN THE AREA OF THE

ARCHAEOLOGIST COMES TO THE SITE AND RECORDS THE FINDS. THE

INVOLVING ANY

COLLECTION TO BE

ALEXANDRIA ARCHAEOLOGY. FAILURE

DELAYS. THE LANGUAGE NOTED ABOVE SHALL BE

PLAN SHEETS INVOLVING ANY GROUND DISTURBING ACTIVITIES.

CODE TITLE 5,

DEWATERING AND OTHER CONSTRUCTION RELATED DISCHARGE LIMITS TO THE SEWER SYSTEM ARE REGULATED BY ALEXRENEW PRETREATMENT. ENGINEER/OWNER IS REQUIRED TO CONTACT

CONTRACTOR SHALL FOLLOW VIRGINIA WORK ZONE PROTECTION MANUAL GUIDELINES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SUBMIT MAINTENANCE OF TRAFFIC PLANS ALONG WITH

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

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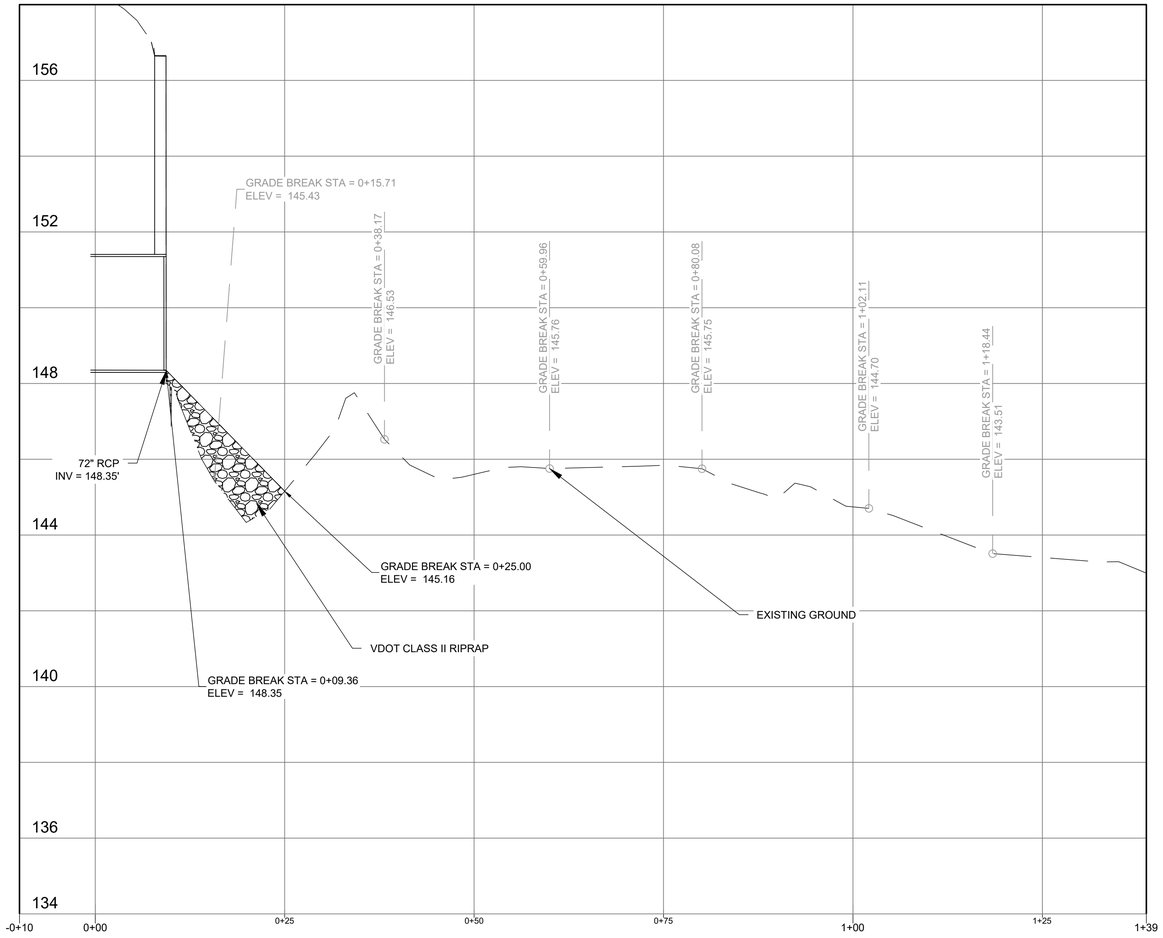
GRADING NOTES

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING:
GN-01

SCALE:
N/A

SHEET:
17 OF 52



1 DESIGN AREA 1 PROFILE STA -0+10-1+39

SCALE: HORIZONTAL 1" = 10'; VERTICAL 1" = 2'

HORIZONTAL

10 0 10 20

SCALE IN FEET 1" = 10'

VERTICAL

2 0 2 4

NOT FOR CONSTRUCTION

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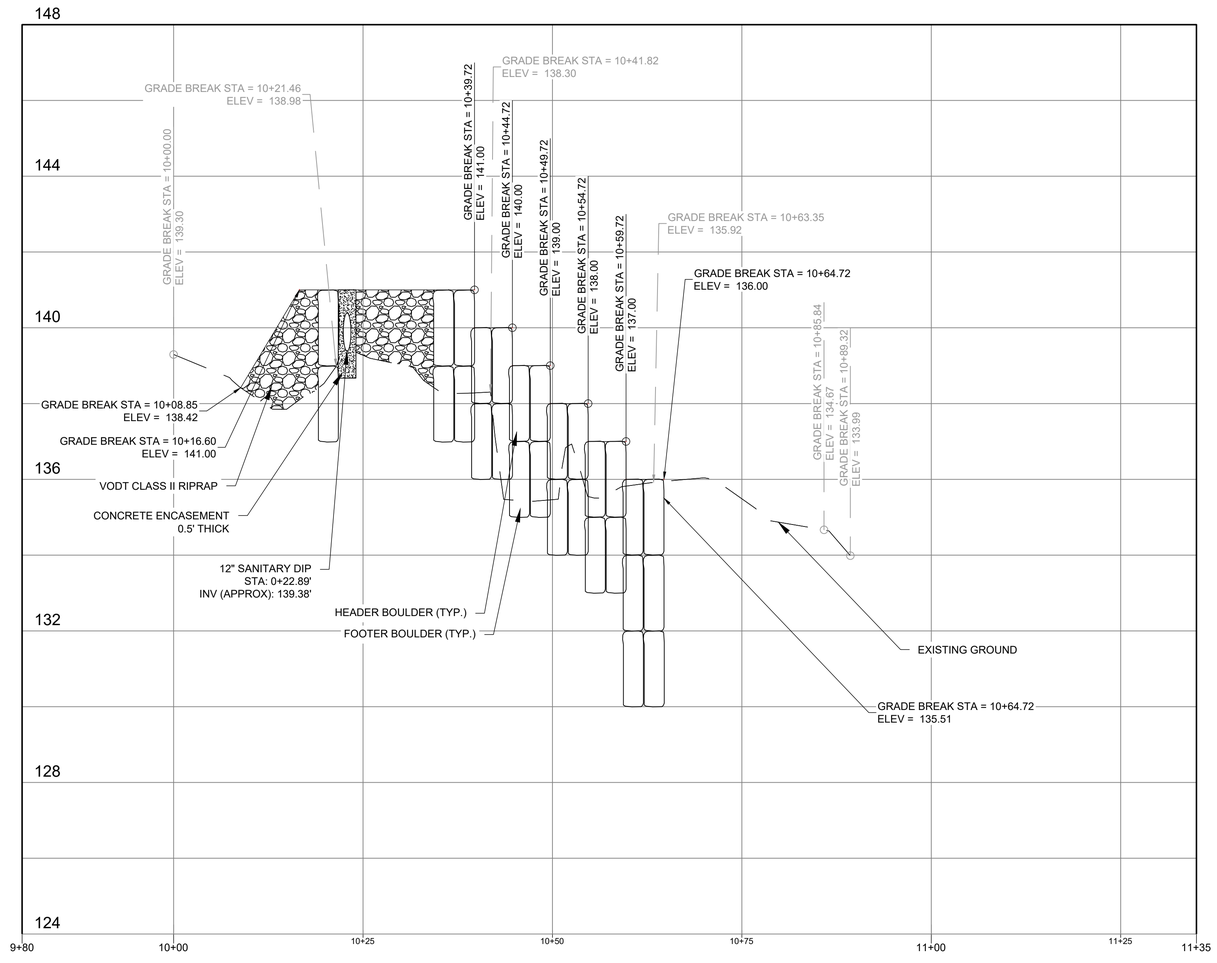
CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

SEAL:

LONGITUDINAL PROFILE

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING:
LP-01
SCALE:
N/A
SHEET:
18 OF 52



2 DESIGN AREA 2 PROFILE STA 9+80-11+35

SCALE: HORIZONTAL 1" = 10'; VERTICAL 1" = 2'

HORIZONTAL 10 0 10 20

SCALE IN FEET 1" = 10'

VERTICAL 2 0 2 4

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DATE	DESCRIPTION

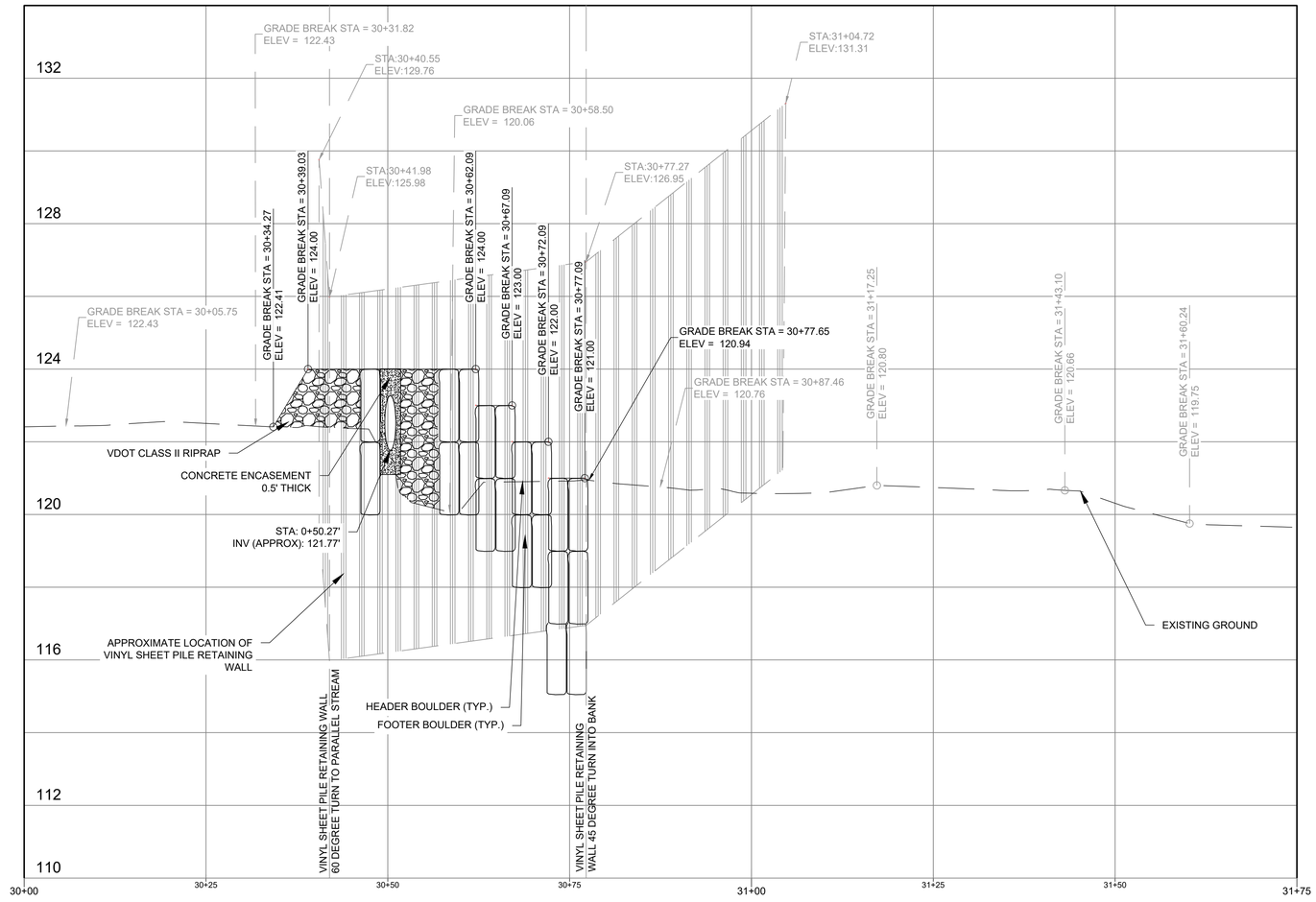
ALEXANDRIA PROJECT NO.: 23086
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DESIGNED BY: SB_TN DATE: 10/2026
DRAWN BY: SB_TN DATE: 10/2026
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APPROVED BY: __BA__ DATE: 10/2026

SEAL:

LONGITUDINAL PROFILE

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING: LP-02
SCALE: N/A
SHEET: 19 OF 52



3 DESIGN AREA 4 PROFILE STA 20+00-21+75

SCALE: HORIZONTAL 1" = 10'; VERTICAL 1" = 2'

HORIZONTAL — 10 0 10 20 — SCALE IN FEET 1" = 10'

VERTICAL — 2 0 2 4 — SCALE IN FEET 1" = 2'

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

DATE	REVISIONS BY	DESCRIPTION

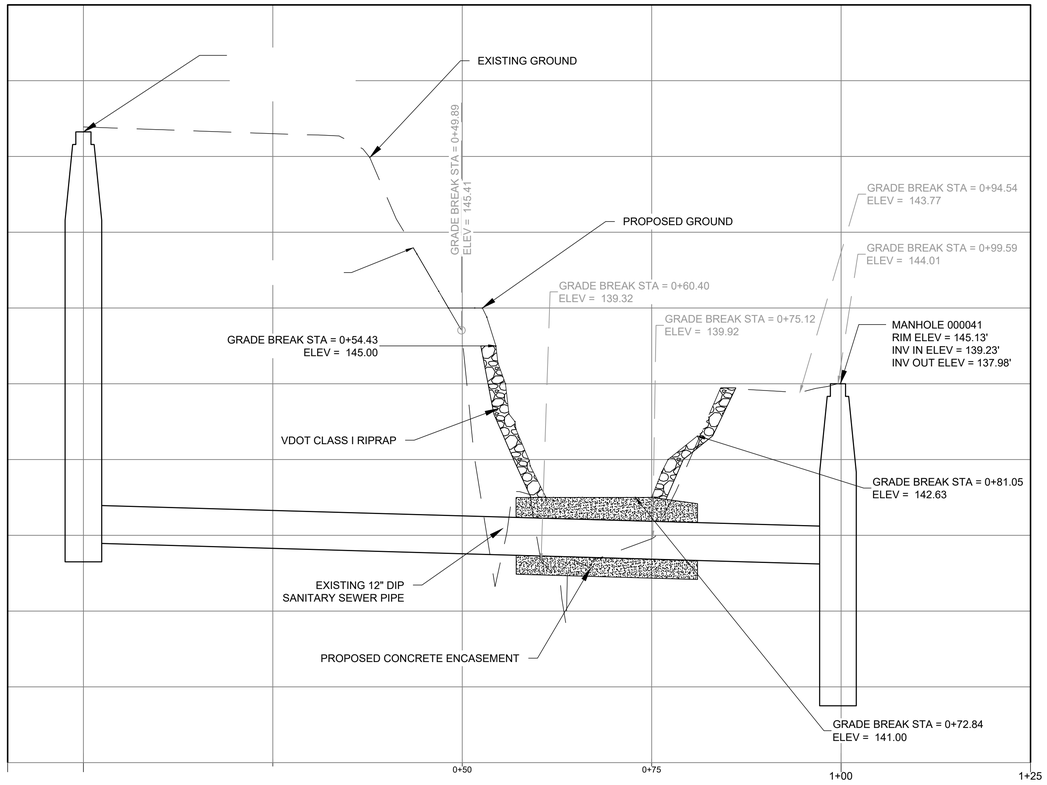
ALEXANDRIA PROJECT NO.: 23086
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SEAL:

LONGITUDINAL PROFILE

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

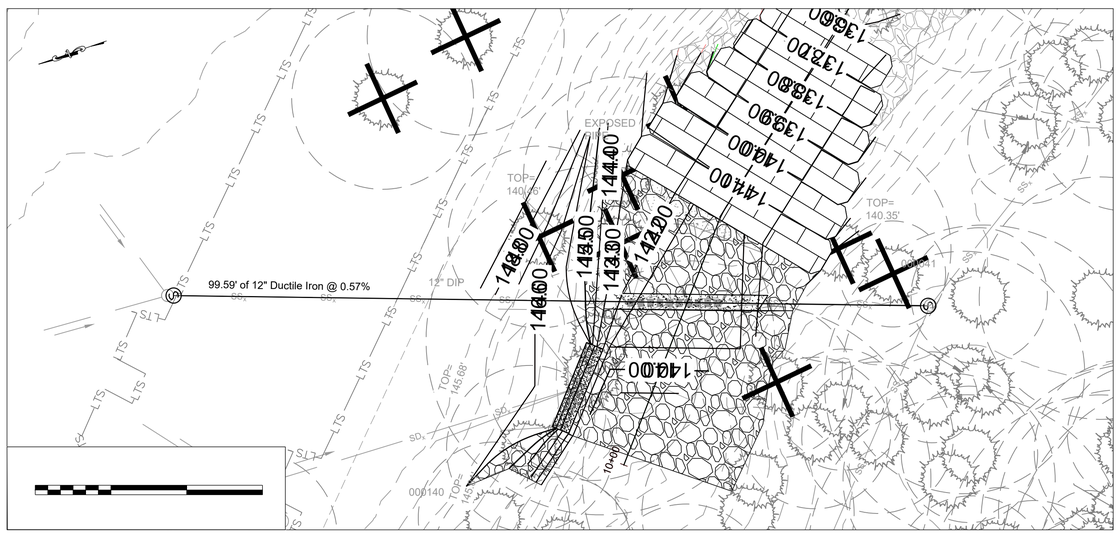
DRAWING: LP-03
SCALE: N/A
SHEET: 20 OF 52

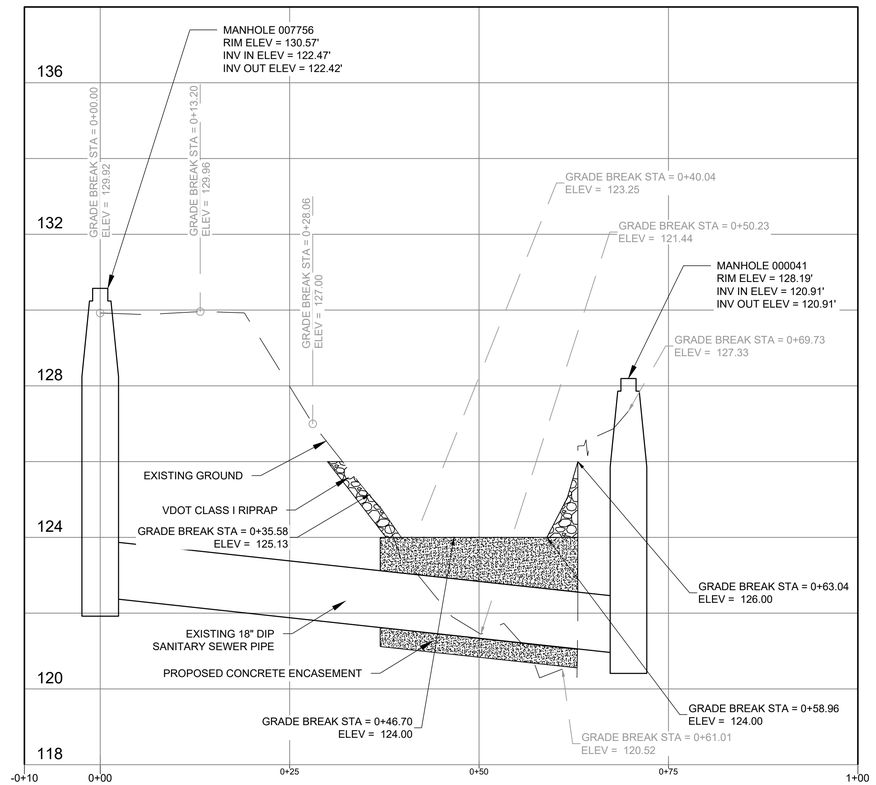


DESIGN AREA 2 SANITARY SEWER PROFILE STA -0+10-1+25

SCALE: HORIZONTAL 1" = 10'; VERTICAL 1" = 2'

10 0 10 20
SCALE IN FEET 1" = 10'
2 0 2 4



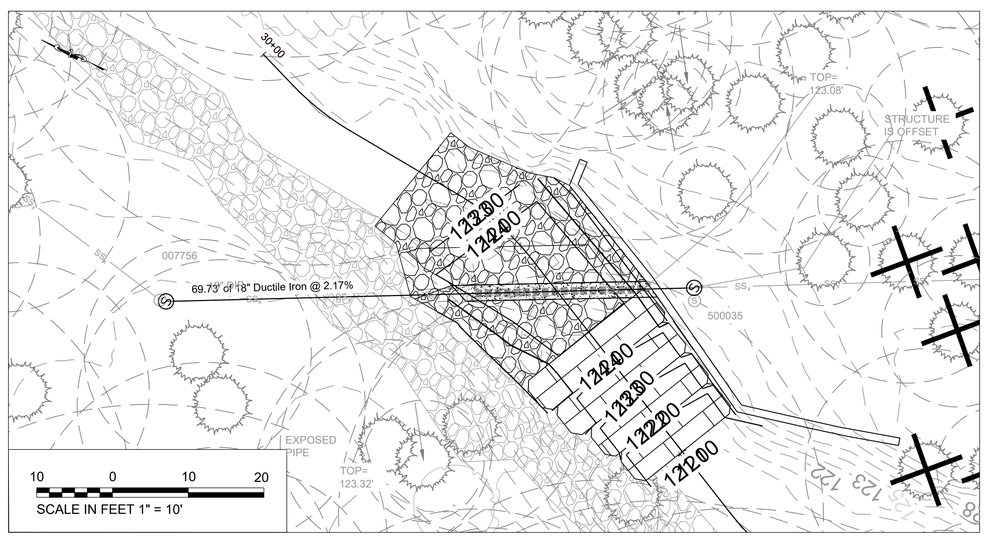


5 DESIGN AREA 4 SANITARY SEWER PROFILE STA -0+10-1+00

SCALE: HORIZONTAL 1" = 10'; VERTICAL 1" = 2'

HORIZONTAL
10 0 10 20
SCALE IN FEET 1" = 10'

VERTICAL
2 0 2 4



10 0 10 20
SCALE IN FEET 1" = 10'

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DATE	DESCRIPTION

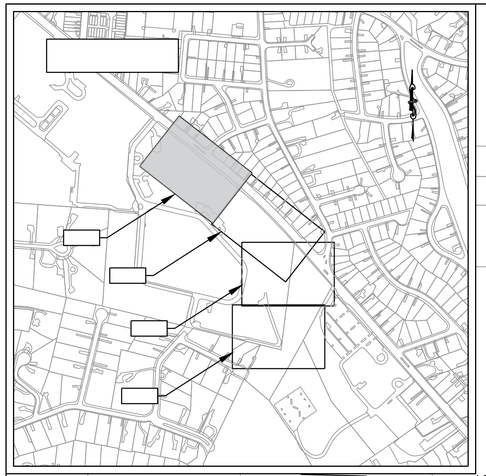
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SEAL:

LONGITUDINAL PROFILE

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING: LP-04
SCALE: N/A
SHEET: 21 OF 52



CAMERA POLE NO#

LOD

LOS

WUS

150

153

152

154

158

157

156

155

147

148

146

144

145

143

159

160

161

162

163

164

166

167

169

170

BP. 0+00.00

0+00

L1

C1

PC. 0+50.73

PT. 0+54.56

L2

C2

PC. 0+87.61

PT. 0+91.75

1+00

L3

EP. 1+38.73

1+39

72" RCP

SD

000124

000042

AREA OF
DEBRIS BUILDUP

EX. CONC. WALK

EX. CHAIN LINKED
FENCE

EX. 4' DIRT TRAIL

SIGN W/METAL PLACARD
MILE MARKER 0.0

#1002

#1004

MATCH LINE - SEE SHEET GEO-02

NOT FOR CONSTRUCTION

SOURCE DATA INFORMATION
H.D. = VCS NAD 83
V.D. = NAVD88
GIS INFO = CITY & WSSI DIG. DATA

0 20' 40'
Scale 1"=20'

TRAVERSE / BENCHMARK LOCATION TABLE

	Northing	Easting	Elevation
	6985972.40	11886685.50	161.97
	6985893.82	11886786.16	157.38
	6985803.64	11886919.44	155.46

GEOMETRY TABLE

NO.	LENGHT	RADIUS	BEARING/DELTA	TANGENT	CHORD BEARING	CHORD
L1	50.79'	-------	S73° 50' 53.77"E	--------	-------	------
C1	3.77'	9.32'	23°10'59"	1.91'	S62° 15' 24"E	3.75'
L2	33.05'	-------	S50° 39' 54.54"E	--------	-------	------
C2	4.14'	16.00'	14°49'10"	2.08'	S58° 04' 29"E	4.13'
L3	46.97'	-------	S65° 29' 04.05"E	--------	-------	------

CITY OF ALEXANDRIA, VIRGINIA
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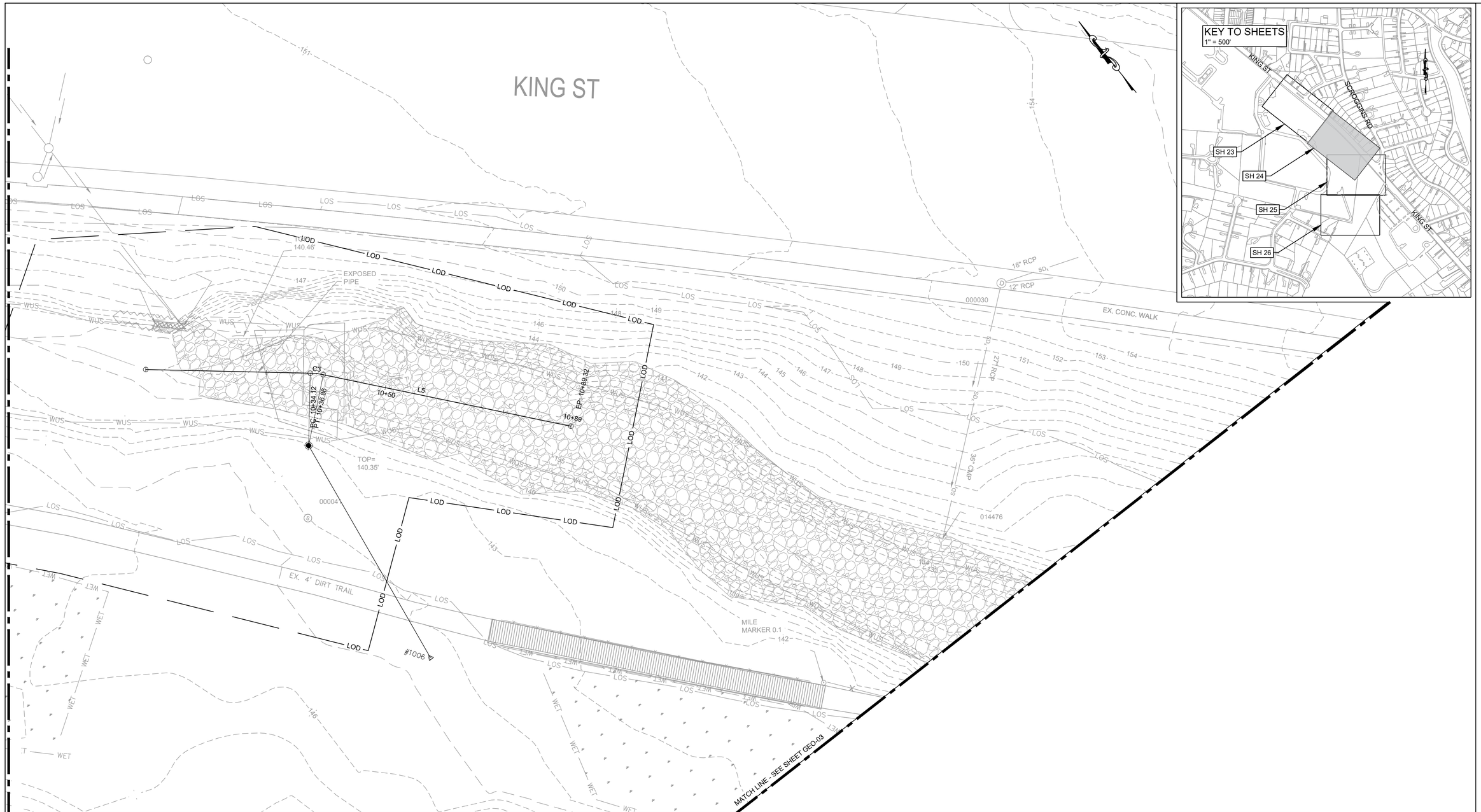
ALEXANDRIA PROJECT NO.: 23066
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SEAL:

GEOMETRY PLAN

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING:
GEO-01
SCALE:
1:10
SHEET:
22 OF 52



TRAVERSE / BENCHMARK LOCATION TABLE

	Northing	Easting	Elevation
	6985736.92	11887048.02	146.74
	6985633.55	11887114.64	0.00
	6985544.22	11887195.72	141.76

GEOMETRY TABLE

NO.	LENGHT	RADIUS	BEARING/DELTA	TANGENT	CHORD BEARING	CHORD
L4	34.12'	-------	S50° 42' 03.67"E	--------	-------	------
C3	2.74'	15.00'	10°27'27"	1.37'	S45° 28' 20"E	2.73'
L5	52.46'	-------	S40° 14' 36.77"E	--------	-------	------

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Scale 1''=20'

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GEOMETRY PLAN

AECOM
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(301) 250-2934

DRAWING:
GEO-02
SCALE:
1:10
SHEET:
23 OF 52

MATCH LINE - SEE SHEET GEO-02

GEOMETRY TABLE

NO.	LENGHT	RADIUS	BEARING/DELTA	TANGENT	CHORD BEARING	CHORD
L6	9.12'	-------	S17° 28' 46.68"E	---------	-------	------
C4	4.01'	35.00'	6°33'46"	2.01'	S20° 45' 40"E	4.01'
L7	6.40'	-------	S24° 02' 32.42"E	---------	-------	------
C5	6.75'	35.00'	11°03'17"	3.39'	S18° 30' 54"E	6.74'
L8	37.49'	-------	S12° 59' 15.10"E	---------	-------	------
C6	23.88'	35.00'	39°05'51"	12.43'	S6° 33' 40"W	23.42'
L9	9.39'	-------	S26° 06' 35.74"W	---------	-------	------
C7	17.37'	35.00'	28°26'17"	8.87'	S11° 53' 27"W	17.19'
L10	28.04'	-------	S2° 19' 41.61"E	---------	-------	------



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0 20' 40'
Scale 1"=20'

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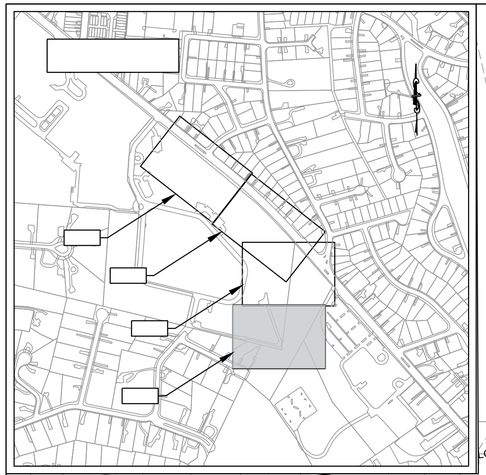
CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

SEAL:

GEOMETRY PLAN

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING:
GEO-03
SCALE:
N/A
SHEET:
24 OF 52



MATCH LINE - SEE SHEET GEO-03

EX. 6"x6" TIMBER STAIRS

EXPOSED PIPE

TOP= 123.32'

AREA OF DEBRIS BUILDUP

TOP= 123.08'

STRUCTURE IS OFFSET

VINYL CLAD RET. WALL

EX. 4' DIRT TRAIL

007756

500035

#1012

#1013

BP: 30+00.00

PC: 30+05.75

PT: 30+15.31

PC: 30+31.82

PT: 30+44.90

30+50

PC: 30+87.46

PT: 31+07.44

31+00

PC: 31+34.23

PT: 31+43.10

31+50

PT: 31+74.35

L11 L12 L13 L14 L15

C8 C9 C10 C11

R8 R9 R10 R11

LOD

WET

WSS

SWM

LOS

TRAVERSE / BENCHMARK LOCATION TABLE

	Northing	Easting	Elevation
	6984945.43	11887412.80	132.71
	6984834.75	11887408.54	138.99
	6984741.74	11887452.53	136.29

GEOMETRY TABLE

NO.	LENGHT	RADIUS	BEARING/DELTA	TANGENT	CHORD BEARING	CHORD
L11	5.75'	-------	S21° 12' 24.35"W	--------	-------	------
C8	9.56'	35.00'	15°38'53"	4.81'	S13° 22' 58"W	9.53'
L12	16.51'	-------	S5° 33' 31.15"W	--------	-------	------
C9	13.08'	35.00'	21°24'31"	6.62'	S16° 15' 47"W	13.00'
L13	42.56'	-------	S26° 58' 02.33"W	--------	-------	------
C10	19.98'	35.00'	32°42'55"	10.27'	S10° 36' 35"W	19.71'
L14	26.78'	-------	S5° 44' 52.38"E	--------	-------	------
C11	8.87'	35.00'	14°31'11"	4.46'	S13° 00' 28"E	8.85'
L15	31.26'	-------	S20° 16' 03.13"E	--------	-------	------

SOURCE DATA INFORMATION
H.D. = VCS NAD 83
V.D. = NAVD88
GIS INFO = CITY & WSSI DIG. DATA

0 20' 40'
Scale 1"=20'

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

DATE	REVISIONS BY	DESCRIPTION

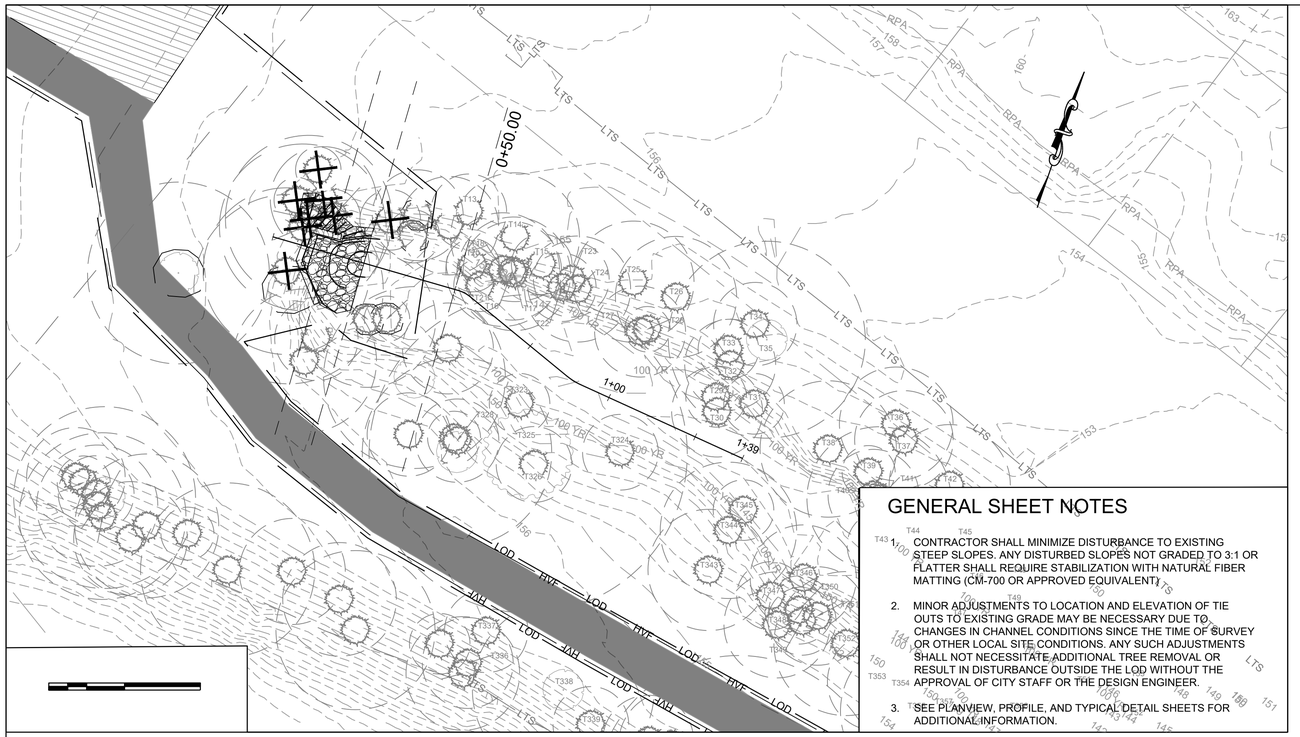
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DATE OF PLAN ISSUANCE:
CONSULTANT PROJECT ID.: 60742359
DESIGNED BY: SB TN DATE: 10/2026
DRAWN BY: SB TN DATE: 10/2026
CHECKED BY: BA DATE: 10/2026
APPROVED BY: BA DATE: 10/2026

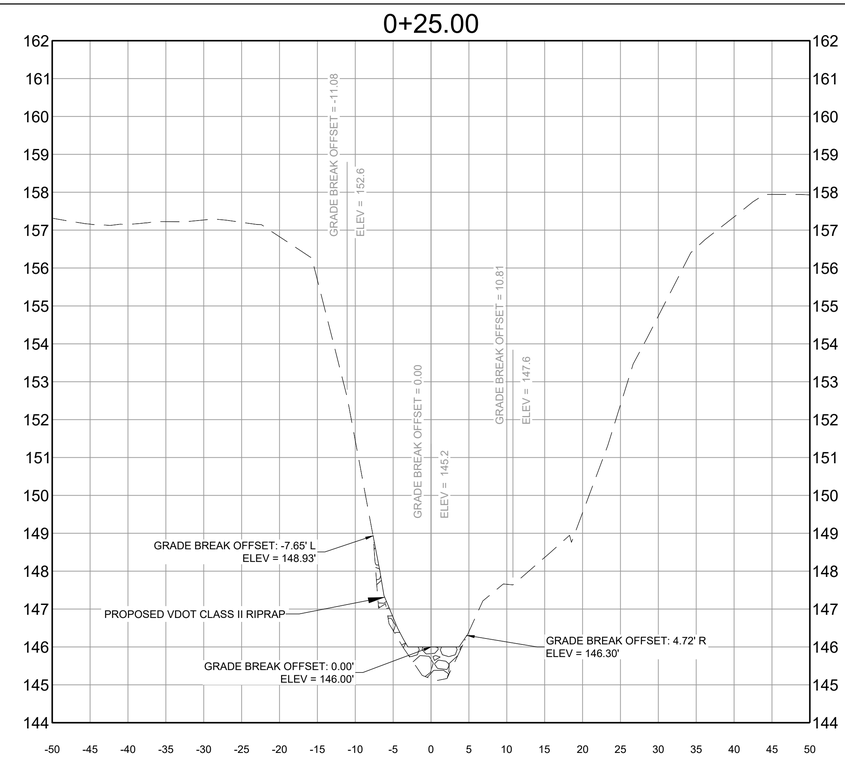
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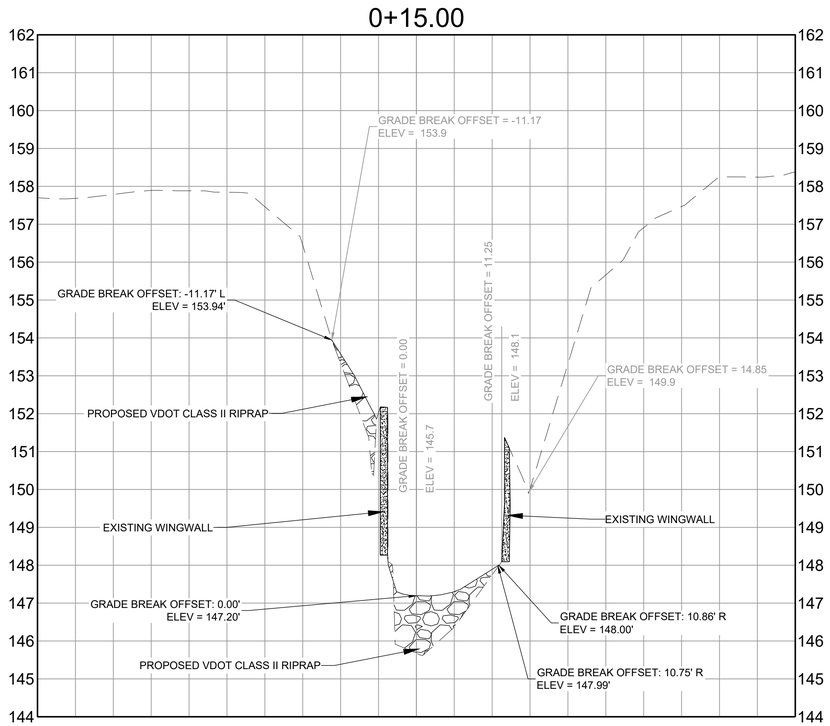
GEOMETRY PLAN

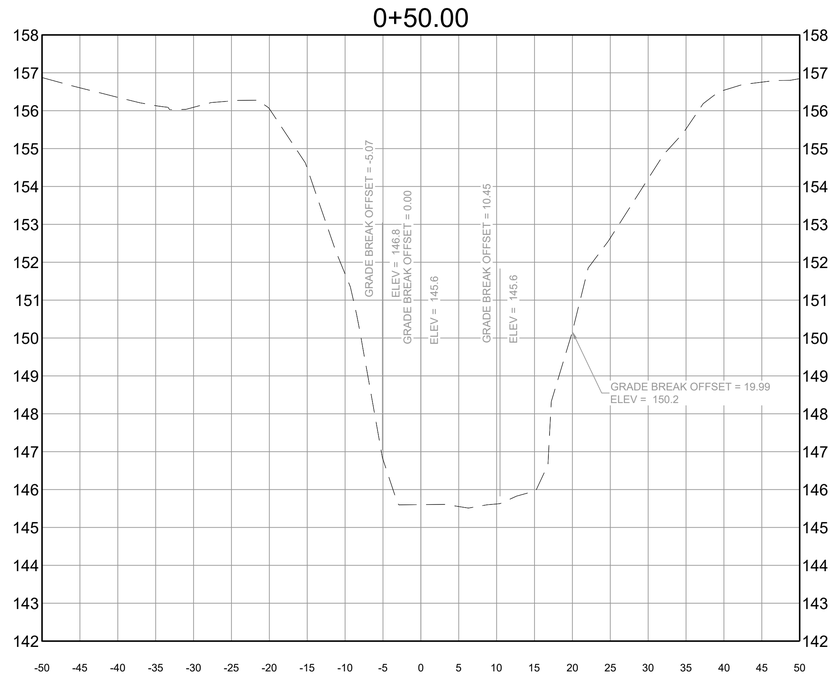
AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING:
GEO-04
SCALE:
N/A
SHEET:
25 OF 52









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CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DATE	DESCRIPTION

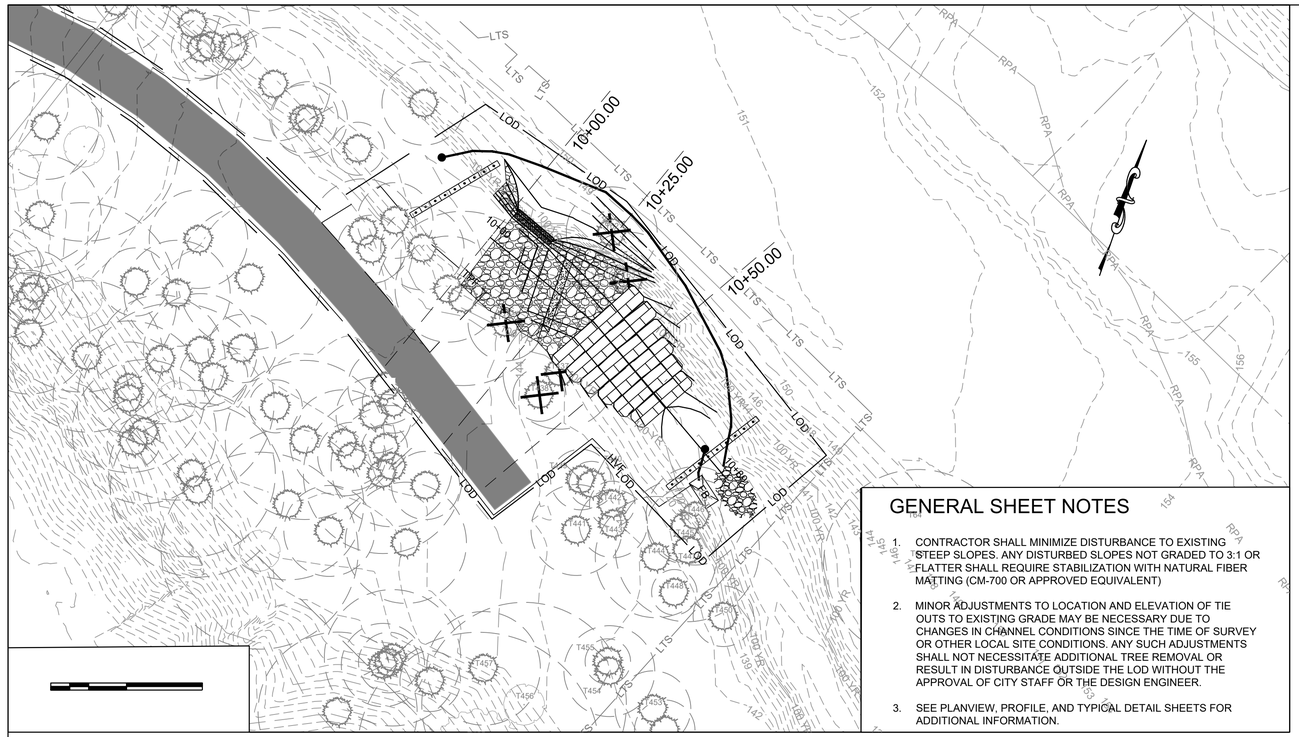
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DATE OF PLAN ISSUANCE:
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DESIGNED BY: SB, TN DATE: 10/2026
DRAWN BY: SB, TN DATE: 10/2026
CHECKED BY: BA DATE: 10/2026
APPROVED BY: BA DATE: 10/2026

SEAL:

CROSS SECTIONS

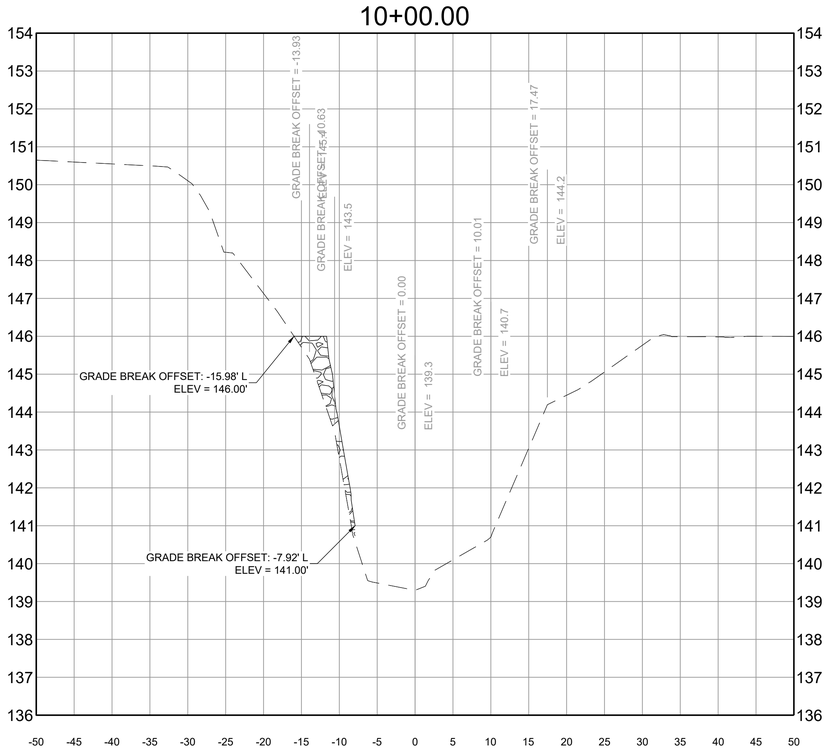
AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

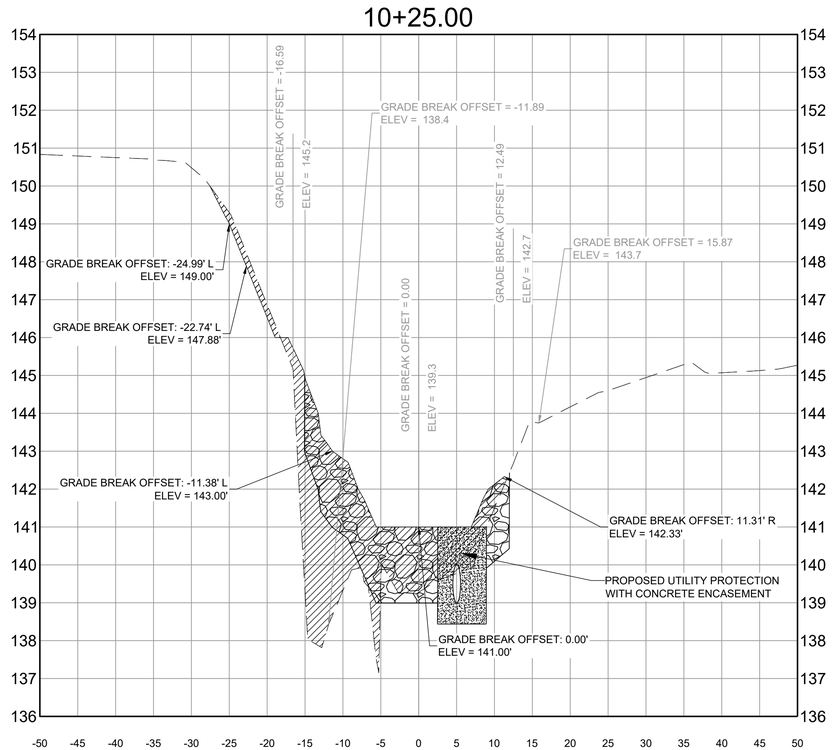
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CS-01
SCALE:
AS SHOWN
SHEET:
26 OF 52

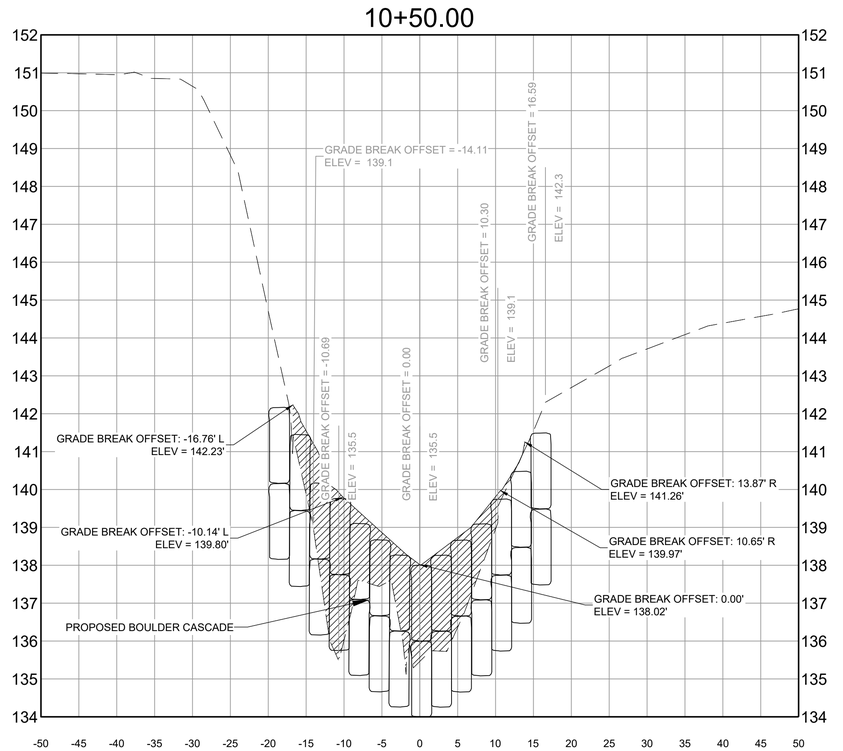


GENERAL SHEET NOTES

1. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING STEEP SLOPES. ANY DISTURBED SLOPES NOT GRADED TO 3:1 OR FLATTER SHALL REQUIRE STABILIZATION WITH NATURAL FIBER MATTING (CM-700 OR APPROVED EQUIVALENT)
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3. SEE PLANVIEW, PROFILE, AND TYPICAL DETAIL SHEETS FOR ADDITIONAL INFORMATION.







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CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DATE	DESCRIPTION

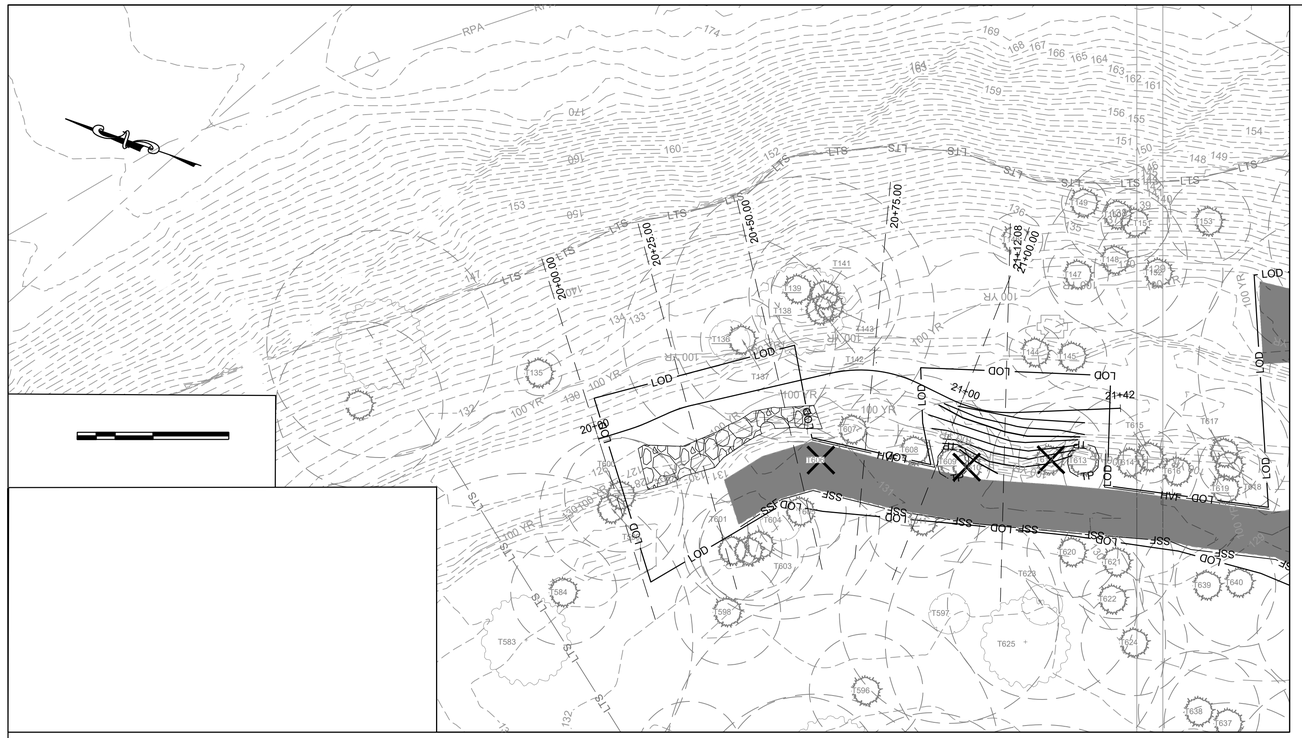
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DATE OF PLAN ISSUANCE:
CONSULTANT PROJECT ID.: 60742359
DESIGNED BY: SB, TN DATE: 10/2026
DRAWN BY: SB, TN DATE: 10/2026
CHECKED BY: BA DATE: 10/2026
APPROVED BY: BA DATE: 10/2026

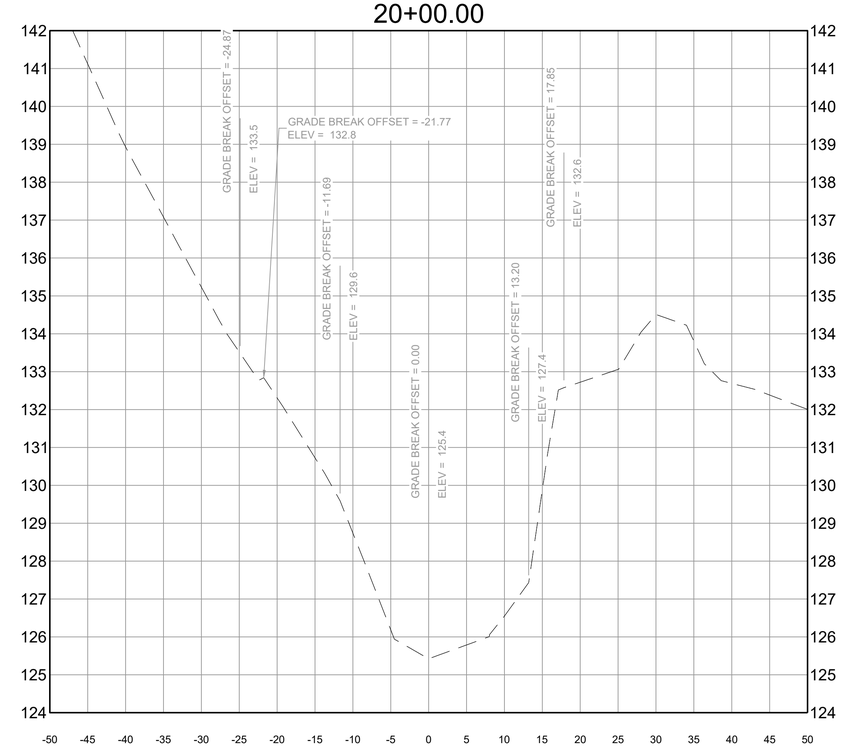
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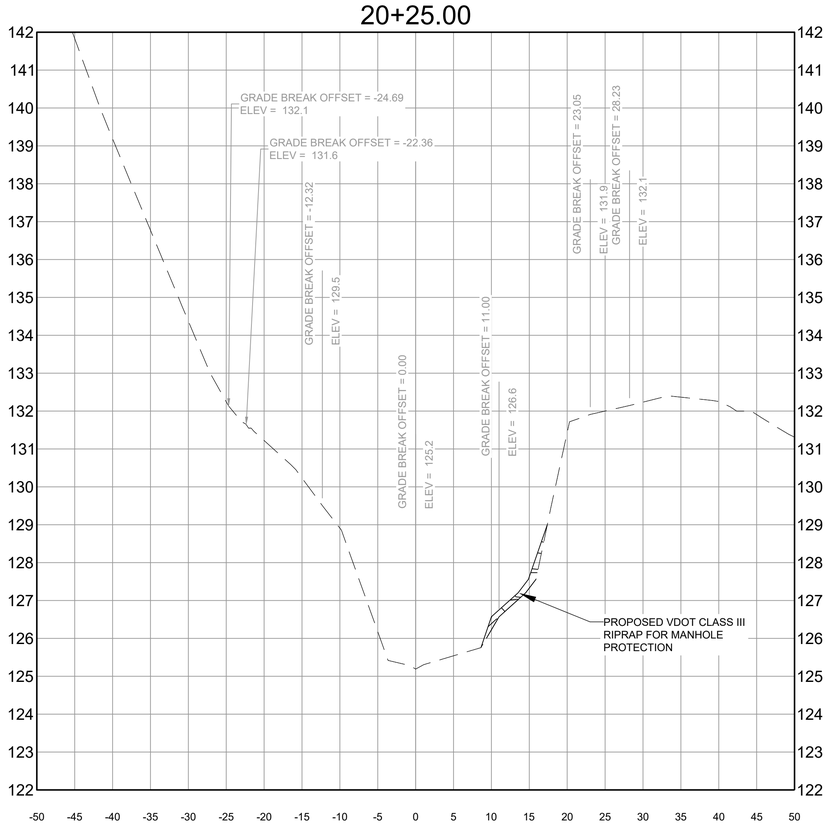
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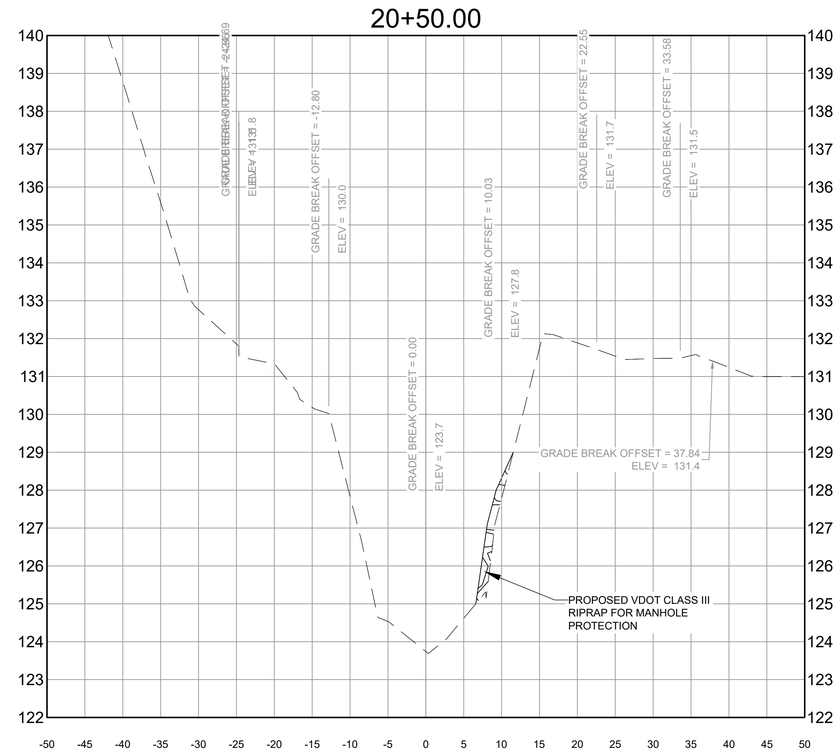
AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING: CS-02
SCALE: AS SHOWN
SHEET: 27 OF 52









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CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DATE	DESCRIPTION

ALEXANDRIA PROJECT NO.: 23086
DATE OF PLAN ISSUANCE:
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DESIGNED BY: SB_TN DATE: 10/2026
DRAWN BY: SB_TN DATE: 10/2026
CHECKED BY: BA DATE: 10/2026
APPROVED BY: BA DATE: 10/2026

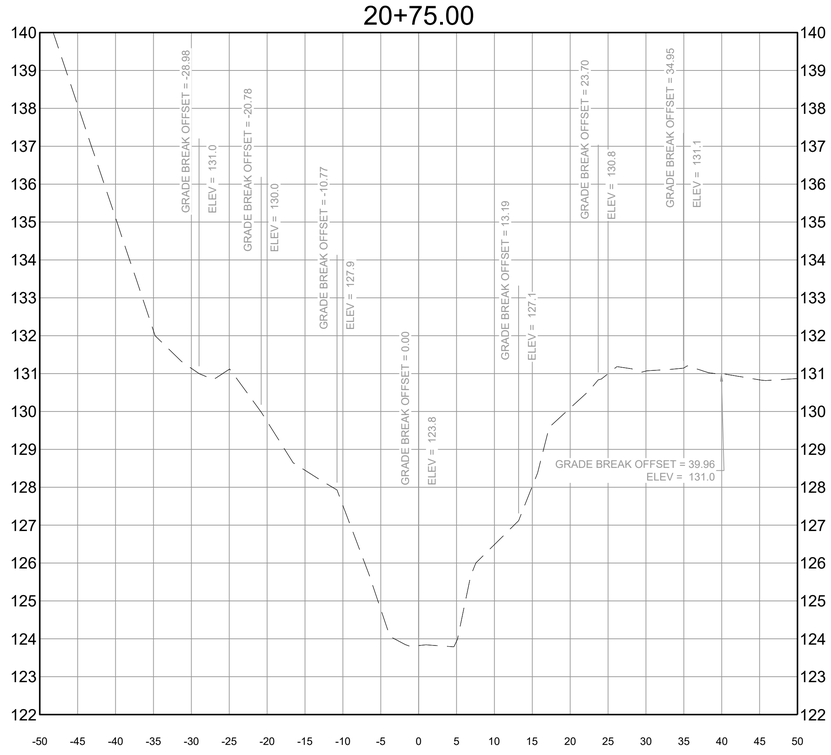
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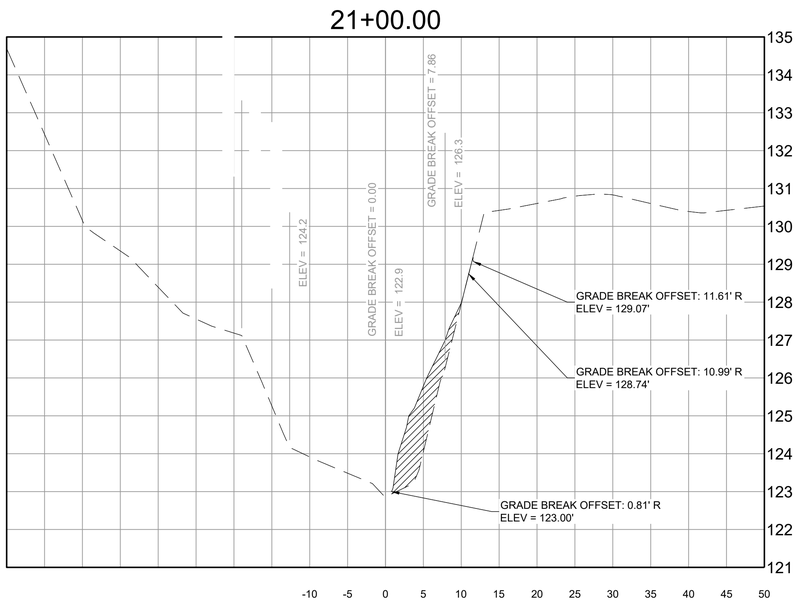
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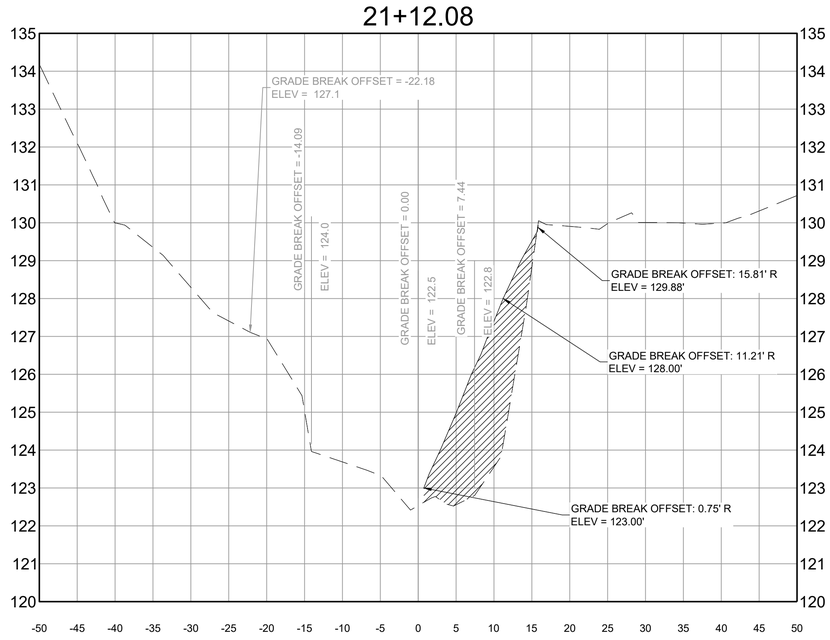
AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING: CS-03
SCALE: AS SHOWN
SHEET: 28 OF 52









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CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DATE	DESCRIPTION

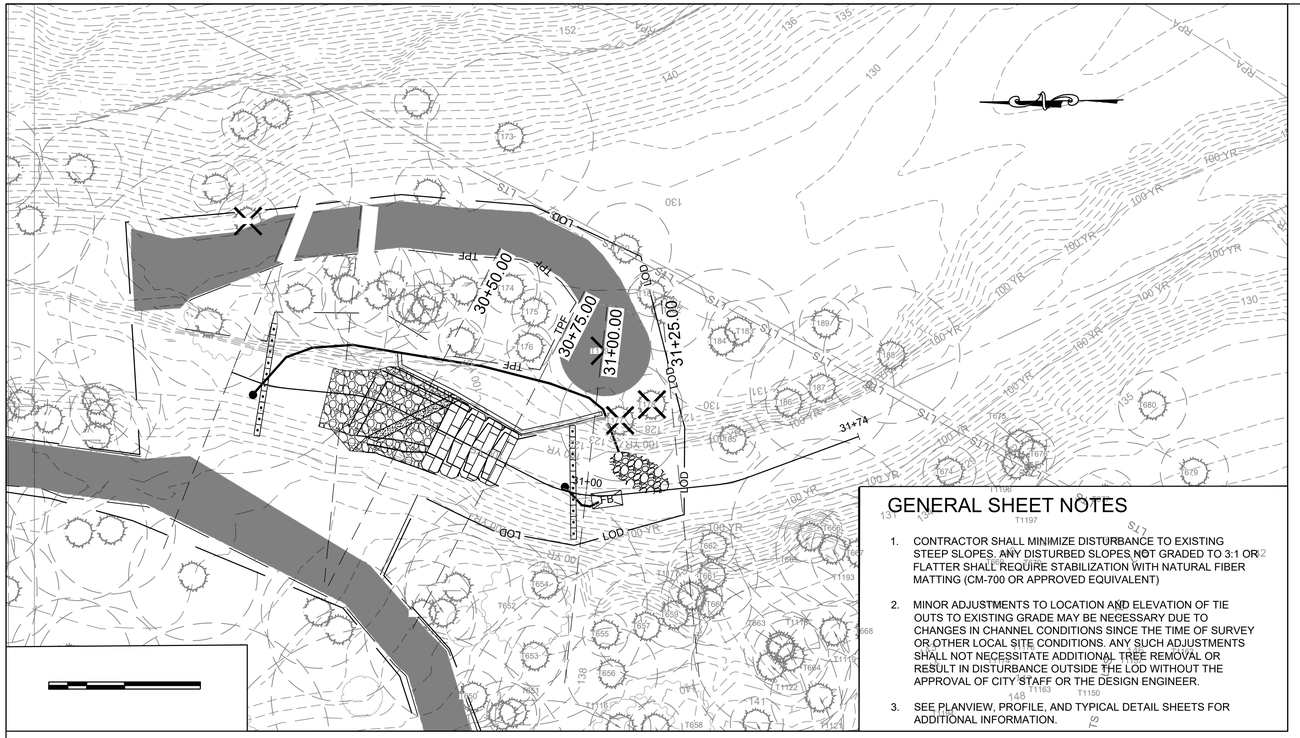
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SEAL:

CROSS SECTIONS

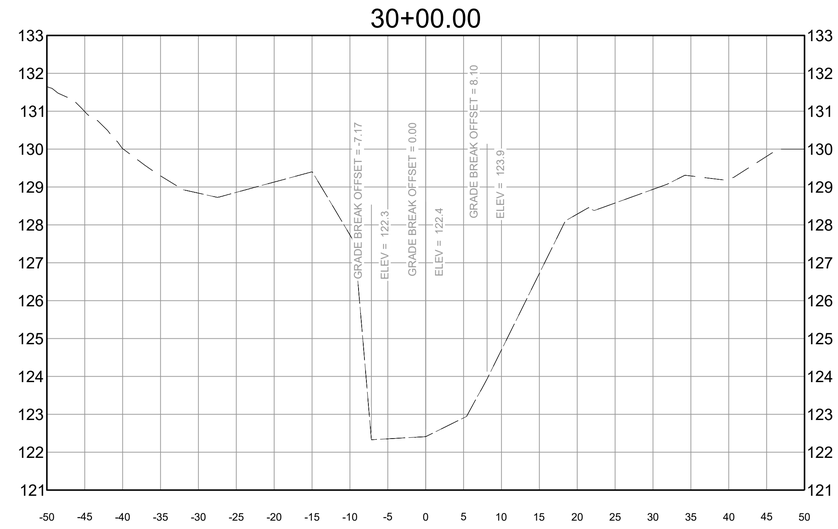
AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

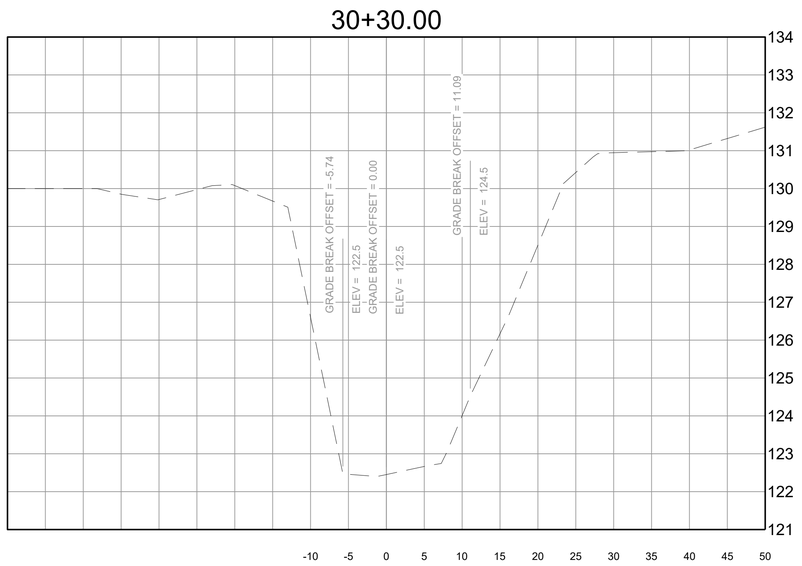
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CS-04
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SHEET:
29 OF 52

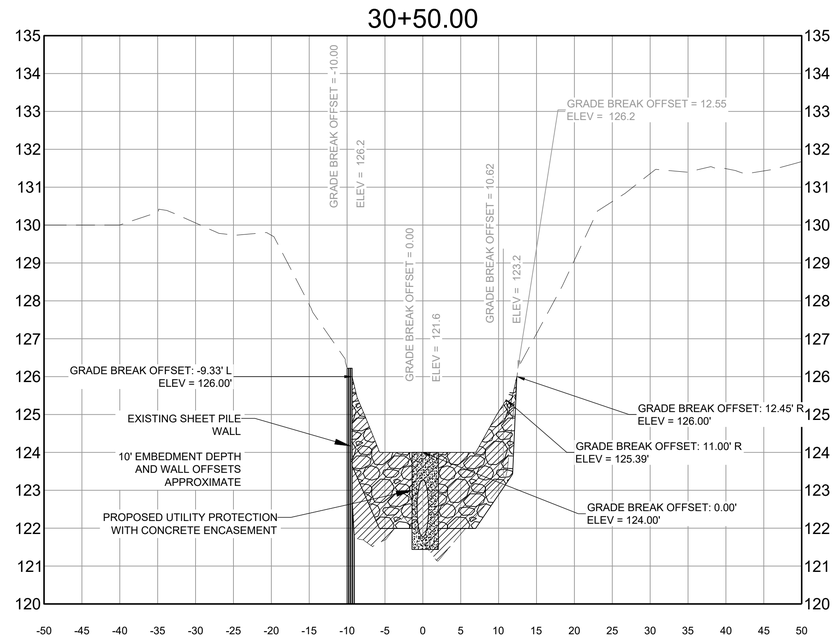


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CITY OF ALEXANDRIA, VIRGINIA

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DATE	DESCRIPTION

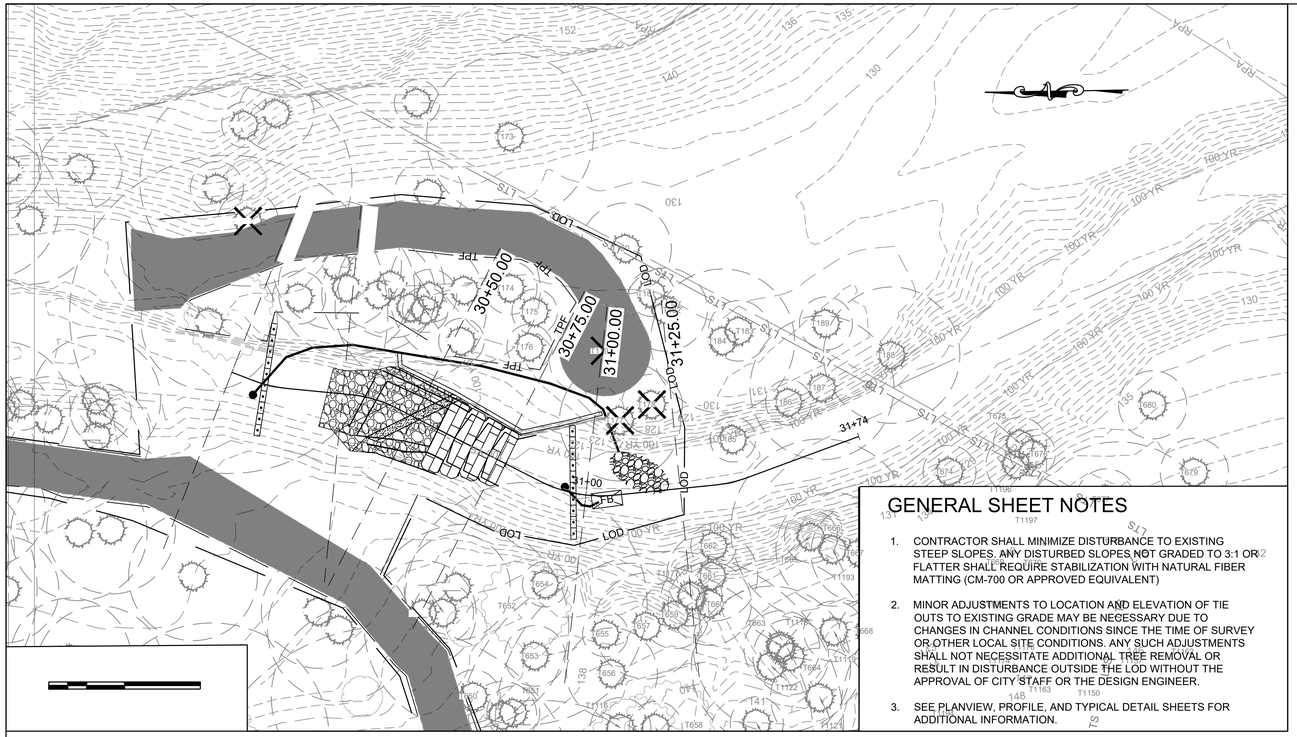
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DATE OF PLAN ISSUANCE:
CONSULTANT PROJECT ID.: 60742359
DESIGNED BY: SB TN DATE: 10/2026
DRAWN BY: SB TN DATE: 10/2026
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SEAL:

CROSS SECTIONS

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

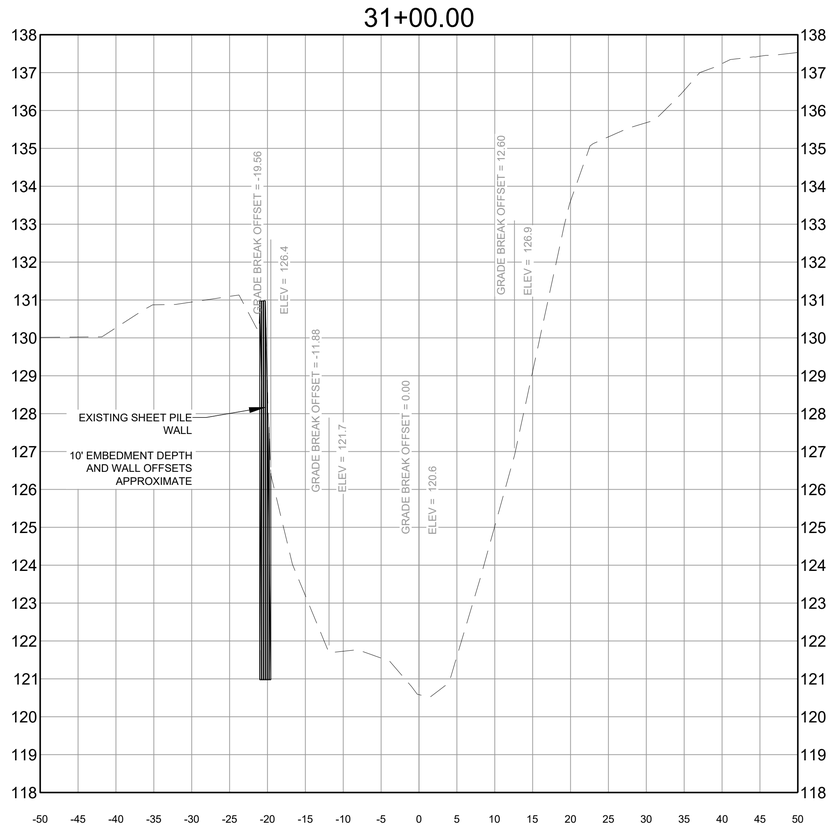
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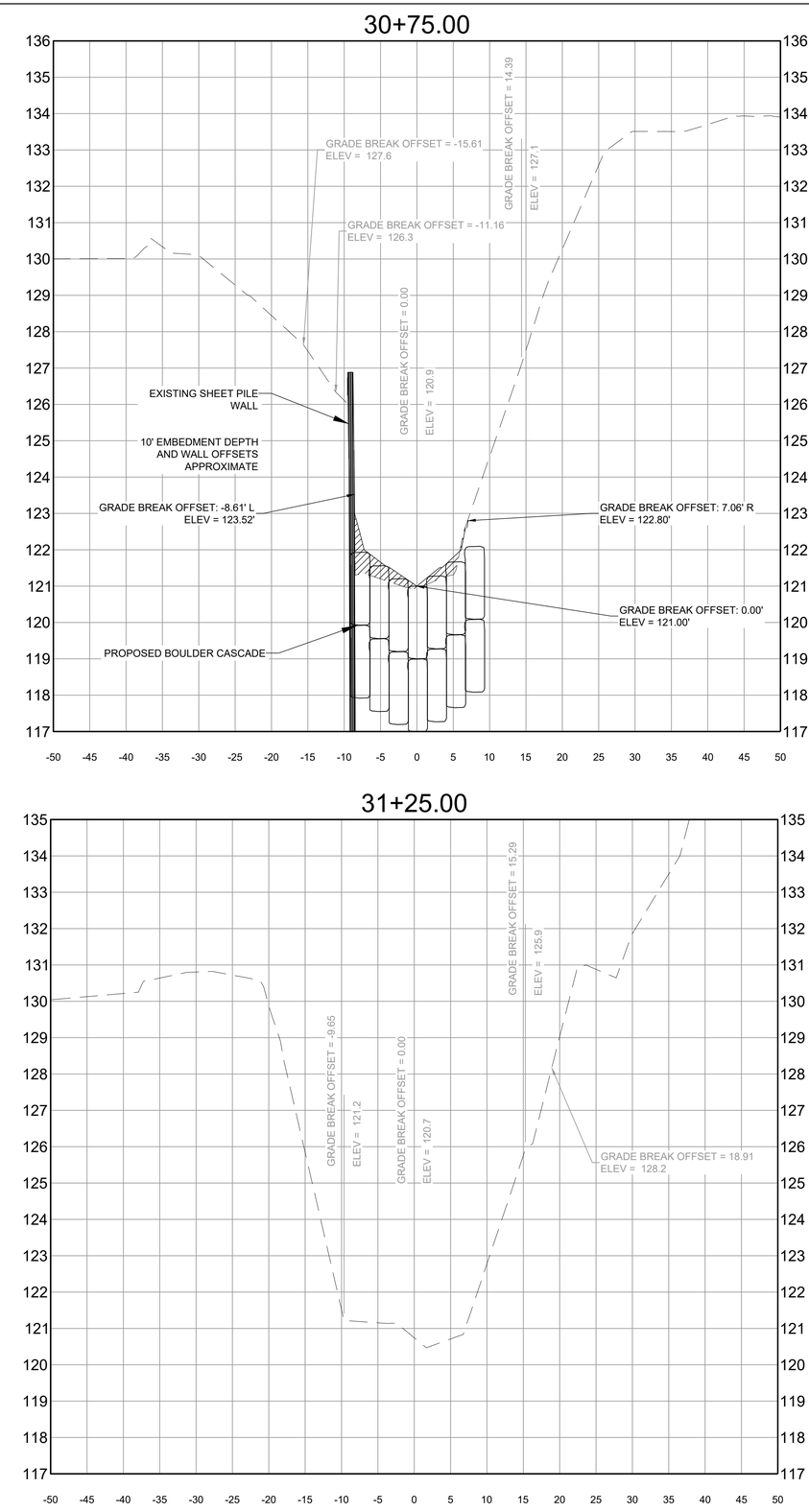


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DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DATE	DESCRIPTION

ALEXANDRIA PROJECT NO.: 23086
DATE OF PLAN ISSUANCE:
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DESIGNED BY: SB_TN DATE: 10/2026
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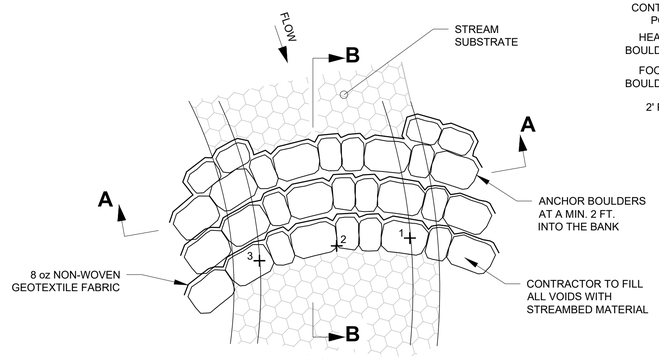
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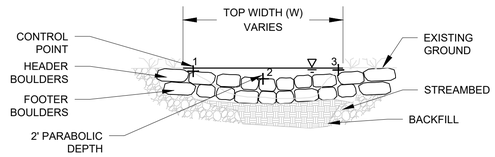
AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING: CS-06
SCALE: AS SHOWN
SHEET: 31 OF 52

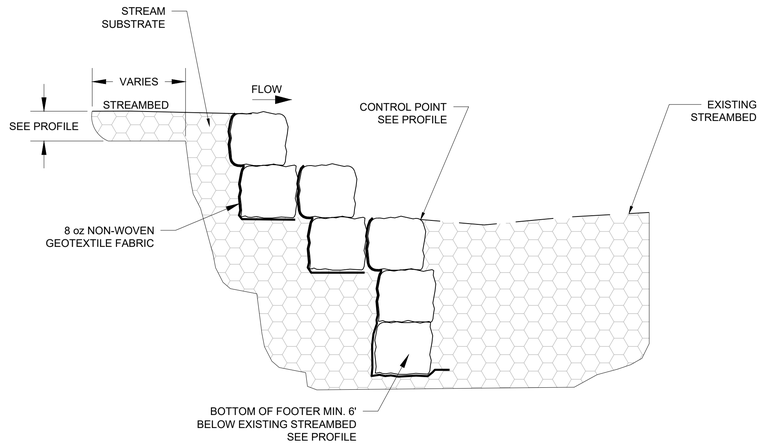
POINT	STATION	OFFSET	NORTHING	EASTING	ELEV.	DESCRIPTION
		10+39 BOULDER CASCADE STEP				
1	10+39.40	-14.81	6985701.126	11887146.21	143.00	Left Tie
2	10+39.74	0.00	6985691.285	11887135.12	141.00	Invert
3	10+40.19	15.43	6985680.983	11887123.64	143.00	Right Tie
		10+44 BOULDER CASCADE STEP				
4	10+44.67	-14.45	6985696.869	11887149.35	142.00	Left Tie
5	10+44.82	0.00	6985687.42	11887138.42	140.00	Invert
6	10+44.49	14.88	6985678.059	11887126.84	142.00	Right Tie
		10+49 BOULDER CASCADE STEP				
7	10+49.99	-13.45	6985692.161	11887152.03	141.00	Left Tie
8	10+49.81	0.00	6985683.614	11887141.65	139.00	Invert
9	10+49.53	13.66	6985674.994	11887131.03	141.00	Right Tie
		10+54 BOULDER CASCADE STEP				
10	10+54.76	-11.24	6985687.092	11887153.42	140.00	Left Tie
11	10+54.90	0.00	6985679.731	11887144.94	138.00	Invert
12	10+54.86	11.93	6985672.048	11887135.79	140.00	Right Tie
		10+59 BOULDER CASCADE STEP				
13	10+59.84	-9.98	6985682.399	11887155.74	139.00	Left Tie
14	10+59.93	0.00	6985675.894	11887148.19	137.00	Invert
15	10+59.81	10.7	6985669.063	11887139.94	139.00	Right Tie
		10+64 BOULDER CASCADE STEP				
16	10+64.80	-9.35	6985678.21	11887158.46	138.00	Left Tie
17	10+64.87	0.00	6985671.909	11887151.13	136.00	Invert
18	10+65.22	9.35	6985665.806	11887144.46	138.00	Right Tie
		30+62 BOULDER CASCADE STEP				
19	30+62.00	-9.07	6984928.713	11887454.21	126.00	Left Tie
20	30+62.09	0.00	6984932.742	11887446.08	124.00	Invert
21	30+62.20	10.88	6984937.583	11887436.33	126.00	Right Tie
		30+67 BOULDER CASCADE STEP				
22	30+67.01	-8.96	6984924.291	11887451.84	125.00	Left Tie
23	30+67.09	0.00	6984928.286	11887443.81	123.00	Invert
24	30+67.25	9.66	6984932.522	11887435.13	125.00	Right Tie
		30+72 BOULDER CASCADE STEP				
25	30+71.99	-8.71	6984919.969	11887449.36	124.00	Left Tie
26	30+72.09	0.00	6984923.83	11887441.54	122.00	Invert
27	30+72.26	8.03	6984927.317	11887434.31	124.00	Right Tie
		30+77 BOULDER CASCADE STEP				
28	30+77.00	-8.55	6984915.575	11887446.93	123.00	Left Tie
29	30+77.10	0.00	6984919.385	11887439.23	121.00	Invert
30	30+77.35	7.72	6984922.641	11887432.28	123.00	Right Tie



PLAN VIEW



SECTION A-A



SECTION B-B

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DATE	DESCRIPTION

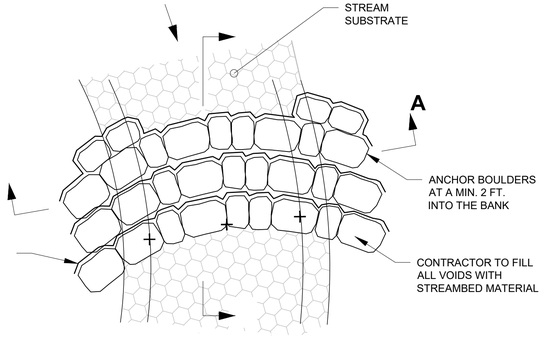
ALEXANDRIA PROJECT NO.: 23086
DATE OF PLAN ISSUANCE: 60742359
CONSULTANT PROJECT ID.:
DESIGNED BY: SB DATE: 10/2026
DRAWN BY: SB, TN DATE: 10/2026
CHECKED BY: BA DATE: 10/2026
APPROVED BY: BA DATE: 10/2026

SEAL:

STRUCTURE STAKEOUT

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

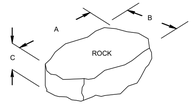
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SCALE: N/A
SHEET: 32 OF 52

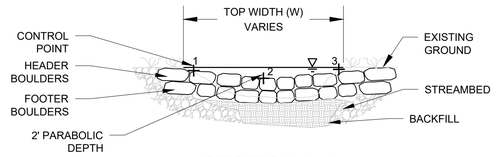


NOTES:

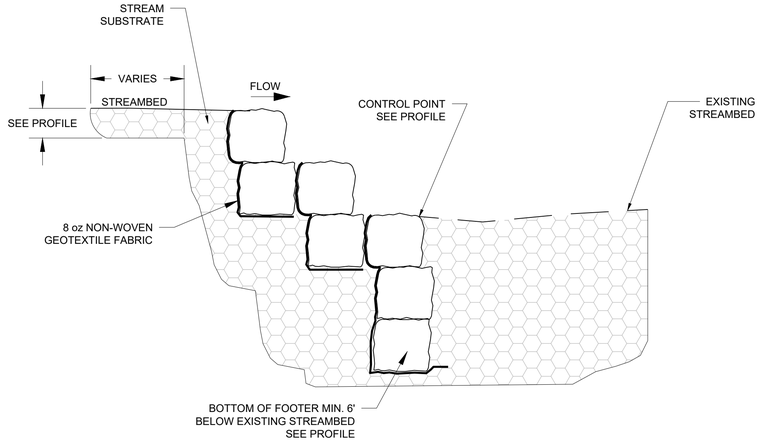
1. BOULDERS THAT DO NOT MEET THE SIZE REQUIREMENTS OUTLINED IN THE SPECIFICATIONS WITHIN 3 INCHES FOR ANY PARAMETER MUST BE APPROVED FOR USE BY THE PROJECT ENGINEER.
2. CONTROL POINT ELEVATIONS ARE MEASURED AS NOTED IN SECTION A-A. CONTROL POINTS ARE PERPENDICULAR TO CHANNEL BANKS. THE CONTRACTOR SHALL BE SURE TO MAINTAIN A PARABOLIC CHANNEL SHAPE WHILE MAINTAINING CONTROL POINT ELEVATIONS. SEE SHEET ST-01 FOR DETAILS.
3. WHEN BOULDERS ARE UNABLE TO BE SILLED INTO THE BANK DUE TO PROXIMITY TO SEGMENTAL BLOCK RETAINING WALLS, THE CONTRACTOR SHALL WORK WITH THE SELECTED MANUFACTURER TO DETERMINE APPROPRIATE METHOD TO RETAIN CASCADE STABILITY, WHETHER BY POCKET KEYING, GROUT, OR SIMILAR. THE CONTRACTOR SHALL COMPACT SUBGRADE BELOW THE CASCADE TO ENSURE SETTLING DOES NOT AFFECT BOULDER CASCADE.

				C-Axis (Height), feet	Min. Number of Flat Sides
				1.5 - 2.0	1
				1.5 - 2.0	2



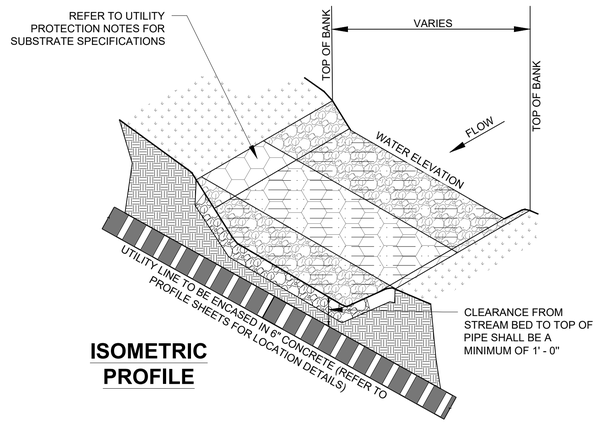


SECTION A-A



SECTION B-B

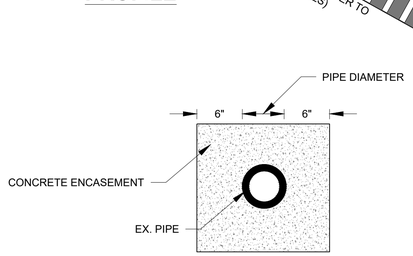
1 DE-01 BOULDER CASCADE
NOT TO SCALE



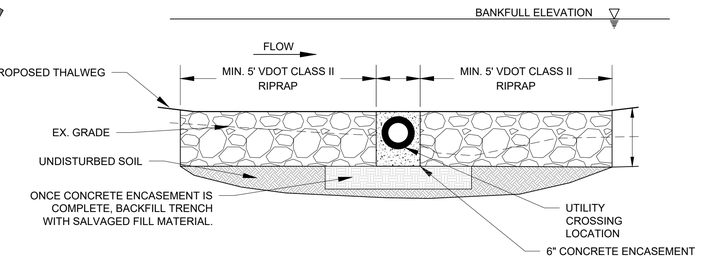
ISOMETRIC PROFILE

NOTES:

1. CONTRACTOR SHALL VERIFY UTILITIES HAVE BEEN MARKED.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR COST OF ANY DAMAGES TO UTILITIES CAUSED BY THE CONSTRUCTION, AND WILL BE REQUIRED TO PERFORM REPAIRS AT THE COUNTY'S REQUEST.
3. STREAM SUBSTRATE SHALL BE USED AS FILL MATERIAL TO RAISE THE EXISTING GRADE TO THE ELEVATION SPECIFIED IN PROFILE SHEETS.
4. CLASS II RIPRAP AND STREAM SUBSTRATE MIX SHALL BE PLACED TO THE SPRINGLINE OF THE CROSSING PIPE.
5. CONCRETE ENCASEMENT SHALL EXTEND A MINIMUM OF 5 FEET BEYOND THE TOP OF BANK ON THE LEFT AND RIGHT. THE CONCRETE ENCASEMENT SHALL START AND END WITHIN 1 FOOT OF THE NEAREST PIPE JOINT.
6. CONCRETE USED FOR THE ENCASEMENT SHALL BE 2500 P.S.I. OR GREATER.



END VIEW



CROSS SECTION VIEW

2 DE-01 ARMOURED UTILITY PROTECTION - WITH PIPE ENCASEMENT
NOT TO SCALE

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DESCRIPTION	DATE

ALEXANDRIA PROJECT NO.:	23086
DATE OF PLAN ISSUANCE:	
CONSULTANT PROJECT ID.:	60742359
DESIGNED BY: SB, TN	DATE: 10/2026
DRAWN BY: SB, TN	DATE: 10/2026
CHECKED BY: BA	DATE: 10/2026
APPROVED BY: BA	DATE: 10/2026

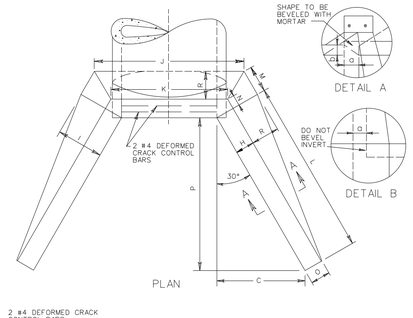
SEAL:

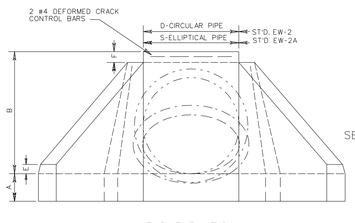
CONSTRUCTION DETAILS

AECOM
12420 MILLESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

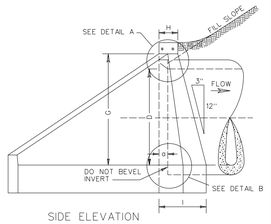
DRAWING: DE-01
SCALE: N/A
SHEET: 33 OF 52

EW-2, 2A









NOTES:

1. FOR TABLE OF DIMENSIONS AND VOLUMES FOR CIRCULAR PIPES (STANDARD EW-2) SEE SHEET 2 OF 3.
2. FOR TABLE OF DIMENSIONS AND VOLUMES FOR ELLIPTICAL PIPES (STANDARD EW-2A) SEE SHEET 3 OF 3.
3. THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
4. ON SHALLOW FILLS, WHERE ENDWALLS ARE 1' OR LESS BELOW SHOULDER LINE, THE TOP OF THE ENDWALL SHALL BE CONSTRUCTED PARALLEL TO THE GRADE OF ROAD.
5. ALL CAST IN PLACE CONCRETE TO BE CLASS A3. FOR PRECAST SEE SHEETS 101.06 AND 101.07.
6. IN NO CASE SHALL TOP OF ENDWALL PROJECT ABOVE FILL SLOPE, DITCH SLOPE, OR SHOULDER.
7. THIS STANDARD TO BE USED WITH STRAIGHT CROSSINGS AND SKEW ANGLES TO 15°.
8. COST OF BARS FOR CRACK CONTROL TO BE INCLUDED IN PRICE PER BID PER CUBIC YARD CONCRETE.
9. HEADWALL TO BE BEVELED IN ALL AREAS EXCEPT WHERE A CONFLICT WITH INVERT AND WINGWALLS OCCUR.
10. BEVEL EDGE IS REQUIRED ON THE HEADWALL AT THE INLET END OF THE CULVERT (WHERE THE FLOW ENTERS THE CULVERT). HEADWALL AT THE OUTLET END OF THE CULVERT MAY BE EITHER SQUARE EDGE OR BEVEL EDGE.
11. ¾" CHAMFER MAY BE PROVIDED ON ALL EDGES AT MANUFACTURER'S OPTION.

SPECIFICATION REFERENCE	STANDARD ENDWALL FOR PIPE CULVERTS 42" - 96" CIRCULAR AND 60" x 38" - 106" x 68" ELLIPTICAL PIPES VIRGINIA DEPARTMENT OF TRANSPORTATION	VDOT ROAD AND BRIDGE STANDARDS REVISION DATE / SHEET 1 OF 3 101.03
105 302		

EW-2

TABLE OF DIMENSIONS AND CONCRETE VOLUMES PER ENDWALL
FOR 42" - 96" CIRCULAR PIPE CULVERTS

DIAMETER OF PIPE CULVERTS

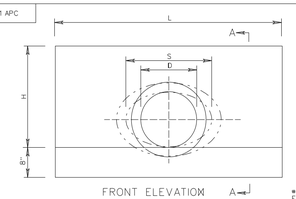
	DIMENSION	42"	48"	54"	60"	66"	72"	78"	84"	90"	96"	DIMENSION
FOR 1½:1 FILL SLOPE	A	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	1'-6"	A
	B	4'-9½"	5'-4"	5'-10½"	6'-5"	6'-11½"	7'-6"	8'-0½"	8'-7"	9'-2¼"	9'-9¾"	B
	C	3'-3¾"	3'-9"	4'-2¼"	4'-7"	5'-0⅝"	5'-5¾"	5'-11"	6'-4¼"	6'-9⅜"	7'-2⅝"	C
	D	3'-6"	4'-0"	4'-6"	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"	D
	E	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	0'-6"	E
	F	0'-5½"	0'-6"	0'-6½"	0'-7"	0'-7½"	0'-8"	0'-8½"	0'-9"	0'-9½"	0'-10"	F
	G	4'-4"	4'-10"	5'-4"	5'-10"	6'-4"	6'-10"	7'-4"	7'-10"	8'-4"	8'-10"	G
	H	0'-10"	0'-10"	0'-11"	1'-0"	1'-1"	1'-2"	1'-3"	1'-4"	1'-5"	1'-6"	H
	I	1'-11"	2'-0½"	2'-3"	2'-5½"	2'-8"	2'-10½"	3'-1"	3'-3½"	3'-6"	3'-8½"	I
	J	5'-8½"	6'-4¼"	7'-1¼"	7'-10"	8'-7"	9'-4"	10'-0¾"	10'-9⅝"	11'-7"	12'-4⅛"	J
	K	4'-5½"	4'-11½"	5'-6⅜"	6'-1⅞"	6'-9"	7'-4¾"	7'-11¼"	8'-6½"	9'-2"	9'-9¼"	K
	L	6'-7⅝"	7'-6"	8'-4½"	9'-2⅞"	10'-1⅜"	11'-0"	11'-10⅝"	12'-8¾"	13'-6⅞"	14'-5¼"	L
	M	1'-7¼"	1'-2½"	1'-3⅝"	1'-5"	1'-6½"	1'-8"	1'-9⅜"	1'-10¾"	2'-0⅛"	2'-2"	M
	N	0'-5¾"	0'-5¾"	0'-6⅜"	0'-6¾"	0'-7½"	0'-8⅛"	0'-8⅝"	0'-9¼"	0'-10"	0'-10½"	N
	O	0'-11½"	0'-11½"	1'-0½"	1'-1½"	1'-2½"	1'-3½"	1'-4½"	1'-5½"	1'-6½"	1'-7½"	O
	P	5'-9"	6'-6"	7'-3"	8'-0"	8'-9"	9'-6"	10'-3"	11'-0"	11'-9"	12'-6"	P
	R	1'-1"	1'-2½"	1'-4"	1'-5½"	1'-7"	1'-8½"	1'-10"	1'-11½"	2'-1"	2'-2½"	R
CUBIC YARDS CONCRETE	CONC. PIPE	3.558	4.373	5.635	7.089	8.776	10.702	12.861	15.303	18.195	21.285	CONC. PIPE
	C.M. PIPE	3.791	4.680	6.054	7.642	9.490	11.605	13.984	16.678	19.724	23.107	C.M. PIPE
FOR 2:1 FILL SLOPE	C	4'-4"	4'-10⅞"	5'-5¾"	6'-0⅝"	6'-7⅞"	7'-2⅝"	7'-9½"	8'-4½"	8'-11⅝"	9'-6¾"	C
	F	0'-6½"	0'-7"	0'-7½"	0'-8"	0'-8½"	0'-9"	0'-9½"	0'-10"	0'-10½"	0'-11"	F
	G	4'-3"	4'-9"	5'-3"	5'-9"	6'-3"	6'-9"	7'-3"	7'-9"	8'-3"	8'-9"	G
	I	1'-10¾"	2'-0¼"	2'-2¾"	2'-5¼"	2'-7¾"	2'-10¼"	3'-0¾"	3'-3¼"	3'-5¾"	3'-8¼"	I
	J	5'-8¼"	6'-4"	7'-1"	7'-9¾"	8'-6¾"	9'-3½"	10'-0½"	10'-9⅞"	11'-6⅞"	12'-3½"	J
	L	8'-8"	9'-9¾"	10'-11⅝"	12'-1½"	13'-3⅜"	14'-5¼"	15'-7"	16'-9"	17'-10¾"	19'-0⅝"	L
	M	1'-1¼"	1'-2"	1'-3½"	1'-4⅞"	1'-6¾"	1'-7¾"	1'-9¼"	1'-10⅝"	2'-0¼"	2'-1⅝"	M
	P	7'-6"	8'-6"	9'-6"	10'-6"	11'-6"	12'-6"	13'-6"	14'-6"	15'-6"	16'-6"	P
	R	1'-0⅞"	1'-2¼"	1'-3⅝"	1'-5¼"	1'-6¾"	1'-8¼"	1'-9¾"	1'-11¼"	2'-0⅞"	2'-2¼"	R
CUBIC YARDS CONCRETE	CONC. PIPE	4.238	5.230	6.761	8.538	10.602	12.958	15.612	18.623	22.104	25.898	CONC. PIPE
	C.M. PIPE	4.469	5.536	7.177	9.088	11.312	13.856	16.730	19.993	23.618	27.704	C.M. PIPE
FOR 1½:1 AND 2:1 FILL SLOPES	a	0'-4½"	0'-5"	0'-5½"	0'-6¼"	0'-7"	0'-7½"	0'-8¼"	0'-8¾"	0'-9½"	0'-10"	a
	b	0'-3½"	0'-4"	0'-4½"	0'-5"	0'-5½"	0'-6"	0'-6½"	0'-7"	0'-7½"	0'-8"	b

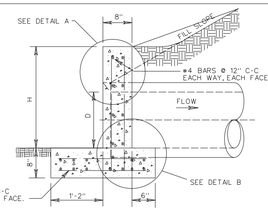
FOR ALL DIMENSIONS NOT SHOWN SEE VALUES LISTED ABOVE FOR 1½:1 FILL SLOPE

VDOT ROAD AND BRIDGE STANDARDS SHEET 2 OF 3 / REVISION DATE 101.04	STANDARD ENDWALL FOR PIPE CULVERTS 42" - 96" CIRCULAR PIPES VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE 105 302

1 DE-02 VDOT STANDARD ENDWALL FOR PIPE CULVERTS
NOT TO SCALE

EW-1, 1 APC

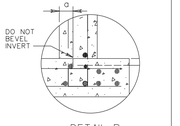




NOTES:

1. CONCRETE TO BE 4000 PSI MINIMUM COMPRESSIVE STRENGTH.
2. IF PIPE IS TO BE SKEWED THE OPENING WILL BE ADJUSTED TO ACCOMMODATE ANGLES UP TO 45°.
3. REINFORCING STEEL IN ACCORDANCE WITH ASTM A-615 (REINFORCING BARS).
4. PIPE OPENINGS IN PRECAST DRAINAGE UNITS SHALL NOT EXCEED 4 INCHES AT ANY GIVEN POINT BETWEEN THE PIPE AND THE PRECAST UNIT.
5. DIMENSIONS SHOWN ARE MINIMUM. ACTUAL MEASUREMENTS MAY VARY WITH MANUFACTURER'S TOLERANCE.
6. IN NO CASE SHALL TOP OF ENDWALL PROJECT ABOVE FILL SLOPE, DITCH SLOPE, OR SHOULDER.
7. HEADWALL TO BE BEVELED IN ALL AREAS EXCEPT WHERE A CONFLICT WITH INVERT OR WINGWALL OCCUR.
8. BEVEL EDGE IS REQUIRED ON THE HEADWALL AT THE INLET END OF THE CULVERT. HEADWALL AT OUTLET END MAY BE EITHER SQUARE EDGE OR BEVELED.
9. ¾" CHAMFER MAY BE PROVIDED ON ALL EDGES AT MANUFACTURER'S OPTION.





EW-1PO

ENDWALL FOR CIRCULAR PIPE

DIAMETER OF PIPE CULVERT

D	12"	15"	18"	21" OR 24"	27" OR 30"	33" OR 36"
H	2'-0"	2'-3"	2'-6"	3'-2"	3'-10"	4'-4"
L	4'-0"	5'-0"	6'-0"	8'-0"	10'-0"	12'-0"
a	0'-1¼"	0'-1⅝"	0'-2"	0'-2½"	0'-3¼"	0'-3¾"
b	0'-1"	0'-1¼"	0'-1½"	0'-2"	0'-2½"	0'-3"

EW-1APO

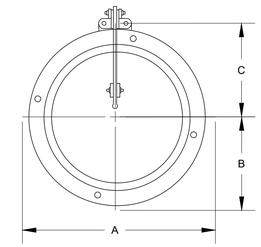
ENDWALL FOR ELLIPTICAL PIPE

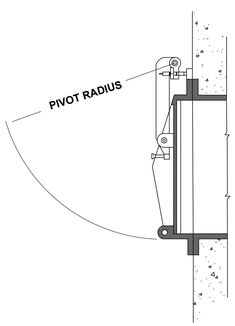
SIZE OF ELLIPTICAL PIPE CULVERT (SPAN x RISE)

S x D	23" x 14"	30" x 19"	34" x 22"	38" x 24"	42" x 27"	45" x 29"	49" x 32"	53" x 34"
H	1'-10"	2'-4"	2'-7"	2'-9"	3'-1"	3'-3"	3'-6"	3'-8"
L	5'-5"	7'-2"	8'-6"	9'-2"	10'-2"	10'-11"	12'-1"	12'-11"
a	0'-2½"	0'-3¼"	0'-3½"	0'-4"	0'-4½"	0'-4¾"	0'-5"	0'-5½"
b	0'-2"	0'-2½"	0'-2¾"	0'-3"	0'-3½"	0'-3⅞"	0'-4"	0'-4½"

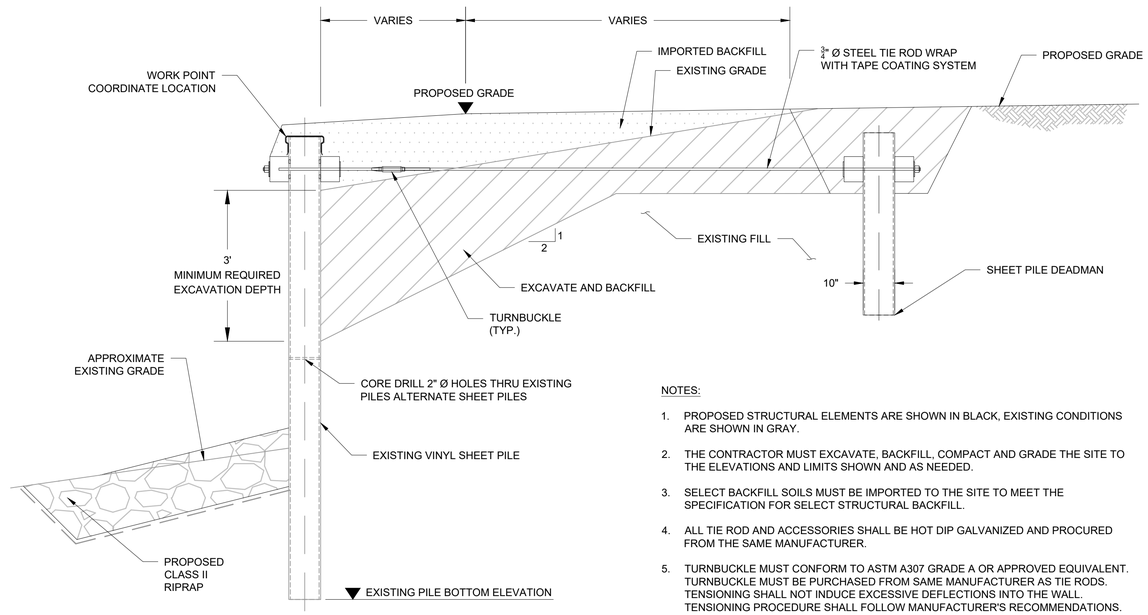
VDOT ROAD AND BRIDGE STANDARDS SHEET 1 OF 1 / REVISION DATE 101.02	PRECAST ENDWALL FOR PIPE CULVERTS 12" - 36" CIRCULAR AND 23" x 14" - 53" x 34" ELLIPTICAL PIPES VIRGINIA DEPARTMENT OF TRANSPORTATION	SPECIFICATION REFERENCE 105 302

2 DE-02 VDOT PRECAST ENDWALL FOR PIPE CULVERTS
NOT TO SCALE





3 DE-02 FLAP GATE FOR PIPE CULVERTS
NOT TO SCALE



NOTES:

1. PROPOSED STRUCTURAL ELEMENTS ARE SHOWN IN BLACK, EXISTING CONDITIONS ARE SHOWN IN GRAY.
2. THE CONTRACTOR MUST EXCAVATE, BACKFILL, COMPACT AND GRADE THE SITE TO THE ELEVATIONS AND LIMITS SHOWN AND AS NEEDED.
3. SELECT BACKFILL SOILS MUST BE IMPORTED TO THE SITE TO MEET THE SPECIFICATION FOR SELECT STRUCTURAL BACKFILL.
4. ALL TIE ROD AND ACCESSORIES SHALL BE HOT DIP GALVANIZED AND PROCURED FROM THE SAME MANUFACTURER.
5. TURNBUCKLE MUST CONFORM TO ASTM A307 GRADE A OR APPROVED EQUIVALENT. TURNBUCKLE MUST BE PURCHASED FROM SAME MANUFACTURER AS TIE RODS. TENSIONING SHALL NOT INDUCE EXCESSIVE DEFLECTIONS INTO THE WALL. TENSIONING PROCEDURE SHALL FOLLOW MANUFACTURER'S RECOMMENDATIONS.
6. THE MAINTAINABLE WEEPHOLES MUST BE 3" DIAMETER, 316L STAINLESS STEEL HOUSING WITH WOVEN GEOTEXTILE FILTER. REMOVABLE CARTRIDGE MUST ALLOW FOR CLEANING REPLACING NOT LESS THAN 3 TO 5 YEARS.

4 DE-02 DEADMAN ANCHOR SYSTEM
NOT TO SCALE

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DESCRIPTION	DATE

ALEXANDRIA PROJECT NO.: 23086
DATE OF PLAN ISSUANCE:
CONSULTANT PROJECT ID.: 60742359
DESIGNED BY: SB TN DATE: 10/2026
DRAWN BY: SB TN DATE: 10/2026
CHECKED BY: BA DATE: 10/2026
APPROVED BY: BA DATE: 10/2026

SEAL:

CONSTRUCTION DETAILS

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING: DE-02
SCALE: N/A
SHEET: 34 OF 52

MEASURES SHALL BE
SHALL APPLY TO ALL

THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FROM THE COUNTY AND CONDUCT REQUIRED PRE-CONSTRUCTION MEETINGS AS OUTLINED IN THE CONSTRUCTION SPECIFICATIONS

THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE (1) WEEK PRIOR TO PRE-CONSTRUCTION MEETING, ONE (1) WEEK PRIOR TO COMMENCEMENT OF LAND DISTURBING ACTIVITY AND ONE (1)

PRIOR TO THE START OF ANY EARTH DISTURBANCE AN ON-SITE PRE-CONSTRUCTION MEETING SHALL BE HELD TO ENSURE THAT ALL AFFECTED PARTIES (DESIGN ENGINEER, CONTRACTOR, CITY OF ALEXANDRIA STAFF, OWNER, AND PROJECT MANAGER) FULLY UNDERSTAND THE CONSTRUCTION SEQUENCING. THE LIMITS OF DISTURBANCE AND GRADING (LOD) SHALL BE MARKED WITH FLAGGING PRIOR TO THIS MEETING TO ALLOW REVIEW PRIOR TO ESTABLISHING

THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTACTING MISS UTILITY AT 1-800-552-7001 FOR THE LOCATION OF ALL PUBLIC AND PRIVATE UTILITY LINES, PIPES, CABLES, AND ASSOCIATED FEATURES PRIOR TO ANY CONSTRUCTION WORK; ALL UTILITIES SHALL BE CLEARLY IDENTIFIED

DURING THE PRE-CONSTRUCTION MEETING THE LOD SHALL REVIEWED ON-SITE WITH THE CONTRACTOR, DESIGN ENGINEER, OWNER OR OWNER'S REPRESENTATIVE(S), AND A CITY ARBORIST. A DETERMINATION SHALL BE MADE AT THAT TIME REGARDING WHICH TREES WILL BE REMOVED BASED ON THE APPROVED GRADING AND STREAM RESTORATION ACTIVITIES. ADJUSTMENTS MAY BE MADE TO FLAGGING MARKING THE LOD AND TREE PLANKING CALLED FOR TO ADEQUATELY PROTECT TREES TO BE PRESERVED AND FACILITATE THE SAFE REMOVAL OF TREES TO BE REMOVED. THE LOCATION FOR INSTALLATION OF TREE PROTECTION FENCING SHALL BE ADJUSTED IN CONJUNCTION WITH ANY CHANGES TO THE LOD PRIOR TO THE ESTABLISHMENT OF PERIMETER CONTROLS AND COMMENCEMENT OF ANY OTHER CONSTRUCTION ACTIVITIES. PRIOR TO START OF WORK, THE CONTRACTOR SHALL ARRIVE ON SITE AND SET PERIMETER EROSION AND SEDIMENT CONTROLS AS DIRECTED IN PHASE I EROSION & SEDIMENT CONTROL PLANS. MEASURES INCLUDED IN OTHER PHASE I MEASURES ARE TEMPORARY STONE CONSTRUCTION ENTRANCE, ACCESS ROAD DECK MATS, CULVERT OUTLET PROTECTION, TREE PROTECTION/TREE PLANKING, CULVERT INLET PROTECTION, SAFETY FENCE, SUPER SILT FENCE,

OBTAIN APPROVAL FROM THE CITY FOR EROSION AND SEDIMENT CONTROL MEASURES INSTALLED. THE CONTRACTOR SHALL PROVIDE THE INSPECTOR 48-HOUR NOTIFICATION TO SCHEDULE AN ONSITE PRE-CONSTRUCTION MEETING TO INSPECT THE INSTALLATION OF EROSION AND SEDIMENT

CONTRACTOR SHALL PROVIDE SEED TAGS AND GAIN APPROVAL FOR SAID TAGS FROM CITY STAFF, PRIOR TO COMMENCING ANY WORK. SEED MUST BE ON-SITE PRIOR TO GRADING ACTIVITIES TO

TREES TO BE REMOVED THAT ARE LOCATED ON THE LOD OR IMMEDIATELY ADJACENT TO THE LOD WITHIN THE PROTECTED AREA SHALL BE REMOVED USING CHAIN SAWS TO MINIMIZE ROOT ZONE DISTURBANCE OR TREES TO BE PRESERVED. TREES SHALL BE CUT FLUSH WITH THE GROUND AND

TREE PLANKING SHALL BE INSTALLED AS NEEDED ON ANY TREE TO BE PRESERVED (OUTSIDE THE LOD), BUT WHERE RISK OF DAMAGE FROM CONSTRUCTION TRAFFIC IS FORESEEABLE. CONTRACTOR SHALL SUPPLY AND MAINTAIN AN ONSITE CONCRETE WASHOUT STRUCTURE WHICH SHALL BE ON SITE AND AVAILABLE DURING ALL CONCRETE RELATED WORK ACTIVITIES. TEMPORARY SOIL STABILIZATION WILL BE APPLIED WITHIN 7 DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 14 DAYS. TREES CAN BE FLUSH CUT IN ONE MOBILIZATION, HOWEVER STUMPS TO BE REMOVED SHALL REMAIN UNTIL AREA

BASED ON A 3-DAY DRY WEATHER FORECAST, PLACE TEMPORARY SANDBAG DIVERSION AT THE UPSTREAM AND DOWNSTREAM ENDS OF THE WORK AREA, AS INDICATED ON THE PLANS. WHERE INDICATED, STREAM FLOW SHOULD BE PUMPED AROUND THE WORK AREA AND THE PUMP SHOULD BE DISCHARGED ONTO A STABLE VELOCITY DISSIPATOR MADE OF RIPRAP OR SANDBAGS. INSTALL DEWATERING PUMP AROUND PRACTICE FOR THE DAILY WORK ZONE AS SHOWN IN THE

WATER FROM THE WORK AREA SHOULD BE PUMPED TO A SEDIMENT FILTERING DEVICE, SUCH AS A DEWATERING BASIN, FILTER BAG, OR OTHER APPROVED SOURCE. THE MEASURE SHOULD BE LOCATED SUCH THAT THE WATER DRAINS INTO THE EXISTING CHANNEL. APPROXIMATE LOCATIONS FOR DEWATERING MEASURES ARE INDICATED ON THE PLANS AND THE CONTRACTOR IS RESPONSIBLE FOR ADJUSTING THE LOCATION AS NEEDED TO ENSURE THE WORK AREA IS

STAKE OUT THE PROPOSED ALIGNMENT AS SHOWN ON THE GEOMETRY PLAN SHEETS. PC AND PT POINTS SHALL BE STAKED ALONG THE CENTERLINE AND AT 25-FOOT DOUBLE OFFSETS, IDENTIFIED BY CORRESPONDING CENTERLINE STATION, ON EACH SIDE OF THE PROPOSED CHANNEL. THE CENTER OF EACH CURVE SHALL BE STAKED AND MARKED WITH THE CORRESPONDING RADIUS OF CURVATURE. VERTICAL CONTROL SHALL BE CLEARLY MARKED AT SEVERAL LOCATIONS ALONG THE

CONSTRUCTION SHALL PROCEED FROM UPSTREAM TO DOWNSTREAM, UNLESS AN ALTERNATIVE SEQUENCE IS APPROVED BY THE CITY. ALL IN-STREAM WORK SHALL BE PROTECTED BY PUMP AROUND DIVERSION. ALL CONSTRUCTION PHASES MAY BE COMPLETED IN CONJUNCTION. THE CONTRACTOR MAY REQUEST APPROVAL FOR A CHANGE IN THE SEQUENCE OF CONSTRUCTION

PLACE RIPRAP AS NECESSARY TO FILL THE EXISTING SCOUR HOLE AND ERODED AREA BEHIND THE ENDWALL AS NOTED ON THE PLANS. PRIOR TO PLACING THE RIP RAP IN THE CHANNEL THE CONTRACTOR SHALL ENSURE A WELL GRADED BED MATERIAL IS PLACED THROUGHOUT THE

INSTALL THE 72" STORMWATER PIPE ENDWALL STONE VENEER PER THE PLANS AND DETAIL.

CONTINUE GRADING AND STRUCTURE INSTALLATION UNTIL ALL GRADING AND IN-STREAM STRUCTURES ARE INSTALLED. TIE OUT SLOPES SHALL NOT EXCEED 2:1. IF BEDROCK CONDITIONS ARE ENCOUNTERED WITHIN THE WORK AREA DURING CONSTRUCTION, CONSULT THE OWNER AND

ONCE FINAL GRADING HAS BEEN ACHIEVED, APPLY TEMPORARY SEEDING, PERMANENT SEEDING, AND MULCH PRIOR TO FINALIZING INSTALLATION OF COIR MATTING BY SECURING WITH STAKES AND KEYING IN FABRIC PER MANUFACTURER RECOMMENDATIONS AND AS SHOWN IN THE PLANS.

INSTALL THE VIRGINIA PRE-CAST 36" STORMWATER PIPE ENDWALL PER THE PLANS AND DETAIL. PROPERLY ENCASE THE SEWER IN CONCRETE PER THE UTILITY PROTECTION DETAIL.

PLACE RIPRAP AS NECESSARY ADJACENT TO THE CONCRETE ENCASEMENT PER THE UTILITY PROTECTION DETAIL. PRIOR TO PLACING THE RIP RAP IN THE CHANNEL THE CONTRACTOR SHALL

CONTINUE GRADING AND STRUCTURE INSTALLATION UNTIL ALL GRADING AND IN-STREAM STRUCTURES ARE INSTALLED. TIE OUT SLOPES SHALL NOT EXCEED 2:1. IF BEDROCK CONDITIONS ARE ENCOUNTERED WITHIN THE WORK AREA DURING CONSTRUCTION, CONSULT THE OWNER AND

ONCE FINAL GRADING HAS BEEN ACHIEVED, APPLY TEMPORARY SEEDING, PERMANENT SEEDING, AND MULCH PRIOR TO FINALIZING INSTALLATION OF COIR MATTING BY SECURING WITH STAKES AND KEYING IN FABRIC PER MANUFACTURER RECOMMENDATIONS AND AS SHOWN IN THE PLANS.

INSTALL THE DEADMAN ANCHOR SYSTEM INTO THE EXISTING SHEET PILE WALL PER THE PLANS

PROPERLY ENCASE THE SEWER IN CONCRETE PER THE UTILITY PROTECTION DETAIL.

PLACE RIPRAP AS NECESSARY ADJACENT TO THE CONCRETE ENCASEMENT PER THE UTILITY PROTECTION DETAIL. PRIOR TO PLACING THE RIP RAP IN THE CHANNEL THE CONTRACTOR SHALL ENSURE A WELL GRADED BED MATERIAL IS PLACED THROUGHOUT THE CHANNEL.

5. CONTINUE GRADING AND STRUCTURE INSTALLATION UNTIL ALL GRADING AND IN-STREAM STRUCTURES ARE INSTALLED. TIE OUT SLOPES SHALL NOT EXCEED 2:1. IF BEDROCK CONDITIONS ARE ENCOUNTERED WITHIN THE WORK AREA DURING CONSTRUCTION, CONSULT THE OWNER AND PROJECT ENGINEER FOR INVERT ELEVATION ADJUSTMENTS.
6. ONCE FINAL GRADING HAS BEEN ACHIEVED, APPLY TEMPORARY SEEDING, PERMANENT SEEDING, AND MULCH PRIOR TO FINALIZING INSTALLATION OF COIR MATTING BY SECURING WITH STAKES AND KEYING IN FABRIC PER MANUFACTURER RECOMMENDATIONS AND AS SHOWN IN THE PLANS.

PHASE IV:

1. DEMOLISH EXISTING MANHOLE CONCRETE SKIRT.
2. INSTALL VDOT CLASS III RIP RAP AND GROUT IN PLACE AROUND EXISTING SANITARY SEWER MANHOLE PER THE PLANS AND DETAILS.
3. CONTINUE GRADING UNTIL ALL GRADING IS COMPLETE. TIE OUT SLOPES SHALL NOT EXCEED 2:1. IF BEDROCK CONDITIONS ARE ENCOUNTERED WITHIN THE WORK AREA DURING CONSTRUCTION, CONSULT THE OWNER AND PROJECT ENGINEER FOR INVERT ELEVATION ADJUSTMENTS.
4. ONCE FINAL GRADING HAS BEEN ACHIEVED, APPLY TEMPORARY SEEDING, PERMANENT SEEDING, AND MULCH PRIOR TO FINALIZING INSTALLATION OF COIR MATTING BY SECURING WITH STAKES AND KEYING IN FABRIC PER MANUFACTURER RECOMMENDATIONS AND AS SHOWN IN THE PLANS.

PROJECT CLOSEOUT:

1. AS THE WORK FOR EACH DESIGN AREA IS COMPLETED, E&SC MEASURES CAN BE REMOVED WITH APPROVAL FROM PROJECT OWNER, ENGINEER, AND THE EROSION AND SEDIMENT CONTROL INSPECTOR.
2. ONCE CONSTRUCTION OF PROJECT AREA HAS BEEN COMPLETED, THE CONSTRACTOR SHALL PROCEED WITH ARRANGEMENT OF COMPOSING APPROVED RECORD DRAWINGS. CONTRACTOR SHALL FIELD SURVEY ALL INSTALLED WORK. FORWARD THE ELECTRONIC SURVEY TO THE PROJECT ENGINEER FOR VERIFICATION THAT THE PROJECT HAS BEEN CONSTRUCTED IN ACCORDANCE WITH THE PLAN. ELECTRONIC COPY OF THE SURVEY MUST BE ACCOMPANIED BY A HARD COPY OF RECORD DRAWINGS SIGNED AND SEALED BY A MARYLAND REGISTERED LAND SURVEYOR.
3. ONCE CONSTRUCTION OF ALL PROJECT AREAS AT THE PROJECT SITE HAVE BEEN COMPLETED, MAINTENANCE OF TRAFFIC DEVICES SHALL BE REMOVED.
4. CONTRACTOR SHALL ARRANGE FOR AND OBTAIN ANY REQUIRED FINAL SITE INSPECTIONS AND CERTIFICATIONS FOR PROJECT CLOSEOUT.

NOT FOR CONSTRUCTION

REVISIONS BY	DATE	DESCRIPTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

ALEXANDRIA PROJECT NO.:	23086
DATE OF PLAN ISSUANCE:	
CONSULTANT PROJECT ID.:	60742359
DESIGNED BY: SB_TN	DATE: 10/2026
DRAWN BY: SB_TN	DATE: 10/2026
CHECKED BY: BA	DATE: 10/2026
APPROVED BY: BA	DATE: 10/2026

SEAL:

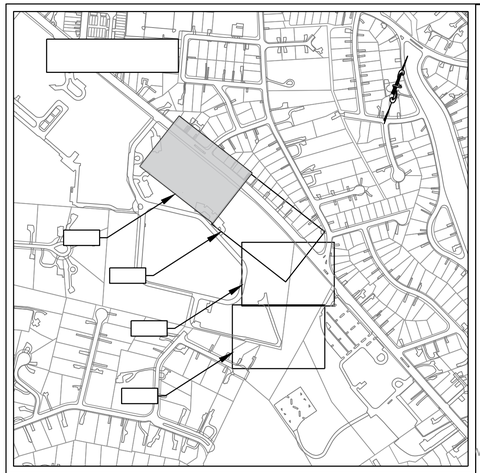
SEQUENCE OF CONSTRUCTION

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING: SE-01

SCALE: N/A

SHEET: 35 OF 52



GENERAL SHEET NOTES

1. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING STEEP SLOPES. ANY DISTURBED SLOPES NOT GRADED TO 3:1 OR FLATTER SHALL REQUIRE STABILIZATION WITH NATURAL FIBER MATTING (CM-700 OR APPROVED EQUIVALENT)
2. CALL ALEXANDRIA ARCHAEOLOGY IMMEDIATELY (703-746-4399) IF ANY BURIED STRUCTURAL REMAINS (WALL FOUNDATIONS, WELLS, PRIVIES, CISTERNS, ETC.) OR CONCENTRATIONS OF ARTIFACTS ARE DISCOVERED DURING DEVELOPMENT. WORK MUST CEASE IN THE AREA OF THE DISCOVERY UNTIL A CITY ARCHAEOLOGIST COMES TO THE SITE AND RECORDS THE FINDS. THE LANGUAGE NOTED ABOVE SHALL BE INCLUDED ON ALL FINAL SITE PLAN SHEETS INVOLVING ANY GROUND DISTURBING ACTIVITIES.
3. THE APPLICANT SHALL NOT ALLOW ANY METAL DETECTION AND/OR ARTIFACT COLLECTION TO BE CONDUCTED ON THE PROPERTY, UNLESS AUTHORIZED BY ALEXANDRIA ARCHAEOLOGY. FAILURE TO COMPLY SHALL RESULT IN PROJECT DELAYS. THE LANGUAGE NOTED ABOVE SHALL BE INCLUDED ON ALL FINAL SITE PLAN SHEETS INVOLVING ANY GROUND DISTURBING ACTIVITIES.
4. PROPOSED CONTOURS ARE INTENDED TO DEPICT OVERALL GRADING CONCEPT. EXISTING AND PROPOSED CONDITIONS CONTOURS ARE SHOWN AT 1-FT C.I. THE CONTRACTOR SHALL GRADE AT 3:1 OR FLATTER AT THE DIRECTION OF THE ENGINEER TO MEET EXISTING CONDITIONS IN AREAS WHERE ADDITIONAL INFORMATION IS NEEDED.
5. ENSURE ALL DISCHARGES ARE IN ACCORDANCE WITH CITY OF ALEXANDRIA CODE TITLE 5, CHAPTER 6, ARTICLE B.
6. DEWATERING AND OTHER CONSTRUCTION RELATED DISCHARGE LIMITS TO THE SEWER SYSTEM ARE REGULATED BY ALEXRENEW PRETREATMENT. ENGINEER/OWNER IS REQUIRED TO CONTACT ALEXRENEW'S PRETREATMENT COORDINATOR AT 703-549-3381X2020
7. CONTRACTOR SHALL FOLLOW VIRGINIA WORK ZONE PROTECTION MANUAL GUIDELINES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SUBMIT MAINTENANCE OF TRAFFIC PLANS ALONG WITH THE PERMIT APPLICATION.

WATER TO BE PROVIDED BY CONTRACTOR WATER TRUCK OR BY CITY APPROVED SOURCE

PIPE AND PUMP TO BE PROVIDED BY CONTRACTOR

HIGH VISIBILITY SAFETY FENCE

STOCKPILE/STAGING AREA

SUPER SILT FENCE

CONTRACTOR SHALL TAKE CARE WHEN WORKING AROUND EXISTING SANITARY LINE

CONTRACTOR SHALL NOT SIT EQUIPMENT ON THE LINE, SHALL USE STEEL PLATES IN AREAS WHERE EQUIPMENT WILL CROSS THE SANITARY LINE, AND WILL BE RESPONSIBLE FOR ANY DAMAGE THAT MAY OCCUR

CONTRACTOR SHALL TAKE CARE WHEN WORKING AROUND EXISTING CAMERA POLE

CONTRACTOR WILL BE RESPONSIBLE FOR ANY DAMAGE THAT MAY OCCUR

ALL CONSTRUCTION EQUIPMENT SHALL BE PRESSURE WASHED OFF-SITE PRIOR TO USE ON THIS SITE TO PREVENT THE INADVERTENT SPREAD/INTRODUCTION OF ANY NON-NATIVE SPECIES.

CONTRACTOR SHALL INSTALL PEDESTRIAN GATE THAT WILL REMAINED CLOSED DURING NON-CONSTRUCTION HOURS

TREE PLANKING (TYP.)

DECK MATS SHALL BE PLACED ALONG TEMPORARY ACCESS PATHS, CUT-INS, AND ALL STOCKPILE AND STAGING AREAS

CONTRACTOR SHALL PROVIDE MAINTENANCE OF TRAFFIC PLAN (INCLUDING FLAGGING, AS NEEDED) IN CONFORMANCE WITH CURRENT VDOT WORK AREA PROTECTION MANUAL GUIDELINES

QUINCY ST

KING ST

EX. CONC. WALK

EX. BRICK BUILDING (INDOOR POOL)

EX. PERMEABLE PAVEMENT

EX. TENNIS COURTS

EX. 10' CHAIN LINKED FENCE AROUND TENNIS COURTS

EX. CHAIN LINKED

EX. 4' DIRT TRAIL

EX. ASPHALT

SIGN W/ MILE MARKER 0.0

CAMERA POLE NO#

MATCH LINE - SEE SHEET ESC-02

SOURCE DATA INFORMATION
H.D. = VCS NAD 83
V.D. = NAVD88
GIS INFO = CITY & WSSI DIG. DATA

0 20' 40'
Scale 1"=20'

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

DATE	REVISIONS BY	DESCRIPTION

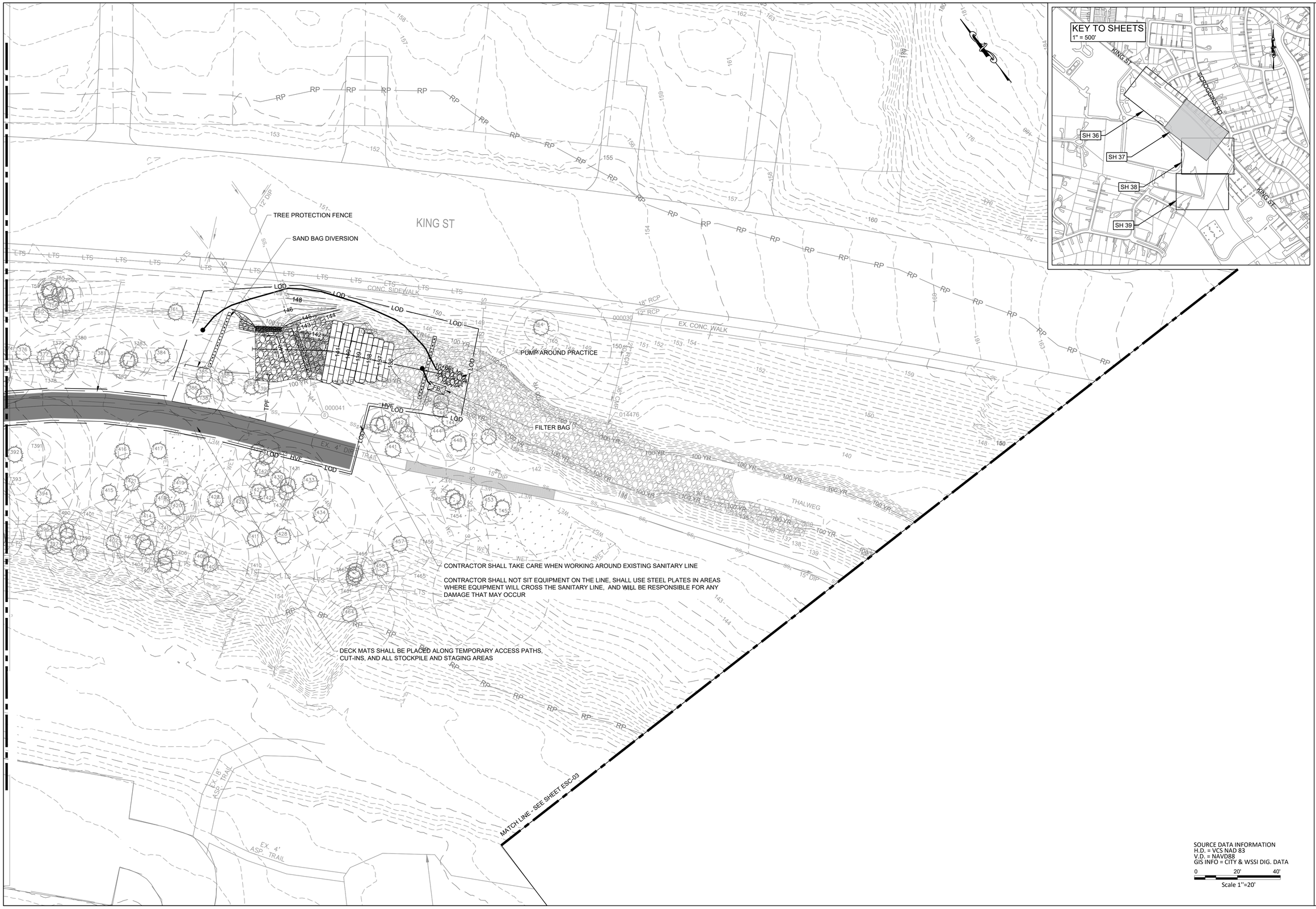
SEAL:

ALEXANDRIA PROJECT NO.: 23086
DATE OF PLAN ISSUANCE:
CONSULTANT PROJECT ID.: 60742359
DESIGNED BY: SB_TN DATE: 10/2026
DRAWN BY: SB_TN DATE: 10/2026
CHECKED BY: BA DATE: 10/2026
APPROVED BY: BA DATE: 10/2026

EROSION AND SEDIMENT CONTROL PLAN

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING: ESC-01
SCALE: 1:20
SHEET: 36 OF 52



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H.D. = VCS NAD 83
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(301) 250-2934

DRAWING:
ESC-02
SCALE:
1:20
SHEET:
37 OF 52

MATCH LINE - SEE SHEET ESC-02

CONTRACTOR SHALL TAKE CARE WHEN WORKING AROUND EXISTING SANITARY LINE

CONTRACTOR SHALL NOT SIT EQUIPMENT ON THE LINE, SHALL USE STEEL PLATES IN AREAS WHERE EQUIPMENT WILL CROSS THE SANITARY LINE, AND WILL BE RESPONSIBLE FOR ANY DAMAGE THAT MAY occur

DECK MATS SHALL BE PLACED ALONG TEMPORARY ACCESS PATHS, CUT-INS, AND ALL STOCKPILE AND STAGING AREAS

HIGH VISIBILITY SAFETY FENCE

TREE PLANKING (TYP.)

SUPER SILT FENCE

MATCH LINE - SEE SHEET ESC-04

CHINQUAPIN DR

EX. VOLLEYBALL COURT

EX. 8' ASP. TRAIL

EX. 4' DIRT TRAIL

SCROGGINS ROAD

KING ST

MILE MARKER 0.2

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0 20' 40'
Scale 1"=20'

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DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
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SEAL:

EROSION AND SEDIMENT CONTROL PLAN

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12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING:
ESC-03
SCALE:
1:20
SHEET:
38 OF 52

MATCH LINE - SEE SHEET ESC-03

SUPER SILT FENCE

DECK MATS SHALL BE PLACED ALONG TEMPORARY ACCESS PATHS, CUT-INS, AND ALL STOCKPILE AND STAGING AREAS

SIGN W/ METAL PLACARD

TB

TEMPORARY BRIDGE CROSSING, TYP.

STOCKPILE/STAGING AREA

WATER TO BE PROVIDED BY CONTRACTOR WATER TRUCK OR BY CITY APPROVED SOURCE

PIPE AND PUMP TO BE PROVIDED BY CONTRACTOR

CONTRACTOR SHALL INSTALL PEDESTRIAN GATE THAT WILL REMAINED CLOSED DURING NON-CONSTRUCTION HOURS

HIGH VISIBILITY SAFETY FENCE

EX. 6"x6" TIMBERS (TYP.)

EX. 6"x6" TIMBER STAIRS

TREE PROTECTION FENCE

SAND BAG DIVERSION

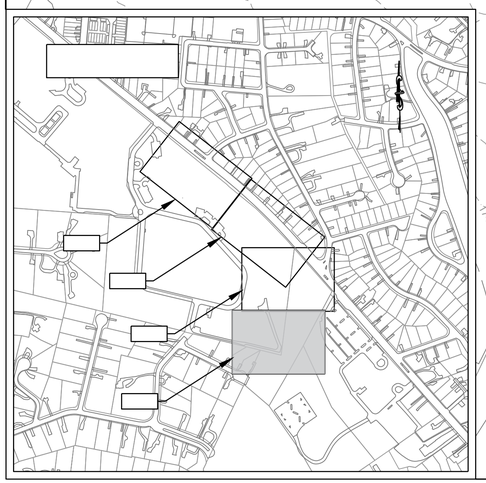
FILTER BAG

PUMP AROUND PRACTICE

ALL CONSTRUCTION EQUIPMENT SHALL BE PRESSURE WASHED OFF-SITE PRIOR TO USE ON THIS SITE TO PREVENT THE INADVERTENT SPREAD/INTRODUCTION OF ANY NON-NATIVE SPECIES

CONTRACTOR SHALL TAKE CARE WHEN WORKING AROUND EXISTING SANITARY LINE

CONTRACTOR SHALL NOT SIT EQUIPMENT ON THE LINE, SHALL USE STEEL PLATES IN AREAS WHERE EQUIPMENT WILL CROSS THE SANITARY LINE, AND WILL BE RESPONSIBLE FOR ANY DAMAGE THAT MAY OCCUR



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DRAWING:
ESC-04

SCALE:
1:20

SHEET:
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UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION ANDSEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED AND MAINTAINED ACCORDINGTO MINIMUM STANDARDS AND SPECIFICATIONS OF THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK AND VIRGINIA REGULATIONS 4VAC50-30 EROSION AND SEDIMENT CONTROL

THE PLAN APPROVING AUTHORITY MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND

A "CERTIFIED LAND DISTURBER" (CLD) SHALL BE NAMED IN A LETTER TO THE DIVISION CHIEF OF CONSTRUCTION AND INSPECTION (C&I), DEPARTMENT OF TRANSPORTATION AND ENVIRONMENTAL SERVICES PRIOR TO ANY LAND DISTURBING ACTIVITY. IF THE CLD CHANGES DURING THE PROJECT, THAT CHANGE MUST BE NOTED IN A LETTER TO THE DIVISION CHIEF.A NOTE TO THIS EFFECT SHALL BE PLACED ON THE PHASE I E&S PLAN SHEETS OF THE SITE

ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO OR AS THE

A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED

PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO, OFF-SITE BORROW OR WASTE AREAS), THE CONTRACTOR SHALL SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER

THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS

ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL

DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO AN APPROVED FILTERING

THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVISES SHALL BE MADE

ANY DENUDED SLOPES, EITHER DISTURBED OR CREATED BY THIS PLAN THAT EXCEED 2500 SQUARE FEET (SUCH AS THOSE ADJACENT TO THE CONSTRUCTION ENTRANCE) SHALL BE SEEDED (PER SEEDING SCHEDULE) AND MATTED IMMEDIATELY FOLLOWING ESTABLISHMENT. ALL VEHICLES SHALL BE CLEANED BEFORE ENTERING ONTO PUBLIC RIGHT-OF-WAY. THE WASH WATER FROM THE CONSTRUCTION ENTRANCE SHALL BE FILTERED THROUGH THE PROVIDED SILT FENCE TO ENSURE THAT NO SEDIMENT LADEN RUNOFF IS ALLOWED TO

THE FIRE DEPARTMENT SHALL BE NOTIFIED IN AADVANCE OF ANY ROAD CLOSURES AS WORK

THE FIRE DEPARTMENT SHALL BE NOTIFIED IN ADVANCE OF ANY FIRE HYDRANTS TAKEN OUT

THE CONTRATOR SHALL COORDINATE WITH THE CITY OF ALEXANDRIA RECREATION, PARKS, AND CULTURAL ACTIVITIES DEPARTMENT CONCERNING CONSTRUCTION ACCESS ANND TRAIL

PRIOR TO REMOVING ANY TREES—ALIVE OR DEAD, STANDING OR FALLEN—TAKE ALL NECESSARY STEPS TO CONFIRM THAT NO ACTIVE WILDLIFE IS USING THE TREES FOR FOOD, SHELTER, OR NESTING. IF WILDLIFE ACTIVITY IS OBSERVED AND THERE IS ANY UNCERTAINTY ON HOW TO PROCEED, IMMEDIATELY CONTACT THE RPCA NATURAL RESOURCES

ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CHECKED AFTER EACH RAINFALL OR WEEKLY, WHICHEVER IS MOST FREQUENT, AND SHOULD BE CLEANED AND REPAIRED ACCORDING

EROSION AND SEDIMENT CONTROL WILL BE CHECKED REGULARLY (MINIMUM WEEKLY) FOR UNDERMINING OR DETERIORATION AND BUILDUP OR CLOGGING WITH SEDIMENT. CORRECTIVE

ALL SEEDED AREAS WILL BE CHECKED REGULARLY TO SEE THAT A GOOD STAND IS MAINTAINED.

ALL TEMPORARY EROSION AND SEDIMENT MEASURES SHALL BE DISPOSED OF WITHIN THIRTY (30) DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED AND VEGETATION IS ESTABLISHED.

SEEDING RATE (LBS/ACRE)

ALL PERMANENT SEEDING SHALL BE IN ACCORDANCE WITH THE APPROVED SEEDING SCHEDULE

NOTE: ALL CONSTRUCTION ON SITE SHALL BE IN CONFORMANCE WITH THE FOLLOWING 19 MINIMUM STANDARDS AS ESTABLISHED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL REGULATIONS.

PERMANENT OR TEMPORARY SOIL STABILIZATION SHALL BE APPLIED TO DENUDED AREAS WITHIN SEVEN DAYS AFTER FINAL GRADE IS REACHED ON ANY PORTION OF THE SITE. TEMPORARY SOIL STABILIZATION SHALL BE APPLIED WITHIN SEVEN DAYS TO DENUDED AREAS THAT MAY NOT BE AT FINAL GRADE BUT WILL REMAIN DORMANT FOR LONGER THAN 30 DAYS. PERMANENT STABILIZATION SHALL BE APPLIED TO AREAS THAT ARE TO BE LEFT DORMANT FOR MORE THAN ONE YEAR. DURING CONSTRUCTION OF THE PROJECT, SOIL STOCK PILES AND BORROW AREAS SHALL BE STABILIZED OR PROTECTED WITH SEDIMENT TRAPPING MEASURES. THE APPLICANT IS RESPONSIBLE FOR THE TEMPORARY PROTECTION AND PERMANENT STABILIZATION OF ALL SOIL STOCKPILES ON SITE AS WELL AS BORROW AREAS AND SOIL INTENTIONALLY TRANSPORTED FROM

A PERMANENT VEGETATIVE COVER SHALL BE ESTABLISHED ON DENUDED AREAS NOT OTHERWISE PERMANENTLY STABILIZED. PERMANENT VEGETATION SHALL NOT BE CONSIDERED ESTABLISHED UNTIL A GROUND COVER IS ACHIEVED THAT IS UNIFORM, MATURE ENOUGH TO SURVIVE AND WILL

SEDIMENT BASINS AND TRAPS, PERIMETER DIKES, SEDIMENT BARRIERS AND OTHER MEASURES INTENDED TO TRAP SEDIMENT SHALL BE CONSTRUCTED AS A FIRST STEP IN ANY LAND-DISTURBING ACTIVITY AND SHALL BE MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE. STABILIZATION MEASURES SHALL BE APPLIED TO CHANNELS AND EARTHEN STRUCTURES SUCH AS

SEDIMENT TRAPS AND SEDIMENT BASINS SHALL BE DESIGNED AND CONSTRUCTED BASED UPON THE TOTAL DRAINAGE AREA TO BE SERVED BY THE TRAP OR BASIN. 6.1. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT TRAP SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA AND THE TRAP SHALL ONLY CONTROL DRAINAGE AREAS LESS THAN THREE ACRES. 6.2. SURFACE RUNOFF FROM DISTURBED AREAS THAT IS COMPRISED OF FLOW FROM DRAINAGE AREAS GREATER THAN OR EQUAL TO THREE ACRES SHALL BE CONTROLLED BY A SEDIMENT BASIN. THE MINIMUM STORAGE CAPACITY OF A SEDIMENT BASIN SHALL BE 134 CUBIC YARDS PER ACRE OF DRAINAGE AREA. THE OUTFALL SYSTEM SHALL, AT A MINIMUM, MAINTAIN THE STRUCTURAL INTEGRITY OF THE BASIN DURING A 25-YEAR STORM OF 24-HOUR DURATION. RUNOFF COEFFICIENTS USED IN RUNOFF CALCULATIONS SHALL CORRESPOND TO A BARE EARTH CONDITION OR THOSE CONDITIONS EXPECTED TO EXIST WHILE THE SEDIMENT BASIN IS UTILIZED.

7. CUT AND FILL SLOPES SHALL BE DESIGNED AND CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES THAT ARE FOUND TO BE ERODING EXCESSIVELY WITHIN ONE YEAR OF PERMANENT STABILIZATION SHALL BE PROVIDED WITH ADDITIONAL SLOPE STABILIZING MEASURES UNTIL THE PROBLEM IS CORRECTED.
8. CONCENTRATED RUNOFF SHALL NOT FLOW DOWN CUT OR FILL SLOPES UNLESS CONTAINED WITHIN AN ADEQUATE TEMPORARY OR PERMANENT CHANNEL, FLUME OR SLOPE DRAIN STRUCTURE.
9. WHENEVER WATER SEEPS FROM A SLOPE FACE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHALL BE PROVIDED.
10. ALL STORM SEWER INLETS THAT ARE MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT SEDIMENT-LADEN WATER CANNOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
11. BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS OR PIPES ARE MADE OPERATIONAL, ADEQUATE OUTLET PROTECTION AND ANY REQUIRED TEMPORARY OR PERMANENT CHANNEL LINING SHALL BE INSTALLED IN BOTH THE CONVEYANCE CHANNEL AND RECEIVING CHANNEL.
12. WHEN WORK IN A LIVE WATERCOURSE IS PERFORMED, PRECAUTIONS SHALL BE TAKEN TO MINIMIZE ENCROACHMENT, CONTROL SEDIMENT TRANSPORT AND STABILIZE THE WORK AREA TO THE GREATEST EXTENT POSSIBLE DURING CONSTRUCTION. NONERODIBLE MATERIAL SHALL BE USED FOR THE CONSTRUCTION OF CAUSEWAYS AND COFFERDAMS. EARTHEN FILL MAY BE USED FOR THESE STRUCTURES IF ARMORED BY NONERODIBLE COVER MATERIALS.
13. WHEN A LIVE WATERCOURSE MUST BE CROSSED BY CONSTRUCTION VEHICLES MORE THAN TWICE IN ANY SIX-MONTH PERIOD, A TEMPORARY VEHICULAR STREAM CROSSING CONSTRUCTED OF NONERODIBLE MATERIAL SHALL BE PROVIDED.
14. ALL APPLICABLE FEDERAL, STATE AND LOCAL CHAPTERS PERTAINING TO WORKING IN OR CROSSING LIVE WATERCOURSES SHALL BE MET.
15. THE BED AND BANKS OF A WATERCOURSE SHALL BE STABILIZED IMMEDIATELY AFTER WORK INTHE WATERCOURSE IS COMPLETED.
16. UNDERGROUND UTILITY LINES SHALL BE INSTALLED IN ACCORDANCE WITH THE FOLLOWINGSTANDARDS IN ADDITION TO OTHER APPLICABLE CRITERIA:
    - 16.1. NO MORE THAN 500 LINEAR FEET OF TRENCH MAY BE OPENED AT ONE TIME.
    - 16.2. EXCAVATED MATERIAL SHALL BE PLACED ON THE UPHILL SIDE OF TRENCHES.
    - 16.3. EFFLUENT FROM DEWATERING OPERATIONS SHALL BE FILTERED OR PASSED THROUGH AN APPROVED SEDIMENT TRAPPING DEVICE, OR BOTH, AND DISCHARGED IN A MANNER THAT DOES NOT ADVERSELY AFFECT FLOWING STREAMS OR OFF-SITE PROPERTY.
    - 16.4. MATERIAL USED FOR BACKFILLING TRENCHES SHALL BE PROPERLY COMPACTED IN ORDER TO MINIMIZE EROSION AND PROMOTE STABILIZATION.
    - 16.5. RESTABILIZATION SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THIS CHAPTER.
    - 16.6. APPLICABLE SAFETY CHAPTERS SHALL BE COMPLIED WITH.
17. WHERE CONSTRUCTION VEHICLE ACCESS ROUTES INTERSECT PAVED OR PUBLIC ROADS, PROVISIONS SHALL BE MADE TO MINIMIZE THE TRANSPORT OF SEDIMENT BY VEHICULAR TRACKING ONTO THE PAVED SURFACE. WHERE SEDIMENT IS TRANSPORTED ONTO A PAVED OR PUBLIC ROAD SURFACE, THE ROAD SURFACE SHALL BE CLEANED THOROUGHLY AT THE END OF EACH DAY. SEDIMENT SHALL BE REMOVED FROM THE ROADS BY SHOVELING OR SWEEPING AND TRANSPORTED TO A SEDIMENT CONTROL DISPOSAL AREA. STREET WASHING SHALL BE ALLOWED ONLY AFTER SEDIMENT IS REMOVED IN THIS MANNER. THIS PROVISION SHALL APPLY TO INDIVIDUAL DEVELOPMENT LOTS AS WELL AS TO LARGER LAND-DISTURBING ACTIVITIES.
18. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED, UNLESS OTHERWISE AUTHORIZED BY THE LOCAL PROGRAM AUTHORITY. TRAPPED SEDIMENT AND THE DISTURBED SOIL AREAS RESULTING FROM THE DISPOSITION OF TEMPORARY MEASURES SHALL BE PERMANENTLY STABILIZED TO PREVENT FURTHER EROSION AND SEDIMENTATION.
19. PROPERTIES AND WATERWAYS DOWNSTREAM FROM DEVELOPMENT SITES SHALL BE PROTECTED FROM SEDIMENT DEPOSITION, EROSION AND DAMAGE DUE TO INCREASES IN VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FOR THE STATED FREQUENCY STORM OF 24-HOUR DURATION IN ACCORDANCE WITH THE FOLLOWING STANDARDS AND CRITERIA:
    - 19.1. CONCENTRATED STORMWATER RUNOFF LEAVING A DEVELOPMENT SITE SHALL BE DISCHARGED DIRECTLY INTO AN ADEQUATE NATURAL OR MAN-MADE RECEIVING CHANNEL, PIPE OR STORM SEWER SYSTEM. FOR THOSE SITES WHERE RUNOFF IS DISCHARGED INTO A PIPE OR PIPE SYSTEM, DOWNSTREAM STABILITY ANALYSES AT THE OUTFALL OF THE PIPE OR PIPE SYSTEM SHALL BE PERFORMED.
    - 19.2. ADEQUACY OF ALL CHANNELS AND PIPES SHALL BE VERIFIED IN THE FOLLOWING MANNER:
        - 19.2.1. THE APPLICANT SHALL DEMONSTRATE THAT THE TOTAL DRAINAGE AREA TO THE POINT OF ANALYSIS WITHIN THE CHANNEL IS ONE HUNDRED TIMES GREATER THAN THE CONTRIBUTING DRAINAGE AREA OF THE PROJECT IN QUESTION; OR
            - 19.2.1.1. NATURAL CHANNELS SHALL BE ANALYZED BY THE USE OF A TWO-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP CHANNEL BANKS NOR CAUSE EROSION OF CHANNEL BED OR BANKS.
            - 19.2.1.2. ALL PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL NOT OVERTOP ITS BANKS AND BY THE USE OF A TWO-YEAR STORM TO DEMONSTRATE THAT STORMWATER WILL NOT CAUSE EROSION OF CHANNEL BED OR BANKS; AND
            - 19.2.1.3. PIPES AND STORM SEWER SYSTEMS SHALL BE ANALYZED BY THE USE OF A TEN-YEAR STORM TO VERIFY THAT STORMWATER WILL BE CONTAINED WITHIN THE PIPE OR SYSTEM.
    - 19.3. IF EXISTING NATURAL RECEIVING CHANNELS OR PREVIOUSLY CONSTRUCTED MAN-MADE CHANNELS OR PIPES ARE NOT ADEQUATE, THE APPLICANT SHALL:
        - 19.3.1. IMPROVE THE CHANNELS TO A CONDITION WHERE A TEN-YEAR STORM WILL NOT OVERTOP THE BANKS AND A TWO-YEAR STORM WILL NOT CAUSE EROSION TO CHANNEL THE BED OR BANKS; OR
        - 19.3.2. IMPROVE THE PIPE OR PIPE SYSTEM TO A CONDITION WHERE THE TEN-YEAR STORM IS CONTAINED WITHIN THE APPURTENANCES;
        - 19.3.3. DEVELOP A SITE DESIGN THAT WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TWO-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A NATURAL CHANNEL OR WILL NOT CAUSE THE PRE-DEVELOPMENT PEAK RUNOFF RATE FROM A TEN-YEAR STORM TO INCREASE WHEN RUNOFF OUTFALLS INTO A MANMADE CHANNEL; OR
        - 19.3.4. PROVIDE A COMBINATION OF CHANNEL IMPROVEMENT, STORMWATER DETENTION OR OTHER MEASURES WHICH IS SATISFACTORY TO THE PLAN APPROVING AUTHORITY TO PREVENT DOWNSTREAM EROSION.
    - 19.4. THE APPLICANT SHALL PROVIDE EVIDENCE OF PERMISSION TO MAKE THE IMPROVEMENTS.
    - 19.5. ALL HYDROLOGIC ANALYSES SHALL BE BASED ON THE EXISTING WATERSHED CHARACTERISTICS AND THE ULTIMATE DEVELOPMENT CONDITION OF THE SUBJECT PROJECT.
    - 19.6. IF THE APPLICANT CHOOSES AN OPTION THAT INCLUDES STORMWATER DETENTION, HE SHALL OBTAIN APPROVAL FROM THE LOCALITY OF A PLAN FOR MAINTENANCE OF THE DETENTION FACILITIES. THE PLAN SHALL SET FORTH THE MAINTENANCE REQUIREMEN

EROSION AND SEDIMENT CONTROL NARRATIVE

PROJECT DESCRIPTION

THIS PROJECT ENTAILS STREAM STABILIZATION USING A 'MINIMAL STABILZIATION' APPROACH TO LIMIT TREE IMPACTS AND DISTURBANCE TO THE COMMUNITY. THE TAYLOR RUN PROJECT AREA BEGINS AT THE 72' RCP CULVERT OUTFALL TO THE NORTHEAST OF THE CHINQUAPIN RECREATION CENTER, ADJACENT TO KING STREE IN THE CITY OF ALEXANDRIA, VIRIGNIA. APPROXIMATELY 1,500 LINEAR FEET OF TAYLOR RUN IS WIHTIN THE PROJECT AREA BUT APPROXIMATELY 265 LINEAR FEET WILL BE IMPACTED. THE PROJECT TERMINANTES DOWNSTREAM OF THE EXISTING SHEET PILE WALL.
WITHIN THE PROJECT AREA, THERE ARE TWO STORMWATER OUTFALLS IN DISREPAIR AND AN UNDERSIZED PLUNGE POOL. SEVERE EROSION HAS UNDERCUT TREES CAUSING THEM TO FALL, EXPOSED ROOTS AND UNDERMINED THE STREAM BANKS, INCLUDING THE CRITICAL ROOT ZONE OF A CHAMPION TREE. THE PROJECT AREA IS TRAVERSED BY AN EXISTING SANITARY SEWER MAIN, WITH TWO EXPOSED CROSSINGS AND AN EXPOSED MANHOLE.
THE PROJECT LIES WITHIN A FEMA MAPPED ZONE AE SEPCIAL FLOOD HAZARD AREA (SFHA) AND IS ENTIRELY WITHIN THE CITY RESOURCE PROTECTION AREA (RPA). THE SURROUNDING AREA IS HIGHLY RESIDENTIAL, WHICH INCLUDES THE CITY OF ALEXANDRIA HIGH SCHOOL.

EXISTING SITE CONDITIONS

THE PROJECT REACH IS BOUNDED AT THE UPSTREAM LIMITS OF THE CHANNEL BY AN EXISTING CULVERT OUTFALL DRAINING FROM THE DIRECTION OF THE CHINQUAPIN RECREATION CENTER GROUNDS. THE PROJECT IS LOCATED ON CITY OF ALEXANDRIA PROPERTY. THE DRAINAGE AREA FOR THE PROJECT REACH IS APPROXIMATELY 333 ACRES WITH 38% IMPERVIOUSNESS, MEASURED TO THE DOWNSTREAM EXTENT OF THE PROJECT. THE STREAM CORRIDOR IS HIGHLY DISTURBED, WITH SEVERE EROSION IN VARIOUS LOCATIONS, INCLUDING A 10 TO 20-FT HIGH VERTICAL BANK WHICH CURRENTLY THREATENS THE EXISTING WALKING PATH ALONG THE RIGHT BANK OF THE STREAM. THE PROJECT AREA IS TRAVERSED BY AN EXISTING SANITARY SEWER MAIN, WITH TWO DESTABILIZED AND EXPOSED CROSSINGS WITHIN THE RESTORATION AREA.

ADJACENT PROPERTY

THE PROJECT IS LOCATED ON CITY OF ALEXANDRIA PROPERTY. THESE PROPERTIES ARE BOUNDED BY MULTIPLE PRIVATE PARCELS AND FIRST BAPTIST CHURCH OF ALEXANDRIA, HOWEVER CONSTRUCTION ACTIVITIES WILL NOT AFFECT ANY OF THE ADJACENT PROPERTIES.

OFF-SITE AREAS

THE DRIVEWAY TO THE PARKING LOT FOR CHINQUAPIN RECREATION CENTER WILL BE THE LOCATION OF THE CONSTRUCTION ENTRANCE TO THE PROJECT AND MAY CAUSE DISRUPTION TO TRAFFIC FLOW IN THIS AREA. DESIGN FOR THE ACCESS ROAD SHALL BE IN ACCORDANCE WITH APPROVED PLANS. TRAFFIC AND FACILITY SIGNS WILL ALSO BE LOCATED IN OFF-SITE AREAS IN ACCORDANCE WITH LOCAL REGULATIONS. ALL EXCAVATED MATERIAL WILL BE TRUCKED AND DISPOSED OF OFF-SITE IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS.

CRITICAL AREAS

THIS PROJECT IS LOCATED ENTIRELY WITHIN A STREAM CHANNEL. HOWEVER, THE DESIGN PRESENTED HEREIN PROPOSES TO LIMIT FURTHER EROSION WITHIN THIS DEGRADED STREAM CHANNEL THUS IMPROVING THE WATER QUALITY OF THE DOWNSTREAM RECEIVING WATERS. ADDITIONALLY THE PROJECT IS LOCATED ENTIRELY WITHIN THE RPA. STREAM STABILIZATION PROJECTS ARE WATER DEPENDENT AND AN ALLOWABLE USE IN THE RPA.

SOIL

THE DOMINANT SOIL LOCATED WITHIN THE PROJECT AREA IS SASSAFRAS NEABSCO COMPLEX. THIS SOIL HAS MARGINAL DRAINAGE AND MEDIUM EROSION POTENTIAL.

EROSION AND SAFETY CONTROL MEASURES

ALL SOIL EROSION & SEDIMENT CONTROL MEASURES SHALL BE ACCOMPLISHED IN STRICT ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS CONTAINED IN THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK (VESCH).

STRUCTURAL PRACTICES
3.01 - SAFETY CHAIN LINK FENCING
3.02 - TEMPORARY STONE CONSTRUCTION ENTRANCE
3.05 - SILT FENCE WITH WIRE SUPPORT
3.23 - STRUCTURAL STREAMBANK STABILIZATION (VANE STRUCTURES, ROCK STEP, ROCK SILLS, STEP POOLS)
3.24 - STREAM CROSSING
3.26 - DEWATERING STRUCTURE (PUMP AROUND)
3.26 - FILTER BAG
3.38 - TREE PROTECTION FENCING
N/A - DECK MATTING
3.08 - CULVERT INLET PROTECTION
3.18 - CULVERT OUTLET PROTECTION

VEGETATIVE PRACTICES
3.30 - TOPSOIL (STOCKPILE)
3.31 - TEMPORARY SEEDING
3.32 - PERMANENT SEEDING
3.35 - MULCHING
3.36 - SOIL STABILIZATION BLANKET

STORMWATER MANAGEMENT

THIS PROJECT WILL IMPROVE STORMWATER QUALITY AS WELL AS PROVIDE CHANNEL PROTECTION. THERE IS NO PROPOSED INCREASE IN IMPERVIOUS SURFACE WITH THIS PROJECT AND DISCHARGES LEAVING THE SITE WILL REMAIN THE SAME.

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DATE	DESCRIPTION

ALEXANDRIA PROJECT NO.: 23086
DATE OF PLAN ISSUANCE:
CONSULTANT PROJECT ID.: 60742359
DESIGNED BY: SB, TN DATE: 10/2026
DRAWN BY: SB, TN DATE: 10/2026
CHECKED BY: BA DATE: 10/2026
APPROVED BY: BA DATE: 10/2026

SEAL:

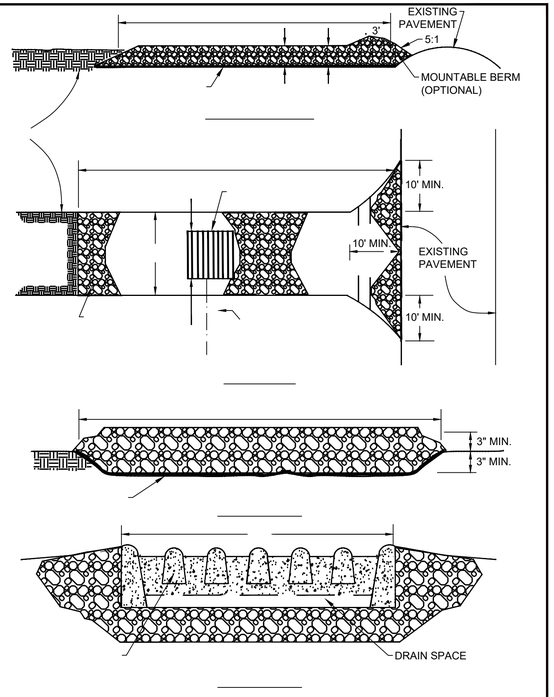
EROSION AND SEDIMENT CONTROL NARRATIVE

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
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(301) 250-2934

DRAWING: ESC-05

SCALE: N/A

SHEET: 40 OF 52



STONE CONSTRUCTION ENTRANCE SPECIFICATIONS:

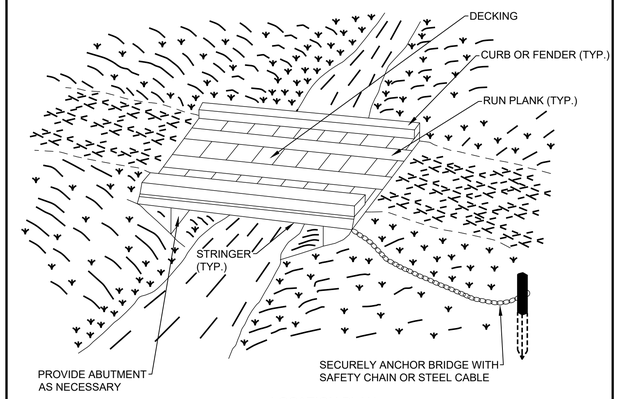
1. EXCAVATE THE ENTRANCE AREA TO A MINIMUM OF 3 INCHES AND CLEAR THE AREA OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL.
2. CONSTRUCT ANY DRAINAGE FACILITIES ACCORDING TO SPECIFICATIONS. PROVIDE FOR THE CONVEYANCE OF SURFACE WATER UNDER THE ENTRANCE THROUGH CULVERTS.
3. PLACE THE FILTER FABRIC UNDERLAYMENT ATOP THE ENTIRE WIDTH AND LENGTH OF THE ENTRANCE.
4. FOLLOWING THE FILTER FABRIC INSTALLATION, PLACE THE STONE TO THE SPECIFIED DIMENSIONS (INCLUDING THE CONSTRUCTION OF THE MOUNTABLE BERM) AS NECESSARY.
5. IF WASH RACKS ARE USED, INSTALL WASH RACKS ACCORDING TO MANUFACTURER'S SPECIFICATIONS. ENSURE THE WASH RACK CAN CONVEY SEDIMENT-LADEN WATER IMMEDIATELY TO A SEDIMENT CONTROL TREATMENT DEVICE BEFORE ENTERING A WATER BODY.
6. CONFIRM THE LENGTH AND WIDTH OF THE CONSTRUCTION ENTRANCE BEFORE SETTING UP EROSION CONTROL MEASURES AND PERIMETER CONTROL MEASURES.

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STONE CONSTRUCTION ENTRANCE

v1.1 SOURCE: VA. DSWC, MD ESC STDS C-SCM-03-1

STONE CONSTRUCTION ENTRANCE



LOCATION PLAN

NOTE:
TIME OF YEAR RESTRICTIONS DO NOT APPLY TO THE CONSTRUCTION OR REMOVAL OF A TEMPORARY ACESS BRIDGE UNLESS THERE IS DISTURBANCE TO THE STREAM CHANNEL.

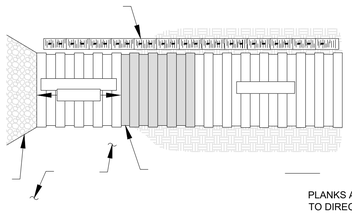
DEQ VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

TEMPORARY BRIDGE CROSSING

v1.1 SOURCE: MD DEPT. OF ENV. 2011 C-ENV-03-1

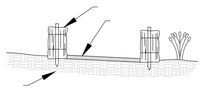
TEMPORARY BRIDGE CROSSING

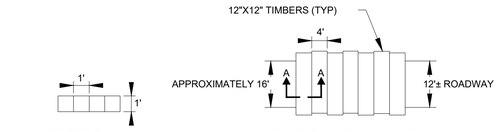
2 ESC-06 NOT TO SCALE



PLANKS ARE PERPENDICULAR TO DIRECTION OF TRAFFIC.

REMOVE SEDIMENT DEPOSITS ALONG EDGES OF MATS ON A



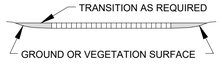


SECTION A-A

TYPICAL PLAN VIEW

TYPICAL MAT SECTION

BOLTED TOGETHER

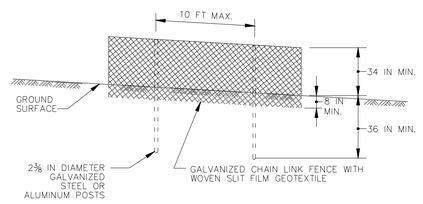


TYPICAL SECTION VIEW

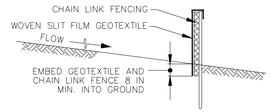
NOTES:
1. TO BE INSTALLED IF NECESSARY TO PREVENT RUTTING, TO ACCESS STRUCTURES.
2. THIS DETAIL SHOWS TYPICAL DIMENSIONS. SOME CONTRACTORS SWAMP MATS ARE DIMENSIONALLY DIFFERENT FROM WHAT IS SHOWN HERE.
3. DEPENDENT ON SITE CONDITIONS, MULTIPLE LAYERS OF MATS MAY BE INSTALLED.

CONSTRUCTION ACCESS MATTING

DETAIL E-3 SUPER SILT FENCE — STANDARD SYMBOL: SSF



ELEVATION



CROSS SECTION

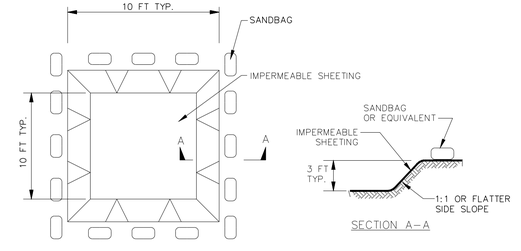
CONSTRUCTION SPECIFICATIONS

1. INSTALL 2⅜ INCH DIAMETER GALVANIZED STEEL POSTS OF 0.095 INCH WALL THICKNESS AND SIX FOOT LENGTH SPACED NO FURTHER THAN 10 FEET APART. DRIVE THE POSTS A MINIMUM OF 36 INCHES INTO THE GROUND.
2. FASTEN 9 GAUGE OR HEAVIER GALVANIZED CHAIN LINK FENCE (2¾ INCH MAXIMUM OPENING) 42 INCHES IN HEIGHT SECURELY TO THE FENCE POSTS WITH WIRE TIES OR HUG RINGS.
3. FASTEN WOVEN SLIT FILM GEOTEXTILE AS SPECIFIED IN SECTION H-1 MATERIALS, SECURELY TO THE UPSLOPE SIDE OF CHAIN LINK FENCE WITH TIES SPACED EVERY 24 INCHES AT THE TOP AND MID SECTION. EMBED GEOTEXTILE AND CHAIN LINK FENCE A MINIMUM OF 8 INCHES INTO THE GROUND.
4. WHERE ENDS OF THE GEOTEXTILE COME TOGETHER, THE ENDS SHALL BE OVERLAPPED BY 6 INCHES, FOLDED, AND STAPLED TO PREVENT SEDIMENT BY PASS.
5. EXTEND BOTH ENDS OF THE SUPER SILT FENCE A MINIMUM OF FIVE HORIZONTAL FEET UPSLOPE AT 45 DEGREES TO THE MAIN FENCE ALIGNMENT TO PREVENT RUNOFF FROM GOING AROUND THE ENDS OF THE SUPER SILT FENCE.
6. PROVIDE MANUFACTURER CERTIFICATION TO THE INSPECTION/ENFORCEMENT AUTHORITY SHOWING THAT GEOTEXTILE USED MEETS THE REQUIREMENTS IN SECTION H-1 MATERIALS.
7. REMOVE ACCUMULATED SEDIMENT AND DEBRIS WHEN BULGES DEVELOP IN FENCE OR WHEN SEDIMENT REACHES 25% OF FENCE HEIGHT. REPLACE GEOTEXTILE IF TORN. IF UNDERMINING OCCURS, REINSTALL CHAIN LINK FENCING AND GEOTEXTILE.

SUPER SILT FENCE

4 ESC-06 NOT TO SCALE

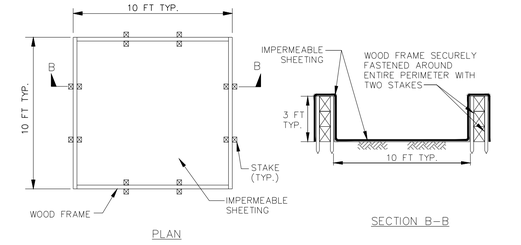
DETAIL H-6 ONSITE CONCRETE WASHOUT STRUCTURE — STANDARD SYMBOL: CWS



PLAN

SECTION A–A

EXCAVATED WASHOUT STRUCTURE



PLAN

SECTION B–B

WASHOUT STRUCTURE WITH WOOD PLANKS

1 OF 2

CONCRETE WASHOUT STRUCTURE

5 ESC-06 NOT TO SCALE

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DESCRIPTION	DATE

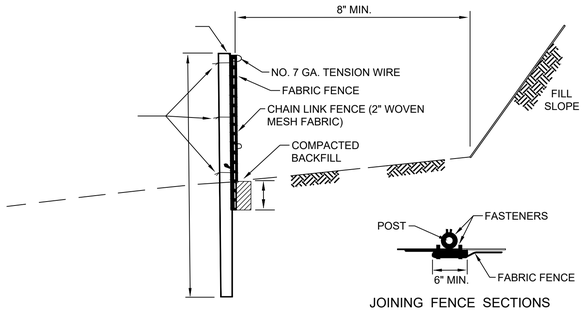
ALEXANDRIA PROJECT NO.: 23086
DATE OF PLAN ISSUANCE:
CONSULTANT PROJECT ID.: 60742359
DESIGNED BY: SB_TN DATE: 10/2026
DRAWN BY: SB_TN DATE: 10/2026
CHECKED BY: BA DATE: 10/2026
APPROVED BY: BA DATE: 10/2026

SEAL:

EROSION AND SEDIMENT CONTROL DETAILS

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SCALE: N/A
SHEET: 41 OF 52



JOINING FENCE SECTIONS

POSTS SPACED @ 10' MAX. USE 2 1/2" DIA. HEAVY DUTY GALVANIZED OR ALUMINUM POSTS.

CHAIN LINK TO POST FASTENERS SPACED @ 14" MAX. USE NO. 9 GA. ALUMINUM WIRE OR NO. 9 GALVANIZED STEEL PRE-FORMED CLIPS. CHAIN LINK TO TENSION WIRE FASTENERS SPACED @ 60" MAX. USE NO. 13.5 GA. GALVANIZED STEEL WIRE. FABRIC TO CHAIN FASTENERS SPACED @ 24" MAX C. TO C.

DEQ VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

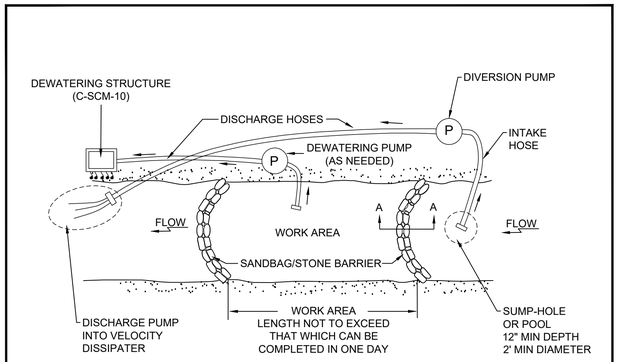
SUPER SILT FENCE INSTALLATION

v1.1 SOURCE: ADAPTED FROM PA DEP 2012 C-PCM-04-3

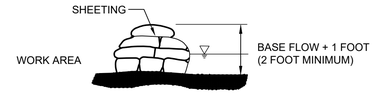
INSTALLATION FOR SUPER SILT FENCE:

1. EXCAVATE AN 8-INCH-DEEP TRENCH, MINIMIZING THE DISTURBANCE ON THE DOWNSLOPE SIDE, WITH THE BOTTOM OF THE TRENCH AT LEVEL GRADE.
2. INSTALL THE CHAIN LINK FENCE IN THE DOWNSLOPE SIDE OF THE TRENCH WITH THE FENCE ON THE UPSLOPE SIDE OF THE SUPPORT POLES. INSTALL 2.5-INCH- DIAMETER GALVANIZED OR ALUMINUM POLES SET AT 10-FOOT MAXIMUM SPACING. INSTALL POLES AT A MINIMUM DEPTH OF 24 INCHES BELOW THE GROUND SURFACE AND EXTEND A MINIMUM OF 33 INCHES ABOVE GROUND. A POSTHOLE DRILL MAY BE NECESSARY TO INSTALL POLES APPROPRIATELY FOR MOST SITES. POLES DO NOT NEED TO BE SET IN CONCRETE.
3. FASTEN CHAIN LINK FENCE SECURELY TO FENCE POSTS WITH WIRE TIES.
4. ENSURE CHAIN LINK IS GALVANIZED NO. 11.5 GA. STEEL WIRE WITH 2.25-INCH OPENING, NO. 11 GA. ALUMINUM COATED STEEL WIRE IN ACCORDANCE WITH ASTM-A-491, OR GALVANIZED NO. 9 GA. STEEL WIRE TOP AND BOTTOM WITH GALVANIZED NO. 11 GA. STEEL INTERMEDIATE WIRES. INSTALL NO. 7 GAGE TENSION WIRE HORIZONTALLY THROUGH HOLES AT THE TOP OF THE CHAIN LINK FENCE OR ATTACH WITH HOG RINGS, WIRE FASTENERS, STAPLES, OR PREFORMED CLIPS AT 5-FOOT (MAXIMUM) CENTERS.
5. STRETCH FILTER FABRIC AND SECURELY FASTEN TO THE FENCE WITH WIRE FASTENERS, STAPLES, OR PREFORMED CLIPS. EXTEND THE FABRIC A MINIMUM OF 33 INCHES ABOVE THE GROUND SURFACE. ENSURE THE FILTER FABRIC WIDTH IS A MINIMUM OF 42 INCHES.
6. FASTEN THE FILTER FABRIC SECURELY TO THE CHAIN LINK FENCE WITH FASTENERS, STAPLES, OR PREFORMED CLIPS SPACED HORIZONTALLY 24 INCHES AT THE GROUND SURFACE, TOP, AND MIDSECTION.
7. WHEN ATTACHING TWO SUPER SILT FENCES, THE OVERLAP JOINING METHOD SHOULD BE USED. SEE FIGURE C-PCM-04-5.8 IN VIRGINIA STORMWATER MANAGEMENT HANDBOOK, VERSION 1.2.
8. PLACE THE FABRIC TOE IN THE BOTTOM OF THE TRENCH, THEN BACKFILL AND COMPACT THE TRENCH.
9. REMOVE AND PROPERLY DISPOSE OF SUPER SILT FENCE WHEN THE DISTURBED AREA TRIBUTARY TO THE FENCE IS PERMANENTLY STABILIZED.

1 ESC-07 SUPER SILT FENCE
NOT TO SCALE



PLAN



CROSS-SECTION OF SANDBAG DIKE

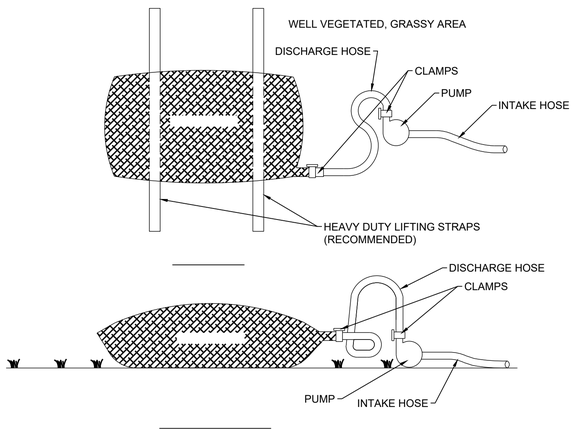
SECTION A-A

DEQ VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

PUMP-AROUND DIVERSION PRACTICE

v1.1 SOURCE: VA DRC 2004 C-ENV-08-1

2 ESC-07 PUMP-AROUND DIVERSION
NOT TO SCALE



DEQ VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

FILTER BAG

v1.1 SOURCE: PADEP 2012 C-SCM-10-4

PUMPED WATER FILTER BAG NOTES ON PROPER USE:

- USE LOW-VOLUME FILTER BAGS MADE FROM NON-WOVEN MONOFILAMENT GEOTEXTILE MATERIAL SEWN WITH HIGH-STRENGTH, DOUBLE-STITCHED "J" TYPE SEAMS. USE FILTER BAGS CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS.
- USE HIGH-VOLUME FILTER BAGS MADE FROM WOVEN MONOFILAMENT THAT MEET THE REQUIREMENTS INCLUDED IN TABLE C-SCM-10-3.
- PROVIDE A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES. REPLACE FILTER BAGS WHEN THEY BECOME HALF FULL OF SEDIMENT. KEEP SPARE BAGS AVAILABLE FOR REPLACEMENT OF THOSE THAT HAVE FAILED OR ARE FILLED. PLACE BAGS ON STRAPS TO FACILITATE REMOVAL UNLESS BAGS COME WITH LIFTING STRAPS ALREADY ATTACHED.
- LOCATE BAGS IN A WELL-VEGETATED (GRASSY) AREA AND DISCHARGE ONTO STABLE, EROSION-RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, PROVIDE A GEOTEXTILE UNDERLAYMENT AND FLOW PATH. BAGS MAY BE PLACED ON FILTER STONE TO INCREASE DISCHARGE CAPACITY. DO NOT PLACE BAGS ON SLOPES GREATER THAN 5%. FOR SLOPES EXCEEDING 5%, CLEAN ROCK OR OTHER NON-ERODIBLE AND NON-POLLUTING MATERIAL MAY BE PLACED UNDER THE BAG TO REDUCE SLOPE STEEPNESS.
- NO DOWNSLOPE SEDIMENT BARRIER IS REQUIRED FOR MOST INSTALLATIONS. INSTALL SILT FENCE (BMP C-PCM-04) OR COMPOST FILTER SOCK (BMP C-PCM-05) BELOW BAGS LOCATED WITHIN 50 FEET OF ANY RECEIVING SURFACE WATER OR WHERE A GRASSY AREA IS NOT AVAILABLE.

Table C-SCM-10-3 Material Specifications for Pumped Water Filter Bag

Property	Test Method	Minimum Standard
Avg. Wide Width Strength	ASTM D-4884	60 lb/in
Grab Tensile	ASTM D-4632	205 lb
Puncture	ASTM D-4833	110 lb
Mullen Burst	ASTM D-3786	350 psi
UV Resistance	ASTM D-4355	70%
AOS % Retained	ASTM D-4751	80 Sieve

3 ESC-07 FILTER BAG
NOT TO SCALE

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
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301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

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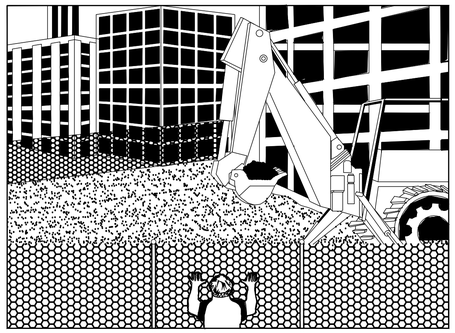
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DATE OF PLAN ISSUANCE:
CONSULTANT PROJECT ID.: 60742359
DESIGNED BY: SB_TN DATE: 10/2026
DRAWN BY: SB_TN DATE: 10/2026
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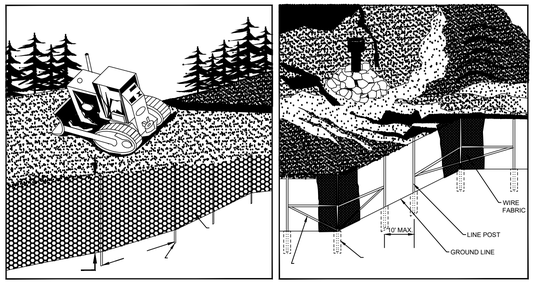
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PERSPECTIVE VIEW
METAL FENCE

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

v1.1

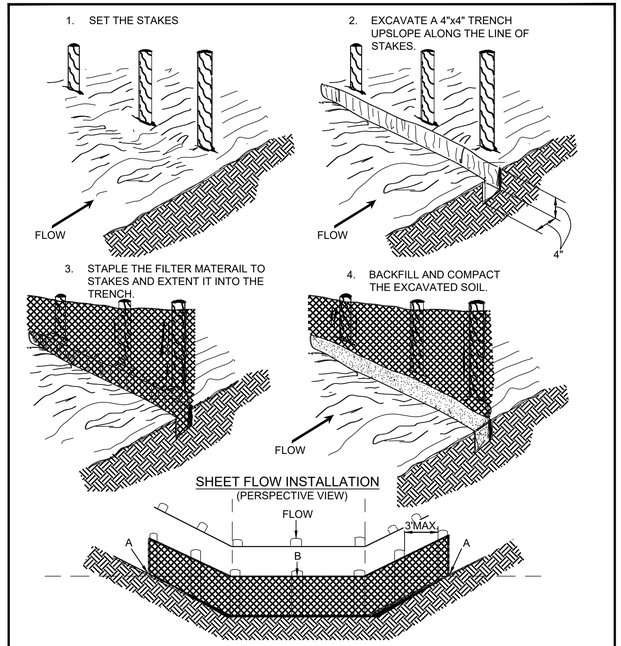
VA DSWC, CONWED PLASTICS

SAFETY FENCE

C-PCM-01-1

SAFETY FENCE CONSTRUCTION SPECIFICATIONS:

1. SAFETY FENCES SHOULD BE INSTALLED BEFORE THE EROSION AND SEDIMENT CONTROL MEASURE BECOMES ACCESSIBLE.
2. THE POLYETHYLENE WEB OF THE PLASTIC SAFETY FENCE SHOULD BE SECURED TO A CONVENTIONAL METAL "T" OR "U" POST DRIVEN INTO THE GROUND TO A MINIMUM DEPTH OF 18 INCHES; POSTS SHOULD BE SPACED AT 6-FOOT CENTERS. SEE PERSPECTIVE VIEW ON FIGURE C-PCM-01-1 IN VIRGINIA STORMWATER MANAGEMENT HANDBOOK, VERSION 1.2.
3. THE METAL SAFETY FENCE SHOULD BE INSTALLED AS PER THE FOLLOWING PROCEDURE:
   - 3.a. LINE POSTS SHOULD BE PLACED AT INTERVALS OF 10 FEET MEASURED FROM CENTER TO CENTER OF ADJACENT POSTS. IN DETERMINING THE POST SPACING, MEASUREMENT WILL BE MADE PARALLEL WITH THE GROUND SURFACE. SEE PERSPECTIVE VIEW ON FIGURE C-PCM-01-1 IN VIRGINIA STORMWATER MANAGEMENT HANDBOOK, VERSION 1.2.
   - 3.b. POSTS WILL BE SET IN CONCRETE AND BACKFILLED OR ANCHORED BY OTHER ACCEPTABLE MEANS.
   - 3.c. POSTS SET IN THE TOPS OF CONCRETE WALLS SHOULD BE GROUTED INTO PRE-FORMED HOLES TO A MINIMUM DEPTH OF 12 INCHES.
   - 3.d. ALL CORNER POSTS, END POSTS, GATE POSTS, AND PULL POSTS SHOULD BE EMBEDDED, BRACED, AND TRUSSED AS SHOWN IN THE "STANDARD FENCE - CHAIN LINK" DETAIL FOUND IN THE LATEST VERSION OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION (VDOT) ROAD AND BRIDGE STANDARDS.
   - 3.e. FENCING FABRIC SHOULD NOT BE STRETCHED UNTIL AT LEAST 4 DAYS AFTER THE POSTS ARE GROUTED INTO WALLS OR 14 DAYS AFTER THE POSTS ARE SET INTO CONCRETE.
   - 3.f. THE FABRIC SHOULD BE STRETCHED TAUT AND SECURELY FASTENED BY MEANS OF TIE CLIPS TO THE POSTS AT INTERVALS NOT EXCEEDING 15 INCHES AND TO THE TOP RAILS OR TENSION WIRES AT INTERVALS NOT EXCEEDING 2 FEET. CARE SHOULD BE TAKEN TO EQUALIZE THE TENSION ON EACH SIDE OF EACH POST.
4. APPLICABLE WARNING SIGNS NOTING HAZARDOUS CONDITIONS MUST BE INSTALLED IMMEDIATELY UPON INSTALLATION OF SAFETY FENCE.
5. SEE TABLE C-PCM-01-1 "PHYSICAL PROPERTIES OF PLASTIC SAFETY FENCE" IN VIRGINIA STORMWATER MANAGEMENT HANDBOOK, VERSION 1.2



VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

v1.1

SOURCE: ADAPTED FROM STRAW & FAB. BARRIERS, SHERWOOD & WYANT

CONSTRUCTION OF SILT FENCE WITHOUT WIRE SUPPORT

C-PCM-04-2B

INSTALLATION FOR STANDARD SILT FENCE:

1. INSTALL SILT FENCE (AFTER TRENCHING) A MINIMUM HEIGHT OF 18 INCHES ABOVE THE ORIGINAL GROUND SURFACE FOR STANDARD SILT FENCE.
2. TURN THE FENCE UPHILL AT 45-DEGREE ANGLES AT THE END OF EACH FENCE RUN TO PREVENT RUN-AROUND BYPASS.
3. WHERE SILT FENCE CANNOT BE INSTALLED ALONG THE CONTOUR, J-HOOKS SHOULD BE USED AT THE END OF EACH FENCE RUN.
4. PURCHASE THE FILTER FABRIC IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID THE USE OF JOINTS.
5. AT FABRIC ENDS, WRAP BOTH ENDS AROUND THE SUPPORT STAKE AND STAPLE (SEE FIGURE C-PCM-04-2 IN VIRGINIA STORMWATER MANAGEMENT HANDBOOK, VERSION 1.2). IF THE FABRIC COMES ALREADY ATTACHED TO THE STAKES, HOLD THE END STAKES TOGETHER WHILE THE FABRIC IS WRAPPED AROUND THE STAKES AT LEAST ONE REVOLUTION (360 DEGREES) BEFORE DRIVING THE STAKES.
6. EXCAVATE A TRENCH APPROXIMATELY 4 INCHES WIDE AND 4 INCHES DEEP ON THE UPSLOPE SIDE OF THE PROPOSED LOCATION OF THE MEASURE.
7. WHEN WIRE SUPPORT IS USED (REINFORCED SILT FENCE), STANDARD-STRENGTH FILTER FABRIC MAY BE USED. FOR THIS TYPE OF INSTALLATION, PLACE POSTS A MAXIMUM OF 10 FEET APART (SEE FIGURE C-PCM-04-3 IN VIRGINIA STORMWATER MANAGEMENT HANDBOOK, VERSION 1.2). FASTEN THE WIRE MESH FENCE SECURELY TO THE UPSLOPE SIDE OF THE POSTS USING HEAVY-DUTY WIRE STAPLES AT LEAST 1 INCH LONG, TIE WIRES, OR HOG RINGS. EXTEND THE WIRE INTO THE TRENCH A MINIMUM OF 2 INCHES AND DO NOT EXTEND MORE THAN 34 INCHES ABOVE THE ORIGINAL GROUND SURFACE. STAPLE OR WIRE THE STANDARD-STRENGTH FABRIC TO THE WIRE FENCE AND EXTEND 8 INCHES OF THE FABRIC INTO THE TRENCH. DO NOT STAPLE THE FABRIC TO EXISTING TREES.
8. WHEN WIRE SUPPORT IS NOT USED (STANDARD SILT FENCE OR HIGH-PERFORMANCE SILT FENCE), USE EXTRA-STRENGTH FILTER FABRIC. PLACE POSTS FOR THIS TYPE OF FABRIC A MAXIMUM OF 6 FEET APART (SEE FIGURE C-PCM-04-3 IN VIRGINIA STORMWATER MANAGEMENT HANDBOOK, VERSION 1.2). FASTEN THE FILTER FABRIC SECURELY TO THE UPSLOPE SIDES OF THE POSTS USING 1-INCH-LONG (MINIMUM) HEAVY-DUTY WIRE STAPLES OR TIE WIRES AND EXTEND 8 INCHES OF THE FABRIC INTO THE TRENCH. THIS METHOD OF INSTALLATION IS MORE COMMONPLACE THAN THE USE OF THE REINFORCED SILT FENCE. DO NOT STAPLE THE FABRIC TO EXISTING TREES.
9. WHEN ATTACHING TWO SILT FENCES, FIRST PLACE THE END POST OF ONE FENCE INSIDE THE END POST OF THE OTHER FENCE. ROTATE BOTH POSTS AT LEAST 180 DEGREES IN A CLOCKWISE DIRECTION TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL. DRIVE BOTH POSTS A MINIMUM OF 18 INCHES INTO THE GROUND AND BURY THE FLAP IN A TRENCH.
10. IF A SILT FENCE IS TO BE CONSTRUCTED ACROSS A DITCH LINE OR SWALE, ENSURE THE MEASURE IS OF SUFFICIENT LENGTH TO ELIMINATE END-FLOW, AND THE PLAN CONFIGURATION RESEMBLES AN ARC OR HORSESHOE WITH THE ENDS ORIENTED UPSLOPE (SEE FIGURE C-PCM-04-3 IN VIRGINIA STORMWATER MANAGEMENT HANDBOOK, VERSION 1.2). USE EXTRA-STRENGTH FILTER FABRIC FOR THIS APPLICATION WITH A MAXIMUM 3-FOOT SPACING OF POSTS.
11. DRIVE STAKES A MINIMUM OF 18 INCHES BELOW GROUND SURFACE.
12. BACKFILL AND COMPACT THE 4-INCH BY 4-INCH TRENCH WITH SOIL OVER THE FILTER FABRIC.
13. REMOVE THE SILT FENCE WHEN THE FENCE HAS SERVED ITS USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY STABILIZED.

HIGH VISIBILITY SAFETY FENCE

2 SILT FENCE

ESC-08 NOT TO SCALE

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DATE OF PLAN ISSUANCE:
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APPROVED BY: BA_ DATE: 10/2026

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SHEET: 44 OF 52

PLANTING PLAN

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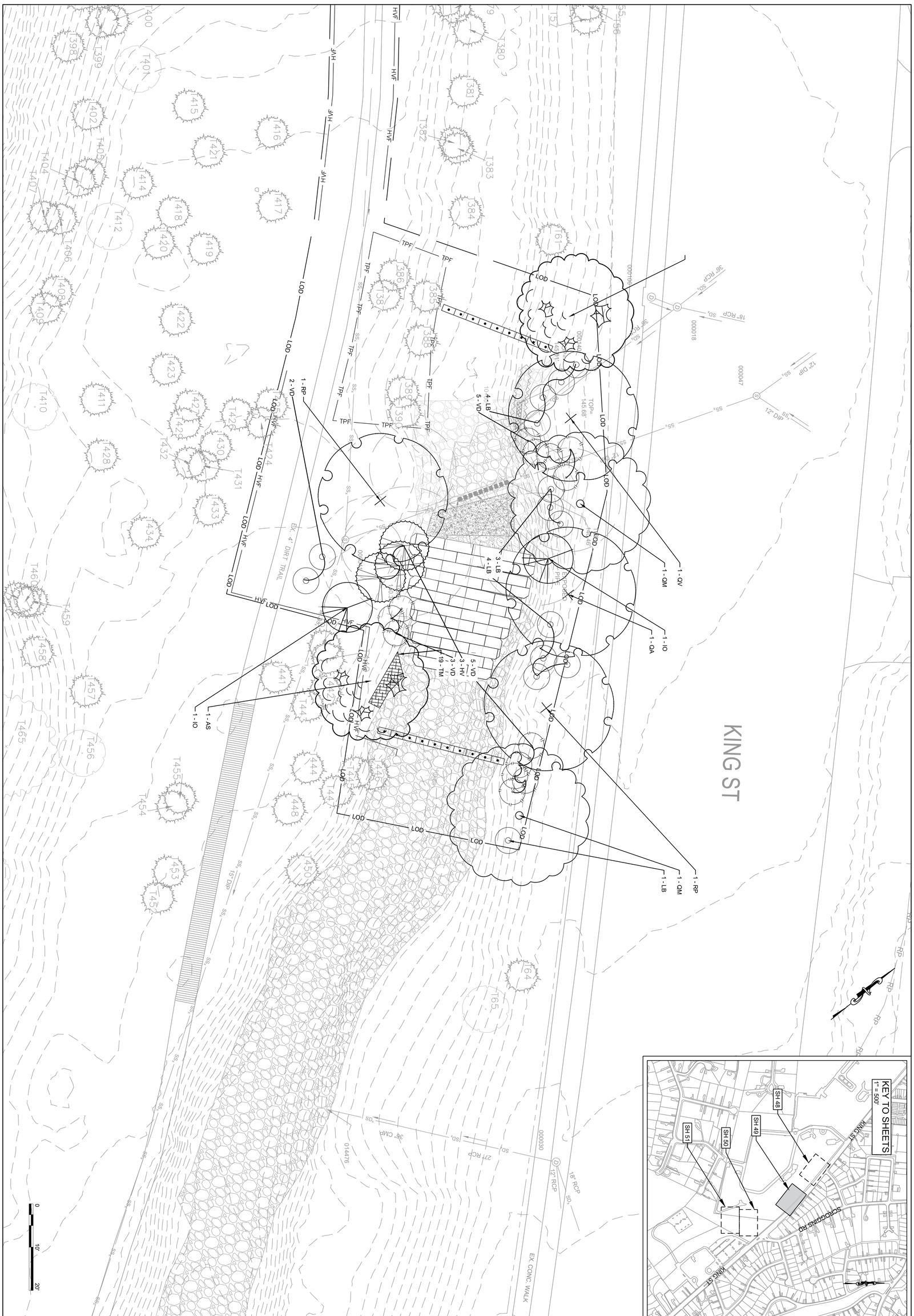
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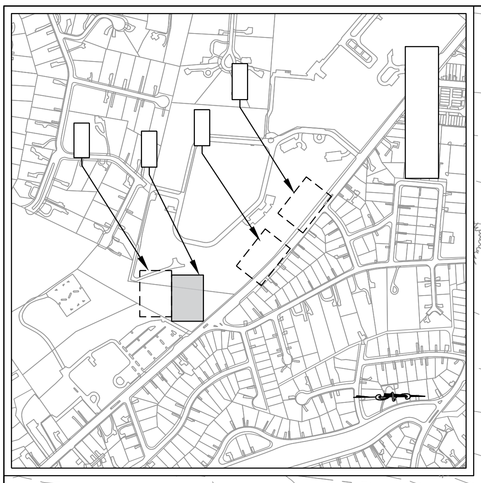
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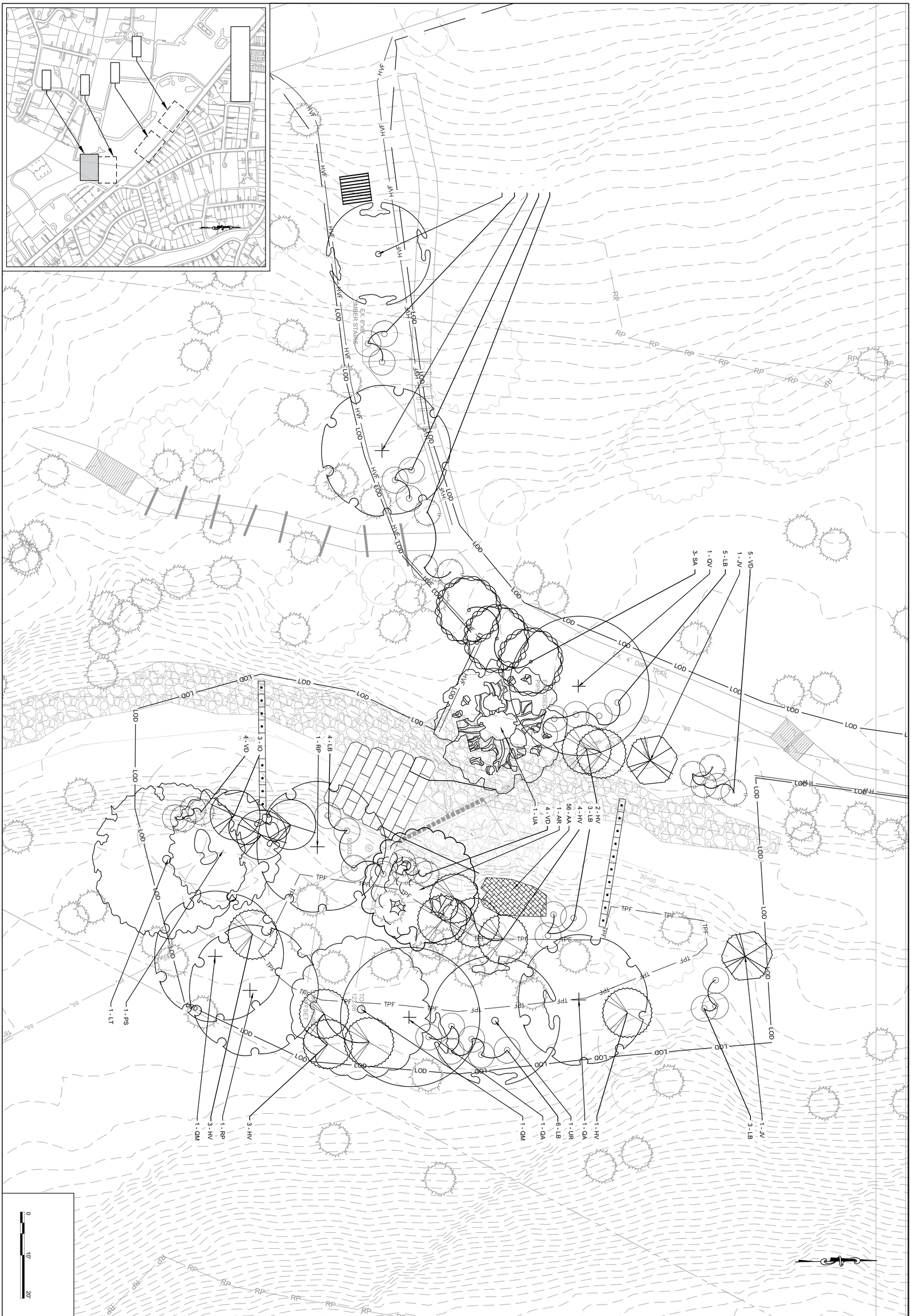
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THE SUPPLIER OF ALL SEEDS AND/OR VEGETATION SHALL CERTIFY THAT THE ORIGIN OF THE SEEDS FROM WHICH THE PLANTS OR SEEDS WERE PRODUCED IS FROMHARDINESS ZONES 6 AND 7,

ANY NURSERY SUPPLYING THE STOCK SHALL PROVIDE A CURRENT NURSERY INSPECTION CERTIFICATE FROM THE STATE DEPARTMENT OF AGRICULTURE, OR PROVIDE AT LEAST THIRTY DAYS ADVANCE NOTICE FOR THE CITY TO INSPECT THE PLANT SOURCE AREAS AT THE CITY'S DISCRETION. ANY SUCH INSPECTION IS NOT DEEMED APPROVAL OF THE PLANT MATERIALS.

PLANTING SHALL ONLY BE PERMITTED BETWEEN SEPTEMBER 30 AND MARCH 30. NO PLANTING SHALL OCCUR WHEN THE SOIL IS FROZEN. SEEDING SHALL BE COMPLETED DURING MARCH THROUGH MAY OR SEPTEMBER THROUGH NOVEMBER. MATTED STREAM BANK AREAS SHALL BE SEEDED IMMEDIATELY UPON REACHING FINAL GRADE. THESE TIME LIMITS MAY NOT BE MODIFIED UNLESS APPROVED BY THE CITY IN ADVANCE WITH THE RISK OF SURVIVAL BORNE SOLELY BY THE

PLANTING HOLES FOR BARE ROOT TREES SHALL BE 1-2" DEEPER THAN THE ROOT COLLAR (I.E. 1-2" DEEPER THAN THEY WERE GROWING IN THE NURSERY). BARE ROOT SEEDLINGS (IF REQUIRED) SHALL BE INSTALLED WITH THE USE OF A "SHARPSHOOTER SHOVEL", AS DEPICTED WITHIN THESE PLANS. THE PLANTING HOLE SHALL BE LARGE ENOUGH TO AVOID THE NEED FOR ROOT TRIMMING WHERE EVER POSSIBLE. NO J-ROOTS (SEE PLANTING DETAILS) SHALL BE ALLOWED; IT IS EXTREMELY CRITICAL THIS BE ADHERED TO FOR EVERGREENS. BARE ROOT STOCK SHALL BE PLANTED WITH THEIR ROOT-COLLAR 1 TO 2 INCHES DEEPER THAN THE ADJACENT SOIL ELEVATION, USING ADJACENT SOIL TO CREATE A HUMMOCK OR MOUND THAT THE SEEDLING IS SET WITHIN. PLANTING HOLES FOR CONTAINER GROWN PLANTS SHALL BE ONE FOOT (1') DEEP PLUS THE CONTAINER DEPTH IN WHICH THE PLANT HAS BEEN GROWN AND TWO FEET (2') WIDER THAN

BACKFILL THE PLANTING HOLES WITH THE IN-SITU SOIL MATERIALS REMOVED FOR PLANTING AFTER REMOVING ALL STONES, ROOTS, AND OTHER DEBRIS GREATER THAN 1-1/2" IN DIAMETER. FOLLOWING THE BACKFILLING, WATER TO THE POINT OF SOIL SATURATION (IF NOT PLANTED IN THE "WET") AND TAMP TO COMPACT THE BACKFILL MIXTURE. ADD EXISTING SOIL TO BRING THE FINAL GRADE IN THE PLANTING HOLE TO THE SURROUNDING SOIL SURFACE. RAKE THE UNUSED EXISTING SOIL OUTSIDE THE PLANTING HOLES, TAKING CARE NOT TO MOUND THE SOIL OR TO SIGNIFICANTLY ALTER THE EXISTING GRADES AND THEN PLACE MULCH (MIN. 2" THICK) ATOP ENTIRE PLANTING HOLE (EXCEPT THAT NO MULCH IS REQUIRED FOR EMERGENT PLANTINGS). THE PLANTING HOLE AREAS MUST NOT BE DEPRESSED BELOW THE SURROUNDING SOIL SURFACE ELEVATIONS. SAID

AS INDICATED IN THE PLANT LIST, THE SHRUBS THAT ARE SPECIFIED AS CONTAINER GROWN SPECIMENS SHALL BE BETWEEN 15" AND 18" IN HEIGHT. THEY SHALL BE HEALTHY, VIGOROUS, WELL ROOTED AND ESTABLISHED IN THE PLANTING CONTAINER IN WHICH THEY ARE GROWING. A CONTAINER SHRUB SHALL BE IN THAT CONTAINER A SUFFICIENT TIME SUCH THAT FIBROUS ROOTS ARE FORMED SO THE SHAPE WILL REMAIN AND THE MEDIUM WILL HOLD TOGETHER WHEN REMOVED FROM THE CONTAINER (REFER TO AMERICAN STANDARD FOR NURSERY STOCK). DO NOT REMOVE PLANTS FROM CONTAINERS UNTIL IMMEDIATELY BEFORE PLANTING. EXAMINE THE ROOTS TO SEE IF THEY ARE POT BOUND. CAREFULLY SEPARATE ANY POT BOUND OR CRAMPED ROOTS AND SPREAD THEM OUT WHEN PLACING THE PLANT SO THAT THE ROOTS CAN GROW

AS RECOMMENDED BY THE CONTRACTOR AND APPROVED BY ENGINEER, THE CONTRACTOR SHALL WATER THE PLANTS AS NEEDED DURING THE CARE AND REPLACEMENT PERIOD OR UNTIL FINAL

THE CONTRACTOR IS RESPONSIBLE FOR REPLACING NON- SURVIVING TREES AND SHRUBS DURING THE CARE AND REPLACEMENT PERIOD (12 MONTHS, UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS) OR UNTIL FINAL ACCEPTANCE, WHICHEVER IS THE SHORTEST, AS REQUIRED BY THE TERMS OF THE SURVIVAL WARRANTY SPECIFIED HEREIN AND/OR IN CONTRACT DOCUMENTS. THE SPECIFICATIONS FOR THE REPLACED PLANTS SHALL BE THOSE PROVIDED IN THE PLANT LIST. REFER TO APPLICABLE SKETCHES WITHIN THIS PLAN SET FOR ADDITIONAL GUIDANCE ON PLANTING

INVASIVE AND NOXIOUS WEEDS SHALL BE REMOVED BY HAND WITH LOCALIZED APPLICATIONS OF RODEO OR (APPROVED EQUAL SUITABLE FOR USE AROUND AQUATIC ENVIRONMENTS) WHERE

TREE-OF-HEAVEN (AILANTHUS ALTISSIMA) MUST BE CHEMICALLY TREATED PRIOR TO CUTTING TO

ALL BARE ROOT SEEDLINGS SHALL BE TREATED WITH ROOT DIP ABSORBENT POLYMERS AND

RECOMMENDATIONS. SAID ROOT DIP SHALL BE MYCORTREE™ ROOT DIP OR APPROVED EQUAL.

SEED SHALL HAVE BEEN COLLECTED THE SAME YEAR OF SEEDING. A SEED GERMINATION AND PURITY RATE OF 75% IS REQUIRED. EVIDENCE OF SUCH SHALL BE PROVIDED TO OWNER'S

THE SPECIFIED SEED SHALL BE BROADCAST IN AREAS SPECIFIED ON THE PLANTING PLAN. FOLLOWING SEEDING, MECHANICALLY SOW SEED TO A DEPTH OF 1/8TH OF AN INCH BY THE USE OF

THE LANDSCAPE CONTRACTOR SHALL INSPECT THE AREAS AND CONDITIONS UNDER WHICH THE SEEDING WORK IS TO BE PERFORMED PRIOR TO COMMENCING WORK. IF CONDITIONS ARE DETRIMENTAL TO THE PROPER AND TIMELY COMPLETION OF THE WORK, HE/SHE SHALL NOTIFY THE OWNER'S REPRESENTATIVE VERBALLY AND IN WRITING AND POSTPONE COMMENCING WORK UNTIL

PRIOR TO SEEDING, THE TOP SOIL SHALL BE RAKED SMOOTH AND CLEARED OF ALL STONES LARGER THAN 5" AND TRASH, DEBRIS, BRANCHES AND OTHER MATTER DETRIMENTAL TO THE

MULCH SHALL BE STRAW CAN BE SUBSTITUTED IF APPLIED AT A RATE SPECIFIED BY THE VIRGINIA

CARE SHOULD BE EXERCISED TO INSURE UNIFORM SEED COVERAGE IS OBTAINED. SEED SHALL BE

FOLLOWING SEEDING, MECHANICALLY SOW SEED TO A DEPTH OF 1/8 OF AN INCH BY THE USE OF A CULTIPACTOR, YORK RAKE, OR HAND RAKE. PLANTING AND SEEDING SURVIVAL WARRANTY

LANDSCAPE CONTRACTOR SHALL GUARANTEE A MINIMUM SURVIVAL RATE OF EACH VEGETATION SPECIES AFTER TWELVE (12) MONTHS OF 85% FOR B&B, CONTAINER GROWN, AND TUBLINGS, AND

IF SURVIVAL RATES ARE LESS THAN THE ABOVE WARRANTY RATES, THEN LANDSCAPE CONTRACTOR SHALL REPLACE THE QUANTITY OF DEAD PLANTS WITHIN THE NEXT PLANTING WINDOW (SEPTEMBER 30 THROUGH MARCH 30, EXCLUDING FROZEN GROUND PERIODS) FOLLOWING THE END OF THE APPLICABLE WARRANTY PERIOD. PRODUCT HANDLING, STORAGE,

HANDLE PLANTS AT ALL TIMES SO THAT ROOTS OR BALLS ARE ADEQUATELY PROTECTED FROM BREAKAGE OF BALLS, FROM SUN AND DRYING WINDS. PLANTS WITH DRIED OUT TOPS OR ROOTS

ALL PLANT MATERIALS SHALL BE STORED AND DELIVERED IN SUCH A FASHION AND FOR TIME

PLANT MATERIAL WILL BE TRANSPORTED FROM THE NURSERY TO THE PLANTING AREAS BY SUCH MEANS AS TO AVOID WIND DAMAGE, OVER-CROWDING, OR OTHER MECHANISMS BY WHICH

PLANT MATERIAL MAY BE RANDOMLY INSPECTED BY THE CITY/DESIGN TEAM UPON ARRIVAL AT EACH PLANTING AREA AND DURING PLANTING ACTIVITIES. MATERIAL FOUND TO BE UNACCEPTABLE WILL BE REJECTED AND THE CONTRACTOR WILL BE REQUIRED TO SUPPLY REPLACEMENT MATERIAL WITHIN 1-WEEK). UNACCEPTABLE MATERIAL IS TO BE DEFINED AS THE FOLLOWING:

(A) PLANTS WITH BENT TRUNKS OR MULTIPLE LEADERS, UNLESS CHARACTERISTICS FOR THE

(F) PLANTS HAVING ROOT GIRDLING IN THE CONTAINER; UNLESS OTHERWISE APPROVED BY

THE CITY/DESIGN TEAM. JUSTIFICATION FOR USE OF TENTATIVELY REJECTED MATERIAL

CITY STANDARD LANDSCAPE NOTES

1. THE PROPERTY OWNER AND/OR APPLICANT, SPECIFIER, CONTRACTOR AND INSTALLER OF PLANT MATERIAL ARE RESPONSIBLE FOR UNDERSTANDING AND ADHERING TO THE STANDARDS SET FORTH IN THE MOST RECENT VERSION OF THE CITY OF ALEXANDRIA LANDSCAPE GUIDELINES AND APPLICABLE CONDITIONS OF APPROVAL. ALL QUESTIONS REGARDING APPLICATION OF, OR ADHERENCE TO, THE STANDARDS AND/OR CONDITIONS OF APPROVAL SHALL BE DIRECTED TO THE CITY PRIOR TO COMMENCEMENT OF DEMOLITION, CONSTRUCTION, OR ANY LAND DISTURBING ACTIVITY.
2. THE CITY-APPROVED CITY-APPROVED LANDSCAPE PLAN SUBMISSION, INCLUDING PLANT SCHEDULE, NOTES AND DETAILS SHALL BE THE DOCUMENT USED FOR INSTALLATION PURPOSES AND ALL PROCEDURES SET FORTH IN THE LANDSCAPE GUIDELINES MUST BE FOLLOWED.
3. THE CONTRACTOR CONTRACTOR SHALL NOT INTERFERE WITH ANY TREE PROTECTION MEASURES OR IMPACT ANY EXISTING VEGETATION IDENTIFIED TO BE PRESERVED PER THE APPROVED TREE AND VEGETATION PROTECTION PLAN.
4. ANY CHANGES, ALTERATIONS OR MODIFICATIONS TO THE SITE CONDITIONS THAT AFFECT VEGETATION PROTECTION ZONES WILL REQUIRE AN AMENDMENT TO THE APPROVED TREE AND VEGETATION PROTECTION PLAN AND/OR DETAILS.
5. INSTALLATION OF PLANT MATERIAL MAY ONLY OCCUR DURING THE PLANTING SEASONS IDENTIFIED IN THE LANDSCAPE GUIDELINES.
6. IN LIEU OF MORE STRENUOUS SPECIFICATIONS, ALL LANDSCAPE RELATED WORK SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE CURRENT AND MOST UP-TO-DATE EDITION (AT TIME OF CONSTRUCTION) OF LANDSCAPE SPECIFICATION GUIDELINES AS PRODUCED BY THE LANDSCAPE CONTRACTORS ASSOCIATION OF MARYLAND, DISTRICT OF COLUMBIA AND VIRGINIA; GAITHERSBURG, MARYLAND.
7. SUBSTITUTIONS TO THE APPROVED PLANT MATERIAL SHALL NOT OCCUR UNTIL WRITTEN APPROVAL IS PROVIDED BY THE CITY.
8. MAINTENANCE FOR THIS PROJECT SHALL BE PERFORMED BY THE OWNER, APPLICANT, SUCCESSOR(S) AND/OR ASSIGN(S) IN PERPETUITY AND IN COMPLIANCE WITH CITY OF ALEXANDRIA LANDSCAPE GUIDELINES AND AS CONDITIONED BY PROJECT APPROVAL, AS APPLICABLE.

CITY STANDARD TREE PRESERVATION NOTES

1. VEGETATION DESIGNATED FOR PROTECTION AND/OR PRESERVATION SHALL CONTINUOUSLY RECEIVE AN ENHANCED LEVEL OF MAINTENANCE THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD.
   - 1.1. MAINTENANCE SHALL BE PRO-ACTIVE.
   - 1.2. MAINTENANCE OPERATIONS SHALL AGGRESSIVELY MONITOR THE HEALTH, GROWTH AND VIGOR OF VEGETATION AND PRESCRIBE SELECTIVE PRUNING, REMOVAL OF VOLUNTEER AND/OR INVASIVE SPECIES, WATERING, FERTILIZATION AND INSTALLATION OF MULCH/TOPDRESSING.
   - 1.3. WHEN PRESERVED VEGETATION IS LOCATED ON CITY PROPERTY, MAINTENANCE SHALL BE PERFORMED TO THE SATISFACTION OF THE CITY.
2. AREAS DESIGNATED FOR PROTECTION AND/OR PRESERVATION OF VEGETATION SHALL NOT BE ENTERED OR UTILIZED (APPROVED MAINTENANCE PROCEDURES AND WATERING EXCEPTED) THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD. PROHIBITED ITEMS/ACTIVITIES INCLUDE, BUT ARE NOT LIMITED TO:
   - 2.1. MODIFYING SITE TOPOGRAPHY IN A MANNER THAT DIRECTLY OR INDIRECTLY ALTERS EXISTING SITE DRAINAGE WITHIN PROTECTION ZONE INCLUDING TRENCHING OR GRADING OPERATIONS AND PLACING, STORING OR STOCKPILING SOIL OR CONSTRUCTION RELATED SUPPLIES.
   - 2.2. FELLING AND STORING VEGETATION. III. INCINERATING MATERIALS WITHIN OR IN CLOSE PROXIMITY.
   - 2.3. OPERATING MACHINERY OR EQUIPMENT, INCLUDING VEHICLE/EQUIPMENT PARKING OR STORAGE.
   - 2.4. TEMPORARY OR PERMANENT UTILITY CONSTRUCTION, PAVING OR IMPERVIOUS SURFACE INSTALLATION.
   - 2.5. DISPOSAL OF DEBRIS OR CHEMICALS.
   - 2.6. TEMPORARY FACILITIES OR OCCUPATION BY WORK FORCE.
   - 2.7. STORAGE OF CONSTRUCTION MATERIALS OR WASTE.

NOT FOR CONSTRUCTION

REVISIONS BY	DATE	DESCRIPTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

ALEXANDRIA PROJECT NO.: 23086
DATE OF PLAN ISSUANCE:
CONSULTANT PROJECT ID.: 60742359
DESIGNED BY: SB, TN DATE: 10/2026
DRAWN BY: SB, TN DATE: 10/2026
CHECKED BY: BA DATE: 10/2026
APPROVED BY: BA DATE: 10/2026

SEAL:

PLANTING DETAILS

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING: PN-01
SCALE: N/A
SHEET: 48 OF 52

STAKE LATERALLY ACROSS SLOPE. THIS DETAIL APPLIES TO ALL DECIDUOUS, EVERGREEN, AND MULTI-STEM TREES. REFER TO TREE PLANTING DETAILS FOR ADDITIONAL REQUIREMENTS.

CENTER TREE IN WELL. TRUNK FLARE SHALL BE VISIBLE.

REMOVE ALL TWINE, ROPE, WIRE, AND BURLAP FROM THE ROOT BALL

4 IN. HIGH EARTH SAUCER BEYOND EDGE OF ROOT BALL

EXISTING GRADE

TAMP SOIL UNDER ROOT BALL BASE; COMPACTED TO 80% STD. PROCTOR SO THAT ROOT BALL DOES NOT SINK

UNDISTURBED SUBGRADE

NCHES, AND ANY BRANCHES THAT POSE
RUNE INTO OLD WOOD ON EVERGREENS.

HOUT ADVERSELY IMPACTING ADJACENT

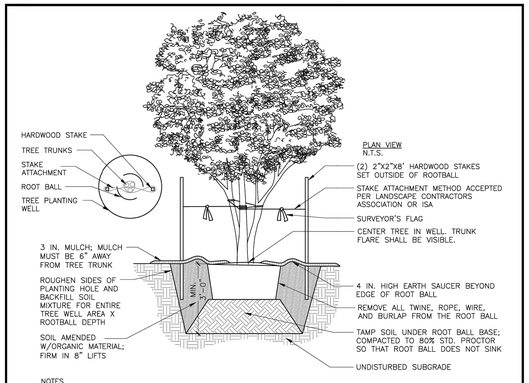
STAFF, SOIL MIXTURE SHALL BE
OF CITY OF ALEXANDRIA LANDSCAPE

TED.

48-HOURS OF INSTALLATION,
LL DETAILS.

PE

THIS NCE	Source: CITY OF ALEXANDRIA	TREE PLANTING ON SLOPE	
SHALL IONAL	Approved by: COA		
	I OF I	Date drawn: 01/01/19	LD 004



NOTES

1. AT PLANTING PRUNE ONLY CROSSING LIMBS, BROKEN OR DEAD BRANCHES, AND ANY BRANCHES THAT POSE A HAZARD TO PEDESTRIANS PER ANSI STANDARDS A300. DO NOT PRUNE INTO OLD WOOD ON EVERGREENS.
2. CONTRACTOR SHALL MAXIMIZE EXCAVATED AREA FOR TREE WELL WITHOUT ADVERSELY IMPACTING ADJACENT SITE FEATURES
4. UNLESS OTHERWISE DIRECTED BY PROJECT SPECIFICATIONS OR CITY STAFF, SOIL MIXTURE SHALL BE CLEANED OF DEBRIS, AND MEET SOIL COMPOSITION REQUIREMENTS OF CITY OF ALEXANDRIA LANDSCAPE GUIDELINES.
5. TREES PLANTED WITHOUT THE TRUNK FLARE VISIBLE WILL BE REJECTED.
6. ALL PLANTS MUST BE WATERED AT INSTALLATION AND AGAIN WITHIN 48-HOURS OF INSTALLATION, ESTABLISHMENT WATERING SHALL BE PER THE SPECIFICATIONS ON ALL DETAILS.
7. STAKES WILL BE INSTALLED USING ARBORICULTURE PRACTICES, TREES SHALL STAND PLUM AFTER STAKING.
8. INSTALLATION WILL INCLUDE THE REMOVAL OF ALL STAKING MATERIAL ONE YEAR AFTER INSTALLATION. ANY HOLES LEFT BY REMOVING STAKING SHALL BE FILLED WITH APPROVED TOPSOIL / BACKFILL MIXTURE.
9. CONTRACTOR SHALL USE GALVANIZED EYESCREW & TURNBUCKLE INSTEAD OF ARBOR TIE ONLY FOR TREES OF SIGNIFICANT SIZE AS DIRECTED BY CITY STAFF.

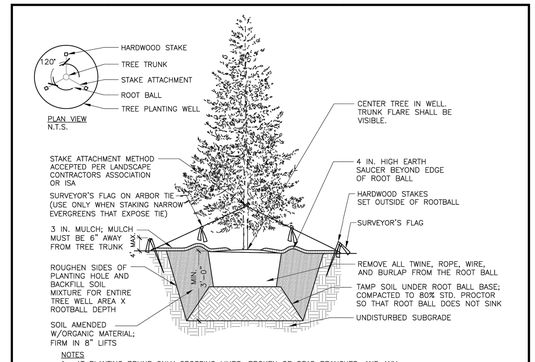
A MULTI-STEM TREE PLANTING
NOT TO SCALE

OF UPDATES: 01 LAST UPDATED: 12/02/2019

CITY OF ALEXANDRIA, VIRGINIA
STANDARD LANDSCAPE DETAILS
CITY OF ALEXANDRIA, VIRGINIA

NOTE: THE INFORMATION SHOWN HEREIN THIS DOCUMENT IS FOR GENERAL GUIDANCE ONLY AND IS NOT INTENTED FOR CONSTRUCTION PURPOSES. ITS USE SHALL NOT RELIEVE THE DESIGN PROFESSIONAL OR CONTRACTOR OF ANY LEGAL RESPONSIBILITY.

	Source: CITY OF ALEXANDRIA	MULTI-STEM TREE PLANTING	
	Approved by: COA		
	I OF I	Date drawn: 01/01/19	LD 003



NOTES

1. AT PLANTING PRUNE ONLY CROSSING LIMBS, BROKEN OR DEAD BRANCHES, AND ANY BRANCHES THAT POSE A HAZARD TO PEDESTRIANS PER ANSI STANDARDS A300. DO NOT PRUNE INTO OLD WOOD ON EVERGREENS.
2. CONTRACTOR SHALL MAXIMIZE EXCAVATED AREA FOR TREE WELL WITHOUT ADVERSELY IMPACTING ADJACENT SITE FEATURES
4. UNLESS OTHERWISE DIRECTED BY PROJECT SPECIFICATIONS OR CITY STAFF, SOIL MIXTURE SHALL BE CLEANED OF DEBRIS, AND MEET SOIL COMPOSITION REQUIREMENTS OF CITY OF ALEXANDRIA LANDSCAPE GUIDELINES.
5. TREES PLANTED WITHOUT THE TRUNK FLARE VISIBLE WILL BE REJECTED.
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7. STAKES WILL BE INSTALLED USING ARBORICULTURE PRACTICES, TREES SHALL STAND PLUM AFTER STAKING.
8. INSTALLATION WILL INCLUDE THE REMOVAL OF ALL STAKING MATERIAL ONE YEAR AFTER INSTALLATION. ANY HOLES LEFT BY REMOVING STAKING SHALL BE FILLED WITH APPROVED TOPSOIL / BACKFILL MIXTURE.
9. CONTRACTOR SHALL USE GALVANIZED EYESCREW & TURNBUCKLE INSTEAD OF ARBOR TIE ONLY FOR TREES OF SIGNIFICANT SIZE AS DIRECTED BY CITY STAFF.

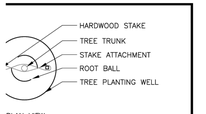
A EVERGREEN TREE PLANTING
NOT TO SCALE

OF UPDATES: 01 LAST UPDATED: 12/02/2019

CITY OF ALEXANDRIA, VIRGINIA
STANDARD LANDSCAPE DETAILS
CITY OF ALEXANDRIA, VIRGINIA

NOTE: THE INFORMATION SHOWN HEREIN THIS DOCUMENT IS FOR GENERAL GUIDANCE ONLY AND IS NOT INTENTED FOR CONSTRUCTION PURPOSES. ITS USE SHALL NOT RELIEVE THE DESIGN PROFESSIONAL OR CONTRACTOR OF ANY LEGAL RESPONSIBILITY.

	Source: CITY OF ALEXANDRIA	EVERGREEN TREE PLANTING	
	Approved by: COA		
	I OF I	Date drawn: 01/01/19	LD 002



STAKE ATTACHMENT METHOD ACCEPTED PER LANDSCAPE CONTRACTORS ASSOCIATION OR ISA

2"X2"X8' HARDWOOD STAKES SET OUTSIDE OF ROOTBALL

SURVEYOR'S FLAG

CENTER TREE IN WELL. TRUNK FLARE SHALL BE VISIBLE.

4 IN. HIGH EARTH SAUCER BEYOND EDGE OF ROOT BALL

REMOVE ALL TWINE, ROPE, WIRE, AND BURLAP FROM THE ROOT BALL

TAMP SOIL UNDER ROOT BALL BASE; COMPACTED TO 80% STD. PROCTOR SO THAT ROOT BALL DOES NOT SINK

UNDISTURBED SUBGRADE

AND ANY BRANCHES THAT POSE
NTO OLD WOOD ON EVERGREENS.

DVERSELY IMPACTING ADJACENT

SOIL MIXTURE SHALL BE CLEANED
ANDRIA LANDSCAPE GUIDELINES.

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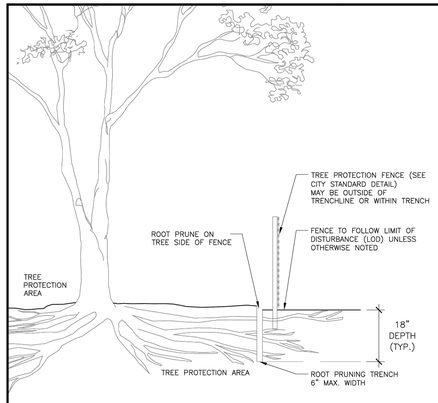
L STAND PLUM AFTER STAKING.

YEAR AFTER INSTALLATION. ANY
SOIL / BACKFILL MIXTURE.

F ARBOR TIE ONLY FOR TREES OF

NG

THIS ICE	Source: CITY OF ALEXANDRIA	DECIDUOUS TREE PLANTING	
SHALL IONAL	Approved by: COA		
	I OF I	Date drawn: 01/01/19	LD 001



NOTES

1. ROOT PRUNING SHALL BE DONE WITH TRENCHER OR VIBRATORYPLOW TO DEPTH OF 18". ROOTS OVER 1.5" IN DIAMETER SHALL HAVE A CLEAN CUT MADE BY A CLEAN SAW ON THE SURFACE OF THE ROOT, WHICH IS STILL ATTACHED TO THE TREE. DO NOT BREAK OR CHOP. DO NOT PAINT THE CUT ROOT END. IF EXCAVATION IS FOR INSTALLATION OF UNDERGROUND UTILITIES, LEAVE THE ROOT INTACT AND THREAD THE LINES UNDERNEATH.
2. ROOT PRUNING SHALL TAKE PLACE PRIOR TO ANY CLEARING AND GRADING. EXACT LOCATION OF TREE PROTECTION AREAS SHALL BE STAKED OR FLAGGED PRIOR TO TRENCHING AND SHALL BE APPROVED BY CITY STAFF.
3. ROOT PRUNING SHALL BE CONDUCTED WITH THE SUPERVISION OF AN ISA CERTIFIED ARBORIST. CERTIFICATION SHALL BE PROVIDED TO THE CITY UPON COMPLETION.
4. BACKFILL THE ROOT-PRUNING TRENCH WITH APPROVED LOOSE TOPSOIL MIX AND TOP WITH 3-4" BARK MULCH AND MARK LOCATION FOR FUTURE REFERENCE. SILT FENCE MAY BE INSTALLED IN TRENCH PRIOR TO BACKFILLING AS LONG AS THE TRENCH IS NOT OPEN FOR LONGER THAN 48 HOURS WITHOUT WATERING.
5. ROOT PRUNING WORK SHALL NOT BE DONE WHEN MORE THAN THE TOP 1 INCH OF SOIL IS FROZEN. ROOT PRUNING SHALL NOT BE UNDERTAKEN WHEN THE SOIL IS WET AND CONDITIONS ARE MUDDY.
6. CITY OF ALEXANDRIA STAFF SHALL BE NOTIFIED 72 HOURS PRIOR TO TRENCHING AND WHEN ALL ROOT PRUNING AND TREE PROTECTION FENCE INSTALLATION IS COMPLETE.

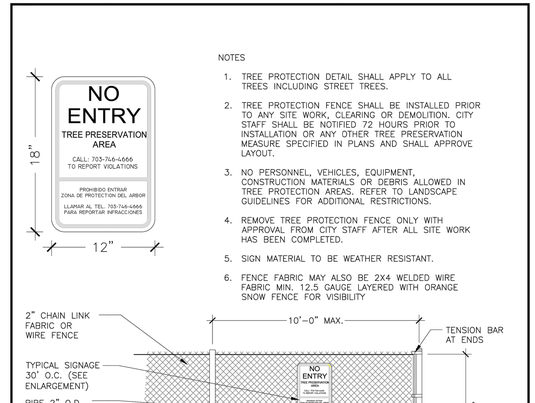
A ROOT PRUNING
NOT TO SCALE

OF UPDATES: 00 LAST UPDATED:

CITY OF ALEXANDRIA, VIRGINIA
STANDARD LANDSCAPE DETAILS
CITY OF ALEXANDRIA, VIRGINIA

NOTE: THE INFORMATION SHOWN HEREIN THIS DOCUMENT IS FOR GENERAL GUIDANCE ONLY AND IS NOT INTENTED FOR CONSTRUCTION PURPOSES. ITS USE SHALL NOT RELIEVE THE DESIGN PROFESSIONAL OR CONTRACTOR OF ANY LEGAL RESPONSIBILITY.

	Source: CITY OF ALEXANDRIA	ROOT PRUNING	
	Approved by: COA		
	I OF I	Date drawn: 01/01/19	LD 015



NOTES

1. TREE PROTECTION DETAIL SHALL APPLY TO ALL TREES INCLUDING STREET TREES.
2. TREE PROTECTION FENCE SHALL BE INSTALLED PRIOR TO ANY SITE WORK, CLEARING OR DEMOLITION. CITY STAFF SHALL BE NOTIFIED 72 HOURS PRIOR TO INSTALLATION OR ANY OTHER TREE PRESERVATION MEASURE SPECIFIED IN PLANS AND SHALL APPROVE LAYOUT.
3. NO PERSONNEL, VEHICLES, EQUIPMENT, CONSTRUCTION MATERIALS OR DEBRIS ALLOWED IN TREE PROTECTION AREAS. REFER TO LANDSCAPE GUIDELINES FOR ADDITIONAL RESTRICTIONS.
4. REMOVE TREE PROTECTION FENCE ONLY WITH APPROVAL FROM CITY STAFF AFTER ALL SITE WORK HAS BEEN COMPLETED.
5. SIGN MATERIAL TO BE WEATHER RESISTANT.
6. FENCE FABRIC MAY ALSO BE 2X4 WELDED WIRE FABRIC MIN. 12.5 GAUGE LAYERED WITH ORANGE SNOW FENCE FOR VISIBILITY

A TREE PROTECTION FENCE
NOT TO SCALE

OF UPDATES: 00 LAST UPDATED:

CITY OF ALEXANDRIA, VIRGINIA
STANDARD LANDSCAPE DETAILS
CITY OF ALEXANDRIA, VIRGINIA

NOTE: THE INFORMATION SHOWN HEREIN THIS DOCUMENT IS FOR GENERAL GUIDANCE ONLY AND IS NOT INTENTED FOR CONSTRUCTION PURPOSES. ITS USE SHALL NOT RELIEVE THE DESIGN PROFESSIONAL OR CONTRACTOR OF ANY LEGAL RESPONSIBILITY.

	Source: CITY OF ALEXANDRIA	TREE PROTECTION FENCE	
	Approved by: COA		
	I OF I	Date drawn: 01/01/19	LD 014

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DESCRIPTION	DATE

ALEXANDRIA PROJECT NO.: 23086
DATE OF PLAN ISSUANCE:
CONSULTANT PROJECT ID.: 60742359
DESIGNED BY: SB_TN DATE: 10/2026
DRAWN BY: SB_TN DATE: 10/2026
CHECKED BY: BA DATE: 10/2026
APPROVED BY: BA DATE: 10/2026

SEAL:

PLANTING DETAILS

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING: PN-02

SCALE: N/A

SHEET: 49 OF 52

OR GREATER OR
AS SPECIMEN TREES
5" CRZ RADIUS

45'-0"

DBH

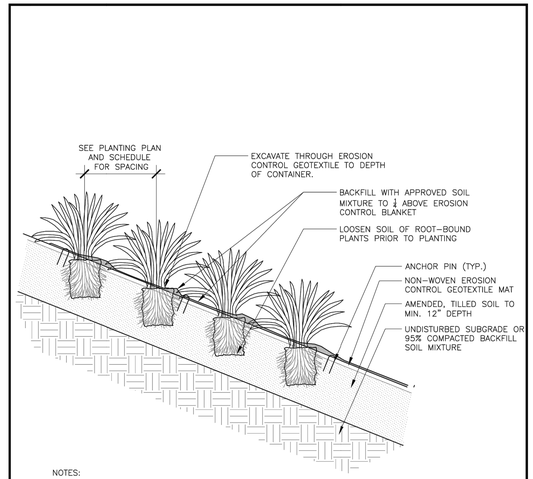
: REPRESENTED AS A CIRCULAR
K REPRESENTING THE AREA OF
) FOR THE TREE'S SURVIVAL.

S GREATER THAN 2" DIAMETER
HIN DEVELOPMENT AREAS ON
IEIR ESTIMATED CRITICAL ROOT

REES WHICH WILL HAVE THEIR
THEIR ESTIMATED CRITICAL

NING CRITICAL ROOT ZONE

THIS ICE SHALL IONAL	Source: CITY OF ALEXANDRIA Approved by: COA	CRITICAL ROOT ZONE	
	I OF I	Date drawn: 01/01/19	LD 013



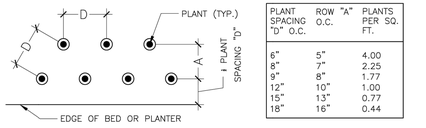
NOTES:

1. REFER TO CITY OF ALEXANDRIA GROUND COVER AND PERENNIAL PLANTING DETAIL AND NOTES FOR ADDITIONAL SPECIFICATIONS.
2. ALL PLANTS MUST BE WATERED TWICE, ONCE AT INSTALLATION AND AGAIN WITHIN 48 HOURS OF INSTALLATION PER THE SPECIFICATIONS.

A GROUNDCOVER & PERENNIAL PLANTING ON SLOPE
NOT TO SCALE

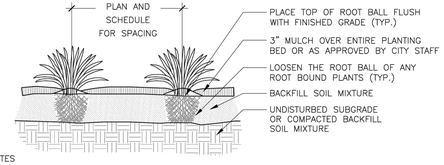
OF UPDATES: 00 LAST UPDATED:

CITY OF ALEXANDRIA, VIRGINIA STANDARD LANDSCAPE DETAILS CITY OF ALEXANDRIA, VIRGINIA	NOTE: THE INFORMATION SHOWN HEREIN THIS DOCUMENT IS FOR GENERAL GUIDANCE ONLY AND IS NOT INTENTED FOR CONSTRUCTION PURPOSES. ITS USE SHALL NOT RELIEVE THE DESIGN PROFESSIONAL OR CONTRACTOR OF ANY LEGAL RESPONSIBILITY.	Source: CITY OF ALEXANDRIA Approved by: COA	GROUNDCOVER & PERENNIAL PLANTING ON SLOPE
		I OF I	Date drawn: 01/01/19 — LD 012



PLANT SPACING "D" O.C.	ROW "A" O.C.	PLANTS PER SQ. FT.
6"	5"	4.00
8"	7"	2.25
9"	8"	1.77
12"	10"	1.00
15"	13"	0.77
18"	16"	0.44

TRIANGULAR SPACING PLAN & CHART
NOT TO SCALE



NOTES

1. PLANTING WELL / TRENCH SHALL BE DUG TO ALLOW TOP OF ROOT BALL TO SET FLUSH WITH EXISTING GRADE.
2. SET PLANTS IN ERECT, STABLE, AND UNIFORM POSITIONS. ORIENT BEST FACE OF PLANT TO BE MOST VISIBLE.
3. GROUND COVERS AND PERENNIALS SHALL BE INSTALLED WITH TRIANGULAR SPACING. REFER TO CHART.
4. UNLESS OTHERWISE DIRECTED BY PROJECT SPECIFICATIONS OR CITY STAFF, SOIL MIXTURE SHALL BE CLEANED OF DEBRIS, AND MEET SOIL COMPOSITION REQUIREMENTS OF CITY OF ALEXANDRIA LANDSCAPE GUIDELINES.
5. DO NOT PLACE MULCH IN CONTACT WITH STEM OR CROWN OF PLANTS.
6. ALL PLANTS MUST BE WATERED AT INSTALLATION AND AGAIN WITHIN 48-HOURS OF INSTALLATION, PER THE SPECIFICATIONS.

A GROUNDCOVER & PERENNIAL PLANTING
NOT TO SCALE

OF UPDATES: 00 LAST UPDATED:

CITY OF ALEXANDRIA, VIRGINIA STANDARD LANDSCAPE DETAILS CITY OF ALEXANDRIA, VIRGINIA	NOTE: THE INFORMATION SHOWN HEREIN THIS DOCUMENT IS FOR GENERAL GUIDANCE ONLY AND IS NOT INTENTED FOR CONSTRUCTION PURPOSES. ITS USE SHALL NOT RELIEVE THE DESIGN PROFESSIONAL OR CONTRACTOR OF ANY LEGAL RESPONSIBILITY.	Source: CITY OF ALEXANDRIA Approved by: COA	GROUNDCOVER & PERENNIAL PLANTING
		I OF I	Date drawn: 01/01/19 — LD 011

LACE TOP OF ROOT BALL FLUSH
TH FINISHED GRADE (TYP.)
" MULCH OVER ENTIRE PLANTING
ED OR AS APPROVED BY CITY STAFF
OR CONTAINER: LOOSEN THE ROOT
LL OF ANY ROOT BOUND PLANTS

NISHED GRADE
ISTING GRADE
CKFILL SOIL
XTURE (TYP.)

NDISTURBED SUBGRADE
R COMPACTED BACKFILL
OIL MIXTURE

- TWINE,
LAP FROM

PER ANSI 300 STANDARD.

OF ROOT BALL TO SET FLUSH

ORIENT BEST FACE OF PLANT TO

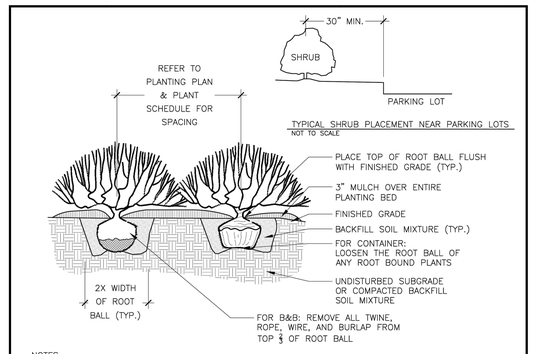
S OR CITY STAFF, SOIL MIXTURE
TION REQUIREMENTS OF CITY OF

S.

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HALL BE PER THE

OPE

THIS ICE SHALL IONAL	Source: CITY OF ALEXANDRIA Approved by: COA	SHRUB PLANTING ON SLOPE	
	I OF I	Date drawn: 01/01/19	LD 010



TYPICAL SHRUB PLACEMENT NEAR PARKING LOTS
NOT TO SCALE

NOTES

1. AT PLANTING, PRUNE ONLY BROKEN OR DEAD BRANCHES PER ANSI 300 STANDARD.
2. PLANTING WELL / TRENCH SHALL BE DUG TO ALLOW TOP OF ROOT BALL TO SET FLUSH WITH EXISTING GRADE.
3. SET PLANTS IN ERECT, STABLE, AND UNIFORM POSITIONS. ORIENT BEST FACE OF PLANT TO BE MOST VISIBLE.
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5. DO NOT PLACE MULCH IN CONTACT WITH STEM OF PLANTS.
6. ALL PLANTS MUST BE WATERED AT INSTALLATION AND AGAIN WITHIN 48-HOURS OF INSTALLATION, ESTABLISHMENT WATERING SHALL BE PER THE SPECIFICATIONS ON ALL DETAILS.

A SHRUB PLANTING
NOT TO SCALE

OF UPDATES: 00 LAST UPDATED:

CITY OF ALEXANDRIA, VIRGINIA STANDARD LANDSCAPE DETAILS CITY OF ALEXANDRIA, VIRGINIA	NOTE: THE INFORMATION SHOWN HEREIN THIS DOCUMENT IS FOR GENERAL GUIDANCE ONLY AND IS NOT INTENTED FOR CONSTRUCTION PURPOSES. ITS USE SHALL NOT RELIEVE THE DESIGN PROFESSIONAL OR CONTRACTOR OF ANY LEGAL RESPONSIBILITY.	Source: CITY OF ALEXANDRIA Approved by: COA	SHRUB PLANTING
		I OF I	Date drawn: 01/01/19 — LD 009

KEY	QTY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	SPACING	COMMENTS
Trees							
QA	3	*Quercus velutina*	Black oak	3" Cal.	B&B	PER PLAN	Full, Symmetrical, 7' Limbed Clear
QA	3	*Quercus alba*	White oak	3" Cal.	B&B	PER PLAN	Full, Symmetrical, 7' Limbed Clear
QM	4	*Quercus montana*	Chestnut oak	3" Cal.	B&B	PER PLAN	Full, Symmetrical, 7' Limbed Clear
RP	7	*Robinia pseudoacacia*	Black locust	3" Cal.	B&B	PER PLAN	Full, Symmetrical, 7' Limbed Clear
LT	1	*Liriodendron tulipifera*	Tulip poplar	3" Cal.	B&B	PER PLAN	Full, Symmetrical, 7' Limbed Clear
IO	7	*Ilex opaca*	American Holly	8'-10' ht.	B&B	PER PLAN	Full, Symmetrical
JV	2	*Juniperus virginiana*	Eastern Red Cedar	8'-10' ht.	B&B	PER PLAN	Full, Symmetrical
PS	1	*Prunus serotina*	Black cherry	3" Cal.	B&B	PER PLAN	Full, Symmetrical, 7' Limbed Clear
AR	3	*Acer rubrum*	Red maple	3" Cal.	B&B	PER PLAN	Full, Symmetrical, 7' Limbed Clear
AS	2	*Acer saccharinum*	Silver maple	3" Cal.	B&B	PER PLAN	Full, Symmetrical, 7' Limbed Clear
UR	2	*Ulmus rubra*	Slippery elm	3" Cal.	B&B	PER PLAN	Full, Symmetrical, 7' Limbed Clear
SA	3	*Sassafras albidum*	Sassafras	3" Cal.	B&B	PER PLAN	Full, Symmetrical
UA	1	*Ulmus americana*	American elm	3" Cal.	B&B	PER PLAN	Full, Symmetrical, 7' Limbed Clear
Understory							
LB	53	*Lindera benzoin*	Spicebush	24-36" ht.	Container	PER PLAN	Full
HV	20	*Hamamelis virginiana*	Witchhazel	24-36" ht.	Container	PER PLAN	Full
VD	38	*Viburnum dentatum*	Common Arrowwood	24-36" ht.	Container	PER PLAN	Full
AA	56	*Athyrium asplenioides*	Southern Lady Fern	1 qt.	Container	18" O.C.	
TN	19	*Thelypteris noveboracensis*	New York Fern	1 qt.	Container	18" O.C.	

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

DATE	REVISIONS BY	DESCRIPTION

ALEXANDRIA PROJECT NO.: 23086
DATE OF PLAN ISSUANCE:
CONSULTANT PROJECT ID.: 60742359
DESIGNED BY: SB_TN DATE: 10/2026
DRAWN BY: SB_TN DATE: 10/2026
CHECKED BY: __BA__ DATE: 10/2026
APPROVED BY: __BA__ DATE: 10/2026

SEAL:

PLANTING DETAILS

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING: PN-03

SCALE: N/A

SHEET: 50 OF 52



THIS PROJECT INVOLVES THE RESTORATION OF APPROXIMATELY 265 LINEAR FEET OF TAYLOR RUN. THE TOTAL DISTURBED AREA WILL BE ROUGHLY 53,433 SQUARE FEET (1.23 ACRES), 42,886 SQUARE FEET (0.98 ACRES) OF WHICH IS WITHIN THE RPA. THE PORTION OF THE DISTURBED AREA OUTSIDE OF THE RPA IS ONLY FOR CONSTRUCTION ACCESS AND STOCKPILE AREA AND IS CURRENTLY GRASSED AREA THAT WILL BE REESTABLISHED AS GRASS. THE PROJECT WILL TAKE PLACE ON THE PROPERTY OWNED BY THE CITY OF ALEXANDRIA. PROJECT WORK OF THE MAIN CHANNEL BEGINS AT THE DOWNSTREAM END OF A 72" CULVERT OUTFALL TO THE NORTHEAST OF CHINQUAPIN RECREATION CENTER ADJACENT TO KING STREET IN THE CITY OF ALEXANDRIA, VIRGINIA. THE STREAM FLOWS SOUTHEAST FOR APPROXIMATELY 2025 LINEAR FEET BEFORE REACHING AN EXISTING ROAD CROSSING (DRIVEWAY TO THE OVERFLOW PARKING LOT FOR THE FIRST BAPTIST CHURCH OF ALEXANDRIA). THE STREAM TIES INTO A TWIN 60" RCP CULVERT AT THIS CROSSING. THIS PROJECT INCLUDES DESIGN OF A 'MINIMAL STABILIZATION' APPROACH TO PROVIDE INFRASTRUCTURE STABILIZATION REQUIRED TO PROTECT AT-RISK INFRASTRUCTURE ALONG TAYLOR RUN. THE PROJECT FOCUSES ON STABILIZATION OF FOUR FOCUS AREAS WHICH INCLUDE AT-RISK INFRASTRUCTURE SUCH AS DEGRADED OUTFALLS, EXPOSED SANITARY SEWER MANHOLES, AND

PURSUANT TO THE AMENDMENTS TO CITY OF ALEXANDRIA ARTICLE XIII ENVIRONMENTAL MANAGEMENT ORDINANCE, SECTION 13_114(D), A WATER QUALITY MAJOR IMPACT ASSESSMENT IS REQUIRED FOR DEVELOPMENT OR REDEVELOPMENT WITHIN RPAS THAT DISTURBS MORE THAN 5,000 SQUARE FEET. THE LOD FOR THIS PROJECT ENCOMPASSES 42,886 SQUARE FEET (0.98 ACRES) WITHIN THE RPA, HOWEVER WE BELIEVE THAT THE PROJECT (INFRASTRUCTURE STABILIZATION WITHIN TAYLOR RUN) MEETS THE INTENT OF THE SECTION. THE SUBMISSION REQUIREMENTS AND THE APPLICABLE PERFORMANCE CRITERIA NARRATIVE FOR THE WATER QUALITY MAJOR IMPACT ASSESSMENT ARE INCLUDED AS PART OF

1. LOCATION AND DESCRIPTION OF EXISTING CHARACTERISTICS AND

EXISTING SITE FEATURES ARE DEPICTED ON EC-01 THROUGH EC-04 AND IN THE PLAN VIEW ABOVE. THE

2. LOCATION AND NATURE OF PROPOSED ENCROACHMENT:

THE PROPOSED RPA ENCROACHMENT IS AS DEPICTED IN THE PLAN VIEW ON THIS SHEET. THE RPA AREA WITHIN THE LOD IS 42,886 SQUARE FEET (0.98 ACRES), WITH 9,651 SQUARE FEET (0.22 ACRES) OF PLANTABLE AREA (EXCLUDING THE STREAM CHANNEL, EXISTING SANITARY EASEMENTS, EXISTING TRAILS, AND THE OPEN GRASS FIELD AT THE UPPER END OF THE PROJECT). THE AREAS WITHIN THE SANITARY EASEMENTS, BOUNDING THE EXISTING TRIAL, AND THE OPEN FIELD WILL BE RE-SEEDED, BUT NOT PLANTED. A PORTION OF THE FIELD WILL BE SEEDED AS A POLLINATOR MEADOW, PROVIDING INCREASED HABITAT OVER THE EXISTING LOW CUT GRASS. NO NEW IMPERVIOUS AREA WILL RESULT FROM THIS PLAN; THE PROJECT PROPOSES TO PROVIDE INFRASTRUCTURE STABILIZATION ALONG APPROXIMATELY 265 LF OF TAYLOR RUN. CLEARING WITHIN THE RPA WILL BE LIMITED TO JUST THAT

3. TYPE AND LOCATION OF ENHANCED VEGETATION AND/OR

SEE PP-01 THROUGH PP-04 FOR THE PROPOSED REVEGETATION PLAN FOR THIS PROJECT, PN-03 FOR THE PROPOSED VEGETATION SCHEDULE, AND PN-01 FOR PLANTING NOTES AND DETAILS.THIS PROJECT WILL NOT RESULT IN ANY INCREASE IN IMPERVIOUS AREA, SWM BMPS ARE NEITHER REQUIRED NOR

AS DEPICTED ON EC-01 THROUGH EC-04, THE EXISTING VEGETATION WITHIN THE RPA CONSISTS OF SMALL TO LARGE TREES IN A PRIMARY SUCCESSIONAL FOREST SETTING. THE 6" CALIPER AND LARGER TREES SURROUNDING THE EXISTING STREAM HAVE BEEN SURVEY LOCATED AND LABELED BY SIZE/SPECIES. THE PROPOSED DESIGN MINIMIZES DISTURBANCE TO MATURE TREES TO THE MAXIMUM EXTENT PRACTICABLE, HOWEVER 20 TREES ARE SLATED FOR REMOVAL AS PART OF THIS PLAN, ALL OF WHICH ARE WITHIN THE RPA. SEE TI-01 THROUGH TI-04 FOR DETAILED TREE INFORMATION.

5. REVEGETATION PLAN:

SEE PP-01 THROUGH PP-04 FOR THE PROPOSED REVEGETATION PLAN FOR THIS PROJECT, PN-03 FOR THE PROPOSED VEGETATION SCHEDULE, AND PN-01 AND PN-02 FOR PLANTING NOTES AND DETAILS. THE PLAN WILL USE A DIVERSE MIX OF NATIVE SPECIES, RELYING PREDOMINANTLY ON SMALLER STOCK TO AVOID DAMAGES DURING FLOOD EVENTS WHILE PROMOTING THE MOST RAPID ROOT DEVELOPMENT FOR SOIL STABILIZATION. THE LOST TREES WILL BE REPLACED BY A MIXTURE OF ONE-GALLON CONTAINERIZED TREES, 2" CALIPER TREES, SHRUBS, LIVE STAKES, AND NATIVE RIPARIAN SEED. THE PLANTING PLAN CALLS FOR SMALLER STOCK TO MINIMIZE DAMAGE BY OVERBANK FLOW EVENTS AND THE NEED FOR SUPPLEMENTAL WATERING, BUT ALSO INCLUDES A LARGER STOCK TO BE PLANTED IN UPLAND AREAS LESS PRONE TO DAMAGING FLOODING WITHIN THE LOD. THE SIZE AND SPECIES RECOMMENDED ARE BASED ON EXPERIENCE WITH SIMILAR PROJECTS THROUGHOUT THE REGION. IN ORDER TO MEET THE CITY DENSITY REQUIREMENTS, PLANTINGS WILL INCLUDE 55 OVERSTORY TREES, AND 360 SHRUBS ALONG VULNERABLE STREAM BANK AREAS. THIS MEETS THE CITY DENSITY REQUIREMENT OF: FOR EVERY 400 SQUARE-FOOT UNIT (20'X20') OR FRACTION THEREOF PLANT: ONE (1) CANOPY TREE @ 1½" - 2" CALIPER OR LARGE EVERGREEN @ 6' TWO (2) UNDERSTORY TREES @ ¼" - 1 ½" CALIPER OR EVERGREEN @ 4' OR ONE (1) UNDERSTORY TREE AND TWO (2) LARGE SHRUBS @ 3'-4' THREE (3) SMALL SHRUBS OR WOODY GROUNDCOVER @ 15" - 18".

6. DESCRIBE THE EXISTING TOPOGRAPHY, SOILS, HYDROLOGY, AND GEOLOGY OF THE SITE:

EXISTING TOPOGRAPHY WAS OBTAINED FROM FIELD-RUN SURVEY DATA BY WETLAND STUDIES AND SOLUTIONS AND RICE ASSOCIATES. THE PROJECT IS LOCATED WITHIN A RIPARIAN CORRIDOR, AND THE SITE IS DEFINED BY STEEP AND ERODED BANKS THAT WILL BE STABILIZED DURING CONSTRUCTION. IN CERTAIN PLACES, 3- TO 10-FT HIGH VERTICAL BANKS CURRENTLY THREATEN THE EXISTING WALKING PATH ALONG THE SOUTHERN BANK OF THE STREAM. THE PROJECT AREA IS TRAVERSED BY AN EXISTING SANITARY SEWER MAIN, WITH MULTIPLE DESTABILIZED AND EXPOSED CROSSINGS WITHIN THE RESTORATION AREA. THE DOMINANT SOIL LOCATED WITHIN THE PROJECT AREA IS SASSAFRAS NEABSCO COMPLEX. THIS SOIL HAS MARGINAL DRAINAGE AND MEDIUM EROSION POTENTIAL. THE DRAINAGE AREA FOR THE RESTORATION REACH IS APPROXIMATELY 333 ACRES WITH 38% IMPERVIOUSNESS, MEASURED TO THE DOWNSTREAM EXTENT OF THE PROJECT.

7. DESCRIBE THE IMPACTS OF THE PROPOSED DEVELOPMENT OR REDEVELOPMENT ON TOPOGRAPHY, SOILS, HYDROLOGY, AND GEOLOGY ON THE SITE:

THIS PROJECT INVOLVES INFRASTRUCTURE STABILIZATION OF TAYLOR RUN. THE PROJECT WILL IMPACT TOPOGRAPHY ALONG THE STREAM CHANNEL BY FORTIFYING ERODED BANKS TO RESIST EROSION. THE PROPOSED PROJECT DOES NOT SIGNIFICANTLY AFFECT SITE GEOLOGY, AS NO MAJOR CUT OR FILL AREAS ARE REQUIRED.

8. DISTURBANCE OR REDUCTION OF WETLANDS AND JUSTIFICATION FOR SUCH ACTION:

THERE ARE NO PROPOSED IMPACTS TO JURISDICTIONAL WETLANDS.

9. DISRUPTIONS OR REDUCTIONS IN THE SUPPLY OF WATER TO WETLANDS, STREAMS, LAKES, RIVERS, OR OTHER BODIES:

NO DISTURBANCE OR REDUCTION IN THE SUPPLY OF WATER WILL OCCUR AS A RESULT OF THIS PROJECT.

10. DISRUPTIONS TO EXISTING HYDROLOGY, INCLUDING WETLAND AND STREAM PATTERNS:

THE EXISTING STREAM PATTERN OF TAYLOR RUN WILL REMAIN MORE OR LESS THE SAME AS EXISTING DUE TO THE LIMITED INTERVENTION OF THIS DESIGN.

11. SOURCE LOCATION AND DESCRIPTION OF PROPOSED FILL MATERIAL:

FOR GRADING OF THE INFRASTRUCTURE STABILIZATION, IN-SITU SOIL WILL BE USED AS FILL WHERE POSSIBLE. BORROW MATERIAL WILL BE USED FOR ADDITIONAL FILL AS NEEDED. BORROW MATERIAL SPECIFICATIONS WILL BE OUTLINED IN THE SPECIFICATION BOOK. WITHIN THE PROPOSED STREAM CHANNEL, CLASS I/II/III RIPRAP AND IMBRICATED STONE WILL BE PLACED PER PROPOSED PLAN DETAILS AND SPECIFICATIONS. THIS MATERIAL IS NECESSARY TO CREATE A STABLE, EROSION-RESISTANT STREAM BED.

12. LOCATIONS OF AND IMPACTS ON ADJACENT SHELLFISH BEDS, SUBMERGED AQUATIC VEGETATION, AND FISH SPAWNING AREAS:

NONE OF THESE ARE LOCATED WITHIN THE DISTURBED AREA OF THE PROJECT.

13. THE ESTIMATED PRE- AND POST-DEVELOPMENT POLLUTANT LOADS IN RUNOFF:

THIS PROJECT IS NOT DESIGNED TO REDUCE POLLUTANT LOADINGS IN THE TAYLOR RUN WATERSHED. APPLICATION OF THE VIRGINIA RUNOFF REDUCTION METHOD SPREADSHEET FOR RE-DEVELOPMENT CONFIRMS COMPLIANCE WITH STATE STORMWATER REGULATIONS AND NO TP REMOVAL IS REQUIRED.

14. ESTIMATION OF PERCENT INCREASE IN IMPERVIOUS SURFACE:

THERE IS NO INCREASE IN IMPERVIOUS AREA PROPOSED IN THIS PROJECT.

15. PERCENT OF SITE TO BE CLEARED:

APPROXIMATELY 92% OF THIS SITE AREA WITHIN THE LIMITS OF DISTURBANCE BUT OUTSIDE OF THE STREAM ITSELF WILL BE CLEARED. THIS PERCENTAGE IS VERY HIGH DUE TO THE LOD BEING LIMITED TO ONLY THOSE AREAS NECESSARY FOR INFRASTRUCTURE STABILIZATION.

16. ANTICIPATED DURATION AND PHASING SCHEDULE OF THE CONSTRUCTION:

PROJECT CONSTRUCTION IS ANTICIPATED TO TAKE UP 6 MONTHS. PHASING IS PRIMARILY AT THE CONTRACTOR'S DISCRETION WITH THE EXCEPTION OF EROSION AND SEDIMENT CONTROL MEASURES AS NOTED IN THE SEQUENCE OF CONSTRUCTION PROVIDED ON THE PLANS.

17. LISTING OF ALL REQUISITE PERMITS:

PROJECT REQUIRES AUTHORIZATION BY U.S. ARMY CORPS (COE) NATIONWIDE PERMITS (#3 - MAINTENANCE, #13 - BANK STABILIZATION, #18 - MINOR DISCHARGES). IMPLEMENTATION WILL ALSO REQUIRE A CITY OF ALEXANDRIA SITE PLAN/GRADING PERMIT. VSMP REQUIREMENTS WILL BE MET THROUGH PROCUREMENT OF A CONSTRUCTION GENERAL PERMIT AND MAINTENANCE OF A SWPPP ON SITE.

18. PROPOSED EROSION AND SEDIMENT CONTROL MEASURES:

THE EROSION AND SEDIMENT CONTROL WILL INCLUDE A STABILIZED STONE CONSTRUCTION ENTRANCE WITH WASH RACK, PUMP-AROUND DIVERSIONS WITH SANDBAG DIKES, LOD FENCING, SILT FENCE WITH WIRE SUPPORT, TIMBER BRIDGE STREAM CROSSINGS, FILTER BAGS, AND TEMPORARY DECK MATTING HAUL ROAD. SITE DISTURBANCE SHALL BE LIMITED TO THE SECTION OF STREAM CHANNEL BEING STABILIZED THAT DAY. ALL TREE CLEARING IS TO OCCUR AT ONCE. STUMPS WILL BE LEFT TO MINIMIZE DISTURBANCE UNTIL GRADING COMMENCES. NO SECTION OF STREAM WILL BE LEFT UNSTABILIZED OVERNIGHT. ANY WORK AREA WILL BE ISOLATED FROM THE ACTIVE STREAM CHANNEL VIA PUMP-AROUND DIVERSION, WHICH WILL REMAIN UNTIL STABILIZATION IS COMPLETE.

19. PROPOSED STORMWATER MANAGEMENT SYSTEM:

STREAM AREAS WILL BE CONSTRUCTED IN THE DRY, PROTECTED BY A PUMP AROUND DIVERSION. SEDIMENT LADEN RUNOFF THAT ENTERS THE TEMPORARILY DRY WORK AREAS WILL BE PUMPED TO A FILTER BAG AND RELEASED DOWNSTREAM IN A NON-EROSIVE MANNER.

20. CREATION OF WETLAND TO REPLACE THOSE LOST:

THERE ARE NO PROPOSED IMPACTS TO JURISDICTIONAL WETLANDS.

21. MINIMIZING CUT AND FILL:

CUT MATERIAL WILL BE USED ON SITE TO THE GREATEST EXTENT PRACTICAL, FILLING EXISTING CHANNEL AREAS WHERE A SHIFT IN CHANNEL GEOMETRY IS PROPOSED. THE PROJECT HAS AN OVERALL NET FILL, AND CLEAN FILL WILL NEED TO BE IMPORTED ONTO THE SITE.

22. A SUPPLEMENTAL LANDSCAPING PLAN:

THE TAYLOR RUN INFRASTRUCTURE STABILIZATION PLAN INCLUDES A PLANTING PLAN (PP-01 THROUGH PP-04) WITH CORRESPONDING VEGETATION SCHEDULES (PN-03) AND PLANTING NOTES AND DETAILS (PN-01 AND PN-02). THESE SHEETS IDENTIFY THE DIVERSE NATIVE VEGETATION TO BE PLANTED WITHIN THE RPA.

NOT FOR CONSTRUCTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

REVISIONS BY	DATE	DESCRIPTION

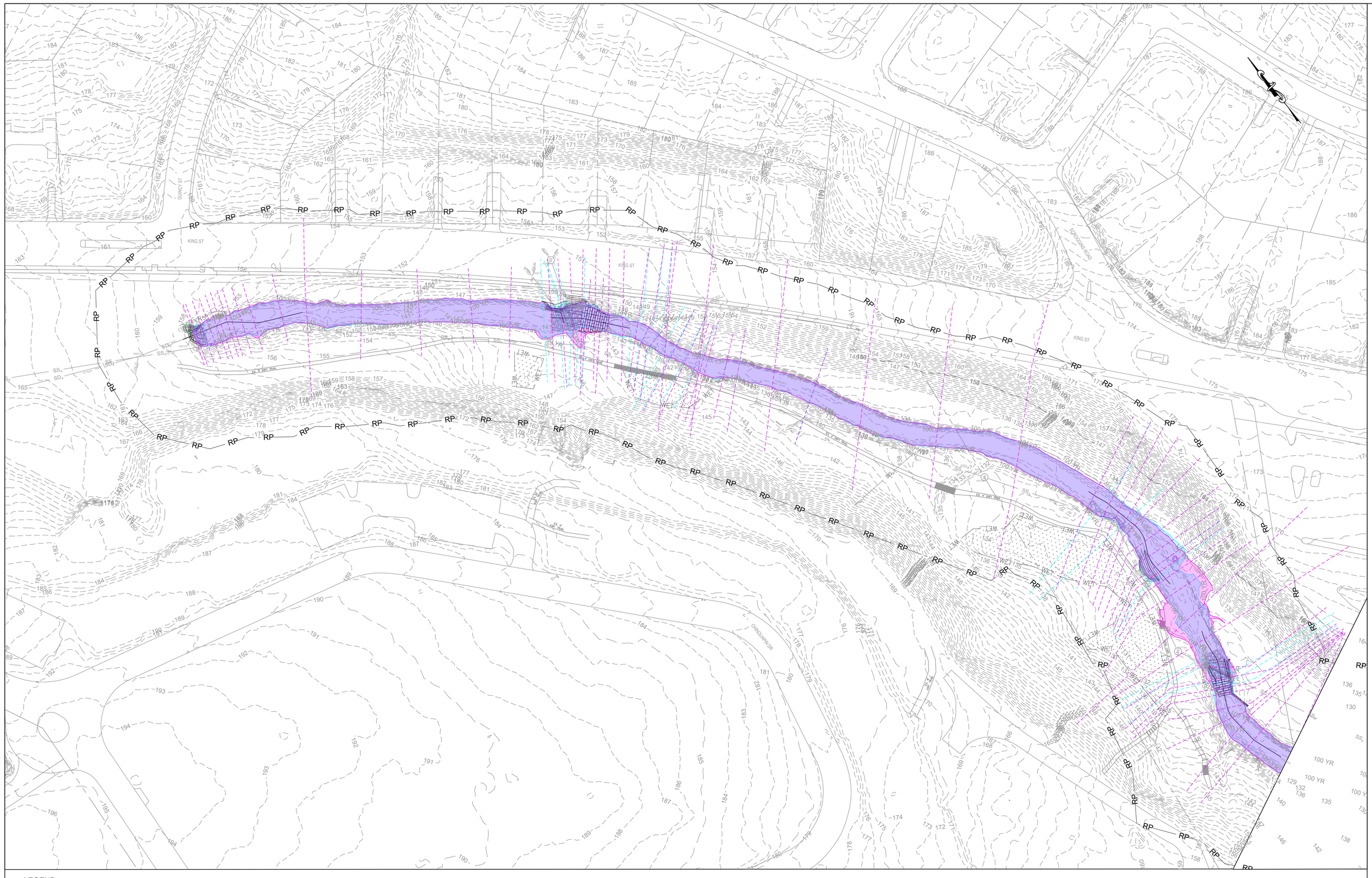
ALEXANDRIA PROJECT NO.: 23086
DATE OF PLAN ISSUANCE:
CONSULTANT PROJECT ID.: 60742359
DESIGNED BY: SB TN DATE: 10/2026
DRAWN BY: SB TN DATE: 10/2026
CHECKED BY: BA DATE: 10/2026
APPROVED BY: BA DATE: 10/2026

SEAL:

WATER QUALITY IMPACT ASSESSMENT

AECOM
12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING: WQIA-01
SCALE: 1" = 60'
SHEET: 51 OF 52



NOT FOR CONSTRUCTION

ALEXANDRIA PROJECT NO.:	23086
DATE OF PLAN ISSUANCE:	
CONSULTANT PROJECT ID.:	60742359
DESIGNED BY: SB TN DATE:	10/2026
DRAWN BY: SB TN DATE:	10/2026
CHECKED BY: BA DATE:	10/2026
APPROVED BY: BA DATE:	10/2026

DATE	REVISIONS BY	DESCRIPTION

CITY OF ALEXANDRIA, VIRGINIA
DEPARTMENT OF PROJECT IMPLEMENTATION
301 KING STREET, ROOM 4100
ALEXANDRIA, VIRGINIA 22314

SEAL:

100-YEAR FLOODPLAIN EXHIBITS

12420 MILESTONE CENTER DRIVE, SUITE 150
GERMANTOWN, MD 20876
(301) 250-2934

DRAWING:
FP-01

SCALE:
1:50

SHEET:
52 OF 52

C:\Users\Bernhetsel\S\OneDrive - AECOM\Taylor Run Stream Stabilization - General\900 CAD\910 CAD\20 - SHEETS\60742359-SHT-20-C-0019_FLOODPLAIN EXHIBITS.dwg Plotted: 10/27/2026 1:35 PM by Bernhetsel, Sean

Agenda

Meeting name Pre-Application Meeting	**Subject** JPA Planning and Discussion	**Attendees** See Attendee List Below
Meeting date December 12, 2025	**Time** 10:00 AM	
Location Microsoft Teams	**Project name** Task Order #7 (Taylor Run Stream Stabilization)	
AECOM project number 60742359	**Prepared by** AECOM	

Meeting Purpose: Discuss project details with USACE to agree on the appropriate permit pathway and identify all elements necessary for a complete JPA submission and timely approval for construction.

Welcome & Introductions

- **Introduce participants and roles**
- **Meeting Objectives**

Project Overview

- **Purpose & Need**
  - AECOM reviews the community meeting presentation for project background
    - Review of project goals
      - Protect infrastructure
      - Stabilize streambanks
      - Preserve trees and wetlands
      - Minimize LOD and impacts
- **Project History** (No previous permits received)
  - Originally designed as stream restoration project around 2018
    - Community engagement and fear of tree impacts resulted in shift to infrastructure stabilization
- **Project Approach, Size, and Location**
    - Review of different design areas and LOD
      - Total disturbed area is 1.6 acres; stream length approximately 600 non-continuous linear feet
      - Design Area 1
        - Undersized plunge pool
        - Failing wingwalls
        - Debris in channel
      - Design Area 2
        - Exposed sanitary pipe
        - Debris in channel
        - Largest vertical banks along reach

        - Failing wingwall
    - Design Area 3
        - Exposed sanitary manhole
        - Woody debris accumulation
        - Risk of sanitary sewer exposure
    - Design Area 4
        - Failing sheet pile wall
        - Exposed sanitary pipe and manhole
        - Root exposure and damage to significant maple tree

Permit Pathway Discussion

- **Jurisdictional Determination** (Final Report dated March 2020)
    - Discussion of wetland delineation timeline
        - ACOE does not require submission of PJD or AJD but will require a new delineation dated within the last five years
            - Ensure concurrence (i.e. reverification)
                - Get new data sheets and reissue report assuming no aquatic resources have changed
- **RTE/Cultural Resources** (No habitat or significant findings during wildlife observation surveys dated Aug 2019)
    - Anticipated TOYR Restrictions
        - ACOE does not coordinate with DWR but they coordinate with FWS
            - Northern long-eared bat will likely be flagged
                - May get a “may effect” determination if clearing during the summer season
                - If clearing during the summer is necessary AECOM could conduct nighttime survey
                    - ACOE will have to verify, but these surveys might not qualify for larger diameter trees
            - ACOE is the only permit clearing house
                - ACOE automatically forwards relevant information to other agencies
                - AECOM does not have to coordinate with other agencies separate from ACOE
    - Discussion of previous surveys and endangered species
        - IPaC and VCRIS map would be sufficient
        - If a specimen (such as small whorled pogonia) was a possibility onsite than a new survey would be required, but this is unlikely
- **Permit Pathway** anticipated NWP 3 or 13
    - NWPs set to expire March 2026
        - ACOE indicates these are set to be renewed
            - If construction is proceeding forward in March of 2027 then AECOM could submit prior to March 2026
            - If going to construction after, submission should wait until they are renewed
    - All four sewer crossings should be filed separately under NWP 3
    - Bank stabilization effort is all under one NWP

        - Boulder weir would likely be authorized separately under NWP 18 as it is not necessary for function of the preceding plunge pool according to the ACOE
            - Impact plates could have arrows that point out different types of work as opposed to totals on the sheet
    - **Mitigation Requirements** (if applicable)
        - Discussion of permitting limits
            - Two LOD areas for bank stabilization are considered separate impacts, so project would not be over the 500 LF of stream that would require a waiver
            - Other restriction is for bank hardening activities that exceed one cubic yard per running foot
        - Discussion of self-certification and authorization for discharges
            - NWP 13 does not appear to have mitigation requirements
            - AECOM is planning to discuss alternatives and how this is minimal approach in narrative to the ACOE
        - Discussion of plunge pool sizing
            - ACOE has no experience in relation to requirements of plunge pool sizes; this would be a question for DEQ
    - **Schedule for Permit Submission and Construction** (Early Spring 2026 and Spring/Summer 2027)
        - Plan to delay until new NWP are renewed in mid-March as construction will primarily be in summer 2027

USACE Feedback and Agreement

- **Timeline & Review Process**
    - Best to submit this after March of 2026
        - ACOE says typical review is 60 days or less; all depends on impacts
        - Will need to coordinate with BDHR if archaeology impacts which is 30 days
        - Would have to coordinate with VDHR (60 days) if abiding by time of year restrictions for tree removal
- **Additional Data Needs**
    - Will need to reverify wetland delineation
    - Need to pull cultural and RTE databases to ensure they’re still up to date
        - No onsite survey required at this time
    - Will need to have drawings that show impacts overlaid with project drawings
- **Pre-construction notifications and public notice requirements**
    - All NWP currently require PCMs but no public notices (could change with new NWPs)

Open Discussion/Questions

Action Items

Attendee List

Name	Department	Role on Project
Alex Haptemariam, PE, CFM	City of Alexandria DPI	City Managing Project Manager
Camille Liebnitzky, PE, ENV SP	City of Alexandria T&ES	City Sponsor Project Manager
Daniel Medina, PE	City of Alexandria DPI	DPI Technical Team
Jesse Maines, MPA, PMP	City of Alexandria T&ES	T&ES Technical Team
Brian Rahal, PE, CFM	City of Alexandria T&ES	T&ES Technical Team
Brandon Alderman, CERP	AECOM	Project Manager
Sean Bernheisel, PE	AECOM	Design Engineer
Tori Nelson, PE	AECOM	Design Engineer
Robert Howell	USACE	Regulatory Reviewer