ADDENDUM NUMBER (2)
Gateway Wetlands Park Development

Gateway
3333 Old Pickett Road
Fairfax, VA 22031

NOVA Parks
5400 Ox Road
Fairfax Station, Virginia 22039
(703) 352-5900
www.NOVAParks.com

February 25, 2026

GENERAL

A. This Addendum shall become part of the Contract Documents and shall modify the bidding documents, including any past addenda, as indicated below.

B. Bidders should acknowledge receipt of this Addendum in the appropriate space on the Form of Proposal.

C. This Addendum consists of One (1) typed page and One (1) revised plan set.

---

1. Addendum #2 attached is a revised plan set with clouded changes. See Sheets: 19,20,24,27,28,29,30

-END OF ADDENDUM-

GATEWAY REGIONAL PARK

SITE PLAN

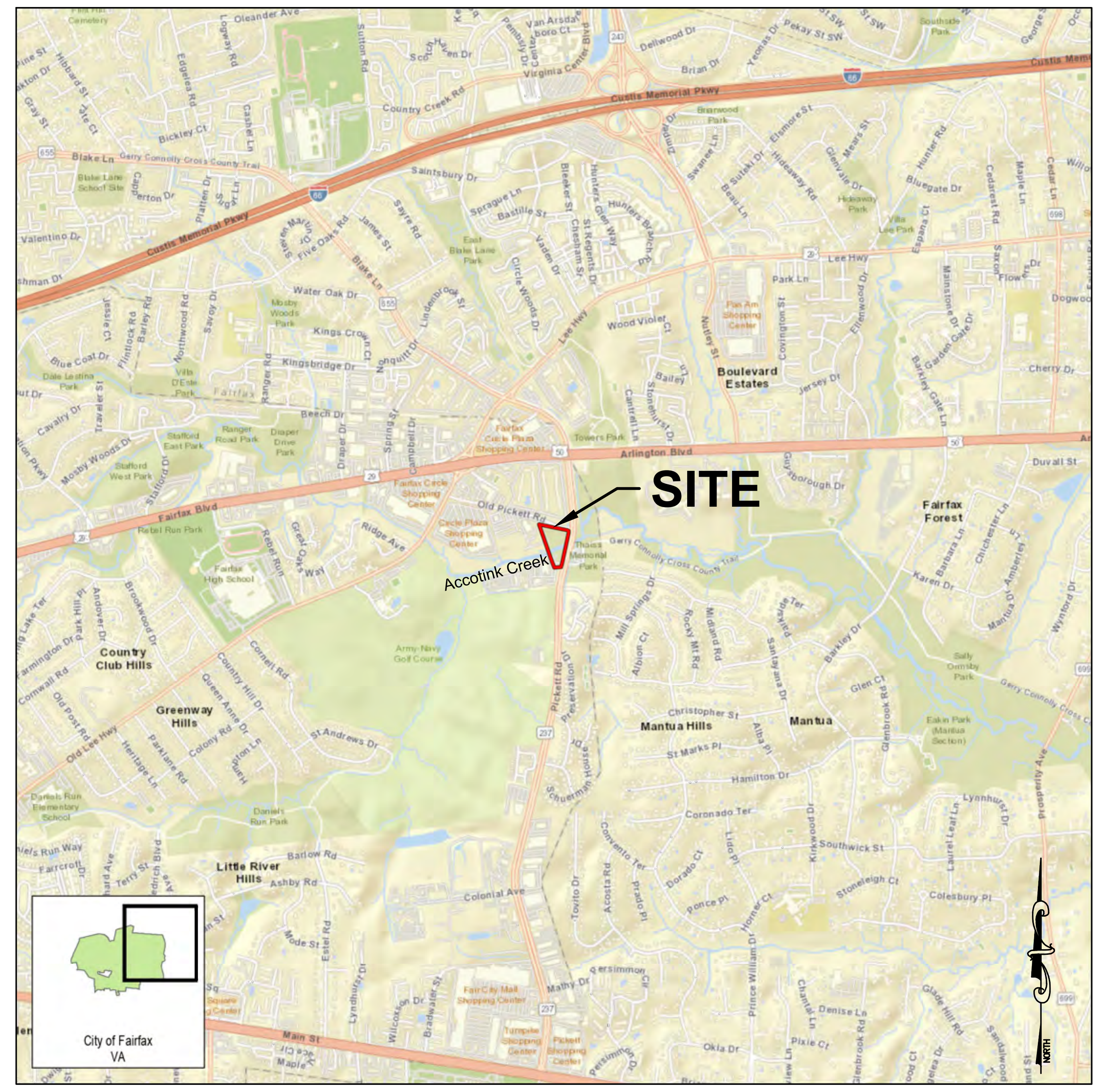
SP-24-00537

TAX MAP: 48 3 02 015
ADDRESS: 3333 OLD PICKETT ROAD
FAIRFAX, VIRGINIA 22031
PARCEL AREA: 2.67 AC (116,219 SF)
DEED BOOK: 9311 (PG 1)
DISTURBED AREA: 1.16 AC (50,615 SF)
PARKING SPACES PROPOSED: 6
ZONING CLASSIFICATION: RM
USE GROUP CLASSIFICATION: Park/Open Areas

OWNER: City of Fairfax
10455 Armstrong Street, Room 316
Fairfax, VA 22030

LESSEE: Northern Virginia Regional Park Authority
5400 Ox Road
Fairfax Station, VA 22039

ENGINEER/AGENT: Wetland Studies and Solutions, Inc.
5300 Wellington Branch Drive, Suite 100
Gainesville, VA 20155
(703) 679-5600



VICINITY MAP SCALE: 1" = 2000'

SHEET INDEX

SHEET TOTAL: 55

AGENT AUTHORIZATION LETTER

To Whom IT May Concern:

I/We, Brian Nolan (NOVA Parks), the undersigned title owner(s) of the property identified below do hereby authorize Dillon Connor of Wetland Studies and Solutions, Inc., to act as my/our agent(s) in the furtherance of an application for a Gateway Regional Park Site Plan on my/our property located at: 3333 Old Picket Rd, Fairfax, VA 22031

Tax Map No: 48 3 02 015

Thank you in advance for your cooperation.

Date: 6/18/2024 By: [signature]

COMMONWEALTH/STATE OF: Virginia

CITY/COUNTY: Fairfax, TO WIT:

The forgoing instrument was acknowledged before me this 18 day of June, 2024, by Brian Nolan.

KELLY ALYSSA CHRISTIAN NOTARY PUBLIC REG # 7962172 MY COMMISSION EXPIRES 2/28/2025 COMMONWEALTH OF VIRGINIA

Kelly A. Christian
Notary Public (Signature)

Notary Registration No: 7962172

All title owners must sign in presence of notary. If there is more than on owner, fill out multiple applications.

AGENT AUTHORIZATION LETTER

TO WHOM IT MAY CONCERN:

I/We, **The City of Fairfax**, the undersigned title owner(s) of the property identified below do hereby authorize **Sarah Hutchinson** of **Wetlands Studios + Solutions, Inc.**, to act as my/our agent(s) in the furtherance of an application for a **Gateway Regional Park, Major Site Plan**, on my/our property located at: **3333 Old Pickett Rd, Fairfax, VA 22031**

Tax Map No: **48 3 02 015**.

Thank you in advance for your cooperation.

Date: 10/6/2025 By: Bryan D. Foster, City Manager

COMMONWEALTH/STATE OF: Virginia

CITY/COUNTY: City of Fairfax, TO WIT:

The forgoing instrument was acknowledged before me this 6 day of October 2025, by Bryan D. Foster

APPROVED AS TO FORM:
CITY ATTORNEY

[signature]
Notary Public (Signature)

NANCY ELIZABETH TINGEN
NOTARY PUBLIC
REGISTRATION # 7859429
COMMONWEALTH OF VIRGINIA

Notary Registration No: 7859429

All title owners must sign in presence of notary. If there is more than on owner, provide one letter per owner.

Revised April 10, 2025

City of Fairfax
SITE PLAN APPROVALS

Zoning Official ______ Date ______

Review approval by:

______ FAIRFAX WATER REVIEWER
______ FIRE MARSHAL / CODE CHIEF
______ DIRECTOR OF CD&P
______ DIRECTOR OF PUBLIC WORKS
______ CITY ENGINEER
______ PW PLAN REVIEWER
______ WASTEWATER REVIEWER
______ SITE PLAN COORDINATOR
______ BAR LIAISON
______ URBAN FORESTER
______ GIS MANAGER
______ BONDING ADMIN. ______ Date

Wetland Studies and Solutions, Inc.
a DAVEY company
5300 Wellington Branch Drive • Suite 100
Gainesville, Virginia 20155
Phone: 703-679-5600 • Fax: 703-679-5601
www.wetlands.com

Cover Sheet
Prepared For: NOVA Parks
Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025 | SCALE: N/A | C.I.: N/A

Horizontal Datum:
Vertical Datum:
Boundary and Topo Source: N/A

Design	Draft	Approved
DMC	DMC	FRG

Sheet #
1 of 55

Computer File Name:
L:\32000s\32000\32047.02\CADD\04-ENGR\12-sig sub planset_construction COVER SHEET.dwg

CITY OF FAIRFAX
NOTES TO BE INCLUDED ON THE SITE PLAN

PERMITS

1. A street opening permit is required for any work in a City right-of-way or easement. The permit can be obtained from the Public Works Department. For information, call 703-385-7980 or 703-385-7810.

2. All sidewalks, curbs, gutters, driveways, streets, storm pipes, sanitary sewer, endwalls and rip-raps must be inspected by the City. All work in the City streets will be performed Monday-Friday between the hours of 9:00 a.m. and 3:00 p.m. No work is to be performed on weekends or holidays unless pre-approved by the Director of Public Works.

3. Inspections performed by the Facilities Inspector will require a four-hour notice prior to inspections.

GENERAL STANDARDS

1. The Public Works Director must be notified one week prior to pre-construction conference, one week prior to commencement of land disturbing activity and one week prior to final inspection. The Site Plan Coordinator in Zoning (703-385-7820) must be notified one week prior to the pre-construction conference.

2. A preconstruction meeting will be required three days prior to any construction. Contractors will notify the Public Works Department or Facilities Inspector for all work done on site and off site one day prior to starting.

3. The contractor shall provide adequate means for parking construction equipment and provide employee parking on site.

4. All construction shall conform to the latest City of Fairfax standards, Virginia Department of Transportation and the Virginia Sediment & Erosion Control current specifications, except as shown or altered by these plans.

5. Traffic signs found to be in the way at construction sites shall be removed or relocated only by personnel in the Sign & Signal Crew of the Public Works Department at the contractor's request. Any contractor found responsible for moving City property without permission will receive a summons.

6. All building construction shall be in accordance with the current edition of the Virginia Uniform Statewide Building Code. Permits and inspections for building, electrical, plumbing, mechanical and fire protection work are obtained from the Office of Code Administration, 703-385-7830.

Department of Community Development and Planning
City of Fairfax, Virginia

7. Private fire mains require a permit from the Office of Code Administration. Permit application must include details of installation as specified in NFPA-24. An approved site plan is not a permit to install fire mains.

8. No portion of any building shall be occupied until a certificate of occupancy has been issued by the Building Official and a use permit by the Office of Community Development & Planning.

9. No building, except additions or accessories to existing dwellings, shall proceed beyond first floor level until the location of the footing and walls as shown on a plat certified by a land surveyor has been approved by the Zoning Administrator.

10. An as-built plan must be submitted within 30 days after completion of all construction.

11. Temporary structures, construction trailers and demolition require permits from the Office of Code Administration prior to start of work or installation.

12. Adequate emergency vehicle access shall be maintained at all times. A hard surfaced, all-weather roadway shall be provided to within 50 feet of all structures and any location where combustible materials are stored.

13. City ordinance permits construction noise, including excavation, between the hours of 7:00 am and 6:00 pm on weekdays and 8:30 am and 5:00 pm on Saturdays ONLY. It shall be the responsibility of the developer to ensure that all contractors and subcontractors comply with this ordinance.

14. The Developer shall be responsible for ensuring compliance with City Code sections limiting growth of grass and weeds to six inches in height.

CONSTRUCTION

1. All subgrade and sub-base material shall be compacted to 95% of theoretical maximum density as determined by A.A.S.H.O. T-99 method A within plus or minus 20% of optimum moisture for the full width of any dedicated right-of-way and all townhouse, apartment, condominium, commercial and industrial parking lots (including storm sewer and sanitary sewer).

2. Compaction test shall be performed by the contractor. Subgrade for curb, gutter and sidewalk shall be every 50 feet; sub-base will be alternated every 25 feet. Driveways require two tests on subgrade and sub-base. Copy of results is required prior to placing any type of material. VTM-1 correction also must be used. All structures require two tests on subgrade and sub-base.

3. Compaction tests for roadways shall be performed by the City only, unless approved by the Public Works Director. Compaction tests for all building pads must be submitted to the office of Code Administration for review and approval.

Department of Community Development and Planning
City of Fairfax, Virginia

4. All underground utilities within the street right-of-way shall be installed to the required distance beyond the right-of-way.

5. Storm sewer and culvert pipe shall be reinforced concrete pipe to conform to the current

   A.A.S.H.T.O. designation M170, unless otherwise designated on the plans. Class II pipe is permitted beyond the limits of street rights-of-way. Class III pipe is required within the limits of the rights-of way.

6. All curb and gutter shown on plans and not in profiles shall be on straight tangent grades. The contractor shall round all vertical breaks with smooth spline curbs.

7. All pavement placed on City right-of-way shall have a mix design approved prior to placing material and a density test performed during placement.

8. Street signs and markings shall be installed by the developer at all street intersections in a location to be determined by the Director of Public Works. Private access ways and alleys shall be clearly designated as such by a sign at every entrance from a public street, stating "private street, privately owned and privately maintained". All street markings and signage will conform to City of Fairfax standards and the Manual of Uniform Traffic Control, per the Street Superintendent.

9. C.B.R. test is required for actual determination of required sub-base thickness prior to construction. Depth of sub-base is based on subgrade C.B.R. value of 10. Where C.B.R. value is less than 10, one-inch of sub-base or base material shall be added for each point below 10 for on-site and off-site and shall be reviewed by the City of Fairfax for special design.

10. All construction must comply to the Code of Virginia 36-98 and 36-99 by reference as part of the Uniform Statewide Building Code of Virginia, the final fair housing accessibility guidelines (24 CFR Chapter I) and the Americans with Disabilities Act accessibility guidelines (28 CFR, part 36) as per site and right-of-way work compliance.

11. Provide proper distance from back of sidewalk to building for stoops and steps, and the like.

12. All roofs, paved areas, yards, courts and courtyards shall be drained into a separate storm sewer or a combined sewer system.

Department of Community Development and Planning
City of Fairfax, Virginia

ENVIRONMENTAL

1. All erosion siltation control to be installed prior to starting project to conform to the current Virginia Erosion and Sediment Control Manual.

2. The contractor shall provide adequate means of cleaning mud from trucks and/or other equipment prior to entering the City of Fairfax rights-of-way. It is the contractor's responsibility to clean streets and allay dust and to take whatever measures necessary to ensure that the road is maintained in a clean and dust-free condition at all times.

3. It shall be the contractor's responsibility to perform the work in such a manner to prevent the washing of any topsoil, silt, or debris onto adjacent properties.

4. If the presence of asbestos is suspected in the soil, the contractor must contact the Air Pollution Control Division of the Fairfax County Health Department at 703-246-2300.

5. Onsite storage of fuel shall be limited to diesel fuel tanks not over 660 gallons capacity. Tanks shall be of a listed type and shall be provided with approved secondary containment, impact protection and placarding. A minimum 2A-40BC fire extinguisher shall be provided in the vicinity of the refueling area. A permit for combustible liquid storage shall be obtained from the Office of Code Administration, 703-385-7830. Fuel shall not be placed in onsite storage tanks until the installation has been inspected and approved.

6. Onsite repair of vehicles and equipment shall be limited to replacement of damaged belts, hoses and tires. Any spill of fuel, oil, hydraulic fluid or anti-freeze greater than one gallon must be reported to the Office of Code Administration at 703-385-7830. All spills must be cleaned up promptly and in an approved manner.

7. The Owner shall be responsible for ensuring compliance with City Code sections regarding health and safety menaces, including accumulations of water, storage of material, construction debris and security of the site.

8. The link to the asbestos information and map on the Fairfax County website http://www.fairfaxcounty.gov/hd/asb/

9. **Prior to the start of any site grading work, the developer or owner shall obtain a Virginia Stormwater Management Program (VSMP) permit from the City of Fairfax. The VSMP permit requires that a Stormwater Pollution Prevention Plan (SWPPP) be kept at the construction site at all times.**

Wetland Studies and Solutions, Inc.
a DAVEY company
5300 Wellington Branch Drive • Suite 100
Gainesville, Virginia 20155
Phone: 703-679-5600 • Fax: 703-679-5601
www.wetlands.com

Notes & Documentation

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025 SCALE: N/A C.I.: N/A

Horizontal Datum:

Vertical Datum:

Boundary and Topo Source: N/A

Design	Draft	Approved
DMC	DMC	FRG

Sheet #
2 of 55

Computer File Name:
COVER SHEET.dwg

Wetland Studies and Solutions, Inc. a DAVEY company

July 5, 2024

Brian Nolan — Via Email: bnolan@nvrpa.org
Northern Virginia Regional Park Authority
5400 Ox Road
Fairfax Station, VA 22039

Re: Summary of Authorizations
VMRC No Authorization Required Letter, No. 24-0992
COE Nationwide Permit #18 No. NAO-2023-01971
Gateway Regional Park
Fairfax County, Virginia
WSSI #32047.02

Dear Mr. Nolan:

You have now received all the wetland related authorizations necessary to carry out impacts to jurisdictional wetlands and streams as proposed with the Gateway Regional Park project located in Fairfax County, Virginia. Please find the following materials enclosed for your records and use regarding the above-referenced project.

Exhibit 1: Virginia Marine Resources Commission (VMRC) No Authorization Required Letter (Project No. 24-0992), dated June 14, 2024.

- ✓ No authorization is required from this agency for the proposed project.

Exhibit 2: U.S. Army Corps of Engineers (COE) Nationwide Permit (NWP) #18 Number NAO-2023-01971, issued on June 21, 2024.

- ✓ Your authorization to conduct work under this COE Nationwide Permit #18 expires on March 14, 2026.
- ✓ Please note that the enclosed compliance certification form must be signed and returned to the COE within thirty (30) days of completion of the project.
- ✓ Per Regional Condition #14, we accessed the Virginia Department of Wildlife Resources' (DWR) Virginia Fish and Wildlife Information Service (VAFWIS) on January 9, 2024 to determine if a state-listed species or designated resource is known within 2 miles of the project. There were no species confirmed therefore this condition is met.
- ✓ The Virginia Department of Environmental Quality (DEQ) has provided general Section 401 Water Quality Certification for NWP #18; provided that the entire project is authorized by the COE under a NWP and meets the VADEQ's WQC Conditions 1-12. Therefore, no further authorization from the DEQ is required for the proposed project.

5300 Wellington Branch Drive • Suite 100 • Gainesville, VA 20155 • Phone 703.679.5600 • Fax 703.679.5601
contactus@wetlands.com • www.wetlands.com

Exhibit 3: Overall Wetland and Waters of the U.S. (WOTUS) Impact Map

- ✓ If the site plan changes from what is depicted on the enclosed approved Overall Wetlands and WOTUS Impact Map dated April 2024, please contact Wetland Studies and Solutions, Inc. (WSSI) so we can coordinate the changes with the agencies.

With the required Nationwide Permit from the COE, Section 401 water quality certification from DEQ, along with the No Authorization Required Letter from the VMRC, you now have all wetland-related authorizations necessary to carry out impacts to jurisdictional WOTUS on the above-referenced project. Please note that many conditions must be met in order to comply with these permits. We strongly recommend that you, your contractor, and your engineer read the conditions of all permits carefully.

Provided the wetland impacts proposed in your project do not change, no further authorizations regarding wetland permitting are required. If you have any questions regarding the enclosed items, please feel free to contact me at khull@wetlands.com; (703) 679-5694 or Robbie Clark at rclark@wetlands.com; (703) 679-5632.

Sincerely,

WETLAND STUDIES AND SOLUTIONS, INC.

Katherine Hull
Regulatory Specialist

Robbie Clark, PWS
Assistant Manager – Regulatory

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From: Payne, Khadijah (MRC)
To: bnolan@nvrpa.org; Robbie Clark
Cc: Atkins, Lou (MRC); NRO VWPP Program; Hermann, Katherine; cenao.reg_rod@usace.army.mil (cenao.reg_rod@usace.army.mil)
Subject: VMRC #2024-0992 (Northern Virginia Regional Park Authority) No Permit Necessary
Date: Friday, June 14, 2024 12:15:23 PM

Dear Applicant/Agent,

We received your application requesting authorization to impact non-tidal waterways associated with making improvements to an existing park located south of Arlington Boulevard (U.S. Route 50), directly southwest of the intersection of Old Pickett Road and Pickett Road (State Route 237) in Fairfax County.

Your proposal is outside the jurisdictional areas of the Virginia Marine Resources Commission. Therefore, no authorization is required from this agency.

For your information, you may need authorization from your locality, the DEQ, and/or the U. S. Army Corps of Engineers before commencing your project. Your application has been forwarded to these agencies.

If I can help you further, please don't hesitate to contact me at (757) 247-8028.

Respectfully,
Khadijah

Khadijah Payne
Environmental Engineer
Habitat Management Division
Virginia Marine Resources Commission

757.247.8028
khadijah.payne@mrc.virginia.gov

DEPARTMENT OF THE ARMY
US ARMY CORPS OF ENGINEERS
NORFOLK DISTRICT
FORT NORFOLK
803 FRONT STREET
NORFOLK VA 23510-1011

June 21, 2024

Northern Virginia Regulatory Section
NAO-2023-01971 / VMRC 24-V0992 (Accotink Creek)

Brian and Kim Nolan
c/o Robbie Clark
824 Bay Woodstock Road
Virginia Beach, VA 23464

Dear Brian and Kim Nolan:

This is regarding your Department of the Army permit application number NAO-2023-01971 (VMRC 24-V0992) to permanently impact 22 linear feet (148 square feet) of stream to connect a step pool outfall to a proposed stormwater feature. The work will occur at 38.861711, -77.270350 in Fairfax City, Virginia. These impacts are detailed on the enclosed drawings entitled "Overall WOTUS Impact Map, GATEWAY REGIONAL PAK" prepared and submitted on behalf of the applicant by Wetland Studies and Solutions, dated April 2024, and stamped as received by this office on April 24, 2024.

Your proposed work as outlined above satisfies the criteria contained in the Corps Nationwide Permit 18, attached. Certain Corps Nationwide Permits were published in the December 27, 2021, Federal Register notice (86 FR 73522) and the regulations governing their use can be found in 33 CFR 330 published in Volume 56, Number 226 of the Federal Register dated November 22, 1991.

The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

Provided the Regional Conditions and the Nationwide Permit General Conditions (enclosed) are met, an individual Department of the Army Permit will not be required. To assist in your compliance with NWP General Condition #30, enclosed is a "compliance certification" form, which must be signed and returned within 30 days of completion of the project, including any required compensatory mitigation.

Please be aware that a permit may be required from the Virginia Marine Resources Commission and/or your local wetlands board, and this verification may not be valid until you obtain their approval, if necessary. This authorization does not relieve your responsibility to comply with local requirements pursuant to the Chesapeake Bay Preservation Act (CBPA), nor does it supersede local government authority and responsibilities pursuant to the Act. You should contact your local government before you begin work to find out how the CBPA applies to your project.

This verification is valid until the Nationwide Permit is modified, reissued, or revoked. This Nationwide Permit 18 is scheduled to be modified, reissued, or revoked prior to March 14, 2026.

It is incumbent upon you to remain informed of changes to the Nationwide Permits. We will issue a public notice when the Nationwide Permits are reissued. Furthermore, if you commence or are under contract to commence this activity before the date that the relevant nationwide permit is modified or revoked, you will have twelve (12) months from the date of the modification or revocation of the Nationwide Permit to complete the activity under the present terms and conditions of this Nationwide Permit unless discretionary authority has been exercised on a case-by-case basis to modify, suspend, or revoke the authorization in accordance with 33 CFR 330.4(e) and 33 CFR 330.5 (c) or (d). Project specific conditions listed in this letter continue to remain in effect after the Nationwide Permit verification expires unless the district engineer removes those conditions. Activities completed under the authorization of a Nationwide Permit which was in effect at the time the activity was completed continue to be authorized by that Nationwide Permit.

In granting an authorization pursuant to this permit, we relied on the information and data provided by the permittee. If we determine that this information is false or incomplete, we may suspend or revoke, in whole or in part, this authorization and institute appropriate legal proceeding.

If you have additional questions or concerns about this permit authorization, please contact the office by telephone at 757-201-7160 or by email at Ma'lik.J.Carver@usace.army.mil.

Sincerely,

GAZZERA.SILVIA.B.1242826155
Digitally signed by GAZZERA.SILVIA.B.1242826155
Date: 2024.06.21 09:54:00 -04'00'

Silvia Gazzera Ph.D.
Northern Virginia Regulatory Section

Enclosure

U.S. Army Corps Of Engineers
Norfolk District

CERTIFICATE OF COMPLIANCE
WITH
ARMY CORPS OF ENGINEERS PERMIT

Permit Number: NAO-2023-01971

VMRC Number: 24-V0992

Corps Contact: Ma'lik Carver

Permittee Name: Brian and Kim Nolan

Date of Issuance: June 21, 2024

Permit Type: NWP 18 Minor Discharges

Within 30 days of completion of the activity authorized by this permit and any mitigation required by the permit, sign this certification, and return it to the following address:

US Army Corps of Engineers - Norfolk District
CENAO-WR-R
Attn: Ma'lik Carver
803 Front Street
Norfolk, VA 23510-1011

Or scan and send via email to Ma'lik.J.Carver@usace.army.mil

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with this permit, you are subject to permit suspension, modification, or revocation.

I hereby certify that the work authorized by the above-referenced permit has been completed in accordance with the terms and conditions of the said permit and required mitigation has been completed in accordance with the permit conditions.

____________________ ____________________
Signature of Permittee — Date

Wetland Studies and Solutions, Inc. a DAVEY company
5300 Wellington Branch Drive • Suite 100
Gainesville, Virginia 20155
Phone: 703-679-5600 • Fax: 703-679-5601
www.wetlands.com

Approvals

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025 SCALE: N/A C.I.: N/A

Horizontal Datum:
Vertical Datum:
Boundary and Topo Source: N/A

Design	Draft	Approved
DMC	DMC	FRG

Computer File Name:
L:\32000s\32000\32047.02\CADD\04-ENGR\12-sig sub planset_construction COVER SHEET.dwg

OVERALL EXISTING CONDITIONS LEGEND

	PARCEL BOUNDARY
	30' PRESCRIPTIVE ROW EASEMENT
	EXISTING PERMANENT CONSTRUCTION EASEMENT (D.B. 5631, PG. 103)
	EXISTING INFRASTRUCTURE
	EXISTING CONTOURS (1')
FEMA	EXISTING MAPPED FLOODPLAIN
	PERENNIAL STREAM
	INTERMITTENT STREAM
	PALUSTRINE FORESTED WETLAND (PFO)
	FIELD-VERIFIED RPA
	REQUIRED SETBACKS (§3.6.1 (RM))
SAN	SURVEYED SANITARY SEWER
OH — UTIL	SURVEYED OVERHEAD UTILITY LINE
UG — WTR	EXISTING UNDERGROUND WATER LINE
UG — GAS	EXISTING UNDERGROUND GAS LINE
	GAS LINE TEST HOLE
EP	SURVEYED EDGE OF PAVEMENT
LTS	LIMITS OF TREE SURVEY
	SURVEYED TREE (≥ 6" DBH)

30 15 0 30 60 90

SCALE: 1"=30'

CURVE TABLE

CURVE	ARC LENGTH	RADIUS	DELTA	TANGENT	CHORD	CHORD BEARING
C1	314.33'	746.20'	24°08'06"	159.53'	312.01'	N71°11'57"W
C2	263.78'	1384.39'	10°55'02"	132.29'	263.38'	N11°59'20"E

REQUIRED DIMENSIONAL STANDARDS TABULATION (§3.6.1)

PARCEL ZONING CLASSIFICATION: RM (RESIDENTIAL MEDIUM)

RESIDENTIAL DISTRICTS DIMENSIONAL STANDARDS	REQUIRED	PROPOSED
DENSITY (UNITS/ACRE), MAXIMUM	N/A	N/A
SITE AREA (ACRES), MINIMUM	N/A	1.15 AC
LOT AREA/UNIT, MINIMUM (SQ. FT.)	7,500	N/A
REQUIRED YARDS, MINIMUM (FT.)[1]		
Front	25	25
Side (street)	20	20
Side (interior)	12-10[2]	N/A
Rear	25	N/A
LOT WIDTH, MINIMUM (FT.)		
Interior Lots	75	N/A
Corner Lots	95	111
HEIGHT, MAXIMUM (STORIES/FEET)[2]		
Adjacent to RL, RM, or RH district	3/15-35[2]	N/A
Not adjacent to RL, RM, or RH district	3/15	N/A
BUILDING COVERAGE, MAXIMUM (%)	25	N/A
LOT COVERAGE, MAXIMUM (%)	40	16

NOTES:
[1] Special building line requirements apply where narrow right-of-way areas are found, see §1.5.12.F.
[2] Some exceptions apply. See §1.5.11.A.2(a).

EXISTING CONDITION NOTES:

1. LOCATION OF EXISTING WATER LINE SERVICING THE PAVILION WATER FOUNTAIN APPROXIMATED BASED ON ORIGINAL SITE DESIGN PLANS DATED MARCH 17, 1994. WATER TO BE SHUT OFF PRIOR TO CONSTRUCTION AND TURNED ON AFTER COMPLETION OF CONSTRUCTION.
2. SURVEYED TREE NUMBERS AND INFORMATION SHOWN ON TREE INVENTORY AND CONSERVATION PLAN (SHEETS #-##).

Wetland Studies and Solutions, Inc.® a DAVEY company
5300 Wellington Branch Drive • Suite 100
Gainesville, Virginia 20155
Phone: 703-679-5600 • Fax: 703-679-5601
www.wetlands.com

Overall Existing Conditions Plan

Prepared For: NOVA Parks

Gateway Regional Park

City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025 SCALE: 1" = 20' C.I.: 1'

Horizontal Datum: NAD83
Vertical Datum: NGVD29
Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
DMC	DMC	FRG

Computer File Name:
L:\32000s\32000\32047.02\CADD\04-ENGR\12-sig sub planset_construction EXISTING CONDITIONS PLAN.dwg

EXISTING CONDITION NOTES:

1. LOCATION OF EXISTING WATER LINE SERVICING THE PAVILION WATER FOUNTAIN APPROXIMATED BASED ON ORIGINAL SITE DESIGN PLANS DATED MARCH 17, 1994. WATER TO BE SHUT OFF PRIOR TO CONSTRUCTION AND TURNED ON AFTER COMPLETION OF CONSTRUCTION.
2. MAPPED FLOODPLAIN LINE EXTENDS BEYOND WORK AREA. SEE OVERALL EXISTING CONDITIONS PLAN (SHEET 4) FOR MAPPED FLOODPLAIN LOCATION.

EXISTING CONDITIONS LEGEND

- PARCEL BOUNDARY
- 30' PRESCRIPTIVE ROW EASEMENT
- EXISTING PERMANENT CONSTRUCTION EASEMENT (D.B. 5631, PG. 103)
- EXISTING INFRASTRUCTURE
- EXISTING CONTOURS (1')
- PERENNIAL STREAM
- INTERMITTENT STREAM
- PALUSTRINE FORESTED WETLAND (PFO)
- FIELD-VERIFIED RPA
- SURVEYED SANITARY SEWER
- SURVEYED OVERHEAD UTILITY LINE
- EXISTING UNDERGROUND WATER LINE
- EXISTING UNDERGROUND GAS LINE
- GAS LINE TEST HOLE
- SURVEYED EDGE OF PAVEMENT
- LIMITS OF TREE SURVEY
- SURVEYED TREE (≥ 6" DBH)

Wetland Studies and Solutions, Inc.
a DAVEY company
5300 Wellington Branch Drive • Suite 100
Gainesville, Virginia 20155
Phone: 703-679-5600 • Fax: 703-679-5601
www.wetlands.com

Existing Conditions Plan

Prepared For: NOVA Parks

Gateway Regional Park

City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025 SCALE: 1" = 20' C.I.: 1'

Horizontal Datum: NAD83
Vertical Datum: NGVD29
Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
DMC	DMC	FRG

Computer File Name:
EXISTING CONDITIONS PLAN.dwg

Test Hole Data Report

SURVEYING AND MAPPING LLC
7679 Limestone Drive, Bldg B Suite 155, Gainesville, VA 20155
PH. 703-361-6005 FAX 844-273-5361
VBPLS FIRM #47006626 / VBPE FIRM #0407006626

TH #1 Data Acquisition Date: **3/6/2025**

General Information

SAM Project #:	**1025096292**
Project Name:	**City of Fairfax/Gateway Regional Park**
Client:	**Wetland Studies & Solutions, Inc.**
Anticipated Target Utility or Utilities	**8 1/2" COATED STEEL GAS LINE**
Test Hole General Location	**3301 Old Pickett Road, Fairfax, VA 22031**
Test Hole Coordinates	**N 6999417.5 / E 11832697.4**

Utility Attributes

Utility Owner	**WGL**	Outside Diameter of Utility	**8.50"**
Type of Utility	**Gas**	Outside Width of Utility	**8.50"**
Material type of Utility	**Steel (Coated)**	Portion of Utility Measured	**Full**

Top of Utility

Existing Grade Elevation	**287.56'**
Top of Utility Elevation	**283.66'**
Depth of Cover	**3.90'**

Additional Information

CREW FOUND AN 8 1/2" COATED STEEL GAS LINE.

Horizontal Datum: NAD83 Va. State Plane, North Grid, (U.S. Survey Feet)
Vertical Datum: NGVD29
Coordinate base derived from control provided by WSSI.

COMMONWEALTH OF VIRGINIA
JOSEPH B. FLINT
Lic. No. 3541
03/12/2025
LAND SURVEYOR

TH #1 Data Acquisition Date: **3/6/2025**

Test Hole Location Map

Pre Excavation Photo

Down Hole Photo

Test Hole Data Report

SURVEYING AND MAPPING LLC
7679 Limestone Drive, Bldg B Suite 155, Gainesville, VA 20155
PH. 703-361-6005 FAX 844-273-5361
VBPLS FIRM #47006626 / VBPE FIRM #0407006626

TH #2 Data Acquisition Date: **3/6/2025**

General Information

SAM Project #:	**1025096292**
Project Name:	**City of Fairfax/Gateway Regional Park**
Client:	**Wetland Studies & Solutions, Inc.**
Anticipated Target Utility or Utilities	**8 1/2" COATED STEEL GAS LINE**
Test Hole General Location	**3301 Old Pickett Road, Fairfax, VA 22031**
Test Hole Coordinates	**N 6999355.2 / E 11832718.1**

Utility Attributes

Utility Owner	**WGL**	Outside Diameter of Utility	**8.50"**
Type of Utility	**Gas**	Outside Width of Utility	**8.50"**
Material type of Utility	**Steel (Coated)**	Portion of Utility Measured	**Full**

Top of Utility

Existing Grade Elevation	**286.62'**
Top of Utility Elevation	**282.40'**
Depth of Cover	**4.22'**

Additional Information

CREW FOUND AN 8 1/2" COATED STEEL GAS LINE.

Horizontal Datum: NAD83 Va. State Plane, North Grid, (U.S. Survey Feet)
Vertical Datum: NGVD29
Coordinate base derived from control provided by WSSI.

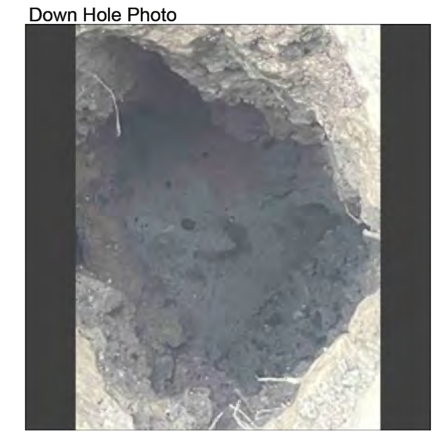
COMMONWEALTH OF VIRGINIA
JOSEPH B. FLINT
Lic. No. 3541
03/12/2025
LAND SURVEYOR

TH #2 Data Acquisition Date: **3/6/2025**

Test Hole Location Map

Pre Excavation Photo

Down Hole Photo



Test Hole Data Report

SURVEYING AND MAPPING LLC
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PH. 703-361-6005 FAX 844-273-5361
VBPLS FIRM #47006626 / VBPE FIRM #0407006626

TH #3 Data Acquisition Date: **3/6/2025**

General Information

SAM Project #:	**1025096292**
Project Name:	**City of Fairfax/Gateway Regional Park**
Client:	**Wetland Studies & Solutions, Inc.**
Anticipated Target Utility or Utilities	**8 1/2" COATED STEEL GAS LINE**
Test Hole General Location	**3301 Old Pickett Road, Fairfax, VA 22031**
Test Hole Coordinates	**N 6999299.5 / E 11832736.2**

Utility Attributes

Utility Owner	**WGL**	Outside Diameter of Utility	**8.50"**
Type of Utility	**Gas**	Outside Width of Utility	**8.50"**
Material type of Utility	**Steel (Coated)**	Portion of Utility Measured	**Full**

Top of Utility

Existing Grade Elevation	**286.43'**
Top of Utility Elevation	**282.18'**
Depth of Cover	**4.25'**

Additional Information

CREW FOUND AN 8 1/2" COATED STEEL GAS LINE.

Horizontal Datum: NAD83 Va. State Plane, North Grid, (U.S. Survey Feet)
Vertical Datum: NGVD29
Coordinate base derived from control provided by WSSI.

COMMONWEALTH OF VIRGINIA
JOSEPH B. FLINT
Lic. No. 3541
03/12/2025
LAND SURVEYOR

TH #3 Data Acquisition Date: **3/6/2025**

Test Hole Location Map

Pre Excavation Photo

Down Hole Photo

Test Hole Data Report

SURVEYING AND MAPPING LLC
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PH. 703-361-6005 FAX 844-273-5361
VBPLS FIRM #47006626 / VBPE FIRM #0407006626

TH #4 Data Acquisition Date: **3/6/2025**

General Information

SAM Project #:	**1025096292**
Project Name:	**City of Fairfax/Gateway Regional Park**
Client:	**Wetland Studies & Solutions, Inc.**
Anticipated Target Utility or Utilities	**8 1/2" COATED STEEL GAS LINE**
Test Hole General Location	**3301 Old Pickett Road, Fairfax, VA 22031**
Test Hole Coordinates	**N 6999204.7 / E 11832767.6**

Utility Attributes

Utility Owner	**WGL**	Outside Diameter of Utility	**8.50"**
Type of Utility	**Gas**	Outside Width of Utility	**8.50"**
Material type of Utility	**Steel (Coated)**	Portion of Utility Measured	**Full**

Top of Utility

Existing Grade Elevation	**286.18'**
Top of Utility Elevation	**281.36'**
Depth of Cover	**4.82'**

Additional Information

CREW FOUND AN 8 1/2" COATED STEEL GAS LINE, CREW ALSO FOUND COPIOUS AMOUNT OF WATER AT TEST HOLE LOCATION.

Horizontal Datum: NAD83 Va. State Plane, North Grid, (U.S. Survey Feet)
Vertical Datum: NGVD29
Coordinate base derived from control provided by WSSI.

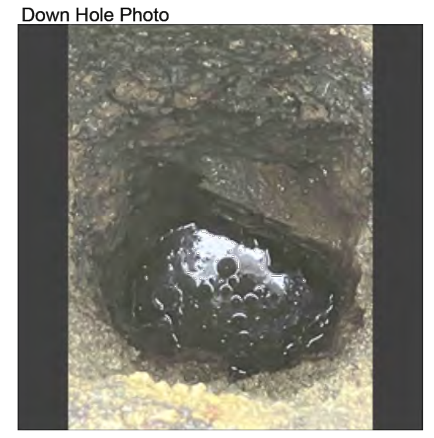
COMMONWEALTH OF VIRGINIA
JOSEPH B. FLINT
Lic. No. 3541
03/12/2025
LAND SURVEYOR

TH #4 Data Acquisition Date: **3/6/2025**

Test Hole Location Map

Pre Excavation Photo

Down Hole Photo



Test Hole Data Report

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PH. 703-361-6005 FAX 844-273-5361
VBPLS FIRM #47006626 / VBPE FIRM #0407006626

TH #5 Data Acquisition Date: **3/6/2025**

General Information

SAM Project #:	**1025096292**
Project Name:	**City of Fairfax/Gateway Regional Park**
Client:	**Wetland Studies & Solutions, Inc.**
Anticipated Target Utility or Utilities	**8" WRAPPED STEEL GAS LINE**
Test Hole General Location	**3301 Old Pickett Road, Fairfax, VA 22031**
Test Hole Coordinates	**N 6999155.5 / E 11832784.0**

Utility Attributes

Utility Owner	**WGL**	Outside Diameter of Utility	**8.50"**
Type of Utility	**Gas**	Outside Width of Utility	**8.50"**
Material type of Utility	**Steel (Coated)**	Portion of Utility Measured	**Full**

Top of Utility

Existing Grade Elevation	**286.03'**
Top of Utility Elevation	**281.22'**
Depth of Cover	**4.81'**

Additional Information

CREW WAS EXPECTED TO FIND AN 8" WRAPPED STEEL GAS LINE, BUT FOUND AN 8 1/2" COATED STEEL GAS LINE, CREW ALSO FOUND COPIOUS AMOUNT OF WATER AT TEST HOLE LOCATION.

Horizontal Datum: NAD83 Va. State Plane, North Grid, (U.S. Survey Feet)
Vertical Datum: NGVD29
Coordinate base derived from control provided by WSSI.

COMMONWEALTH OF VIRGINIA
JOSEPH B. FLINT
Lic. No. 3541
03/12/2025
LAND SURVEYOR

TH #5 Data Acquisition Date: **3/6/2025**

Test Hole Location Map

Pre Excavation Photo

Down Hole Photo

Wetland Studies and Solutions, Inc.
a DAVEY company
5300 Wellington Branch Drive • Suite 100
Gainesville, Virginia 20155
Phone: 703-679-5600 • Fax: 703-679-5601
www.wetlands.com

Gas Line Test Hole Data

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

SCALE: 1" = 20' C.I.: 1'

DATE: August 2025

Horizontal Datum: NAD83

Vertical Datum: NGVD29

Boundary and Topo Source:
NV5 Geospatial

Design	Draft	Approved
DMC	DMC	FRG

Sheet #
6 of 55

Computer File Name:
L:\32000s\32000\32047.02\CADD\04-ENGR\12-sig sub planset_construction EXISTING CONDITIONS PLAN.dwg

LEGEND

EXISTING TREE TO REMAIN WITH CRITICAL ROOT ZONE (CRZ) & STRUCTURAL CRITICAL ROOT ZONE (SRZ)

LTS — LIMITS OF TREE SURVEY

FIELD-VERIFIED RPA

TREE PRESERVATION PRIORITY

- HIGH PRIORITY FOR PRESERVATION
- MODERATE PRIORITY FOR PRESERVATION
- LOW PRIORITY FOR PRESERVATION
- TREES NOT RECOMMENDED FOR PRESERVATION

MAP NOTES:

1. THIS MAP HAS BEEN ORIENTED TO THE VIRGINIA COORDINATE SYSTEM OF 1983, NORTH ZONE, NAD83.
2. THE BOUNDARY LINE INFORMATION SHOWN HEREON WAS DERIVED FROM COUNTY DIGITAL DATA AND IS FOR INFORMATION PURPOSES ONLY. THIS DOES NOT CONSTITUTE A BOUNDARY SURVEY BY WETLAND STUDIES AND SOLUTIONS, INC. (WSSI).

TREE ASSESSMENT NOTES:

1. TREE CONDITION ASSESSMENT CONDUCTED BY R. JONATHAN WHITE, ISA# MA-6225A BETWEEN JAN 23 & 24, 2023.
2. THE INSPECTION OF THESE TREES CONSISTED SOLELY OF A VISUAL INSPECTION FROM THE GROUND. WHILE MORE THOROUGH TECHNIQUES ARE AVAILABLE FOR INSPECTION AND EVALUATION, THEY WERE NEITHER REQUESTED NOR CONSIDERED NECESSARY OR APPROPRIATE AT THIS TIME.

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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TREE INVENTORY PLAN

GATEWAY REGIONAL PARK

CITY OF FAIRFAX, VA

NATHAN EVANS ISA# MA-6119A INTERNATIONAL SOCIETY OF ARBORICULTURE CERTIFIED ARBORIST

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: May 2024 | SCALE: 1" = 20' | C.I.: 2'

Horizontal Datum: VCS NAD 83
Vertical Datum: NGVD29
Boundary and Topo Source: CITY OF FAIRFAX (LIMITS) FAIRFAX COUNTY (TOPO)

Design	Draft	Approved
NE	NE	SH

WSSI Project Number: 32047.02

Tree Inventory Table

Tree #	DBH (Diameter at 4.5 feet above grade)	Common Name	Botanical Name	Condition Rating %	Condition Rating	Dead Tree (Y/N)	Approx Canopy Radius (FT)	Approx Tree Height (FT)	Number of Stems	SRZ Structural Critical Root Zone (radius) in Feet	CRZ Critical Root Zone Radius in Ft (1.5 ft radius/in DBH)	Priority (1-4)	Additional Notes	Condition Notes
1	13	oak, white	Quercus alba	60%	Fair	NO	8	60	1	6	20	2		Narrow Crown, One Sided, Compacted Soils, Small DW (1-2")
2	6	oak, northern red	Quercus rubra	65%	Good	NO	6	40	1	3	9	2		One Sided
3	12	oak, white	Quercus alba	45%	Fair	NO	5	30	1	5	18	3	18"x12"x4"	Basal Decay, Small DW (1-2"), Broken Limbs
4	19	oak, northern red	Quercus rubra	65%	Good	NO	9	55	1	9	29	2		One Sided, Compacted Soils, Root Damage/Decay
5	17	oak, northern red	Quercus rubra	65%	Good	NO	9	55	1	8	26	2	slight lean	One Sided, Compacted Soils, Root Damage/Decay, Overhead Utilities
6	6	oak, northern red	Quercus rubra	65%	Good	NO	6	40	1	3	9	2	slight lean	One Sided, Compacted Soils, Small DW (1-2"), Overhead Utilities
7	12	maple, red	Acer rubrum	65%	Good	NO	8	50	1	5	18	2	8"x3"	One Sided, Root Damage/Decay, Trunk Decay
8	10	maple, red	Acer rubrum	70%	Good	NO	8	30	1	5	15	2		
9	6,3	maple, red	Acer rubrum	60%	Fair	NO	6	25	2	3	10	2		Compacted Soils, Included Bark/Weak Union, Co-Dominant Stems
10	8	ash, green	Fraxinus pennsylvanica	35%	Poor	NO	4	12	1	4	12	4		Basal Decay, Trunk Decay, Large DW (3"+), Small DW (1-2"), Low Vigor, Stressed, Serious Decline, Insect/Disease Problem
11	33	oak, northern red	Quercus rubra	70%	Good	NO	16	80	1	15	50	2		Compacted Soils, Large DW (3"+), Small DW (1-2")
12	13	hickory, pignut	Carya glabra	70%	Good	NO	9	45	1	6	20	2		Small DW (1-2"), Broken Limbs
13	14	hickory, pignut	Carya glabra	50%	Fair	NO	7	45	1	6	21	3	6'x5"x7", many suckers	Trunk Decay, Overhead Utilities
14	4,3	pear, Callery	Pyrus calleryana	60%	Fair	NO	5	25	2	2	8	3		Co-Dominant Stems, Overhead Utilities
15	6,5	pear, Callery	Pyrus calleryana	60%	Fair	NO	5	25	2	4	12	3		Co-Dominant Stems, Overhead Utilities
16	5,5	pear, Callery	Pyrus calleryana	60%	Fair	NO	5	25	2	3	11	3		Co-Dominant Stems, Overhead Utilities
17	5,7,5	willow, black	Salix nigra	65%	Good	NO	11	30	3	4	15	2		Co-Dominant Stems
18	6,5	ash, green	Fraxinus pennsylvanica	65%	Good	NO	6	30	2	4	12	2		Co-Dominant Stems, Small DW (1-2")
19	7	elm, slippery	Ulmus rubra	70%	Good	NO	6	18	1	3	11	2		
20	7	locust, black	Robinia pseudoacacia	40%	Poor	NO	5	16	1	3	11	3		Large DW (3"+), Small DW (1-2"), Low Vigor
21	10	maple, red	Acer rubrum	65%	Good	NO	11	40	1	5	15	2		
22	8	locust, black	Robinia pseudoacacia	40%	Poor	NO	6	25	1	4	12	3		Vines
23	12	ash, green	Fraxinus pennsylvanica	65%	Good	NO	8	40	1	5	18	2		Vines
24	6	boxelder	Acer negundo	70%	Good	NO	5	20	1	3	9	2		
25	7	cherry, black	Prunus serotina	50%	Fair	NO	6	25	1	3	11	3		Low Vigor, Stressed, Vines
26	9	pear, Callery	Pyrus calleryana	35%	Poor	NO	8	20	1	4	14	4	brokrn codom leader	
27	5,3,3	boxelder	Acer negundo	45%	Fair	NO	9	12	3	3	10	3		Co-Dominant Stems, Stressed, Vines
28	6,4	cherry, black	Prunus serotina	50%	Fair	NO	6	10	2	3	11	3		Co-Dominant Stems, Vines
29	9,5,9	pear, Callery	Pyrus calleryana	60%	Fair	NO	10	20	3	6	21	3		Co-Dominant Stems, Stressed, Vines
30	5,3	cherry, sweet	Prunus avium	50%	Fair	NO	6	14	2	3	9	3	dead lead	Co-Dominant Stems, Low Vigor, Stressed
31	5,4	cherry, sweet	Prunus avium	50%	Fair	NO	6	14	2	3	10	3	dead lead	Co-Dominant Stems, Low Vigor, Stressed
32	6	cherry, sweet	Prunus avium	55%	Fair	NO	6	16	1	3	9	2	dead lead	Low Vigor, Stressed, Overhead Utilities
33	5,3	ash, green	Fraxinus pennsylvanica	55%	Fair	NO	6	12	2	3	9	2		Co-Dominant Stems, Small DW (1-2"), Vines, Overhead Utilities
34	7,4,7,5,7,7	maple, red	Acer rubrum	60%	Fair	NO	10	30	6	7	23	2		Included Bark/Weak Union, Co-Dominant Stems, Small DW (1-2")
35	12,7	ash, green	Fraxinus pennsylvanica	55%	Fair	NO	7	50	2	6	21	3		Included Bark/Weak Union, Co-Dominant Stems, Large DW (3"+), Small DW (1-2"), Insect/Disease Problem
36	11,8	ash, green	Fraxinus pennsylvanica	45%	Fair	NO	8	55	2	6	20	3	dead lead	Included Bark/Weak Union, Co-Dominant Stems, Large DW (3"+), Small DW (1-2"), Insect/Disease Problem
37	5,3	pear, Callery	Pyrus calleryana	60%	Fair	NO	6	10	2	3	9	3		Co-Dominant Stems
38	29	oak, white	Quercus alba	65%	Good	NO	11	70	1	13	44	2		Co-Dominant Stems, Small DW (1-2"), Vines
39	21,16	sycamore, American	Platanus occidentalis	60%	Fair	NO	14	70	2	12	40	2		Included Bark/Weak Union, Co-Dominant Stems
40	8	catalpa, northern	Catalpa speciosa	55%	Fair	NO	6	10	1	4	12	3	undercut streambank cause of lean	Excessive Lean, Small DW (1-2"), Vines
41	5,3	ash, green	Fraxinus pennsylvanica	0%	Dead	YES	4	8	2	3	9	4		Large DW (3"+), Small DW (1-2")
42	12	maple, red	Acer rubrum	70%	Good	NO	7	35	1	5	18	2		Small DW (1-2"), Overhead Utilities
43	7,4	boxelder	Acer negundo	45%	Fair	NO	5	20	2	4	12	3	beaver damage	Stressed
44	6	sycamore, American	Platanus occidentalis	60%	Fair	NO	6	25	1	3	9	2		Large DW (3"+)
45	12	sycamore, American	Platanus occidentalis	65%	Good	NO	7	55	1	5	18	2		Small DW (1-2")
46	9	maple, red	Acer rubrum	75%	Good	NO	10	60	1	4	14	2		
47	5,3	boxelder	Acer negundo	60%	Fair	NO	5	10	2	3	9	2		Trunk Decay, Co-Dominant Stems, Overhead Utilities
48	15,17,16,16	sycamore, American	Platanus occidentalis	65%	Good	NO	20	75	4	14	48	2		Co-Dominant Stems, Small DW (1-2")
49	5,3	boxelder	Acer negundo	55%	Fair	NO	5	12	2	3	9	2	undercut bank cause lean	Excessive Lean
50	12,9	ash, green	Fraxinus pennsylvanica	40%	Poor	NO	10	65	2	7	23	3		Co-Dominant Stems, Large DW (3"+), Small DW (1-2"), Low Vigor
51	22	sycamore, American	Platanus occidentalis	70%	Good	NO	20	75	1	10	33	2		Large DW (3"+), Small DW (1-2")
52	10,9	catalpa, northern	Catalpa speciosa	45%	Fair	NO	7	12	2	6	20	3	undrcut bank cause lean	Excessive Lean, Large DW (3"+), Small DW (1-2")
53	14	catalpa, northern	Catalpa speciosa	55%	Fair	NO	8	14	1	6	21	2		Excessive Lean, Large DW (3"+), Small DW (1-2"), Vines
54		NO TREE	NO TREE	0%	Dead	YES	0	0	0	0	0	5	Removed by City	
55	6	ZZ Unknown snag	ZZ Unknown snag	0%	Dead	YES	0	6	1	3	9	4		
56	7	boxelder	Acer negundo	70%	Good	NO	6	16	1	3	11	2		Small DW (1-2"), Vines
57	6,3	pear, Callery	Pyrus calleryana	40%	Poor	NO	4	12	2	3	10	3		Co-Dominant Stems, Small DW (1-2"), Low Vigor, Vines
58	10	maple, red	Acer rubrum	65%	Good	NO	9	45	1	5	15	2	6"x5"x2"	Root Damage/Decay, Trunk Decay, Small DW (1-2")
59	20	oak, white	Quercus alba	65%	Good	NO	17	80	1	9	30	2		Large DW (3"+), Small DW (1-2"), Broken Limbs
60	15,15	hickory, pignut	Carya glabra	60%	Fair	NO	16	65	2	10	32	2		Compacted Soils, Root Damage/Decay, Included Bark/Weak Union, Co-Dominant Stems, Small DW (1-2")
61	16	hickory, pignut	Carya glabra	70%	Good	NO	16	65	1	7	24	2	gr 2"x24"	Compacted Soils, Girdling Roots, Small DW (1-2")
62	15	hickory, pignut	Carya glabra	70%	Good	NO	10	50	1	7	23	2	gr 2"x18"	Compacted Soils, Girdling Roots, Small DW (1-2")
63	25	maple, red	Acer rubrum	70%	Good	NO	16	70	1	11	38	2		Root Damage/Decay, Large DW (3"+), Small DW (1-2")
64	21	maple, red	Acer rubrum	15%	Critical	NO	16	70	1	9	32	4	trunk cavity 10'x 12"x18"	Root Damage/Decay, Basal Decay, Trunk Decay, Large DW (3"+), Small DW (1-2"), Low Vigor, Stressed
65	34	oak, white	Quercus alba	65%	Good	NO	13	75	1	15	51	2	24"x18"x3"	Trunk Decay, Large DW (3"+), Small DW (1-2"), Broken Limbs
66	10	hickory, pignut	Carya glabra	70%	Good	NO	7	25	1	5	15	2		
67	17	hickory, pignut	Carya glabra	70%	Good	NO	13	80	1	8	26	2		Large DW (3"+), Small DW (1-2")
68	8	hickory, pignut	Carya glabra	70%	Good	NO	8	25	1	4	12	2		Small DW (1-2")
69	9	hornbeam, American	Carpinus caroliniana	65%	Good	NO	9	30	1	4	14	2		
70	21	hickory, pignut	Carya glabra	70%	Good	NO	12	65	1	9	32	2	gr 1"x18"	Girdling Roots, Small DW (1-2")
71	12	oak, black	Quercus velutina	70%	Good	NO	12	65	1	5	18	2		Compacted Soils, Buried Root Collar
72	17	cherry, black	Prunus serotina	60%	Fair	NO	14	65	1	8	26	2		Large DW (3"+), Small DW (1-2")
73	10	beech, American	Fagus grandifolia	70%	Good	NO	16	65	1	5	15	2	gr 2"x12"	Girdling Roots
74	9	holly, American	Ilex opaca	70%	Good	NO	6	45	1	4	14	2		Small DW (1-2")
75	15	cherry, black	Prunus serotina	65%	Good	NO	13	70	1	7	23	2		Large DW (3"+), Small DW (1-2")
76	7	hornbeam, American	Carpinus caroliniana	65%	Good	NO	10	14	1	3	11	2		Small DW (1-2")

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Tree Inventory Table

Tree #	DBH (Diameter at 4.5 feet above grade)	Common Name	Botanical Name	Condition Rating %	Condition Rating	Dead Tree (Y/N)	Approx Canopy Radius (FT)	Approx Tree Height (FT)	Number of Stems	SRZ Structural Critical Root Zone (radius) in Feet	CRZ Critical Root Zone Radius in Ft (1.5 ft radius/in DBH)	Priority (1-4)	Additional Notes	Condition Notes
77	10	beech, American	Fagus grandifolia	75%	Good	NO	13	60	1	5	15	2		
78	8	beech, American	Fagus grandifolia	75%	Good	NO	10	45	1	4	12	2		
79	9	beech, American	Fagus grandifolia	75%	Good	NO	10	55	1	4	14	2		
80	12	elm, slippery	Ulmus rubra	70%	Good	NO	11	70	1	5	18	2		Large DW (3"+), Small DW (1-2")
81	11	beech, American	Fagus grandifolia	70%	Good	NO	9	50	1	5	17	2		
82	21	oak, northern red	Quercus rubra	55%	Fair	NO	11	70	1	9	32	2		Large DW (3"+), Small DW (1-2")
83	21	oak, northern red	Quercus rubra	50%	Fair	NO	10	75	1	9	32	3	24"x12"x9"	Trunk Decay, Large DW (3"+), Small DW (1-2")
84	6	hickory, pignut	Carya glabra	70%	Good	NO	5	30	1	3	9	2		
85	7	oak, white	Quercus alba	70%	Good	NO	5	25	1	3	11	2		Small DW (1-2")
86	30	oak, white	Quercus alba	55%	Fair	NO	16	75	1	14	45	2		Large DW (3"+), Small DW (1-2"), Stressed
87	22	oak, white	Quercus alba	45%	Fair	NO	16	75	1	10	33	3	12"x5"x3"	Trunk Decay, Large DW (3"+), Small DW (1-2"), Stressed
88	31	oak, white	Quercus alba	50%	Fair	NO	9	65	1	14	47	3	topped	Large DW (3"+), Small DW (1-2"), Stressed
89	12	hickory, shagbark	Carya ovata	70%	Good	NO	6	45	1	5	18	2		
90	11	hickory, pignut	Carya glabra	70%	Good	NO	6	55	1	5	17	2		Compacted Soils
91	8	oak, white	Quercus alba	50%	Fair	NO	6	14	1	4	12	2		
92	14	cherry, black	Prunus serotina	70%	Good	NO	7	50	1	6	21	2		
93	23	oak, northern red	Quercus rubra	55%	Fair	NO	13	65	1	10	35	2	8" dia cut @ 3'	Large DW (3"+), Small DW (1-2")
94	14	oak, white	Quercus alba	65%	Good	NO	8	45	1	6	21	2		Large DW (3"+), Small DW (1-2")
95	34	oak, northern red	Quercus rubra	45%	Fair	NO	14	75	1	15	51	3	dead top on primary lead	Included Bark/Weak Union, Co-Dominant Stems, Large DW (3"+), Small DW (1-2")
96	7	beech, American	Fagus grandifolia	70%	Good	NO	8	35	1	3	11	2		
97	8	hickory, pignut	Carya glabra	70%	Good	NO	7	40	1	4	12	2		
98	6	beech, American	Fagus grandifolia	70%	Good	NO	10	25	1	3	9	2		Root Damage/Decay
99	11	hickory, pignut	Carya glabra	65%	Good	NO	10	60	1	5	17	2	sapsuckrt damsge	
100	7	beech, American	Fagus grandifolia	70%	Good	NO	9	25	1	3	11	2		
101	8	beech, American	Fagus grandifolia	70%	Good	NO	10	25	1	4	12	2		
102	7	hornbeam, American	Carpinus caroliniana	65%	Good	NO	8	25	1	3	11	2		
104	12	beech, American	Fagus grandifolia	70%	Good	NO	12	40	1	5	18	2	gr 2"x9"	Girdling Roots, Root Damage/Decay
105	6	hornbeam, American	Carpinus caroliniana	65%	Good	NO	7	18	1	3	9	2		
106	21	hickory, pignut	Carya glabra	55%	Fair	NO	8	65	1	9	32	2		Large DW (3"+), Small DW (1-2"), Stressed
107	6	holly, American	Ilex opaca	65%	Good	NO	6	16	1	3	9	2		Compacted Soils, Buried Root Collar, Small DW (1-2")
108	6	beech, American	Fagus grandifolia	70%	Good	NO	10	25	1	3	9	2		
109	7	hickory, pignut	Carya glabra	70%	Good	NO	5	18	1	3	11	2		
110	16	oak, white	Quercus alba	50%	Fair	NO	8	65	1	7	24	2	dead top	Compacted Soils, Large DW (3"+), Small DW (1-2"), Stressed
111	14	cherry, black	Prunus serotina	60%	Fair	NO	7	50	1	6	21	2	top leaning	Compacted Soils, Buried Root Collar
112	15	hickory, pignut	Carya glabra	65%	Good	NO	9	65	1	7	23	2	8*x12"x7"	Basal Decay, Large DW (3"+), Small DW (1-2")
113	25	oak, black	Quercus velutina	65%	Good	NO	13	70	1	11	38	2		
114	8	hickory, pignut	Carya glabra	70%	Good	NO	7	30	1	4	12	2		Small DW (1-2")
115	16	hickory, pignut	Carya glabra	70%	Good	NO	13	60	1	7	24	2		Small DW (1-2")
116	29	maple, red	Acer rubrum	40%	Poor	NO	13	55	1	13	44	3	8'x14"x5"	Basal Decay, Trunk Decay
117	8,7,6	maple, red	Acer rubrum	65%	Good	NO	8	25	3	5	18	2		Co-Dominant Stems, Small DW (1-2"), Broken Limbs
118	17	oak, black	Quercus velutina	65%	Good	NO	12	60	1	8	26	2		Small DW (1-2")
119	7	maple, red	Acer rubrum	60%	Fair	NO	6	16	1	3	11	2		Root Damage/Decay, Trunk Decay
120	18	hickory, pignut	Carya glabra	70%	Good	NO	12	65	1	8	27	2		Small DW (1-2"), Broken Limbs
121	4,4	hornbeam, American	Carpinus caroliniana	60%	Fair	NO	4	10	2	3	8	2		Trunk Decay
122	8	hickory, pignut	Carya glabra	75%	Good	NO	10	45	1	4	12	2		Small DW (1-2")
123	7	hickory, pignut	Carya glabra	70%	Good	NO	6	14	1	3	11	2		
124	7	hornbeam, American	Carpinus caroliniana	60%	Fair	NO	5	16	1	3	11	2		Basal Decay, Small DW (1-2")
125	6	hornbeam, American	Carpinus caroliniana	40%	Poor	NO	5	16	1	3	9	3	perling bark	Basal Decay, Trunk Decay, Large DW (3"+), Small DW (1-2"), Branch Decay
126	8	hornbeam, American	Carpinus caroliniana	40%	Poor	NO	5	16	1	4	12	3	dead top	Basal Decay, Trunk Decay, Large DW (3"+), Small DW (1-2"), Branch Decay
127	10	beech, American	Fagus grandifolia	70%	Good	NO	13	30	1	5	15	2		
128	18	cherry, black	Prunus serotina	60%	Fair	NO	13	65	1	8	27	2		Large DW (3"+), Small DW (1-2")
129	21	oak, northern red	Quercus rubra	50%	Fair	NO	12	70	1	9	32	3	dead top	Large DW (3"+), Small DW (1-2")
130	7	hornbeam, American	Carpinus caroliniana	70%	Good	NO	6	16	1	3	11	2		Small DW (1-2")
131	16	oak, black	Quercus velutina	65%	Good	NO	11	70	1	7	24	2		
132	10	hickory, mockernut	Carya tomentosa	55%	Fair	NO	6	18	1	5	15	2		Compacted Soils, Small DW (1-2"), Stressed
133	6	hornbeam, American	Carpinus caroliniana	70%	Good	NO	7	30	1	3	9	2	Asphault pile @ base	
134	6	dogwood, flowering	Cornus florida	50%	Fair	NO	5	18	1	3	9	3		Trunk Decay, Small DW (1-2")
135	6	hickory, pignut	Carya glabra	50%	Fair	NO	4	25	1	3	9	3	peeling bark	One Sided, Small DW (1-2")
136	6	hornbeam, American	Carpinus caroliniana	55%	Fair	NO	5	30	1	3	9	3	frost cracks, overlapping limbs	Trunk Decay, Branch Decay
137	6	cherry, black	Prunus serotina	65%	Good	NO	7	30	1	3	9	2		Buried Root Collar
138	6	hornbeam, American	Carpinus caroliniana	70%	Good	NO	7	20	1	3	9	2		
139	5,4	boxelder	Acer negundo	40%	Poor	NO	6	8	2	3	10	3	overlapping branches	Suppressed, Co-Dominant Stems, Large DW (3"+), Small DW (1-2"), Low Vigor, Stressed, Vines

Wetland Studies and Solutions, Inc. a DAVEY company

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TREE INVENTORY TABLE

GATEWAY REGIONAL PARK

CITY OF FAIRFAX, VA

INTERNATIONAL SOCIETY OF ARBORICULTURE NATHAN EVANS ISA# MA-6119A CERTIFIED ARBORIST

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: May 2024 SCALE: 1" = 20' C.I.: 2'

Horizontal Datum: VCS NAD 83

Vertical Datum: NGVD29

Boundary and Topo Source:
CITY OF FAIRFAX (LIMITS)
FAIRFAX COUNTY (TOPO)

Design	Draft	Approved
NE	NE	SH

Sheet #
8 of 55

WSSI Project Number:
32047.02

LEGEND

- EXISTING TREE TO REMAIN WITH CRITICAL ROOT ZONE (CRZ) & STRUCTURAL CRITICAL ROOT ZONE (SRZ)
- EXISTING TREE TO BE REMOVED
- EXISTING TREE TO BE REMOVED BY ARBORIST (SEE SPECIFICATIONS)
- TPF — PROPOSED TREE PROTECTION FENCE (SEE DETAIL & SPECIFICATIONS)
- RP — PROPOSED ROOT PRUNING (SEE DETAIL & SPECIFICATIONS)
- PROPOSED LOD
- LTS — LIMITS OF TREE SURVEY
- FIELD-VERIFIED RPA

GENERAL NOTE:

SEE EROSION & SEDIMENT CONTROL PLAN (SHEETS 32-35) FOR CONSTRUCTION ENTRANCE, STOCKPILE AREAS, AND E&S CONTROLS.

MAP NOTES:

1. THIS MAP HAS BEEN ORIENTED TO THE VIRGINIA COORDINATE SYSTEM OF 1983, NORTH ZONE, NAD83.
2. THE BOUNDARY LINE INFORMATION SHOWN HEREON WAS DERIVED FROM COUNTY DIGITAL DATA AND IS FOR INFORMATION PURPOSES ONLY. THIS DOES NOT CONSTITUTE A BOUNDARY SURVEY BY WETLAND STUDIES AND SOLUTIONS, INC. (WSSI).

TREE ASSESSMENT NOTES:

1. TREE CONDITION ASSESSMENT CONDUCTED BY R. JONATHAN WHITE, ISA# MA-6225A BETWEEN JAN 23 & 24, 2023.
2. THE INSPECTION OF THESE TREES CONSISTED SOLELY OF A VISUAL INSPECTION FROM THE GROUND. WHILE MORE THOROUGH TECHNIQUES ARE AVAILABLE FOR INSPECTION AND EVALUATION, THEY WERE NEITHER REQUESTED NOR CONSIDERED NECESSARY OR APPROPRIATE AT THIS TIME.

GRAPHIC SCALE

0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

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TREE PRESERVATION PLAN

GATEWAY REGIONAL PARK

CITY OF FAIRFAX, VA

INTERNATIONAL SOCIETY OF ARBORICULTURE
NATHAN EVANS
ISA# MA-6119A
CERTIFIED ARBORIST

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: May 2024 | SCALE: 1" = 20' | C.I.: 1'

Horizontal Datum: VCS NAD 83

Vertical Datum:

Boundary and Topo Source:
CITY OF FAIRFAX (LIMITS)
FAIRFAX COUNTY (TOPO)

Design	Draft	Approved
NE	NE	SH

WSSI Project Number:
32047.02

Date: MARCH 14, 2024

Tree Protection Action Key

Project: 32047.02

Tree #	DBH (Diameter at 4.5 feet above grade)	Common Name	Botanical Name	Condition Rating %	Condition Rating	Dead Tree (Y/N)	Approx Canopy Radius (FT)	Approx Tree Height (FT)	Number of Stems	SRZ Structural Critical Root Zone (radius) in Feet	CRZ Critical Root Zone Radius in Ft (1.5 ft radius/in DBH)	Priority (1-4)	Removal	Removal By Arborist	Preservation Measures: Root Prune	Tree Protection Fence	Mulch	Soil Restoration/Aeration	Tree Condition Inspections	Watering	Temp Root Protection Matt	Root Aeration Matting	Construction Oversight/Monitoring	Additional Notes	Condition Notes
1	13	oak, white	Quercus alba	60%	Fair	NO	8	60	1	6	20	2		X											Narrow Crown, One Sided, Compacted Soils, Small DW (1-2")
2	6	oak, northern red	Quercus rubra	65%	Good	NO	6	40	1	3	9	2			X	X	X		X				X		One Sided
3	12	oak, white	Quercus alba	45%	Fair	NO	5	30	1	5	18	3	X											18"x12"x4"	Basal Decay, Small DW (1-2"), Broken Limbs
4	19	oak, northern red	Quercus rubra	65%	Good	NO	9	55	1	9	29	2		X											One Sided, Compacted Soils, Root Damage/Decay
5	17	oak, northern red	Quercus rubra	65%	Good	NO	9	55	1	8	26	2	X											slight lean	One Sided, Compacted Soils, Root Damage/Decay, Overhead Utilities
6	6	oak, northern red	Quercus rubra	65%	Good	NO	6	40	1	3	9	2	X											slight lean	One Sided, Compacted Soils, Small DW (1-2"), Overhead Utilities
7	12	maple, red	Acer rubrum	65%	Good	NO	8	50	1	5	18	2	X											8"x3"	One Sided, Root Damage/Decay, Trunk Decay
8	10	maple, red	Acer rubrum	70%	Good	NO	8	30	1	5	15	2	X												
9	6,3	maple, red	Acer rubrum	60%	Fair	NO	6	25	2	3	10	2	X												Compacted Soils, Included Bark/Weak Union, Co-Dominant Stems
10	8	ash, green	Fraxinus pennsylvanica	35%	Poor	NO	4	12	1	4	12	4	X												Basal Decay, Trunk Decay, Large DW (3"+), Small DW (1-2"), Low Vigor, Stressed, Serious Decline, Insect/Disease Problem
11	33	oak, northern red	Quercus rubra	70%	Good	NO	16	80	1	15	50	2	X												Compacted Soils, Large DW (3"+), Small DW (1-2")
12	13	hickory, pignut	Carya glabra	70%	Good	NO	9	45	1	6	20	2	X												Small DW (1-2"), Broken Limbs
13	14	hickory, pignut	Carya glabra	50%	Fair	NO	7	45	1	6	21	3	X											6'x5"x7", many suckers	Trunk Decay, Overhead Utilities
14	4,3	pear, Callery	Pyrus calleryana	60%	Fair	NO	5	25	2	2	8	3		X											Co-Dominant Stems, Overhead Utilities
15	6,5	pear, Callery	Pyrus calleryana	60%	Fair	NO	5	25	2	4	12	3		X											Co-Dominant Stems, Overhead Utilities
16	5,5	pear, Callery	Pyrus calleryana	60%	Fair	NO	5	25	2	3	11	3		X											Co-Dominant Stems, Overhead Utilities
17	5,7,5	willow, black	Salix nigra	65%	Good	NO	11	30	3	4	15	2				X									Co-Dominant Stems
18	6,5	ash, green	Fraxinus pennsylvanica	65%	Good	NO	6	30	2	4	12	2				X									Co-Dominant Stems, Small DW (1-2")
19	7	elm, slippery	Ulmus rubra	70%	Good	NO	6	18	1	3	11	2				X									
20	7	locust, black	Robinia pseudoacacia	40%	Poor	NO	5	16	1	3	11	3				X									Large DW (3"+), Small DW (1-2"), Low Vigor
21	10	maple, red	Acer rubrum	65%	Good	NO	11	40	1	5	15	2				X									
22	8	locust, black	Robinia pseudoacacia	40%	Poor	NO	6	25	1	4	12	3				X									Vines
23	12	ash, green	Fraxinus pennsylvanica	65%	Good	NO	8	40	1	5	18	2				X									Vines
24	6	boxelder	Acer negundo	70%	Good	NO	5	20	1	3	9	2				X									
25	7	cherry, black	Prunus serotina	50%	Fair	NO	6	25	1	3	11	3				X									Low Vigor, Stressed, Vines
26	9	pear, Callery	Pyrus calleryana	35%	Poor	NO	8	20	1	4	14	4				X								brokrn codom leader	
27	5,3,3	boxelder	Acer negundo	45%	Fair	NO	9	12	3	3	10	3				X									Co-Dominant Stems, Stressed, Vines
28	6,4	cherry, black	Prunus serotina	50%	Fair	NO	6	10	2	3	11	3				X									Co-Dominant Stems, Vines
29	9,5,9	pear, Callery	Pyrus calleryana	60%	Fair	NO	10	20	3	6	21	3				X									Co-Dominant Stems, Stressed, Vines
30	5,3	cherry, sweet	Prunus avium	50%	Fair	NO	6	14	2	3	9	3				X								dead lead	Co-Dominant Stems, Low Vigor, Stressed
31	5,4	cherry, sweet	Prunus avium	50%	Fair	NO	6	14	2	3	10	3				X								dead lead	Co-Dominant Stems, Low Vigor, Stressed
32	6	cherry, sweet	Prunus avium	55%	Fair	NO	6	16	1	3	9	2				X								dead lead	Low Vigor, Stressed, Overhead Utilities
33	5,3	ash, green	Fraxinus pennsylvanica	55%	Fair	NO	6	12	2	3	9	2				X									Co-Dominant Stems, Small DW (1-2"), Vines, Overhead Utilities
34	7,4,7,5, 7,7	maple, red	Acer rubrum	60%	Fair	NO	10	30	6	7	23	2		X											Included Bark/Weak Union, Co-Dominant Stems, Small DW (1-2")
35	12,7	ash, green	Fraxinus pennsylvanica	55%	Fair	NO	7	50	2	6	21	3			X	X	X		X				X		Included Bark/Weak Union, Co-Dominant Stems, Large DW (3"+), Small DW (1-2"), Insect/Disease Problem
36	11,8	ash, green	Fraxinus pennsylvanica	45%	Fair	NO	8	55	2	6	20	3		X										dead lead	Included Bark/Weak Union, Co-Dominant Stems, Large DW (3"+), Small DW (1-2"), Insect/Disease Problem
37	5,3	pear, Callery	Pyrus calleryana	60%	Fair	NO	6	10	2	3	9	3	X												Co-Dominant Stems
38	29	oak, white	Quercus alba	65%	Good	NO	11	70	1	13	44	2			X	X	X		X				X		Co-Dominant Stems, Small DW (1-2"), Vines
39	21,16	sycamore, American	Platanus occidentalis	60%	Fair	NO	14	70	2	12	40	2			X	X	X		X				X		Included Bark/Weak Union, Co-Dominant Stems
40	8	catalpa, northern	Catalpa speciosa	55%	Fair	NO	6	10	1	4	12	3				X								undercut streambank cause of lean	Excessive Lean, Small DW (1-2"), Vines
41	5,3	ash, green	Fraxinus pennsylvanica	0%	Dead	YES	4	8	2	3	9	4		X											Large DW (3"+), Small DW (1-2")
42	12	maple, red	Acer rubrum	70%	Good	NO	7	35	1	5	18	2	X												Small DW (1-2"), Overhead Utilities
43	7,4	boxelder	Acer negundo	45%	Fair	NO	5	20	2	4	12	3				X								beaver damage	Stressed
44	6	sycamore, American	Platanus occidentalis	60%	Fair	NO	6	25	1	3	9	2				X									Large DW (3"+)
45	12	sycamore, American	Platanus occidentalis	65%	Good	NO	7	55	1	5	18	2			X	X	X		X				X		Small DW (1-2")
46	9	maple, red	Acer rubrum	75%	Good	NO	10	60	1	4	14	2		X											
47	5,3	boxelder	Acer negundo	60%	Fair	NO	5	10	2	3	9	2	X												Trunk Decay, Co-Dominant Stems, Overhead Utilities
48	15,17,1 6,16	sycamore, American	Platanus occidentalis	65%	Good	NO	20	75	4	14	48	2			X	X	X		X				X		Co-Dominant Stems, Small DW (1-2")
49	5,3	boxelder	Acer negundo	55%	Fair	NO	5	12	2	3	9	2				X								undercut bank cause lean	Excessive Lean
50	12,9	ash, green	Fraxinus pennsylvanica	40%	Poor	NO	10	65	2	7	23	3			X	X	X		X				X		Co-Dominant Stems, Large DW (3"+), Small DW (1-2"), Low Vigor
51	22	sycamore, American	Platanus occidentalis	70%	Good	NO	20	75	1	10	33	2			X	X	X		X				X		Large DW (3"+), Small DW (1-2")
52	10,9	catalpa, northern	Catalpa speciosa	45%	Fair	NO	7	12	2	6	20	3				X								undrcut bank cause lean	Excessive Lean, Large DW (3"+), Small DW (1-2")
53	14	catalpa, northern	Catalpa speciosa	55%	Fair	NO	8	14	1	6	21	2				X									Excessive Lean, Large DW (3"+), Small DW (1-2"), Vines
54		NO TREE	NO TREE	0%	Dead	YES	0	0	0	0	0	5				X								Removed by City	
55	6	ZZ Unknown snag	ZZ Unknown snag	0%	Dead	YES	0	6	1	3	9	4				X									
56	7	boxelder	Acer negundo	70%	Good	NO	6	16	1	3	11	2			X	X	X		X				X		Small DW (1-2"), Vines
57	6,3	pear, Callery	Pyrus calleryana	40%	Poor	NO	4	12	2	3	10	3	X												Co-Dominant Stems, Small DW (1-2"), Low Vigor, Vines
58	10	maple, red	Acer rubrum	65%	Good	NO	9	45	1	5	15	2	X											6"x5"x2"	Root Damage/Decay, Trunk Decay, Small DW (1-2")
59	20	oak, white	Quercus alba	65%	Good	NO	17	80	1	9	30	2	X												Large DW (3"+), Small DW (1-2"), Broken Limbs
60	15,15	hickory, pignut	Carya glabra	60%	Fair	NO	16	65	2	10	32	2	X												Compacted Soils, Root Damage/Decay, Included Bark/Weak Union, Co-Dominant Stems, Small DW (1-2")
61	16	hickory, pignut	Carya glabra	70%	Good	NO	16	65	1	7	24	2	X											gr 2"x24"	Compacted Soils, Girdling Roots, Small DW (1-2")
62	15	hickory, pignut	Carya glabra	70%	Good	NO	10	50	1	7	23	2	X											gr 2"x18"	Compacted Soils, Girdling Roots, Small DW (1-2")
63	25	maple, red	Acer rubrum	70%	Good	NO	16	70	1	11	38	2	X												Root Damage/Decay, Large DW (3"+), Small DW (1-2")
64	21	maple, red	Acer rubrum	15%	Critical	NO	16	70	1	9	32	4	X											trunk cavity 10'x 12"x18"	Root Damage/Decay, Basal Decay, Trunk Decay, Large DW (3"+), Small DW (1-2"), Low Vigor, Stressed
65	34	oak, white	Quercus alba	65%	Good	NO	13	75	1	15	51	2	X											24"x18"x3"	Trunk Decay, Large DW (3"+), Small DW (1-2"), Broken Limbs
66	10	hickory, pignut	Carya glabra	70%	Good	NO	7	25	1	5	15	2	X												
67	17	hickory, pignut	Carya glabra	70%	Good	NO	13	80	1	8	26	2	X												Large DW (3"+), Small DW (1-2")
68	8	hickory, pignut	Carya glabra	70%	Good	NO	8	25	1	4	12	2	X												Small DW (1-2")
69	9	hornbeam, American	Carpinus caroliniana	65%	Good	NO	9	30	1	4	14	2	X												
70	21	hickory, pignut	Carya glabra	70%	Good	NO	12	65	1	9	32	2	X											gr 1"x18"	Girdling Roots, Small DW (1-2")
71	12	oak, black	Quercus velutina	70%	Good	NO	12	65	1	5	18	2	X												Compacted Soils, Buried Root Collar
72	17	cherry, black	Prunus serotina	60%	Fair	NO	14	65	1	8	26	2	X												Large DW (3"+), Small DW (1-2")
73	10	beech, American	Fagus grandifolia	70%	Good	NO	16	65	1	5	15	2		X										gr 2"x12"	Girdling Roots
74	9	holly, American	Ilex opaca	70%	Good	NO	6	45	1	4	14	2			X	X	X		X				X		Small DW (1-2")
75	15	cherry, black	Prunus serotina	65%	Good	NO	13	70	1	7	23	2			X	X	X		X				X		Large DW (3"+), Small DW (1-2")
76	7	hornbeam, American	Carpinus caroliniana	65%	Good	NO	10	14	1	3	11	2				X									Small DW (1-2")
77	10	beech, American	Fagus grandifolia	75%	Good	NO	13	60	1	5	15	2			X	X	X		X				X		
78	8	beech, American	Fagus grandifolia	75%	Good	NO	10	45	1	4	12	2			X	X	X		X				X		
79	9	beech, American	Fagus grandifolia	75%	Good	NO	10	55	1	4	14	2			X	X	X		X				X		
80	12	elm, slippery	Ulmus rubra	70%	Good	NO	11	70	1	5	18	2			X	X	X		X				X		Large DW (3"+), Small DW (1-2")
81	11	beech, American	Fagus grandifolia	70%	Good	NO	9	50	1	5	17	2				X									
82	21	oak, northern red	Quercus rubra	55%	Fair	NO	11	70	1	9	32	2			X	X	X		X				X		Large DW (3"+), Small DW (1-2")
83	21	oak, northern red	Quercus rubra	50%	Fair	NO	10	75	1	9	32	3		X										24"x12"x9"	Trunk Decay, Large DW (3"+), Small DW (1-2")
84	6	hickory, pignut	Carya glabra	70%	Good	NO	5	30	1	3	9	2				X									
85	7	oak, white	Quercus alba	70%	Good	NO	5	25	1	3	11	2				X									Small DW (1-2")
86	30	oak, white	Quercus alba	55%	Fair	NO	16	75	1	14	45	2			X	X	X		X				X		Large DW (3"+), Small DW (1-2"), Stressed
87	22	oak, white	Quercus alba	45%	Fair	NO	16	75	1	10	33	3		X										12"x5"x3"	Trunk Decay, Large DW (3"+), Small DW (1-2"), Stressed

Wetland Studies and Solutions, Inc. a DAVEY company

Date: MARCH 14, 2024

Tree Protection Action Key

Project: 32047.02

Tree #	DBH (Diameter at 4.5 feet above grade)	Common Name	Botanical Name	Condition Rating %	Condition Rating	Dead Tree (Y/N)	Approx Canopy Radius (FT)	Approx Tree Height (FT)	Number of Stems	SRZ Structural Critical Root Zone (radius) in Feet	CRZ Critical Root Zone Radius in Ft (1.5 ft radius/in DBH)	Priority (1-4)	Removal	Removal By Arborist	Preservation Measures: Root Prune	Tree Protection Fence	Mulch	Soil Restoration/Aeration	Tree Condition Inspections	Watering	Temp Root Protection Matt	Root Aeration Matting	Construction Oversight/Monitoring	Additional Notes	Condition Notes
88	31	oak, white	Quercus alba	50%	Fair	NO	9	65	1	14	47	3			X	X	X		X				X	topped	Large DW (3"+), Small DW (1-2"), Stressed
89	12	hickory, shagbark	Carya ovata	70%	Good	NO	6	45	1	5	18	2				X									
90	11	hickory, pignut	Carya glabra	70%	Good	NO	6	55	1	5	17	2				X									Compacted Soils
91	8	oak, white	Quercus alba	50%	Fair	NO	6	14	1	4	12	2	X												
92	14	cherry, black	Prunus serotina	70%	Good	NO	7	50	1	6	21	2	X												
93	23	oak, northern red	Quercus rubra	55%	Fair	NO	13	65	1	10	35	2	X											8" dia cut @ 3'	Large DW (3"+), Small DW (1-2")
94	14	oak, white	Quercus alba	65%	Good	NO	8	45	1	6	21	2	X												Large DW (3"+), Small DW (1-2")
95	34	oak, northern red	Quercus rubra	45%	Fair	NO	14	75	1	15	51	3	X											dead top on primary lead	Included Bark/Weak Union, Co-Dominant Stems, Large DW (3"+), Small DW (1-2")
96	7	beech, American	Fagus grandifolia	70%	Good	NO	8	35	1	3	11	2	X												
97	8	hickory, pignut	Carya glabra	70%	Good	NO	7	40	1	4	12	2		X											
98	6	beech, American	Fagus grandifolia	70%	Good	NO	10	25	1	3	9	2			X	X	X		X				X		Root Damage/Decay
99	11	hickory, pignut	Carya glabra	65%	Good	NO	10	60	1	5	17	2	X											sapsuckrt damsge	
100	7	beech, American	Fagus grandifolia	70%	Good	NO	9	25	1	3	11	2	X												
101	8	beech, American	Fagus grandifolia	70%	Good	NO	10	25	1	4	12	2	X												
102	7	hornbeam, American	Carpinus caroliniana	65%	Good	NO	8	25	1	3	11	2	X												
104	12	beech, American	Fagus grandifolia	70%	Good	NO	12	40	1	5	18	2		X										gr 2"x9"	Girdling Roots, Root Damage/Decay
105	6	hornbeam, American	Carpinus caroliniana	65%	Good	NO	7	18	1	3	9	2	X												
106	21	hickory, pignut	Carya glabra	55%	Fair	NO	8	65	1	9	32	2	X												Large DW (3"+), Small DW (1-2"), Stressed
107	6	holly, American	Ilex opaca	65%	Good	NO	6	16	1	3	9	2	X												Compacted Soils, Buried Root Collar, Small DW (1-2")
108	6	beech, American	Fagus grandifolia	70%	Good	NO	10	25	1	3	9	2	X												
109	7	hickory, pignut	Carya glabra	70%	Good	NO	5	18	1	3	11	2	X												
110	16	oak, white	Quercus alba	50%	Fair	NO	8	65	1	7	24	2	X											dead top	Compacted Soils, Large DW (3"+), Small DW (1-2"), Stressed
111	14	cherry, black	Prunus serotina	60%	Fair	NO	7	50	1	6	21	2	X											top leaning	Compacted Soils, Buried Root Collar
112	15	hickory, pignut	Carya glabra	65%	Good	NO	9	65	1	7	23	2	X											8*x12"x7"	Basal Decay, Large DW (3"+), Small DW (1-2")
113	25	oak, black	Quercus velutina	65%	Good	NO	13	70	1	11	38	2	X												
114	8	hickory, pignut	Carya glabra	70%	Good	NO	7	30	1	4	12	2	X												Small DW (1-2")
115	16	hickory, pignut	Carya glabra	70%	Good	NO	13	60	1	7	24	2	X												Small DW (1-2")
116	29	maple, red	Acer rubrum	40%	Poor	NO	13	55	1	13	44	3	X											8'x14"x5"	Basal Decay, Trunk Decay
117	8,7,6	maple, red	Acer rubrum	65%	Good	NO	8	25	3	5	18	2				X									Co-Dominant Stems, Small DW (1-2"), Broken Limbs
118	17	oak, black	Quercus velutina	65%	Good	NO	12	60	1	8	26	2	X												Small DW (1-2")
119	7	maple, red	Acer rubrum	60%	Fair	NO	6	16	1	3	11	2	X												Root Damage/Decay, Trunk Decay
120	18	hickory, pignut	Carya glabra	70%	Good	NO	12	65	1	8	27	2	X												Small DW (1-2"), Broken Limbs
121	4,4	hornbeam, American	Carpinus caroliniana	60%	Fair	NO	4	10	2	3	8	2	X												Trunk Decay
122	8	hickory, pignut	Carya glabra	75%	Good	NO	10	45	1	4	12	2	X												Small DW (1-2")
123	7	hickory, pignut	Carya glabra	70%	Good	NO	6	14	1	3	11	2	X												
124	7	hornbeam, American	Carpinus caroliniana	60%	Fair	NO	5	16	1	3	11	2	X												Basal Decay, Small DW (1-2")
125	6	hornbeam, American	Carpinus caroliniana	40%	Poor	NO	5	16	1	3	9	3	X											perling bark	Basal Decay, Trunk Decay, Large DW (3"+), Small DW (1-2"), Branch Decay
126	8	hornbeam, American	Carpinus caroliniana	40%	Poor	NO	5	16	1	4	12	3	X											dead top	Basal Decay, Trunk Decay, Large DW (3"+), Small DW (1-2"), Branch Decay
127	10	beech, American	Fagus grandifolia	70%	Good	NO	13	30	1	5	15	2	X												
128	18	cherry, black	Prunus serotina	60%	Fair	NO	13	65	1	8	27	2	X												Large DW (3"+), Small DW (1-2")
129	21	oak, northern red	Quercus rubra	50%	Fair	NO	12	70	1	9	32	3	X											dead top	Large DW (3"+), Small DW (1-2")
130	7	hornbeam, American	Carpinus caroliniana	70%	Good	NO	6	16	1	3	11	2	X												Small DW (1-2")
131	16	oak, black	Quercus velutina	65%	Good	NO	11	70	1	7	24	2	X												
132	10	hickory, mockernut	Carya tomentosa	55%	Fair	NO	6	18	1	5	15	2	X												Compacted Soils, Small DW (1-2"), Stressed
133	6	hornbeam, American	Carpinus caroliniana	70%	Good	NO	7	30	1	3	9	2				X								Asphault pile @ base	
134	6	dogwood, flowering	Cornus florida	50%	Fair	NO	5	18	1	3	9	3			X	X	X		X				X		Trunk Decay, Small DW (1-2")
135	6	hickory, pignut	Carya glabra	50%	Fair	NO	4	25	1	3	9	3				X								peeling bark	One Sided, Small DW (1-2")
136	6	hornbeam, American	Carpinus caroliniana	55%	Fair	NO	5	30	1	3	9	3	X											frost cracks, overlapping limbs	Trunk Decay, Branch Decay
137	6	cherry, black	Prunus serotina	65%	Good	NO	7	30	1	3	9	2	X												Buried Root Collar
138	6	hornbeam, American	Carpinus caroliniana	70%	Good	NO	7	20	1	3	9	2	X												
139	5,4	boxelder	Acer negundo	40%	Poor	NO	6	8	2	3	10	3				X								overlapping branches	Suppressed, Co-Dominant Stems, Large DW (3"+), Small DW (1-2"), Low Vigor, Stressed, Vines
140					0	NO	0	0	0	0	0	0													

Wetland Studies and Solutions, Inc. a DAVEY company

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TREE PRESERVATION TABLE

GATEWAY REGIONAL PARK

CITY OF FAIRFAX, VA

INTERNATIONAL SOCIETY OF ARBORICULTURE
NATHAN EVANS
ISA# MA-6119A
CERTIFIED ARBORIST

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: May 2024

SCALE: AS NOTED C.I.:1'

Horizontal Datum: VCS NAD 83

Vertical Datum:

Boundary and Topo Source:
CITY OF FAIRFAX (LIMITS)
FAIRFAX COUNTY (TOPO)

Design	Draft	Approved
NE	NE	SH

Sheet #
10 of 55

WSSI Project Number:
32047.02

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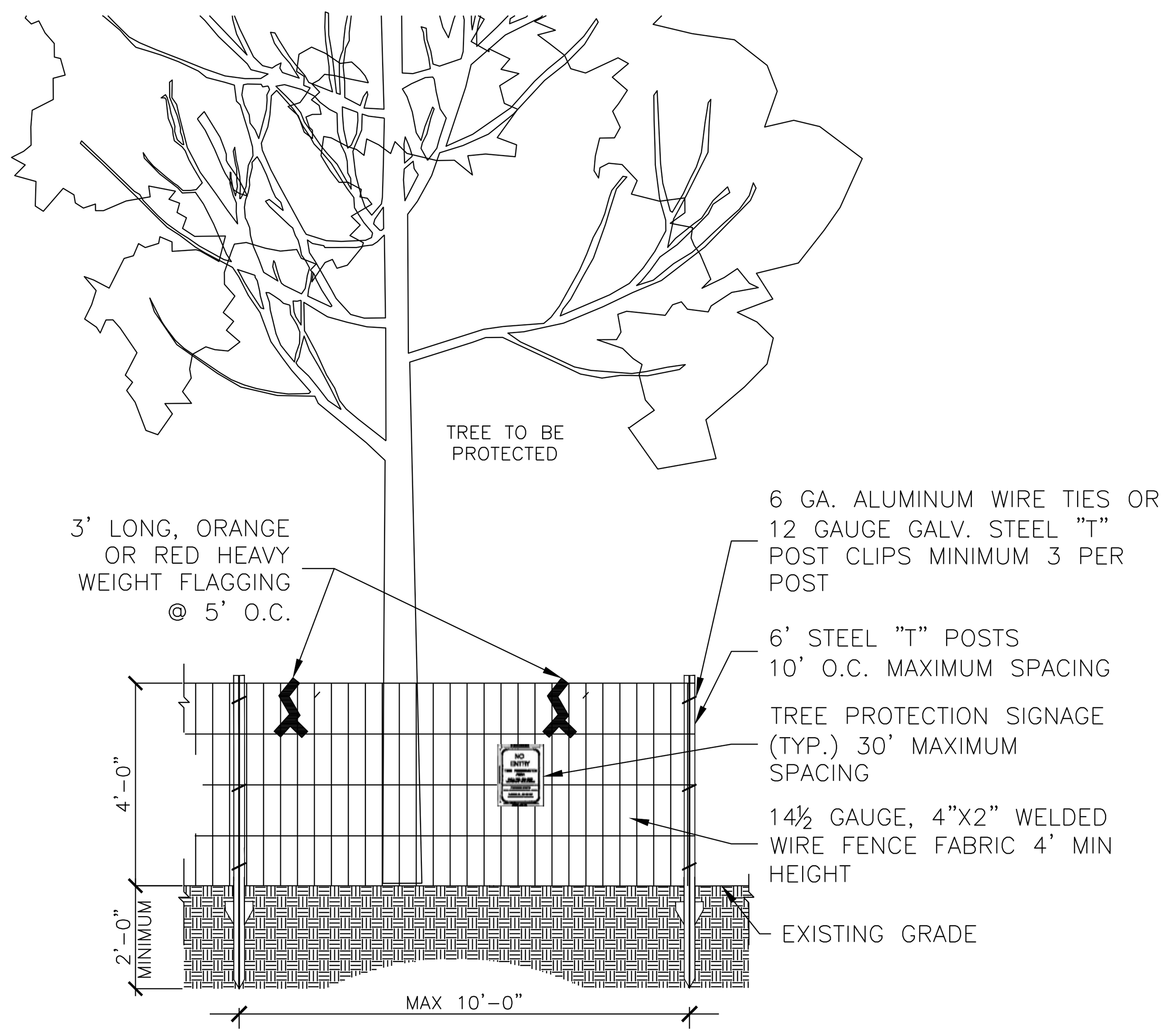
TREE PRESERVATION SPECIFICATIONS AND NARRATIVE

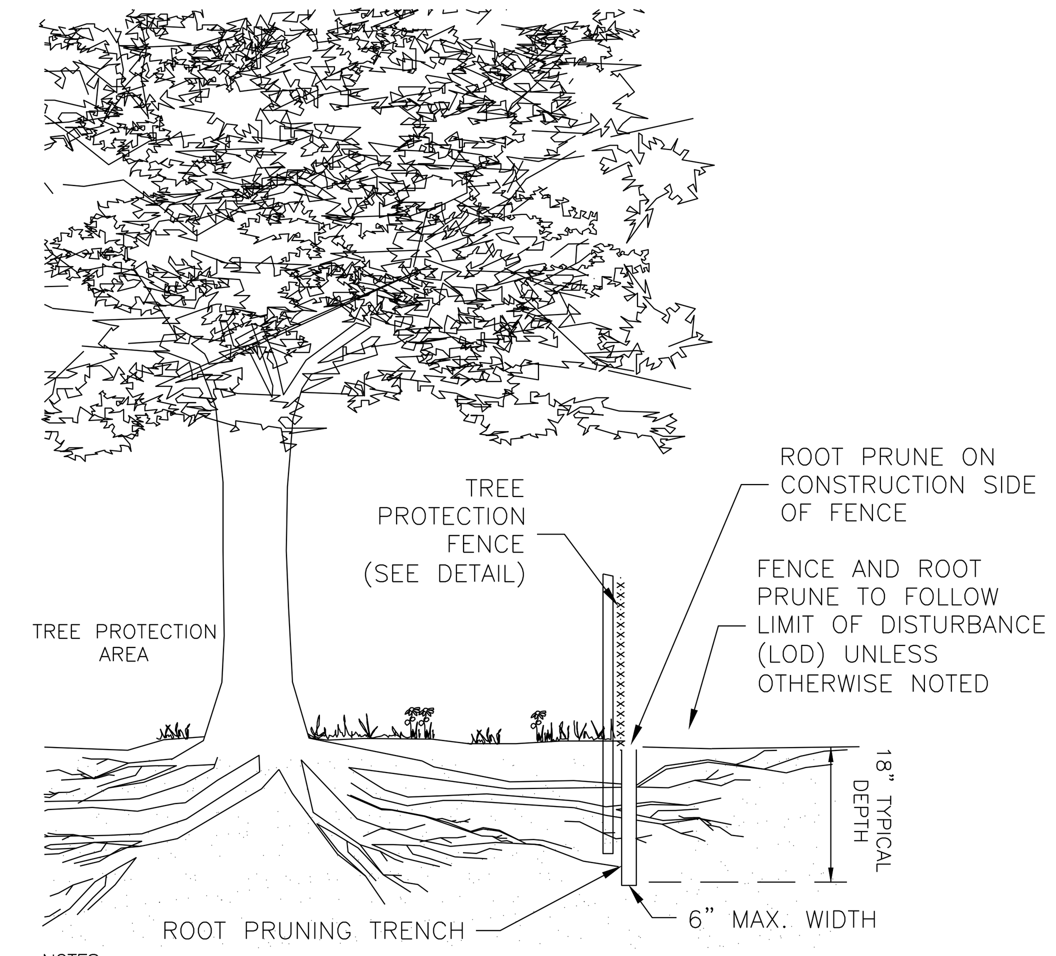
1. GENERAL
 1.1. REFER TO THE TREE PROTECTION ACTION KEY (TPAK) FOR SPECIFIC RECOMMENDATIONS FOR EACH TREE.
 1.2. PRIOR TO ANY DEMOLITION OR CONSTRUCTION WORK WITHIN OR ADJACENT TO TREE PROTECTION AREAS (TPA), A PRE-CONSTRUCTION SITE WALK SHALL BE HELD TO INCLUDE THE CONTRACT ARBORIST AND PROJECT ARBORIST WITH THE CONTRACTOR, ARCHITECT, *UFMD*, AND OWNER.
 1.3. SUBSTITUTIONS OR ALTERNATIVE METHODS OR MATERIALS SHALL BE REVIEWED AND APPROVED BY *UFMD*.
 1.4. ALL TREE PROTECTION MEASURES MUST BE IN PLACE PRIOR TO COMMENCEMENT OF DEMOLITION, SITE CLEARING OR CONSTRUCTION AND MAINTAINED THROUGHOUT CONSTRUCTION. TREE PROTECTION MEASURES MAY ONLY BE REMOVED WITH *UFMD* APPROVAL.
 1.5. ALL MEASURES WILL BE REVIEWED AFTER INSTALLATION AND APPROVED BY OWNER AND *UFMD*.
2. REMOVAL BY ARBORIST
 2.1. TREES DESIGNATED AS "REMOVAL BY ARBORIST" SHALL BE REMOVED BY A QUALIFIED ARBORIST "BY HAND", TO MINIMIZE POTENTIAL FOR DAMAGE TO REMAINING TREES AND ROOTS.
 2.2. CREWS SHALL BE DIRECTLY SUPERVISED BY A CERTIFIED ARBORIST.
 2.3. TRUCKS AND MECHANIZED EQUIPMENT SHALL NOT ENTER THE FENCED TREE PROTECTION AREAS, EXCEPT WHERE EXPLICITLY APPROVED BY THE PROJECT ARBORIST AND UTILIZING APPROVED ROOT PROTECTION DEVICE.
 2.4. STUMPS SHALL BE LEFT IN PLACE OR GROUND OUT AT THE OWNERS DISCRETION. STUMPS IN TURF/LANDSCAPE AREAS OR WITHIN ROOT AERATION MATTING AREAS SHALL BE GROUND.
 2.5. STUMP GRINDING SHALL BE DONE WITH SMALL MACHINES SPECIFICALLY DESIGNED FOR THAT PURPOSE. NO STUMPS SHALL BE EXCAVATED EXCEPT AS DESCRIBED HEREIN. STUMPS SHALL BE GROUND NOT MORE THAN 8" BELOW GRADE AND CARE MUST BE TAKEN TO MINIMIZE DAMAGE TO ROOTS OF RETAINED TREES.
3. TREE PROTECTION FENCE
 3.1. INSTALL AND MAINTAIN TEMPORARY TREE PROTECTION FENCE FOR EACH TREE PROTECTION AREA AS SHOWN ON THE PLAN. INSTALLATION IS TYPICALLY AFTER ROOT PRUNING AND PRIOR TO CLEARING & GRADING.
 3.2. FENCE SHALL BE ONE OF THE FOLLOWING: (SEE DETAIL)
  3.2.1. 4' HIGH, 14 GAUGE WELDED WIRE FENCE MOUNTED ON 6' STEEL "T" POSTS SPACED NOT MORE THAN 10' APART. FENCE SHALL BE ATTACHED TO POSTS USING GALVANIZED STEEL CLIPS OR ALUMINUM TIES. PLASTIC "ZIP" TIES SHALL NOT BE USED.
  3.2.2. 6' HIGH CHAIN LINK FENCE FABRIC MOUNTED ON 8', 1.5"ø GALVANIZED STEEL PIPE LINE POSTS. CORNER POSTS SHALL BE 2"ø. FENCE SHALL BE ATTACHED TO POSTS USING ALUMINUM TIES. PLASTIC "ZIP" TIES SHALL NOT BE USED.
  3.2.3. "SUPER SILT FENCE" (SILT FENCE WITH AN INCORPORATED CHAIN LINK FENCE FABRIC) INSTALLED AS SPECIFIED BY APPROPRIATE STATE OR LOCAL EROSION AND SEDIMENT CONTROL REQUIREMENTS.
 3.3. SILT FENCE SHALL BE COORDINATED FOR INSTALLATION TO ENHANCE PROTECTION AND AVOID UNNECESSARY ROOT CUTS BY SILT FENCE INSTALLATION.
 3.4. FENCE SHALL REMAIN FOR THE DURATION OF CONSTRUCTION. FENCE MAY BE REMOVED ONLY AFTER ALL CONSTRUCTION AND FINAL LANDSCAPING IS COMPLETE AND WITH *UFMD* APPROVAL.
4. TREE PROTECTION AREA SIGNS
 4.1. TREE PROTECTION AREA SIGNS SHALL BE AFFIXED TO ALL TREE PROTECTION FENCE AT 30' SPACING AVERAGE.
 4.2. SIGNS SHALL BE BILINGUAL (ENGLISH AND SPANISH).
 4.3. SIGNS SHALL NOT BE AFFIXED DIRECTLY TO TREES. SEE DETAIL.
 4.4. SIGN MATERIAL SHALL BE WATERPROOF, HEAVY VINYL OR SIMILAR.
 4.5. SIGNS SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
5. ROOT PRUNE
 5.1. THE EXACT LOCATION AND DEPTH WILL BE DETERMINED DURING THE PRE-CONSTRUCTION MEETING. SPECIFIC EQUIPMENT & METHODS WILL BE DETERMINED BY PROJECT ARBORIST AND *UFMD* BASED UPON DEPTH & TREE IMPACT. (SEE DETAIL)
 5.2. HAND PRUNE ROOTS OVER 1" DIAMETER WITHIN CRZS OF SIGNIFICANT TREES. STEEP SLOPES, DEEP EXCAVATIONS AND PAVEMENT/CURB REMOVAL WILL BE REVIEWED WHEN OPEN FOR HAND ROOT PRUNING DURING CONSTRUCTION.
 5.3. COORDINATE WITH SILT FENCE INSTALLATION TO MINIMIZE UNNECESSARY ROOT DAMAGE.
 5.4. ROOT PRUNING SHALL BE PERFORMED BY A CERTIFIED ARBORIST.
6. WOOD CHIP MULCH
 6.1. INSTALL MULCH FOR DESIGNATED SIGNIFICANT TREES. MULCH AREA SHALL BE ONE OF THE FOLLOWING, AT THE DISCRETION OF THE CONTRACT ARBORIST AND OWNER:
  6.1.1. INSTALL MULCH BED RINGS. MULCH SHOULD COVER AT LEAST THE ENTIRE STRUCTURAL ROOT ZONE. LARGER MULCH BEDS ARE PREFERRED.
  6.1.2. PROVIDE CONTINUOUS MULCH STRIP 10' TO 15' WIDE ALONG LOD WITHIN PRESERVED CRZ AREAS.
 6.2. MULCH SHALL BE INSTALLED TO A DEPTH OF 4". TOTAL MULCH DEPTH SHALL NOT EXCEED 4" SHOULD EXISTING MULCH BE PRESENT.
 6.3. MULCH SHALL BE DOUBLE GROUND SHREDDED HARDWOOD, AGED FOR AT LEAST 6 MONTHS FROM AN APPROVED SOURCE. INSUFFICIENTLY OR IMPROPERLY AGED MULCH CONTAINING HIGH BACTERIAL COUNTS OR HIGH LEVELS OF BARK, WALNUT, INVASIVE SPECIES, OR OTHER MATERIALS RESISTANT TO DECOMPOSITION SHALL NOT BE USED.
 6.4. MULCH SHALL NOT CONTACT TRUNK OF TREES.
 6.5. EDGING SHALL NOT BE USED.
7. CONSTRUCTION MONITORING/INSPECTIONS
 7.1. A CERTIFIED ARBORIST SHALL ACTIVELY MONITOR THE SITE TO ENSURE ADHERENCE TO ALL TREE PROTECTION REQUIREMENTS.
 7.2. THIS WORK IS TYPICALLY PREFORMED BY THE CONTRACT ARBORIST, TO BE HIRED BY THE GENERAL CONTRACTOR OR OWNER.
 7.3. SCHEDULE:
  7.3.1. PHASE 1 (DURING INITIAL CLEARING AND INSTALLATION OF TREE PROTECTION AND PERIMETER E&S CONTROLS) INSPECTIONS SHALL BE AT LEAST WEEKLY.
  7.3.2. PHASE 2 (DURING ALL REMAINING SITE WORK AND UNTIL PROJECT COMPLETION) INSPECTIONS SHALL BE AT LEAST MONTHLY.
  7.3.3. TRANSITION FROM WEEKLY TO MONTHLY SCHEDULE SHALL REQUIRE OWNER AND *UFMD* APPROVAL.
 7.4. REPORTS SHALL BE PROVIDED TO THE OWNER AND *UFMD*. REPORTS SHALL DOCUMENT CONDITION OF TREE PROTECTION DEVICES AND PROVIDE RECOMMENDATIONS FOR MAINTENANCE AND/OR ADDITIONAL CARE.
 7.5. ADDITIONAL ARBORIST INSPECTIONS AND/OR DIRECT ARBORIST OVERSIGHT OF CRITICAL TREE PRESERVATION ACTIVITIES, TREE PRUNING, TREE REMOVAL, OR OTHER SENSITIVE ACTIVITIES MAY BE REQUIRED. WEEKLY INSPECTIONS DO NOT SATISFY THE NEED FOR DIRECT ARBORIST OVERSIGHT THAT MAY BE REQUIRED FOR SPECIFIC ACTIVITIES.
8. TREE CONDITION MONITORING INSPECTIONS
 8.1. CONTRACT ARBORIST SHALL PROVIDE MONITORING OF THE CONDITION OF RETAINED TREES IN TREE PROTECTION AREAS, AND TREATMENT OF DETRIMENTAL CONDITIONS (INSECTS, DISEASES, NUTRIENT DEFICIENCIES, SOIL MOISTURE, ETC.), AS THEY OCCUR, OR AS APPROPRIATE FOR EFFECTIVE MANAGEMENT.
 8.2. INSPECTIONS SHALL BE PERFORMED AT LEAST MONTHLY DURING THE GROWING SEASON, BEGINNING PRIOR TO CONSTRUCTION AND CONTINUING THROUGHOUT CONSTRUCTION AND FOR AT LEAST ONE YEAR SUBSEQUENT TO COMPLETION OF CONSTRUCTION ACTIVITIES.
 8.3. A WRITTEN SUMMARY REPORT INCLUDING SPECIFIC TREATMENTS MADE AND RECOMMENDATIONS FOR ADDITIONAL TREATMENTS SHALL BE PROVIDED TO THE OWNER AND PROJECT ARBORIST SUBSEQUENT TO EACH INSPECTION.
9. PUBLICATIONS INCLUDED BY REFERENCE
 PUBLICATIONS LISTED HEREIN ARE PART OF THIS WORK TO EXTENT REFERENCED:
 9.1. ANSI A300 STANDARD PRACTICES FOR TREES, SHRUBS, AND OTHER WOODY PLANT MAINTENANCE
  9.1.1. PART 1 -- 2017, TREE PRUNING
  9.1.2. PART 2 -- 2018, SOIL MANAGEMENT
  9.1.3. PART 3 -- 2013, SUPPLEMENTAL SUPPORT SYSTEMS
  9.1.4. PART 4 -- 2014, LIGHTNING PROTECTION SYSTEMS
  9.1.5. PART 5 -- 2019, MANAGEMENT OF TREES AND SHRUBS DURING SITE PLANNING, SITE DEVELOPMENT, AND CONSTRUCTION
  9.1.6. PART 6 -- 2018, PLANTING AND TRANSPLANTING
  9.1.7. PART 8 -- 2020, ROOT MANAGEMENT
  9.1.8. PART 9 -- 2017, TREE RISK ASSESSMENT
  9.1.9. PART 10 -- 2016, IPM
 9.2. ANSI Z133.1 -- 2017 AND MOST RECENT UPDATES, ARBORICULTURAL OPERATIONS -- SAFETY REQUIREMENTS

NOTES:
1. INVASIVE SPECIES CONTROL NARRATIVE INCLUDED WITH BMP MANAGEMENT PLAN, SHEET 46.
2. TABULATION OF REQUIRED AND PROPOSED ONSITE 10-YEAR PERCENT TREE CANOPY COVERAGE INCLUDED WITH LANDSCAPE PLAN, SHEETS 40-41.



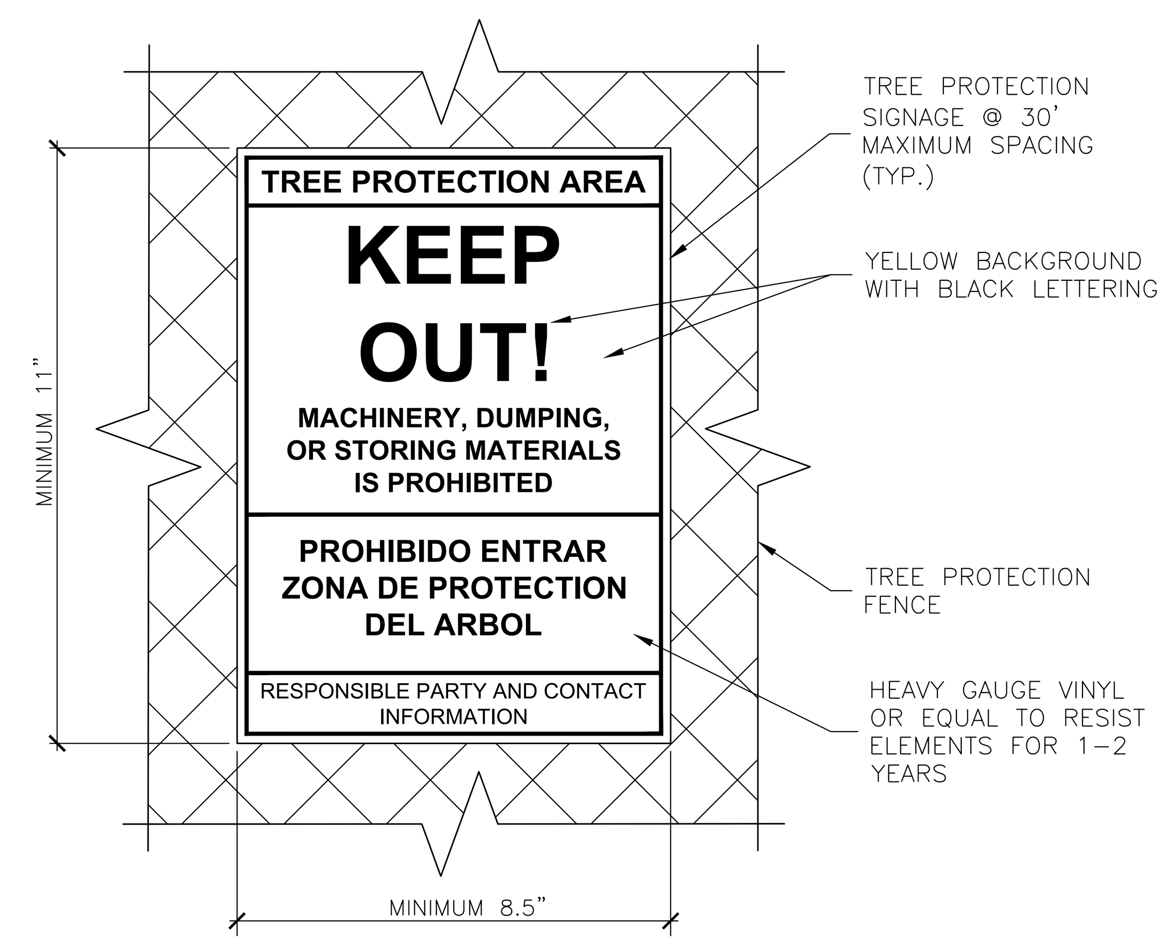
NOTES:
1. TREE PROTECTION FENCE SHALL BE INSTALLED PRIOR TO ANY SITE WORK, CLEARING OR DEMOLITION.
2. WHERE REQUIRED, SUPER SILT FENCE MAY BE USED IN LIEU OF WELDED WIRE FOR TREE PROTECTION PROVIDED IT IS INSTALLED AND MAINTAINED AS A TREE PROTECTION MEASURE AND IS POSTED WITH TREE PROTECTION SIGNS.
3. TREE PROTECTION FENCE SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION. REMOVE FENCE ONLY WITH APPROVAL AND AFTER ALL SITE WORK HAS BEEN COMPLETED.

1/LJ-3 WELDED WIRE TREE PROTECTION FENCE (TYPICAL)
SCALE: NTS



NOTES:
1. TREE PROTECTION AREA WILL BE DETERMINED AS PART OF THE PLAN REVIEW PROCESS. EXACT LOCATION, DEPTH AND METHODS OF ROOT PRUNING TO BE DETERMINED IN THE FIELD BY PROJECT ARBORIST.
2. EXACT LOCATION OF TREE PROTECTION AREAS SHALL BE STAKED OR FLAGGED PRIOR TO TRENCHING.
3. TRENCH SHOULD BE BACKFILLED IMMEDIATELY OR INCORPORATED WITH SILT FENCE INSTALLATION.
4. ROOTS SHOULD BE SEVERED BY ROCK SAW, TRENCHER, VIBRATORY PLOW OR APPROVED EQUIVALENT.
5. ROOTS OVER 1.5" DIAMETER SHOULD BE CLEANLY CUT BY HAND. ROOT PRUNING ADJACENT TO SPECIMEN TREES MAY REQUIRE SOIL REMOVAL BY SUPERSONIC AIR TOOL TO MINIMIZE TREE AND ROOT IMPACTS.
6. COORDINATE WITH SILT FENCE INSTALLATION (IF REQUIRED) TO MINIMIZE ROOT IMPACTS FROM ADDITIONAL TRENCHING.

2/LJ-3 ROOT PRUNING (TYPICAL)
SCALE: NTS



NOTES:
1. SIGNS TO BE ATTACHED TO TREE PROTECTION FENCE OR POSTS AT READABLE LEVEL.
2. 30' MINIMUM SPACING AVERAGE ADJUSTED FOR MAXIMUM READABILITY.
3. MINIMUM ONE SIGN FOR SMALL TREE PROTECTION AREAS.
4. SIGNS MAY BE REMOVED FROM RESIDENTIAL LOTS UPON ISSUANCE OF USE AND OCCUPANCY.
5. SIGNS TO REMAIN ON NON RESIDENTIAL SITES FOR MAINTENANCE PERIOD.

3/LJ-3 TREE PROTECTION AREA SIGN (TYPICAL)
SCALE: NTS

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TREE PRESERVATION NOTES AND DETAILS

GATEWAY REGIONAL PARK
CITY OF FAIRFAX, VA

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: May 2024

SCALE: AS NOTED C.I.: 1'

Horizontal Datum: VCS NAD 83

Vertical Datum:

Boundary and Topo Source:
CITY OF FAIRFAX (LIMITS)
FAIRFAX COUNTY (TOPO)

Design	Draft	Approved
NE	NE	SH

WSSI Project Number:
32047.02

Gateway Regional Park

Geotechnical Engineering Report

August 18, 2023 | Terracon Project No. JD235105

Prepared for:

Wetland Studies and Solutions, Inc.
5300 Wellington Branch Drive,
Suite 300
Gainesville, Virginia 20155

Terracon
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Terracon
19955 Highland Vista Drive, #170
Ashburn, Virginia 20147
P (703) 726-8030
Terracon.com

August 18, 2023

Wetland Studies and Solutions, Inc.
5300 Wellington Branch Drive, Suite 300
Gainesville, Virginia 20155

Attn: Dillon Conner, PLA
P: (703) 679 5600
E: dconner@wetlands.com

Re: Geotechnical Engineering Report
Gateway Regional Park
Old Pickett Road
City of Fairfax, Virginia
Terracon Project No. JD235105

Dear Mr. Conner:

We have completed the scope of Geotechnical Engineering services for the above referenced project in general accordance with Terracon Proposal No. PJD235105 dated March 14, 2023. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,

Terracon

COMMONWEALTH OF VIRGINIA
PAUL E. BURKART
Lic. No. 021556
PROFESSIONAL ENGINEER

Rachel K. Meacham, PE
Project Engineer

Paul E. Bu
Senior Principal

Table of Contents

Figures

Attachments

Note: This report was originally delivered in a web-based format. **Blue Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section. For more interactive features, please view your project online at **client.terracon.com**.

Refer to each individual Attachment for a listing of contents.

Introduction

This report presents the results of our subsurface exploration and Geotechnical Engineering services performed for the proposed Gateway Regional Park constructed wetland to be located at Old Pickett Road in City of Fairfax, Virginia. The purpose of these services was to provide information and geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Groundwater conditions
- Seismic site classification per IBC
- Site preparation and earthwork
- Foundation design and construction
- Pavement design and construction
- Results of in-situ infiltration testing

The geotechnical engineering Scope of Services for this project included the advancement of test borings, laboratory testing, engineering analysis, and preparation of this report.

Drawings showing the site and boring locations are shown on the **Site Location** and **Exploration Plan**, respectively. The results of the laboratory testing performed on soil samples obtained from the site during our field exploration are included on the boring logs and as separate graphs in the **Exploration Results** section.

Project Description

Our initial understanding of the project was provided in our proposal and was discussed during project planning. A period of collaboration has transpired since the project was initiated, and our final understanding of the project conditions is as follows:

Item	Description
Information Provided	General project information was provided in an email from WSSI dated March 6, 2023. The Gateway Regional Park concept plan dated January 2023 was also provided.

Item	Description
Project Description	The project consists of an approximately 20,000 square foot level II constructed wetland with associated outfall weir wall, forebay, walking paths, and parking area. We understand that geotechnical and infiltration requirements per Virginia DEQ do not need to be followed for this project.
Maximum Loads	We assume column loads for the proposed walking path structures will not exceed 25 kips.
Grading	We assume all proposed features and structures will be built at about existing grades with a maximum invert depth of the wetlands to be about 4 feet below existing grade We should be notified if fill placement is anticipated to achieve final site grades.
Pavements	A new paved parking lot is proposed to be built on the western side of the existing park.

Terracon should be notified if any of the above information is inconsistent with the planned construction, especially the grading limits, as modifications to our recommendations may be necessary.

Site Conditions

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	The project is located south of Old Pickett Road in the City of Fairfax, Virginia. Coordinates: 38.86162, -77.27085 (approximate). See **Site Location**
Existing Improvements	The site currently consists of the existing structure to the northeast and wooded areas throughout.
Current Ground Cover	Vegetated and wooded
Existing Topography	The elevation at the site ranges from approximately elevation (EL) 279 to EL 283.

Item	Description
Geology	The site lies within the Piedmont Physiographic Province of Virginia. The Piedmont is bordered to the east by the Coastal Plain Physiographic Province and to the west by the Blue Ridge Physiographic Province and contains several fault-bordered basins. Bedrock in the Piedmont typically consists of highly weathered metamorphic and igneous bedrock. Surface topography in the Piedmont is the result of millions of years of erosion. Specifically, subsurface conditions consist of residual soils associated with the Popes Head Formation of the Cambrian-Ordovician geologic age. Existing fill associated with previous site development was encountered at the majority of our boring locations.

Geotechnical Characterization

We have developed a general characterization of the subsurface conditions based upon our review of the subsurface exploration, laboratory data, geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of the site. Conditions observed at each exploration point are indicated on the individual logs. The individual logs can be found in the **Exploration Results** and the GeoModel can be found in the **Figures** attachment of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	Existing Fill	generally very soft to medium stiff, SILT WITH SAND, SANDY LEAN CLAY, FILL, moist, brown, orange.
2	Residual (Fine Grained)	generally stiff to very stiff, SILT (ML) with varying amounts of sand and gravel, moist, orange, gray.
3	Residual (Coarse Grained)	generally medium dense to dense, SILTY SAND (SM) with varying amounts of gravel, SILTY GRAVEL WITH SAND (GM), moist, brown, gray, orange.
4	Weathered Rock	generally hard or very dense, SILT (ML) with varying amounts of sand, SILTY SAND (SM), SILTY GRAVEL

Model Layer	Layer Name	General Description
		WITH SAND (GM), moist, micaceous, orange, brown, gray.

Groundwater

Groundwater level observations were made in the field during drilling and up to 1 day after the completion of the test borings. A summary of the water level readings is presented in the table below.

Test Boring	Depth to Groundwater (ft)	Groundwater Elevation (ft)
B-1/SWM-1	0.5	EL 283.5
B-2/SWM-2	1.5	EL 281.5
B-3	2	EL 281
P-1	4.7	EL 279.5
SWM-3	2.3	EL 281.5

The groundwater observations presented herein are considered to be an indication of the groundwater levels at the dates and times indicated. Where more impervious GeoModel Layer 2 soils are encountered, the amount of water seepage into the borings is limited, and it is generally not possible to establish the location of the groundwater table through short term water level observations. Accordingly, the groundwater information presented herein should be used with caution. Also, fluctuations in groundwater levels should be expected with seasons of the year, construction activity, changes to surface grades, precipitation, or other similar factors.

Seismic Site Class

The seismic design requirements for buildings and other structures are based on Seismic Design Category. Site Classification is required to determine the Seismic Design Category for a structure. The Site Classification is based on the upper 100 feet of the site profile defined by a weighted average value of either shear wave velocity, standard penetration resistance, or undrained shear strength in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC). Based on the soil properties observed at the site and as described on the exploration logs and results, our professional opinion is for that a **Seismic Site Classification of C** be considered for the project. Subsurface explorations at this site were extended to a maximum depth of 20 feet. The site

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properties below the boring depth to 100 feet were estimated based on our experience and knowledge of geologic conditions of the general area. Additional deeper borings or geophysical testing may be performed to confirm the conditions below the current boring depth.

Infiltration

Two methods were used to estimate infiltration capabilities on the subject site: in-situ infiltration testing and published correlations with soil classifications. Details regarding the in-situ infiltration and classification test techniques, the estimated infiltration rates from the individual methods, and the recommended design infiltration rate for the site soils are presented herein.

Field Infiltration Test Results

In-situ infiltration tests are performed in the field to observe the rate at which water will permeate the soil under saturated conditions. Three test borings were drilled in the area of planned infiltration tests. Test borings were initially drilled to depths of at least 4 feet below the planned infiltration invert elevations and allowed to remain open for a period of approximately 24 hours to allow any groundwater levels within the boreholes to stabilize. After 24 hours, offset infiltration test holes were drilled at the boring locations to planned infiltration invert elevations. 4-inch diameter PVC casing was set to the bottom of the test holes. The purpose of the casing is to prevent caving of test hole sidewalls. After setting the PVC casing, the borehole was filled with water to saturate the bottom subsoils. The following day, the test hole was refilled with water and the water level in each test hole was recorded every hour for a 4-hour period. Using this procedure, the average change in the water level over the 4-hour period is considered the infiltration rate. Based on the results of the in-situ infiltration tests, the infiltration rates that have been calculated and are presented below in the table below.

Infiltration Test Location	Approximate Test Depth (ft)	Approximate Test Elevation (ft)	Field Infiltration Rate (in/hr)
SWM-1A	4	EL 280	0.0
SWM-1B	4	EL 280	2.3[1]
SWM-2A	4	EL 279	0.0
SWM-2B	4	EL 279	0.0

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Geotechnical Investigation (01)

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

C.I.: N/A

SCALE: N/A

DATE: August 2025

Horizontal Datum:

Vertical Datum:

Boundary and Topo Source: N/A

Design	Draft	Approved
DMC	DMC	FRG

Computer File Name:
GEOTECHNICAL.dwg

Infiltration Test Location	Approximate Test Depth (ft)	Approximate Test Elevation (ft)	Field Infiltration Rate (in/hr)
SWM-3	4	EL 280	0.0

1. Field infiltration rate obtained at the SWM-1B location is not considered to be indicative of site conditions considering the groundwater levels encountered at SWM-1.

Classification Test Results

The classification test method is performed with grain-size sieve analyses on samples obtained from corresponding proposed infiltration depths, to determine the USDA soil texture classifications. Published correlations between USDA classifications and infiltration rates were used to provide estimated hydraulic conductivity values. Since hydraulic conductivity and infiltration values are essentially equal at no head conditions, using the hydraulic conductivity values to estimate the infiltration rates provides a conservative estimate of infiltration for use in design. Estimated infiltration rates using the USDA soil texture classifications are presented in the table below.

Boring	Approximate Test Depth (ft)	USDA Soil Texture Classification	Estimated Infiltration Rate (inches/hr)
SWM-1	4 to 6	Sandy Loam	1.02
SWM-1	6 to 8	Sandy Loam	1.02
SWM-2	4 to 6	Sandy Loam	1.02
SWM-2	6 to 8	Loamy Sand	2.41
SWM-3	4 to 6	Sandy Loam	1.02
SWM-3	6 to 8	Loam	0.52

Design Infiltration Rate

Based on the shallow depth to groundwater, infiltration is not recommended to be used at this site.

Earthwork

Earthwork may include clearing and grubbing, minor excavations, and engineered fill placement. The following sections provide recommendations for use in the preparation of specifications for the work. Recommendations include critical quality criteria, as necessary, to render the site in the state considered in our geotechnical engineering evaluation for foundation structures.

Site Preparation

Prior to placing fill, existing vegetation, topsoil, and root mats should be removed. Complete stripping of the topsoil should be performed in the proposed pathway and parking/driveway areas. It is noted that the upper 2 feet of the existing ground surface is very soft and will likely strip out with the topsoil.

Although no evidence of underground facilities (such as septic tanks, cesspools, basements, and utilities) was observed during the exploration and site reconnaissance, such features could be encountered during construction. If unexpected fills or underground facilities are encountered, such features should be removed, and the excavation thoroughly cleaned prior to backfill placement and/or construction.

Subgrade Preparation

The subgrade should be proofrolled with an adequately loaded vehicle such as a fully-loaded (minimum 20 ton) tandem-axle dump truck. The proofrolling should be performed under the observation of the Geotechnical Engineer or representative. Areas excessively deflecting under the proofroll should be delineated and subsequently addressed by the Geotechnical Engineer. Excessively wet or dry material should either be removed or moisture conditioned and recompacted.

All exposed areas which will receive fill, once properly cleared and removed of soft materials, should be scarified to a minimum depth of 10 inches, moisture conditioned as necessary, and compacted per the compaction requirements in this report. Compacted structural fill soils should then be placed to the proposed design grade and the moisture content and compaction of subgrade soils should be maintained until foundation or pavement construction.

Based upon the subsurface conditions determined from the geotechnical exploration, subgrade soils exposed during construction are anticipated to be relatively workable; however, the workability of the subgrade may be affected by precipitation, repetitive construction traffic or other factors. If unworkable conditions develop, workability may be improved by scarifying and drying.

Existing Fill

As noted in **Geotechnical Characterization**, most borings encountered previously placed fill to depths ranging from about 0 to 2.5 feet. We have no records to indicate the degree of control, and consequently, the fill is considered unreliable for support of foundation loads. Support of pavements on or above existing fill soils is discussed in this report. However, even with the recommended construction procedures, inherent risk exists for the owner that compressible fill or unsuitable material, within or buried by the fill will not be discovered. This risk of unforeseen conditions cannot be eliminated without completely removing the existing fill but can be reduced by following the recommendations contained in this report.

If the owner elects to construct pavements on the existing fill, the following protocol should be followed. Once the planned subgrade elevation has been reached, the entire pavement area should be proofrolled. Areas of soft or otherwise unsuitable material should be undercut and replaced with either new structural fill or suitable, existing on site materials.

Fill Material Types

Fill required to achieve design grade should be classified as structural fill and general fill. Structural fill is material used below, or within 10 feet of structures, pavements, or constructed slopes. General fill is material used to achieve grade outside of these areas.

Imported and on-site fill materials should meet the following material property requirements. Regardless of its source, compacted fill should consist of approved materials that are free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade.

Material property requirements for on-site soil for use as general fill and structural fill are noted in the table below:

Soil Type [1,2]	USCS Classification	Acceptable Parameters (for Structural Fill)
Low Plasticity Cohesive	CL, CL-ML ML, SM, SC	Liquid Limit less than 40 Plasticity index less than 15 Maximum Dry Density > 105 pcf

Soil Type [1,2]	USCS Classification	Acceptable Parameters (for Structural Fill)
Granular	GW, GP, GM, GC, SW, SP	Less than 10% passing No. 200 sieve Maximum Dry Density > 115 pcf

1. Structural and general fill should consist of approved materials free of organic matter and debris. Frozen material should not be used, and fill should not be placed on a frozen subgrade. A sample of each material type should be submitted to the Geotechnical Engineer for evaluation prior to use on this site. Additional geotechnical consultation should be provided prior to use of uniformly graded gravel on the site.
2. Existing fill free of deleterious material may be re-used for fill if it meets the requirements presented above.

Fill Placement and Compaction Requirements

Structural and general fill should meet the following compaction requirements.

Item	Structural Fill	General Fill
Maximum Lift Thickness	8 inches or less in loose thickness when heavy, self-propelled compaction equipment is used 4 to 6 inches in loose thickness when hand-guided equipment (i.e. jumping jack or plate compactor) is used	Same as structural fill
Minimum Compaction Requirements [1,2,3]	98% of max. below foundations and within 1 foot of finished pavement subgrade 95% of max. above foundations, below slabs, and more than 1 foot below finished pavement subgrade	92% of max.
Water Content Range [1]	-3% to +3% of optimum	As required to achieve min. compaction requirements

1. Maximum density and optimum water content as determined by the standard Proctor test (ASTM D 698).

Earthwork Construction Considerations

Shallow excavations for the proposed walkways are anticipated to be accomplished with conventional construction equipment. Upon completion of filling and grading, care should be taken to maintain the subgrade water content prior to construction of grade-supported improvements such as pavements. Construction traffic over the completed subgrades should be avoided. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. Water collecting over or adjacent to construction areas should be removed. If the subgrade freezes, desiccates, saturates, or is disturbed, the affected material should be removed, or the materials should be scarified, moisture conditioned, and recompacted prior to floor slab construction.

The groundwater table could affect overexcavation efforts, especially for overexcavation and replacement of lower strength soils. A temporary dewatering system consisting of sumps with pumps may be necessary to achieve the recommended depth of overexcavation depending on groundwater conditions at the time of construction.

As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local and/or state regulations.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety or the contractor's activities; such responsibility shall neither be implied nor inferred.

Excavations or other activities resulting in ground disturbance have the potential to affect adjoining properties and structures. Our scope of services does not include review of available final grading information or consider potential temporary grading performed by the contractor for potential effects such as ground movement beyond the project limits. A preconstruction/precondition survey should be conducted to document nearby property/infrastructure prior to any site development activity. Excavation or ground disturbance activities adjacent or near property lines should be monitored or instrumented for potential ground movements that could negatively affect adjoining property and/or structures.

Construction Observation and Testing

The earthwork efforts should be observed by the Geotechnical Engineer (or others under their direction). Observation should include documentation of adequate removal of surficial materials (vegetation, topsoil, and pavements), evaluation and remediation of existing fill materials, as well as proofrolling and mitigation of unsuitable areas delineated by the proofroll.

Each lift of compacted fill should be tested, evaluated, and reworked, as necessary, as recommended by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency prescribed by local agencies and local codes.

In areas of foundation excavations, the bearing subgrade should be evaluated by the Geotechnical Engineer. If unanticipated conditions are observed, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

Shallow Foundations

If the site has been prepared in accordance with the requirements noted in **Earthwork**, the following design parameters are applicable for shallow foundations.

Design Parameters – Compressive Loads

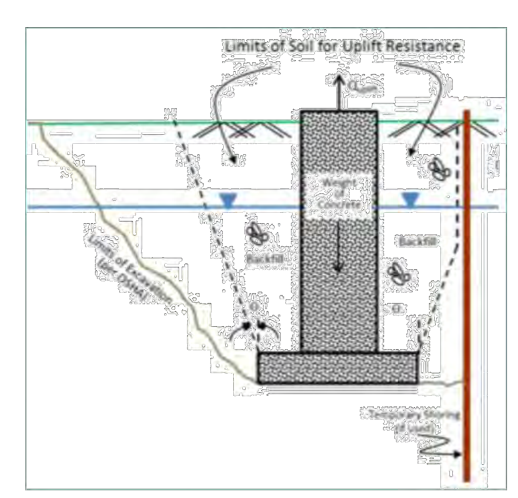
Item	Description
Maximum Net Allowable Bearing Pressure [1, 2, 3]	1,500 psf
Required Bearing Stratum [4]	New compacted structural fill or natural GeoModel Layer 2 or 3 soils meeting the requirements presented in **Earthwork**
Minimum Foundation Dimensions	Per IBC 1809.7
Minimum Embedment below Finished Grade [5]	24 inches

Item	Description
Estimated Total Settlement from Structural Loads [3]	Less than about 1 inch

1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. Values assume that exterior grades are no steeper than **20% within 10** feet of structure.
2. The allowable bearing capacity can be increased by 33% for transient/seismic loading conditions
3. Values provided are for maximum loads noted in **Project Description**. Additional geotechnical consultation will be necessary if higher loads are anticipated.
4. Unsuitable or soft soils should be overexcavated and replaced per the recommendations presented in **Earthwork**.
5. Embedment necessary to minimize the effects of frost and/or seasonal water content variations. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure.

Design Parameters –Uplift Loads

Uplift resistance of spread footings can be developed from the effective weight of the footing and the overlying soils with consideration to the IBC basic load combinations.



Item	Description
Soil Moist Unit Weight	120 pcf
Soil Effective Unit Weight[1]	55 pcf

Item	Description
Soil weight included in uplift resistance	Soil included within the prism extending up from the top perimeter of the footing at an angle of 20 degrees from vertical to ground surface

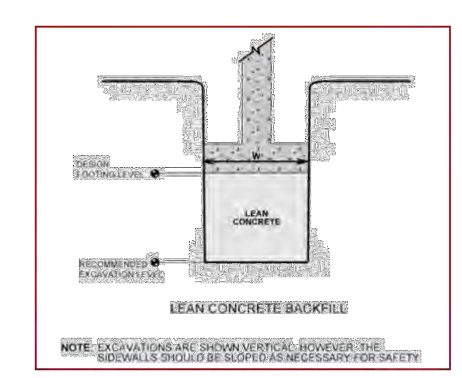
1. Effective (or buoyant) unit weight should be used for soil above the foundation level and below a water level. The high groundwater level should be used in uplift design as applicable.

Foundation Construction Considerations

As noted in **Earthwork**, the footing excavations should be evaluated under the observation of the Geotechnical Engineer. The base of all foundation excavations should be free of water and loose soil, prior to placing concrete. Concrete should be placed soon after excavating to reduce bearing soil disturbance. Care should be taken to prevent wetting or drying of the bearing materials during construction. Excessively wet or dry material or any loose/disturbed material in the bottom of the footing excavations should be removed/reconditioned before foundation concrete is placed.

Sensitive soils exposed at the surface of footing excavations may require surficial compaction with hand-held dynamic compaction equipment prior to placing structural fill, steel, and/or concrete. Should surficial compaction not be adequate, construction of a working surface consisting of either crushed stone or a lean concrete mud mat may be required prior to the placement of reinforcing steel and construction of foundations.

If unsuitable bearing soils are observed at the base of the planned footing excavation, the excavation should be extended deeper to suitable soils, and the footings could bear directly on these soils at the lower level or on lean concrete backfill placed in the excavations. The lean concrete replacement zone is illustrated on the sketch below.



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Geotechnical Investigation (02)

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025 SCALE: N/A C.I.: N/A

Horizontal Datum:

Vertical Datum:

Boundary and Topo Source: N/A

Design	Draft	Approved
DMC	DMC	FRG

Sheet #
13 of 55

Computer File Name:
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GEOTECHNICAL.dwg

Pavements

Pavement subgrades are expected to consist of firm existing fill, natural soils, or new compacted fill. These materials are generally considered suitable for support of the planned roadways and parking areas. However, where pavement subgrades consist of existing fill, we recommend budgeting for undercutting the existing fill to a depth of at least 2 feet and backfilling with new compacted fill. The decision to undercut the existing fill should be based on a thorough proofroll of the pavement subgrades under the observation of the geotechnical engineer.

Based on the soil laboratory test results for the materials expected at pavement subgrades, a preliminary design CBR value of 4 is recommended for pavement design purposes. If fill placed at the site is generated from off-site borrow areas, the actual CBR value for the pavement subgrades may be significantly different from the preliminary value presented herein. Therefore, CBR tests should be performed on the in-place subgrade after rough grading and installation of utilities within roadways. Final pavement sections should be based on CBR tests taken on subgrade soils at the time of construction. Concrete pavements should be utilized in loading dock areas and for dumpster pads. Design of concrete pavements including compressive strength, air entrainment, reinforcement, control joints, etc. should be provided by the structural engineer.

General Comments

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly effect excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety and cost estimating including excavation support and dewatering requirements/design are the responsibility of others. Construction and site development have the potential to affect adjacent properties. Such impacts can include damages due to vibration, modification of groundwater/surface water flow during construction, foundation movement due to undermining or subsidence from excavation, as well as noise or air quality concerns. Evaluation of these items on nearby properties are commonly associated with contractor means and methods and are not addressed in this report. The owner and contractor should consider a preconstruction/precondition survey of surrounding development. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

Figures

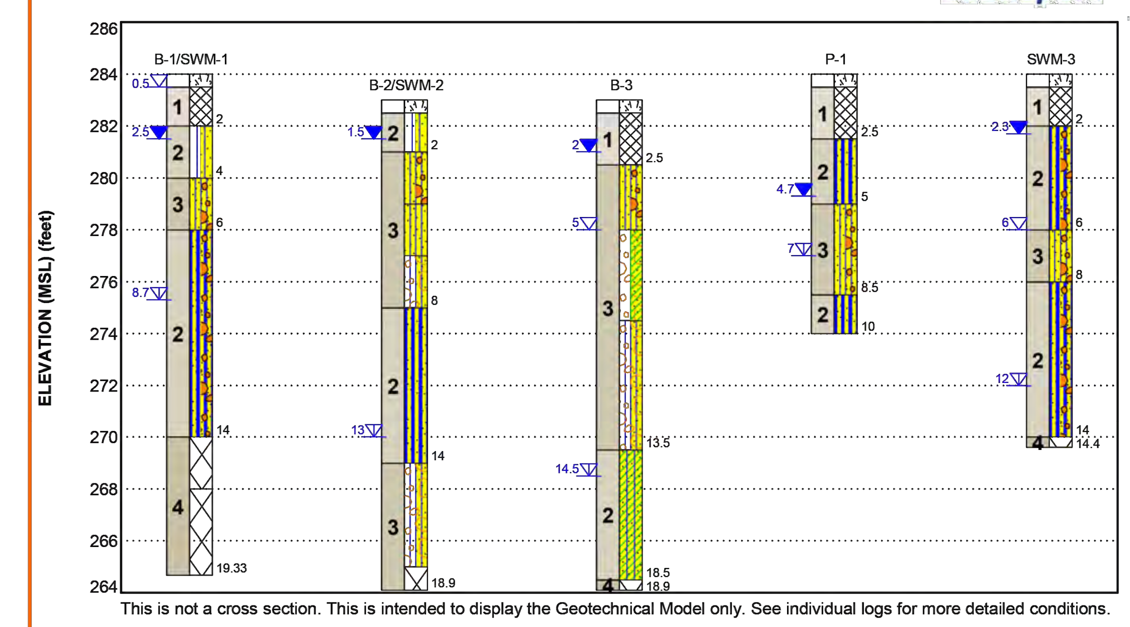
Contents:

GeoModel

Note: All attachments are one page unless noted above.

GEOMODEL
Gateway Regional Park ■ Fairfax, VA
Terracon Project No. JD235105

Terracon GeoReport



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Existing Fill	generally very soft to medium stiff, SILT WITH SAND, SANDY LEAN CLAY, FILL, moist, brown, orange.
2	Residual - Fine Grained	generally stiff to very stiff, SILT with varying amounts of sand and gravel (ML), moist, orange, gray.
3	Residual - Coarse Grained	generally medium dense to dense, SILTY SAND with varying amounts of gravel (SM), SILTY GRAVEL WITH SAND (GM), moist, brown, gray, orange.
4	Weathered Rock	generally hard or very dense, SILT with varying amounts of sand (ML), SILTY SAND (SM), SILTY GRAVEL WITH SAND (GM), moist, micaceous, orange, brown, gray.

LEGEND

Topsoil
Fill
Silt with Sand
Silty Sand with Gravel
Sandy Silt with Gravel
Weathered Rock
Silty Sand
Silty Gravel with Sand
Sandy Silt
Well-graded Gravel with clay and sand
Sandy Silty Clay

First Water Observation
Second Water Observation
Third Water Observation

The groundwater levels shown are representative of the date and time of our exploration. Significant changes are possible over time.
Water levels shown are as measured during and/or after drilling. In some cases, boring advancement methods mask the presence/absence of groundwater. See individual logs for details.

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

Attachments

Exploration and Testing Procedures

Field Exploration

Number of Borings	Approximate Boring Depth (feet)	Location
3	16 to 20	Proposed Wetland Area
1	20	Proposed Building Area
1	10	Proposed Parking Area

Boring Layout and Elevations: Terracon personnel provided the boring layout using handheld GPS equipment (estimated horizontal accuracy of about ±10 feet) and referencing existing site features. Approximate ground surface elevations were obtained by interpolation from the were estimated using Google Earth. If elevations and a more precise boring layout are desired, we recommend borings be surveyed.

Subsurface Exploration Procedures: We advanced the borings with a track-mounted rotary drill rig using hollow stem augers. Continuous sampling was performed in the proposed wetland area in the upper 20 feet of each boring and at intervals of 5 feet thereafter. In the proposed building and parking areas, four samples were obtained in the upper 10 feet of each boring and at intervals of 5 feet thereafter. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration or middle 12 inches of 24-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. For safety purposes, all borings were backfilled with auger cuttings after their completion or after obtaining 24-hour groundwater readings.

We also observed the boreholes while drilling, at the completion of drilling, and up to 24 hours after the completion of drilling for the presence of groundwater. The groundwater levels are shown on the attached boring logs.

The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by a Geotechnical Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials observed during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Geotechnical Engineer's

interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests. The laboratory testing program included the following types of tests:

- Moisture Content
- Dry Unit Weight
- Unconfined Compression
- Atterberg Limits

The laboratory testing program often included examination of soil samples by an engineer. Based on the results of our field and laboratory programs, we described and classified the soil samples in accordance with the Unified Soil Classification System.

Site Location and Exploration Plans

Contents:

Site Location Plan
Exploration Plan

Note: All attachments are one page unless noted above.

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Geotechnical Investigation (03)

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

C.I.: N/A
SCALE: N/A
DATE: August 2025

Horizontal Datum:
Vertical Datum:
Boundary and Topo Source: N/A

Design	Draft	Approved
DMC	DMC	FRG

Sheet #
14 of 55

Computer File Name:
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Geotechnical Engineering Report
Gateway Regional Park | City of Fairfax, Virginia
August 18, 2023 | Terracon Project No. JD235105

Site Location

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES — MAP PROVIDED BY MICROSOFT BING MAPS

Geotechnical Engineering Report
Gateway Regional Park | City of Fairfax, Virginia
August 18, 2023 | Terracon Project No. JD235105

Exploration Plan

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES — MAP PROVIDED BY MICROSOFT BING MAPS

Exploration and Laboratory Results

Contents:

Note: All attachments are one page unless noted above.

Gateway Regional Park
Old Pickett Road | Fairfax, VA
Terracon Project No. JD235105

Terracon 19955 Highland Vista Dr Ste 170 Ashburn, VA

Boring Log No. B-1/SWM-1

Location: See Exploration Plan
Latitude: 38.8618° Longitude: -77.2710°
Elevation: 284 (Ft.) +/-

Model Layer	Depth (Ft.)	Description	Elevation	Recovery (In.)	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI
	0.5	**TOPSOIL = 6 IN.**	283.5				
1	2.0	**FILL - SILT WITH SAND**, contains organics, fine, dark brown with orange, moist, medium stiff	282	10	3-5-2-2 N=7		
2	4.0	**RESIDUAL - SILT WITH SAND (ML)**, micaceous, contains quartz fragments, orange with gray, moist, very stiff	280	24	3-8-13-18 N=21	26.8	41-28-13
3	6.0	**RESIDUAL - SILTY SAND WITH GRAVEL (SM)**, contains quartz fragments, fine to medium, brown with black, moist, medium dense	278	22	14-12-15-17 N=27		
2	14.0	**RESIDUAL - SANDY SILT WITH GRAVEL (ML)**, micaceous, contains quartz fragments, fine, orange with gray, moist, very stiff; without gravel, no quartz fragments; contains organics, light orange with brown, odor	270	14	13-12-5-5 N=17		
				20	5-6-9-9 N=15		
				24	11-11-9-9 N=20		
				12	5-7-17-23 N=24		
4	16.0	**WEATHERED ROCK - SILTY SAND (SM)**, micaceous, fine to coarse, orange brown, moist, very dense	268	17	21-38-50/5"		
4	19.3	**WEATHERED ROCK - SANDY SILT (ML)**, micaceous, fine, orange brown, moist, hard	264.67	24	10-26-37-47 N=63		
				16	22-32-50/4"		

Boring Terminated at 19.33 Feet

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).
See Supporting Information for explanation of symbols and abbreviations.

Notes
Elevation Reference: Elevation obtained using Google Earth

Water Level Observations
0.5 ft. during drilling
8.7 ft. upon completion
2.5 ft. after 24 hours
Caved-in: 9 ft.

Advancement Method
3.25 HSA

Abandonment Method
Borings backfilled with soil cuttings upon completion.

Drill Rig D-50
Hammer Type Automatic
Driller Andy Fowler
Logged by Michael Messina
Boring Started 07-19-2023
Boring Completed 07-19-2023

Gateway Regional Park
Old Pickett Road | Fairfax, VA
Terracon Project No. JD235105

Terracon 19955 Highland Vista Dr Ste 170 Ashburn, VA

Boring Log No. B-2/SWM-2

Location: See Exploration Plan
Latitude: 38.8620° Longitude: -77.2708°
Elevation: 283 (Ft.) +/-

Model Layer	Depth (Ft.)	Description	Elevation	Recovery (In.)	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI
	0.5	**TOPSOIL = 6 IN.**	282.5				
2	2.0	**RESIDUAL - SILT WITH SAND (ML)**, fine, brown, moist, soft	281	24	2-2-1-2 N=3	47.8	41-26-15
3	4.0	**RESIDUAL - SILTY SAND WITH GRAVEL (SM)**, micaceous, contains quartz fragments, fine, light brown with orange, moist, loose	279	18	4-5-4-15 N=9		
3	6.0	**RESIDUAL - SILTY SAND (SM)**, micaceous, contains quartz fragments, fine to medium, brown with orange, moist, dense	277	16	3-15-24-21 N=39		
3	8.0	**RESIDUAL - SILTY GRAVEL WITH SAND (GM)**, micaceous, fine to coarse, brown and orange, moist, dense	275	17	18-22-20-10 N=42		
2	14.0	**RESIDUAL - SANDY SILT (ML)**, fine, brown with orange, moist, stiff; very stiff	269	18	3-4-5-7 N=9	26.0	30-23-7
				18	6-7-12-12 N=19		
				18	6-5-10-18 N=15		
3	18.0	**RESIDUAL - SILTY GRAVEL WITH SAND (GM)**, micaceous, fine to medium, brown with orange, moist, medium dense; dense	265	18	12-12-17-19 N=29	11.6	38-29-9
				18	11-16-20-29 N=36		
	18.9	**WEATHERED ROCK - SILTY GRAVEL WITH SAND (GM)**, micaceous, fine to medium, brown with orange, moist, very dense	264.1	18	36-50/5"		

Boring Terminated at 18.9 Feet

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).
See Supporting Information for explanation of symbols and abbreviations.

Notes
Elevation Reference: Elevation obtained using Google Earth

Water Level Observations
No water encountered during drilling
13 ft. upon completion
1.5 ft. after 24 hours
Caved-in: 13.5 ft.

Advancement Method
3.25 HSA

Abandonment Method
Borings backfilled with soil cuttings upon completion.

Drill Rig D-50
Hammer Type Automatic
Driller Andy Fowler
Logged by Michael Messina
Boring Started 07-19-2023
Boring Completed 07-19-2023

Gateway Regional Park
Old Pickett Road | Fairfax, VA
Terracon Project No. JD235105

Terracon 19955 Highland Vista Dr Ste 170 Ashburn, VA

Boring Log No. B-3

Location: See Exploration Plan
Latitude: 38.8617° Longitude: -77.2705°
Elevation: 283 (Ft.) +/-

Model Layer	Depth (Ft.)	Description	Elevation	Recovery (In.)	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI
	0.5	**TOPSOIL = 6 IN.**	282.5				
1	2.5	**FILL - SILT WITH SAND**, micaceous, fine grained, light brown, moist, medium stiff	280.5	18	2-3-3 N=6		
3	5.0	**RESIDUAL - SILTY SAND WITH GRAVEL (SM)**, micaceous, contains quartz fragments, orange with gray, moist, very dense	278	18	15-23-28 N=51		
3	8.5	**RESIDUAL - WELL GRADED GRAVEL WITH SILTY CLAY AND SAND (GW-GC)**, micaceous, fine to coarse, orange brown with gray, moist, medium dense	274.5	8	13-10-8 N=18	6.9	25-20-5
3	13.5	**RESIDUAL - SILTY GRAVEL WITH SAND (GM)**, medium dense	269.5	18	6-7-7 N=14	9.9	41-28-13
2	18.5	**RESIDUAL - SANDY SILTY CLAY (CL-ML)**, micaceous, fine grained, light brown, moist, hard	264.5	18	22-32-41 N=73	10.7	28-22-6
4	18.9	**WEATHERED ROCK - SILT (ML)**, micaceous, light orange brown, moist, hard	264.1	5	50/5"		

Boring Terminated at 18.9 Feet

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).
See Supporting Information for explanation of symbols and abbreviations.

Notes
Elevation Reference: Elevation obtained using Google Earth

Water Level Observations
5 ft. during drilling
14.5 ft. upon completion
2 ft. after 24 hours
Caved-in: 15 ft.

Advancement Method
3.25 HSA

Abandonment Method
Borings backfilled with soil cuttings upon completion.

Drill Rig D-50
Hammer Type Automatic
Driller Andy Fowler
Logged by Michael Messina
Boring Started 07-19-2023
Boring Completed 07-19-2023

Gateway Regional Park
Old Pickett Road | Fairfax, VA
Terracon Project No. JD235105

Terracon 19955 Highland Vista Dr Ste 170 Ashburn, VA

Boring Log No. P-1

Location: See Exploration Plan
Latitude: 38.8620° Longitude: -77.2713°
Elevation: 284 (Ft.) +/-

Model Layer	Depth (Ft.)	Description	Elevation	Recovery (In.)	Field Test Results	Water Content (%)	Atterberg Limits LL-PL-PI
	0.5	**TOPSOIL = 6 IN.**	283.5				
1	2.5	**FILL - SANDY LEAN CLAY**, fine grained, dark brown, moist, soft	281.5	16	1-1-1 N=2	23.7	36-23-13
2	5.0	**RESIDUAL - SANDY SILT (ML)**, micaceous, fine grained, orange with gray, stiff	279	14	4-5-8 N=13		
3	8.5	**RESIDUAL - SILTY SAND WITH GRAVEL (SM)**, contains quartz fragments, fine to coarse grained, brown with orange, medium dense	275.5	18	11-8-8 N=16		
2	10.0	**RESIDUAL - SANDY SILT (ML)**, micaceous, fine grained, light orange with gray, very stiff	274	18	11-10-13 N=23		

Boring Terminated at 10 Feet

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).
See Supporting Information for explanation of symbols and abbreviations.

Notes
Elevation Reference: Elevation obtained using Google Earth

Water Level Observations
No water encountered during drilling
7 ft. upon completion
4.7 ft. after 24 hours
Caved-in: 7.5 ft.

Advancement Method
3.25 HSA

Abandonment Method
Borings backfilled with soil cuttings upon completion.

Drill Rig D-50
Hammer Type Automatic
Driller Andy Fowler
Logged by Michael Messina
Boring Started 07-19-2023
Boring Completed 07-19-2023

Wetland Studies and Solutions, Inc.® a DAVEY company
5300 Wellington Branch Drive • Suite 100
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Geotechnical Investigation (04)

Prepared For: NOVA Parks

Gateway Regional Park

City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025 SCALE: N/A C.I.: N/A

Horizontal Datum:
Vertical Datum:
Boundary and Topo Source: N/A

Design	Draft	Approved
DMC	DMC	FRG

Sheet # 15 of 55

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Gateway Regional Park
Old Pickett Road | Fairfax, VA
Terracon Project No. JD235105

Terracon
19955 Highland Vista Dr Ste 170
Ashburn, VA

Boring Log No. SWM-3

Location: See Exploration Plan
Latitude: 38.8618° Longitude: -77.2707°
Elevation: 284 (Ft.) +/-

Model Layer	Depth (Ft.)	Description	Elevation	Recovery (In.)	Field Test Results
	0.5	**TOPSOIL = 6 IN.**	283.5		
1	2.0	**FILL - SILT WITH SAND (ML)**, trace organics, micaceous, fine grained, brown, moist, very soft	282	24	0-0-0-3 N=0
2		**RESIDUAL - SANDY SILT WITH GRAVEL (ML)**, micaceous, fine to medium grained, orange with black, moist, stiff		24	2-5-5-9 N=10
2	6.0	without gravel, hard	278	24	15-21-28-20 N=49
3	8.0	**RESIDUAL - SILTY SAND WITH GRAVEL (SM)**, fine to coarse, orange brown, moist, medium dense	276	10	13-6-5-5 N=11
2		**RESIDUAL - SANDY SILT WITH GRAVEL (ML)**, fine to medium, orange brown, moist, stiff		24	6-4-4-6 N=8
2		without gravel, hard		6	5-15-16-23 N=31
2	14.0		270	24	15-25-31-8 N=56
4	14.4	**WEATHERED ROCK - SANDY SILT (ML)**, fine to medium, orange brown, wet, hard	269.6	5	50/5"

Boring Terminated at 14.4 Feet

Water Content (%) | Atterberg Limits LL-PL-PI

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).
See Supporting Information for explanation of symbols and abbreviations.

Notes
Elevation Reference: Elevation obtained using Google Earth

Water Level Observations
- 6 ft. during drilling
- 12 ft. upon completion
- 2.3 ft. after 24 hours
- Caved-in: 13 ft.

Advancement Method
3.25 HSA

Abandonment Method
Borings backfilled with soil cuttings upon completion.

Drill Rig D-50
Hammer Type Automatic
Driller Andy Fowler
Logged by Michael Messina
Boring Started 07-19-2023
Boring Completed 07-19-2023

Facilities | Environmental | Geotechnical | Materials

SUMMARY OF LABORATORY RESULTS

BORING ID	Depth	USCS Classification and Soil Description	AASHTO Class.	Munsell Color	Liquid Limit	Plastic Limit	Plasticity Index	% <#200 Sieve	% Gravel	% Sand	% Silt	% Clay	Water Content (%)	Optimum Moisture Content (%)	Maximum Dry Density, (pcf)*
B-1/SWM-1	2 - 4	SILT with SAND(ML)	A-7-6 (9)	orange	41	28	13	71.1	1.4	27.5			27		
B-2/SWM-2	0 - 2	SILT with SAND(ML)	A-7-6 (12)		41	26	15	76.6	0.0	23.4			48		
B-2/SWM-2	8 - 10	SANDY SILT(ML)	A-4 (2)	brown with orange	30	23	7	56.5	0.5	43.0			26		
B-2/SWM-2	14 - 16	SILTY GRAVEL with SAND(GM)	A-2-4 (0)	brown with orange	38	29	9	32.1	49.8	18.2			12		
B-3	5 - 6.5	WELL-GRADED GRAVEL with	A-1-a (0)	orange brown	25	20	5	10.9	55.7	33.3			7		
		SILTY CLAY and SAND(GW-GC)													
B-3	8.5 - 10	SILTY GRAVEL with SAND(GM)	A-2-7 (0)		41	28	13	28.0	47.0	25.0			10		
B-3	13.5 - 15	SANDY SILTY CLAY(CL-ML)	A-4 (2)	light brown	28	22	6	64.5	0.0	35.5			11		
P-1	0 - 1.5	SANDY LEAN CLAY(CL)	A-6 (7)		36	23	13	63.5	10.6	25.9			24		

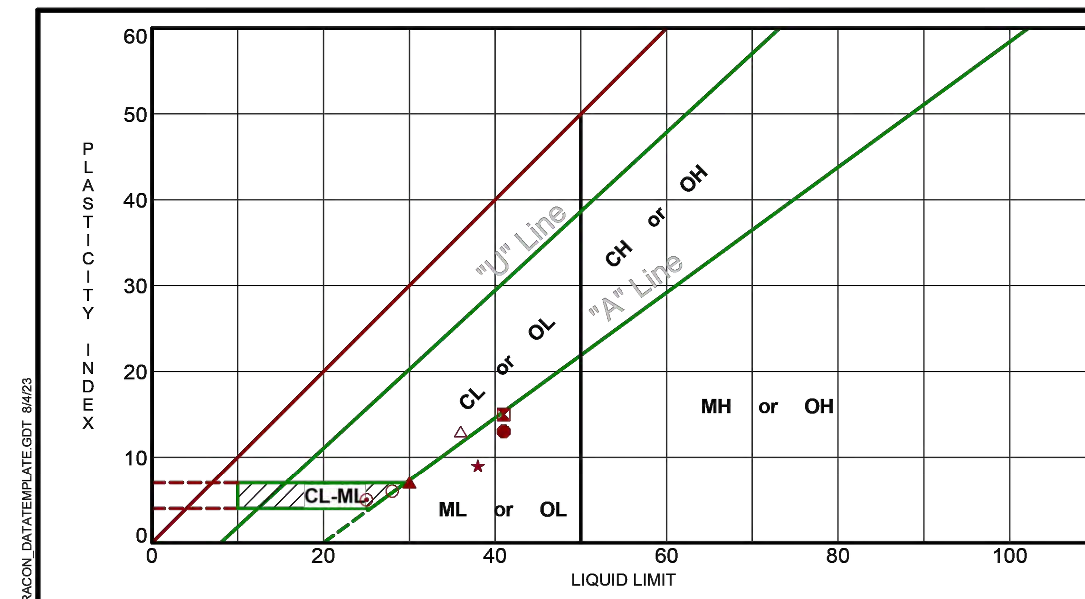
*Per IDOT Matls. IM 309, Single-Point Method.
**Soil of Glacial Origin

PROJECT: Gateway Regional Park
SITE: Old Pickett Road, Fairfax, VA
Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA, PH. 703-726-8030 FAX.
PROJECT NUMBER: JD235105
CLIENT: Wetland Studies & Solutions, Inc, Gainesville, VA
EXHIBIT: B-1

THIS BORING LOG IS NOT VALID IF SEPARATED FROM ORIGINAL REPORT. LAB SUMMARY JD235105 GATEWAY REGIONAL .GPJ TERRACON_DATATEMPLATE.GDT 8/4/23

ATTERBERG LIMITS RESULTS

ASTM D4318



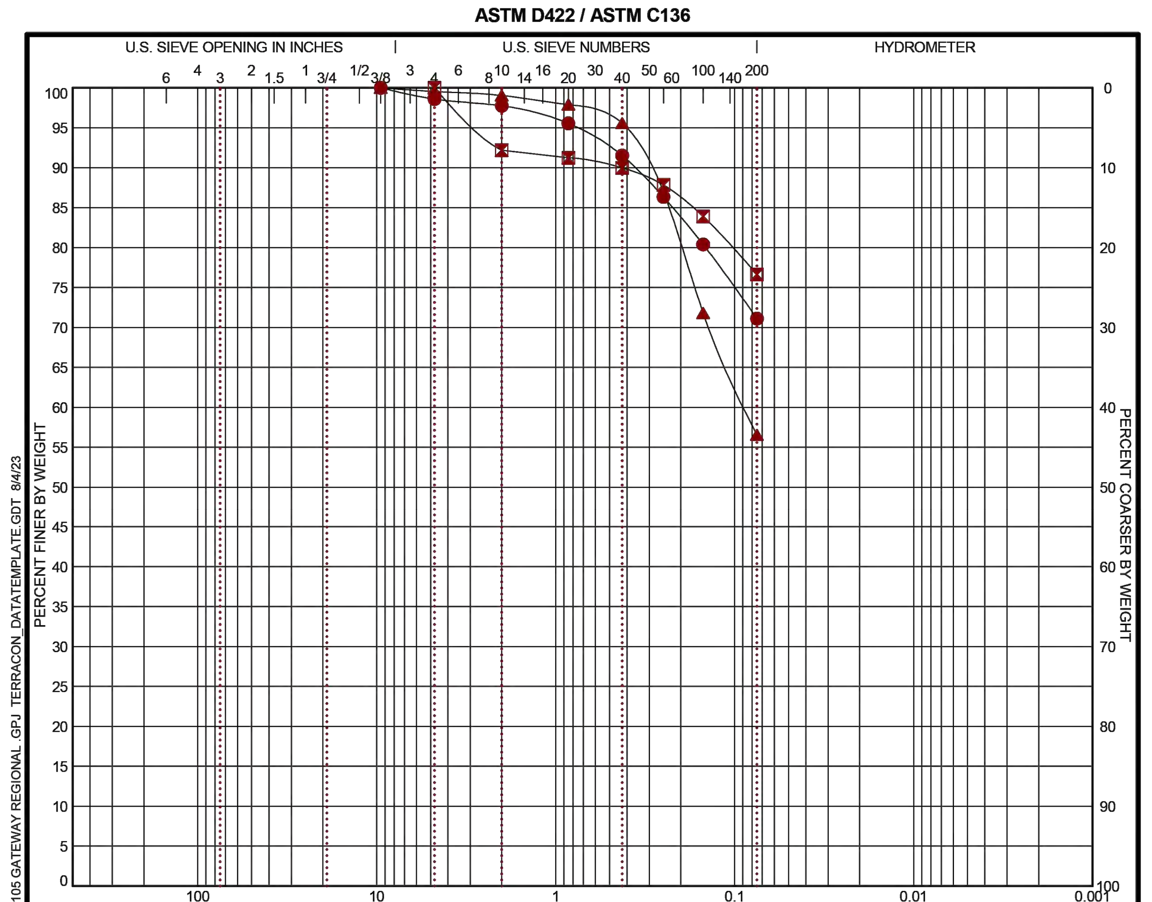
	Boring ID	Depth	LL	PL	PI	Fines	AASHTO	Description
●	B-1/SWM-1	2 - 4	41	28	13	71.1	A-7-6 (9)	SILT with SAND (ML)
⊠	B-2/SWM-2	0 - 2	41	26	15	76.6	A-7-6 (12)	SILT with SAND (ML)
▲	B-2/SWM-2	8 - 10	30	23	7	56.5	A-4 (2)	SANDY SILT (ML)
★	B-2/SWM-2	14 - 16	38	29	9	32.1	A-2-4 (0)	SILTY GRAVEL with SAND (GM)
⊙	B-3	5 - 6.5	25	20	5	10.9	A-1-a (0)	WELL-GRADED GRAVEL with SILTY CLAY and SAND (GW-GC)
✚	B-3	8.5 - 10	41	28	13	28.0	A-2-7 (0)	SILTY GRAVEL with SAND (GM)
○	B-3	13.5 - 15	28	22	6	64.5	A-4 (2)	SANDY SILTY CLAY (CL-ML)
△	P-1	0 - 1.5	36	23	13	63.5	A-6 (7)	SANDY LEAN CLAY (CL)

PROJECT: Gateway Regional Park
SITE: Old Pickett Road, Fairfax, VA
Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA
PROJECT NUMBER: JD235105
CLIENT: Wetland Studies & Solutions, Inc, Gainesville, VA
EXHIBIT: B-1

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. ATTERBERG LIMITS-AASHTO JD235105 GATEWAY REGIONAL .GPJ TERRACON_DATATEMPLATE.GDT 8/4/23

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL coarse	GRAVEL fine	SAND coarse	SAND medium	SAND fine	SILT OR CLAY

	BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
●	B-1/SWM-1	2 - 4	0.0	1.4	27.5		71.1		ML
⊠	B-2/SWM-2	0 - 2	0.0	0.0	23.4		76.6		ML
▲	B-2/SWM-2	8 - 10	0.0	0.5	43.0		56.5		ML

GRAIN SIZE	●	⊠	▲
D_{60}			0.088
D_{30}			
D_{10}			
COEFFICIENTS			
C_C			
C_U			

● Sieve	● % Finer	⊠ Sieve	⊠ % Finer	▲ Sieve	▲ % Finer
3/8"	100.0	#4	100.0	3/8"	100.0
#4	98.59	#10	92.18	#4	99.54
#10	97.75	#20	91.25	#10	99.04
#20	95.56	#40	89.98	#20	97.9
#40	91.52	#60	87.84	#40	95.57
#60	86.34	#100	83.91	#60	86.99
#100	80.4	#200	76.65	#100	71.82
#200	71.11			#200	56.55

SOIL DESCRIPTION
- ● SILT with SAND (ML)
- ⊠ SILT with SAND (ML)
- ▲ SANDY SILT (ML)

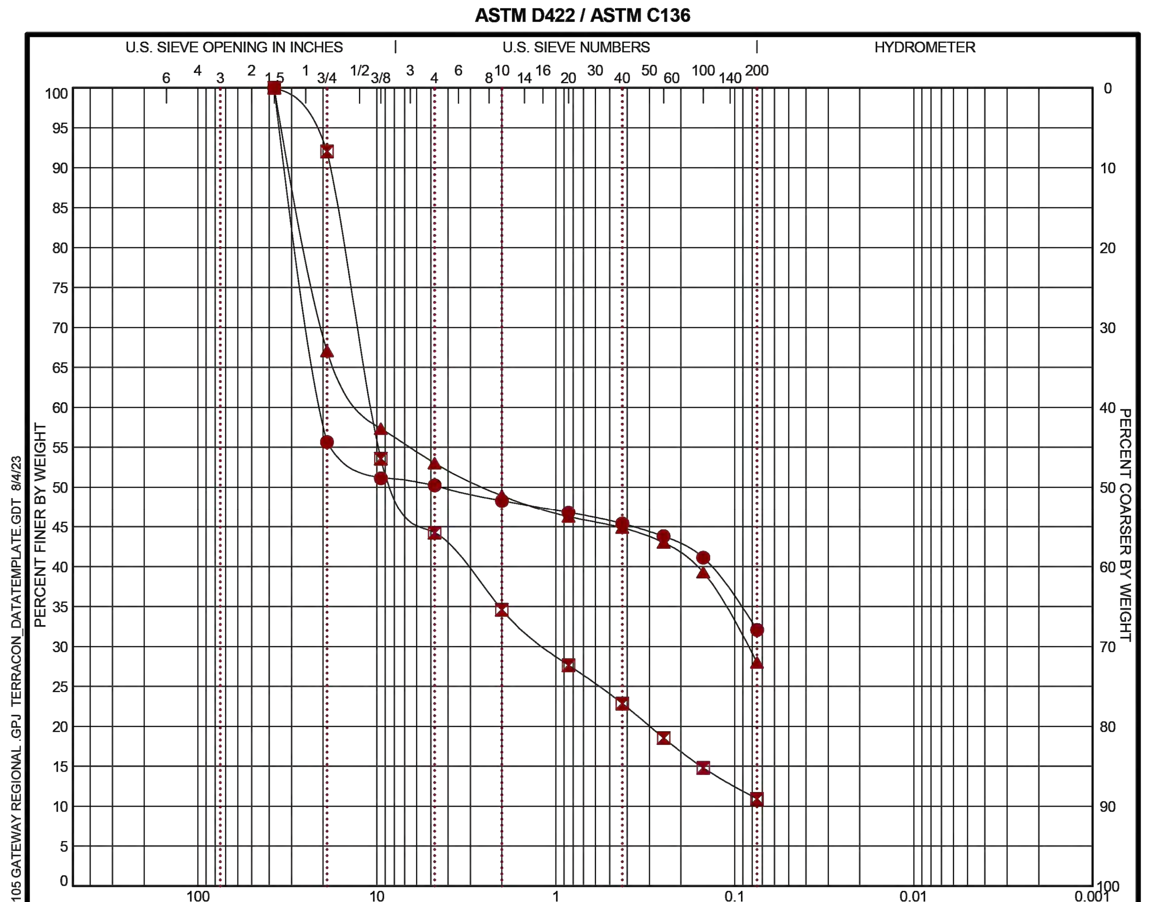
REMARKS
- ●
- ⊠
- ▲

PROJECT: Gateway Regional Park
SITE: Old Pickett Road, Fairfax, VA
Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA
PROJECT NUMBER: JD235105
CLIENT: Wetland Studies & Solutions, Inc, Gainesville, VA
EXHIBIT: B-1

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS 1 JD235105 GATEWAY REGIONAL .GPJ TERRACON_DATATEMPLATE.GDT 8/4/23

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL coarse	GRAVEL fine	SAND coarse	SAND medium	SAND fine	SILT OR CLAY

	BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
●	B-2/SWM-2	14 - 16	0.0	49.8	18.2		32.1		GM
⊠	B-3	5 - 6.5	0.0	55.7	33.3		10.9		GW-GC
▲	B-3	8.5 - 10	0.0	47.0	25.0		28.0		GM

GRAIN SIZE	●	⊠	▲
D_{60}	20.308	10.666	11.49
D_{30}		1.134	0.085
D_{10}			
COEFFICIENTS			
C_C		1.90	
C_U		167.81	

● Sieve	● % Finer	⊠ Sieve	⊠ % Finer	▲ Sieve	▲ % Finer
1 1/2"	100.0	1 1/2"	100.0	1 1/2"	100.0
3/4"	55.66	3/4"	92.03	3/4"	67.05
3/8"	51.13	3/8"	53.58	3/8"	57.34
#4	50.24	#4	44.27	#4	53.01
#10	48.3	#10	34.59	#10	48.93
#20	46.82	#20	27.67	#20	46.28
#40	45.41	#40	22.86	#40	44.87
#60	43.81	#60	18.56	#60	43.02
#100	41.13	#100	14.81	#100	39.29
#200	32.08	#200	10.93	#200	27.99

SOIL DESCRIPTION
- ● SILTY GRAVEL with SAND (GM)
- ⊠ WELL-GRADED GRAVEL with SILTY CLAY and SAND (GW-GC)
- ▲ SILTY GRAVEL with SAND (GM)

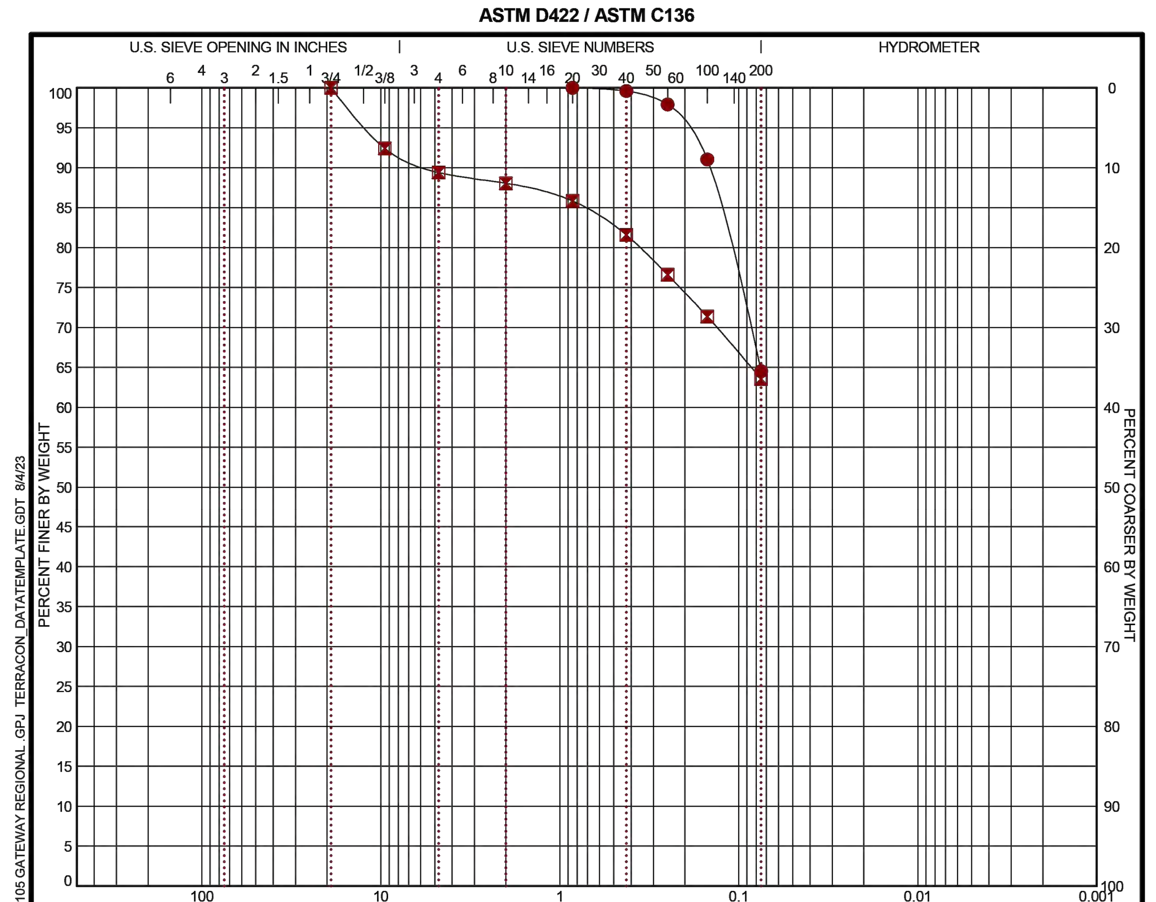
REMARKS
- ●
- ⊠
- ▲

PROJECT: Gateway Regional Park
SITE: Old Pickett Road, Fairfax, VA
Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA
PROJECT NUMBER: JD235105
CLIENT: Wetland Studies & Solutions, Inc, Gainesville, VA
EXHIBIT: B-2

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS 1 JD235105 GATEWAY REGIONAL .GPJ TERRACON_DATATEMPLATE.GDT 8/4/23

GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL coarse	GRAVEL fine	SAND coarse	SAND medium	SAND fine	SILT OR CLAY

	BORING ID	DEPTH	% COBBLES	% GRAVEL	% SAND	% SILT	% FINES	% CLAY	USCS
●	B-3	13.5 - 15	0.0	0.0	35.5		64.5		CL-ML
⊠	P-1	0 - 1.5	0.0	10.6	25.9		63.5		CL

GRAIN SIZE	●	⊠	
D_{60}			
D_{30}			
D_{10}			
COEFFICIENTS			
C_C			
C_U			

● Sieve	● % Finer	⊠ Sieve	⊠ % Finer	Sieve	% Finer
#20	100.0	3/4"	100.0		
#40	99.6	3/8"	92.4		
#60	97.91	#4	89.4		
#100	91.03	#10	88.04		
#200	64.54	#20	85.84		
		#40	81.58		
		#60	76.6		
		#100	71.37		
		#200	63.54		

SOIL DESCRIPTION
- ● SANDY SILTY CLAY (CL-ML)
- ⊠ SANDY LEAN CLAY (CL)

REMARKS
- ●
- ⊠

PROJECT: Gateway Regional Park
SITE: Old Pickett Road, Fairfax, VA
Terracon, 19955 Highland Vista Dr Ste 170, Ashburn, VA
PROJECT NUMBER: JD235105
CLIENT: Wetland Studies & Solutions, Inc, Gainesville, VA
EXHIBIT: B-3

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. GRAIN SIZE: USCS 1 JD235105 GATEWAY REGIONAL .GPJ TERRACON_DATATEMPLATE.GDT 8/4/23

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Geotechnical Investigation (05)
Prepared For: NOVA Parks
Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025
SCALE: N/A
C.I.: N/A

Horizontal Datum:
Vertical Datum:
Boundary and Topo Source: N/A

Design	Draft	Approved
DMC	DMC	FRG

Sheet # 16 of 55

Computer File Name: L:\32000s\32000\32047.02\CADD\04-ENGR\12-sig sub planset_construction GEOTECHNICAL.dwg

Page 1 of 2
Report Number: 23-219-0854
Account Number: 11827

Waypoint ANALYTICAL
7621 Whitepine Road, Richmond, VA 23237
Main 804-743-9401 ° Fax 804-271-6446
www.waypointanalytical.com

Send To: Terracon Consultants
19955 Highland Vista Drive Suite 170
Ashburn VA 20147

"Every acre...Every year."™

Grower: Gateway Regionla Park
Terracon Project # JD235105

SOIL ANALYSIS REPORT

Analytical Method(s):

Date Received: 08/07/2023 **Date Of Analysis:** 08/08/2023 **Date Of Report:** 08/09/2023

Sample ID Field ID	Lab Number	OM % Rate	W/V Soil Class	ENR lbs/A	Phosphorus ppm	Phosphorus Rate	Phosphorus ppm	Phosphorus Rate	Phosphorus ppm	Phosphorus Rate	Potassium K ppm	Potassium Rate	Magnesium Mg ppm	Magnesium Rate	Calcium Ca ppm	Calcium Rate	Sodium Na ppm	Sodium Rate	pH Soil pH	pH Buffer Index	Acidity H meq/100g	C.E.C meq/100g
SWM-1 4'-6	10027																					
SWM-1 6'-8	10029																					
SWM-2 4-6	10030																					
SWM-2 6-8	10031																					
SWM-3 4-6	10032																					

Sample ID Field ID	Percent Base Saturation K %	Mg %	Ca %	Na %	H %	Nitrate NO_3N ppm	Rate	Sulfur S ppm	Rate	Zinc Zn ppm	Rate	Manganese Mn ppm	Rate	Iron Fe ppm	Rate	Copper Cu ppm	Rate	Boron B ppm	Rate	Soluble Salts SS ms/cm	Rate		
SWM-1 4'-6																							
SWM-1 6'-8																							
SWM-2 4-6																							
SWM-2 6-8																							
SWM-3 4-6																							

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Brandi Watson

Brandi Watson

Page 2 of 2
Report Number: 23-219-0854
Account Number: 11827

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"Every acre...Every year."™

Grower: Gateway Regionla Park
Terracon Project # JD235105

SOIL ANALYSIS REPORT

Analytical Method(s):

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Sample ID Field ID	Lab Number	OM % Rate	W/V Soil Class	ENR lbs/A	Phosphorus ppm	Phosphorus Rate	Phosphorus ppm	Phosphorus Rate	Phosphorus ppm	Phosphorus Rate	Potassium K ppm	Potassium Rate	Magnesium Mg ppm	Magnesium Rate	Calcium Ca ppm	Calcium Rate	Sodium Na ppm	Sodium Rate	pH Soil pH	pH Buffer Index	Acidity H meq/100g	C.E.C meq/100g
SWM-3 6-8	10033																					

Sample ID Field ID	Percent Base Saturation K %	Mg %	Ca %	Na %	H %	Nitrate NO_3N ppm	Rate	Sulfur S ppm	Rate	Zinc Zn ppm	Rate	Manganese Mn ppm	Rate	Iron Fe ppm	Rate	Copper Cu ppm	Rate	Boron B ppm	Rate	Soluble Salts SS ms/cm	Rate		
SWM-3 6-8																							

Values on this report represent the plant available nutrients in the soil. Rating after each value: VL (Very Low), L (Low), M (Medium), H (High), VH (Very High). ENR - Estimated Nitrogen Release. C.E.C. - Cation Exchange Capacity.

Explanation of symbols: % (percent), ppm (parts per million), lbs/A (pounds per acre), ms/cm (milli-mhos per centimeter), meq/100g (milli-equivalent per 100 grams). Conversions: ppm x 2 = lbs/A, Soluble Salts ms/cm x 640 = ppm.

This report applies to sample(s) tested. Samples are retained a maximum of thirty days after testing.

Analysis prepared by: Waypoint Analytical Virginia, Inc.

by: Brandi Watson

Brandi Watson

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TEXTURE ANALYSIS

Client :
Terracon Consultants
19955 Highland Vista Drive Suite 170
Ashburn , VA 20147

Grower :
Gateway Regionla Park
Terracon Project # JD235105
Farm :

Report No : 23-219-0854
Cust No : 11827
Date Printed : 08/09/2023
Page : 1 of 1
Date Received : 08/07/2023

Lab No	Field ID	Sample Identification	Percent Sand	Percent Silt	Percent Clay	Textural Classification
10027		SWM-1 4'-6	70.3	22.6	7.0	Sandy Loam
10029		SWM-1 6'-8	70.3	26.6	3.0	Sandy Loam
10030		SWM-2 4-6	64.3	26.6	9.0	Sandy Loam
10031		SWM-2 6-8	74.3	22.6	3.0	Loamy Sand
10032		SWM-3 4-6	52.3	28.6	19.0	Sandy Loam
10033		SWM-3 6-8	48.3	44.6	7.0	Loam

Analysis prepared by: Waypoint Analytical Virginia, Inc.

Supporting Information

Contents:

Note: All attachments are one page unless noted above.

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS
Gateway Regional Park ■ Fairfax, VA
Terracon Project No. JD235105

Terracon GeoReport

SAMPLING	WATER LEVEL		FIELD TESTS	
Standard Penetration Test		Water Initially Encountered	N	Standard Penetration Test Resistance (Blows/Ft.)
		Water Level After a Specified Period of Time	(HP)	Hand Penetrometer
		Water Level After a Specified Period of Time	(T)	Torvane
		Cave In Encountered	(DCP)	Dynamic Cone Penetrometer
	Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.		UC	Unconfined Compressive Strength
			(PID)	Photo-Ionization Detector
			(OVA)	Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

LOCATION AND ELEVATION NOTES

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance		CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance		
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength Qu, (tsf)**	**Standard Penetration or N-Value Blows/Ft.**
Very Loose	0 - 3	Very Soft	less than 0.25	0 - 1
Loose	4 - 9	Soft	0.25 to 0.50	2 - 4
Medium Dense	10 - 29	Medium Stiff	0.50 to 1.00	4 - 8
Dense	30 - 50	Stiff	1.00 to 2.00	8 - 15
Very Dense	> 50	Very Stiff	2.00 to 4.00	15 - 30
		Hard	> 4.00	> 30

RELEVANCE OF SOIL BORING LOG

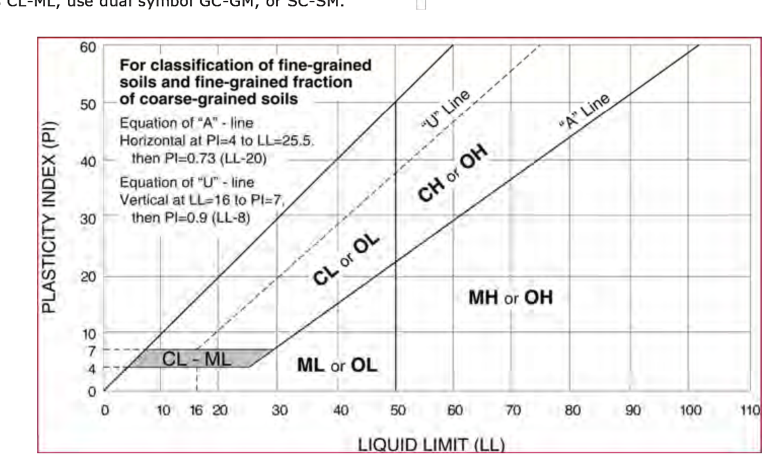
The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.

Terracon

Unified Soil Classification System

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]				Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	Cu≥4 and 1≤Cc≤3 [E]	GW	Well-graded gravel [F]
			Cu<4 and/or [Cc<1 or Cc>3.0] [E]	GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH	GM	Silty gravel [F, G, H]
			Fines classify as CL or CH	GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	Cu≥6 and 1≤Cc≤3 [E]	SW	Well-graded sand [I]
			Cu<6 and/or [Cc<1 or Cc>3.0] [E]	SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH	SM	Silty sand [G, H, I]
			Fines classify as CL or CH	SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots above "A" line [J]	CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]	ML	Silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OL	Organic clay [K, L, M, N]
					Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line	CH	Fat clay [K, L, M]
			PI plots below "A" line	MH	Elastic silt [K, L, M]
		Organic:	$\frac{LL\ oven\ dried}{LL\ not\ dried} < 0.75$	OH	Organic clay [K, L, M, P]
					Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor			PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.
[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.
[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.
[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.
[E] $Cu = D_{60}/D_{10}$ $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
[F] If soil contains ≥ 15% sand, add "with sand" to group name.
[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.
[H] If fines are organic, add "with organic fines" to group name.
[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.
[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.
[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.
[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.
[N] PI ≥ 4 and plots on or above "A" line.
[O] PI < 4 or plots below "A" line.
[P] PI plots on or above "A" line.
[Q] PI plots below "A" line.



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Geotechnical Investigation (06)

Prepared For: NOVA Parks

Gateway Regional Park

City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS				
No.	Date	Description	Rev. By	App. By

DATE: August 2025
SCALE: N/A
C.I.: N/A

Horizontal Datum:
Vertical Datum:
Boundary and Topo Source: N/A

Design	Draft	Approved
DMC	DMC	FRG

Sheet #
17 of 55

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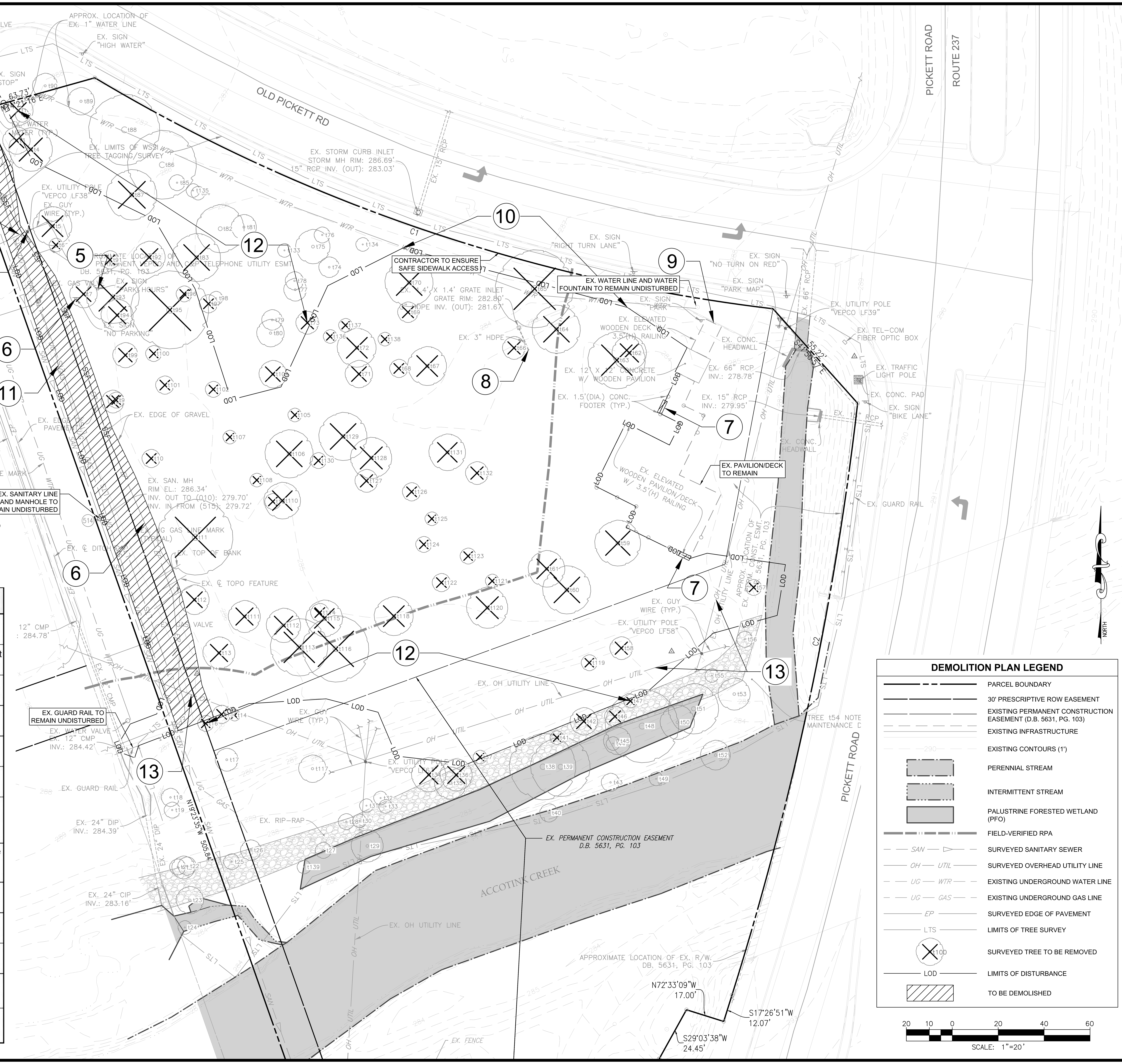

EXISTING CONDITION NOTES:

1. LOCATION OF EXISTING WATER LINE SERVICING THE PAVILION WATER FOUNTAIN APPROXIMATED BASED ON ORIGINAL SITE DESIGN PLANS DATED MARCH 17, 1994. WATER TO BE SHUT OFF PRIOR TO CONSTRUCTION AND TURNED ON AFTER COMPLETION OF CONSTRUCTION.
2. MAPPED FLOODPLAIN LINE EXTENDS BEYOND WORK AREA. SEE OVERALL EXISTING CONDITIONS PLAN (SHEET 4) FOR MAPPED FLOODPLAIN LOCATION.

SITE DEMOLITION REFERENCE NOTES

1	Existing asphalt shall be removed by saw cutting methods and disposed off site. Existing gravel to be removed and disposed off site.
2	Carefully remove and store existing "STOP" sign. Reinstall upon project completion.
3	Existing water meter to remain undisturbed. Turn off water supply prior to construction.
4	Utility pole "VEPCO LF38" and guy wire to remain.
5	"Park hours" sign to be removed and safely stored. Reinstall in proposed location.
6	Remove and safely store existing "NO PARKING" sign. Reinstall in proposed location.
7	Exisiting panels of chain link fence and frame to be removed in project area and safely stored by Contractor. Cut existing fence panel to size and reinstall fence and frame on proposed post as shown in Construction Details (Sheet 29).
8	Existing inlet to be decommissioned. Locate and remove existing grate inlet and HDPE pipe. If total removal is not possible, remove pipe to extent possible and plug the remaining segment with mortar.
9	Install temporary pedestrian barricade to prevent pedestrians from entering project area during construction (see detail on Sheet 35).
10	Install temporary orange safety fence for pedestrian safety along Old Pickett Road sidewalk as trees are removed (see detail on Sheet 35).
11	Exercise caution when working around existing 8" gas main.
12	Trees marked for removal outside limits of disturbance to be removed by qualified arborist, by hand (see Tree Preservation Plan, Notes, and Details, Sheets 9-11).
13	Contractor to coordinate with Dominion Energy when working in the vicinity of active overhead cables, to ensure safe working clearance is maintained.

DEMOLITION PLAN LEGEND

- PARCEL BOUNDARY
- 30' PRESCRIPTIVE ROW EASEMENT
- EXISTING PERMANENT CONSTRUCTION EASEMENT (D.B. 5631, PG. 103)
- EXISTING INFRASTRUCTURE
- EXISTING CONTOURS (1')
- PERENNIAL STREAM
- INTERMITTENT STREAM
- PALUSTRINE FORESTED WETLAND (PFO)
- FIELD-VERIFIED RPA
- SAN — SURVEYED SANITARY SEWER
- OH — UTIL — SURVEYED OVERHEAD UTILITY LINE
- UG — WTR — EXISTING UNDERGROUND WATER LINE
- UG — GAS — EXISTING UNDERGROUND GAS LINE
- EP — SURVEYED EDGE OF PAVEMENT
- LTS — LIMITS OF TREE SURVEY
- t100 — SURVEYED TREE TO BE REMOVED
- LOD — LIMITS OF DISTURBANCE
- TO BE DEMOLISHED

SCALE: 1"=20'

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Demolition Plan

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

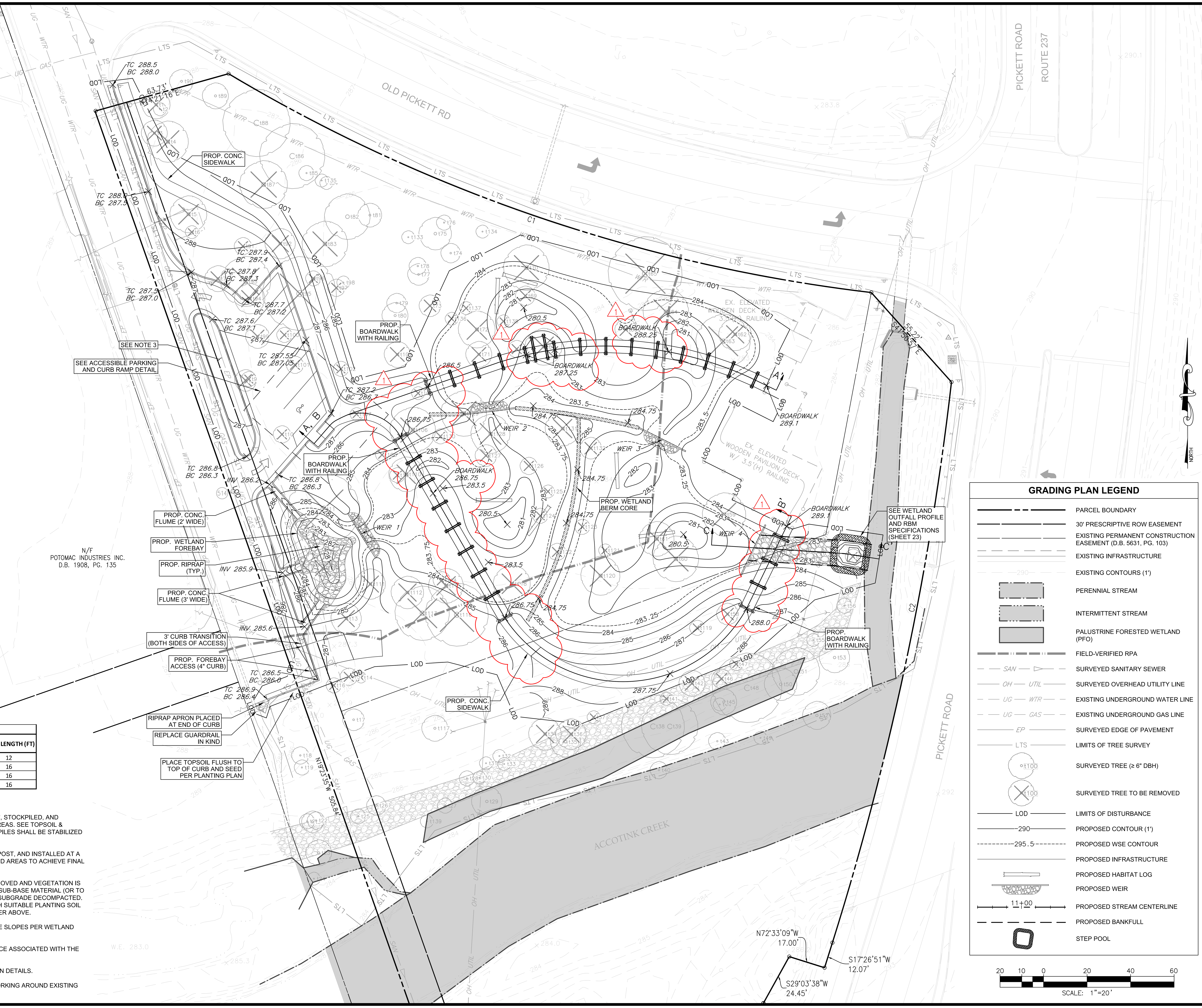
DATE: August 2025 | SCALE: 1" = 20' | C.I.: 1'

Horizontal Datum: NAD83
Vertical Datum: NGVD29
Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
DMC	DMC	FRG

Sheet #
18 of 55

Computer File Name:
DEMOLITION PLAN.dwg



WETLAND WEIR TABLE			
LOCATION	WEIR NUMBER	CREST ELEV.	CREST LENGTH (FT)
FOREBAY	1	284.5	12
CELL 1	2	283.75	16
CELL 2	3	283.5	16
CELL 3	4	283.25	16

GRADING NOTES:

1. ALL TOPSOIL SHALL BE STRIPPED TO A DEPTH OF 6", STOCKPILED, AND PROTECTED ON SITE IN DESIGNATED STOCKPILE AREAS. SEE TOPSOIL & COMPOST SPECIFICATIONS, SHEET 20. SOIL STOCKPILES SHALL BE STABILIZED PER VIRGINIA E&S HANDBOOK.
2. STRIPPED TOPSOIL SHALL BE AMENDED WITH COMPOST, AND INSTALLED AT A MINIMUM OF 6" IN UPLAND AREAS AND 9" IN WETLAND AREAS TO ACHIEVE FINAL GRADE.
3. WHERE EXISTING PAVEMENT/GRAVEL IS BEING REMOVED AND VEGETATION IS PROPOSED, PAVEMENT/GRAVEL AND ENTIRETY OF SUB-BASE MATERIAL (OR TO A MAX. DEPTH OF 3') SHALL BE REMOVED AND THE SUBGRADE DECOMPACTED. THE REMOVED MATERIAL SHALL BE REPLACED WITH SUITABLE PLANTING SOIL AND TOPPED WITH COMPOST AMENDED TOPSOIL PER ABOVE.
4. INSTALL COIR MATTING ON ALL WETLAND POOL SIDE SLOPES PER WETLAND CONSTRUCTION DETAIL TYPICAL CROSS SECTION.
5. NOVA PARKS IS RESPONSIBLE FOR ALL MAINTENANCE ASSOCIATED WITH THE PROPOSED CONSTRUCTED WETLAND.
6. SEE SHEETS 27-30 FOR BOARDWALK CONSTRUCTION DETAILS.
7. CONTRACTOR SHALL EXERCISE CAUTION WHEN WORKING AROUND EXISTING 8" GAS MAIN.

GRADING PLAN LEGEND

- PARCEL BOUNDARY
- 30' PRESCRIPTIVE ROW EASEMENT
- EXISTING PERMANENT CONSTRUCTION EASEMENT (D.B. 5631, PG. 103)
- EXISTING INFRASTRUCTURE
- 290 — EXISTING CONTOURS (1')
- PERENNIAL STREAM
- INTERMITTENT STREAM
- PALUSTRINE FORESTED WETLAND (PFO)
- FIELD-VERIFIED RPA
- SAN — SURVEYED SANITARY SEWER
- OH — UTIL — SURVEYED OVERHEAD UTILITY LINE
- UG — WTR — EXISTING UNDERGROUND WATER LINE
- UG — GAS — EXISTING UNDERGROUND GAS LINE
- EP — SURVEYED EDGE OF PAVEMENT
- LTS — LIMITS OF TREE SURVEY
- t100 — SURVEYED TREE (≥ 6" DBH)
- t100 — SURVEYED TREE TO BE REMOVED
- LOD — LIMITS OF DISTURBANCE
- 290 — PROPOSED CONTOUR (1')
- 295.5 — PROPOSED WSE CONTOUR
- PROPOSED INFRASTRUCTURE
- PROPOSED HABITAT LOG
- PROPOSED WEIR
- 11+00 — PROPOSED STREAM CENTERLINE
- PROPOSED BANKFULL
- STEP POOL

20 10 0 20 40 60

SCALE: 1"=20'

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Grading Plan

Prepared For: NOVA Parks

Gateway Regional Park

City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By
1	02/17/26	GRADING REVS PER STRUCTURAL BDWLK CHANGES	SH	DC

DATE: August 2025

SCALE: 1" = 20' C.I.: 1'

Horizontal Datum: NAD83

Vertical Datum: NGVD29

Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
DMC	DMC	FRG

Computer File Name: L:\32000s\32000\32047.02\CADD\04-ENGR\12-sig sub planset_construction GRADING PLAN.dwg

CONSTRUCTION SEQUENCE

Contractor is solely responsible for selecting the methods and means to implement the project design. This Construction Sequence is solely provided as non-binding advice (except for As-Built Survey Requirements) by the engineer to contractor. Many other methods may be utilized and achieve the same results:

1. Install Construction Entrance and perimeter Erosion and Sediment controls.
2. Clear and grub area after E&S controls are installed and approved by the City of Fairfax (City).
3. Strip and stockpile topsoil for entire site. See Topsoil & Compost Specifications, this sheet.
4. Construct wetland outfall channel.
5. Construct Wetland Cells:
   - 5.a. Grade and compact subsoil stratum.
   - 5.b. If required by in-situ soil conditions, undercut areas of subsoil with permeability greater than 1 x 10-7 cm/sec and replace with approved compacted cohesive materials with a permeability lower than 1 x 10-7 cm/sec.
   - 5.c. Construct earth berm core between wetland cells.
   - 5.d. Construct weirs and cobble aprons.
   - 5.e. Replace topsoil in one loose lift, amend with compost, and grade to design elevations. Cover and track in 6" of compost amended topsoil on berm.
   - 5.f. Rake, seed, and mulch.
   - 5.g. Install coir fabric on pool side slopes.
6. Construct Boardwalk:
   - 6.1. Construct boardwalk footers and deck per plan.
   - 6.2. Stain all wooden boardwalk components.
7. Construct Paths:
   - 7.1. Grade and compact subsoil stratum.
   - 7.2. Install and compact aggregate base.
   - 7.3. Pour concrete paths per plan.
8. Construct curbs and forebay inlet.
9. Replace 6" of compost amended topsoil in all upland areas disturbed by grading.
10. Rake, seed, and straw upland areas.
11. Clean-up:
    - 11.1. Remove all debris from site.
    - 11.2. Remove all Erosion and Sediment controls including construction entrance.
    - 11.3. Complete parking lot.
    - 11.4. Install signage per plans.
12. Conduct As-Built Survey per City of Fairfax As-Built Plan Requirements.

GEOTECHNICAL AND GRADING SPECIFICATIONS

A. General

1. These specifications are based upon the Gateway Regional Park Geotechnical Engineering Report dated August 18, 2023. Said report is included in these plans (see sheets 12 to 17).
2. Contractor is expected to review said report and utilize its data in planning earthwork operations.
3. The proposed berms shall be well staked by contractor, including the limits of the fill zones, at the time of fill placement. Grade control should be maintained throughout the earthwork operations.
4. Should any deviation of the approved plans either be considered or problems in the field be encountered, WSSI is to be notified immediately. No work is to be performed that is not in accordance with the approved plans.

B. Constructed Wetlands Substrate

1. The substrate of all constructed wetlands areas shall consist of roughly 9" of topsoil atop a low permeability (1 x 10-7 cm/sec or lower) prepared subsoil layer.
2. Approximately 6" of topsoil shall be stripped from the limits of disturbance and stockpiled for replacement upon all graded surfaces (excluding paved areas or stone aprons). Topsoil shall be amended with compost. It is assumed that the volume of compost amended topsoil will be sufficient to place roughly 9" in wetlands and 6" on all upland areas given that the proposed paved areas will not need topsoil.
3. Topsoil shall be re-spread in a loose uncompacted state in all planting areas by discing at least 6 inches deep after placement except on berms and embankments where it shall be compacted with 4 passes of a track dozer and then raked. It is expected that 4-6 passes of a disk shall be required to obtain a loose topsoil seedbed free of large (>1") clumps satisfactory to WSSI.
4. After subsoil grades are achieved by either fill or excavation as needed, a low permeability subsoil substrate shall be achieved by compacting the subsoil material with a sheepsfoot roller. Where the subsoil consists of fill, the upper 12" or more shall be placed in loose lifts not exceeding 8 inches in thickness and compacted. Where the subsoil grade is reached by excavation, the compaction effort shall be applied to the subgrade surface.
5. Compaction shall be achieved by five passes of a sheepsfoot roller with the subsoil between 3% and 7% on the wet side of the optimum moisture content. Pumping of the substrate is acceptable during this compaction process.
6. The compacted subsoil substrate shall continue ±3 feet past the outside edge of constructed wetland cells following the rising grades proposed so that the elevation of the compacted subgrade edge is higher than its elevation beneath each proposed wetland cell (creating a bath tub effect).
7. Compact in-situ subsoil to at least Eighty-Five (85%) of the maximum dry density determined in accordance with ASTM D698, Standard Proctor Method between 3% and 7% on the wet side of the optimum moisture content.

C. Berms

1. Berm areas, which are small embankments 1 to 2 feet tall and approximately 10 feet wide, shall be placed in 8 inch horizontal loose lifts and compacted to at least Ninety-Five Percent (95%) of the maximum dry density determined in accordance with ASTM D698, Standard Proctor Method between 3% and 7% on the wet side of the optimum moisture content. Pumping of this material during compaction is acceptable.
2. These berms shall be covered with 6 inches of topsoil compacted with 4 passes of a track dozer, and then raked. Berms shall be stabilized immediately with permanent seeding upon achieving final grade.
3. Berms shall be composed of cohesive materials classified as ML, CL, MH, or CH per ASTM D-2487.

TOPSOIL AND COMPOST SPECIFICATIONS

1. Salvaged topsoil shall be collected from the "O" and "A" horizons. The final product shall consist of a 1:4 mixture of compost (1 part) and salvaged topsoil (3 parts).
2. Compost shall meet specifications outlined in Section 6.5 of VA DCR Stormwater Specification 4.
3. Topsoil/compost mixture shall be placed on all areas within the LOD to a minimum depth of 6 inches (except where reinforced bed material, asphalt, cobble, riprap, or concrete is specified and along the temporary access paths).
4. All salvaged soil shall be from the "O" or "A" horizons (see Typical Soil Horizon Detail - this sheet). Horizons "B" and "C" shall only be used for fill material.
5. Salvaged soil shall only be harvested from areas designated to be graded. No topsoil shall be removed from the site and a soil harvest can happen at any given time during construction.
6. All harvested soil must be properly stored in a designated stockpile/staging area with appropriate E&S controls in accordance with the construction plans and the Virginia Erosion and Sediment Control Handbook (VESCH).
7. The topsoil/compost mixture shall be well mixed and seeded per the Planting Plan immediately following installation and prior to straw and matting placement.

TYPICAL SOIL HORIZON PROFILE

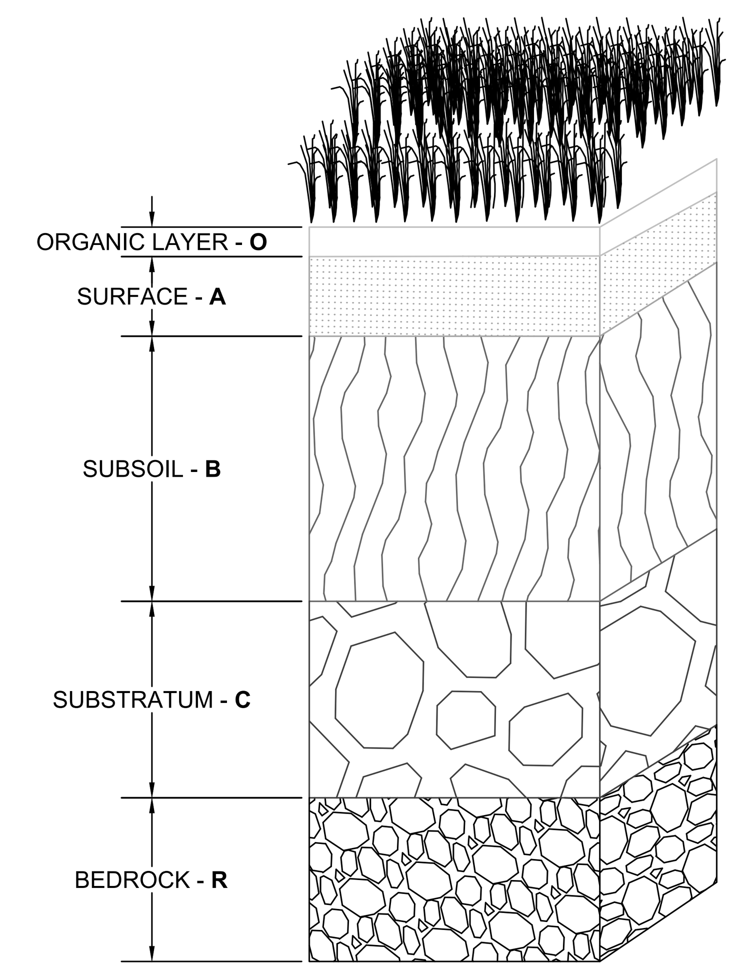
O HORIZON – THE TOP LAYER OF SOIL IS COMPOSED PRIMARILY OF ORGANIC MATERIAL, INCLUDING LEAF LITTER, HERBACEOUS PLANTS, INSECTS, AND MICROORGANISMS.

A HORIZON – REFERRED TO AS TOPSOIL, WHERE SEEDS GERMINATE AND PLANT ROOTS THRIVE. THROUGH ELUVIATION, MINERALS AND CLAYS HAVE BEEN REMOVED, LEAVING THIS LAYER OF SAND AND SILT.

B HORIZON – REFERRED TO AS SUBSOIL. THROUGH PROCESS OF ILLUVIATION, SUBSOIL CONTAINS MINERAL DEPOSITS THAT HAVE MIGRATED FROM ABOVE SOIL HORIZON.

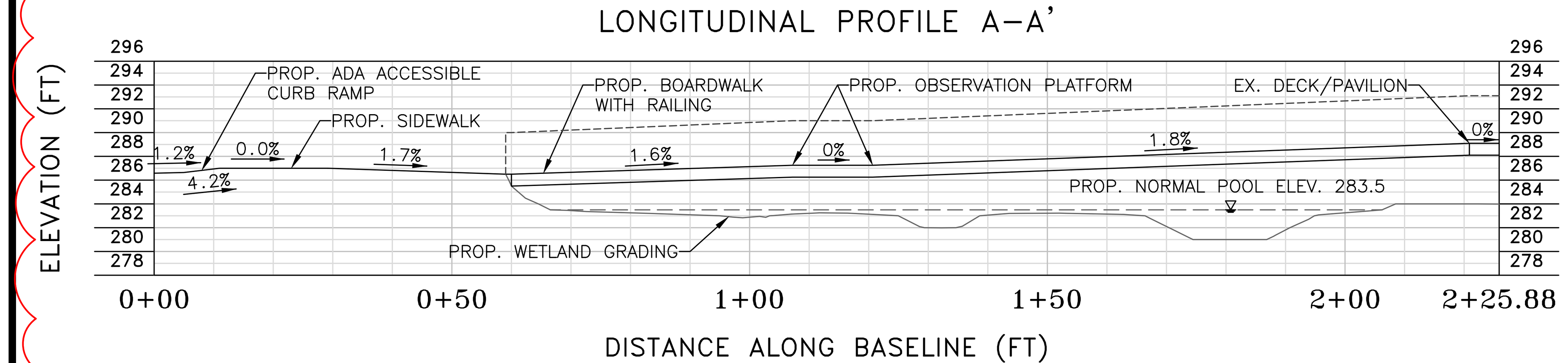
C HORIZON – THIS WEATHERING ROCK LAYER IS REFERRED TO AS REGOLITH AND CONSISTS OF UNCONSOLIDATED ROCKS AND LITTLE ORGANIC MATERIAL THAT INHIBIT THE GROWTH OF PLANT ROOTS.

R HORIZON – THE "R" STANDS FOR ROCK AND IT REFERS TO THE UNCONSOLIDATED ROCK OR SOLID BEDROCK OF THIS HORIZON.



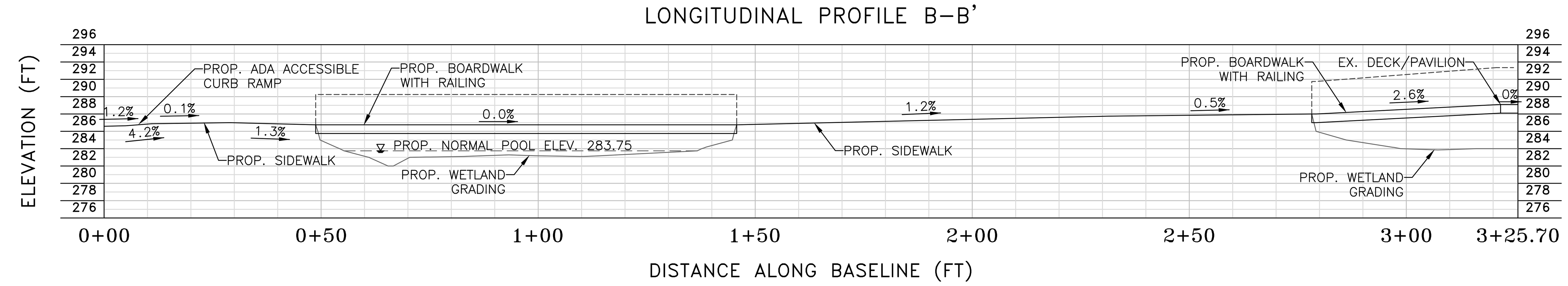
1

LONGITUDINAL PROFILE A–A'



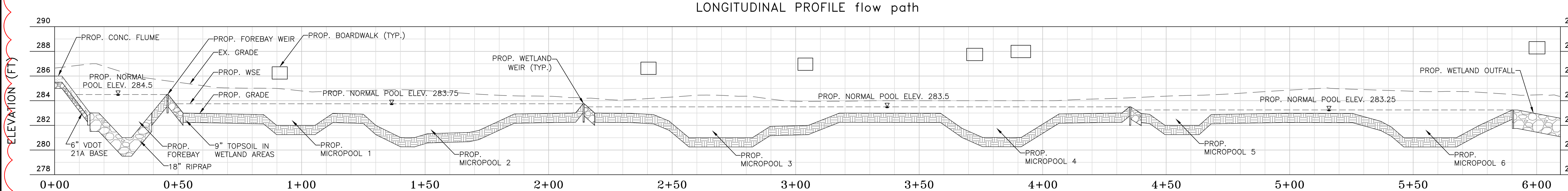
PROFILE SCALE:
HORIZ: 1"=20'
VERT: 1"=10'

LONGITUDINAL PROFILE B–B'



PROFILE SCALE:
HORIZ: 1"=20'
VERT: 1"=10'

LONGITUDINAL PROFILE flow path



PROFILE SCALE:
HORIZ: 1"=20'
VERT: 1"=4'

NOTE: SEE SHEET 23 FOR OUTFALL PROFILE (C-C').

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Construction Sequence, Geotech & Grading Specs, and Profiles

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
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08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By
1	02/17/26	PROFILE REVS PER STRUCTURAL BDWLK CHANGES	SH	DC

DATE: August 2025

SCALE: As Noted C.I.: -

Horizontal Datum: NAD83

Vertical Datum: NGVD29

Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
DMC	DMC	FRG

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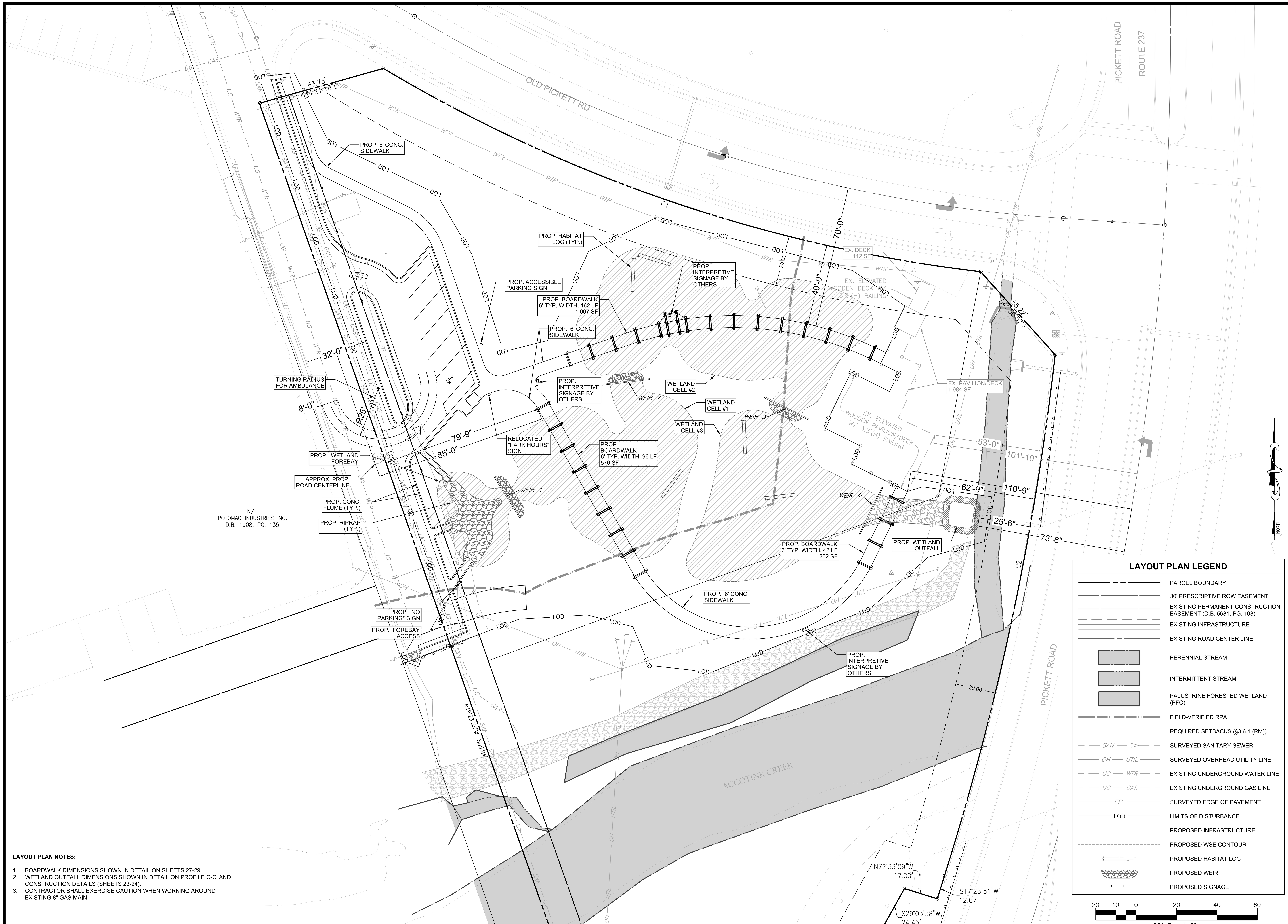

LAYOUT PLAN LEGEND

	PARCEL BOUNDARY
	30' PRESCRIPTIVE ROW EASEMENT
	EXISTING PERMANENT CONSTRUCTION EASEMENT (D.B. 5631, PG. 103)
	EXISTING INFRASTRUCTURE
	EXISTING ROAD CENTER LINE
	PERENNIAL STREAM
	INTERMITTENT STREAM
	PALUSTRINE FORESTED WETLAND (PFO)
	FIELD-VERIFIED RPA
	REQUIRED SETBACKS (§3.6.1 (RM))
SAN	SURVEYED SANITARY SEWER
OH — UTIL	SURVEYED OVERHEAD UTILITY LINE
UG — WTR	EXISTING UNDERGROUND WATER LINE
UG — GAS	EXISTING UNDERGROUND GAS LINE
EP	SURVEYED EDGE OF PAVEMENT
LOD	LIMITS OF DISTURBANCE
	PROPOSED INFRASTRUCTURE
	PROPOSED WSE CONTOUR
	PROPOSED HABITAT LOG
	PROPOSED WEIR
	PROPOSED SIGNAGE

SCALE: 1"=20'

LAYOUT PLAN NOTES:

1. BOARDWALK DIMENSIONS SHOWN IN DETAIL ON SHEETS 27-29.
2. WETLAND OUTFALL DIMENSIONS SHOWN IN DETAIL ON PROFILE C-C' AND CONSTRUCTION DETAILS (SHEETS 23-24).
3. CONTRACTOR SHALL EXERCISE CAUTION WHEN WORKING AROUND EXISTING 8" GAS MAIN.

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Layout Plan

Prepared For: NOVA Parks

Gateway Regional Park

City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
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REVISIONS

No.	Date	Description	Rev. By	App. By

SCALE: As Noted C.I.: 1'

DATE: August 2025

Horizontal Datum: NAD83

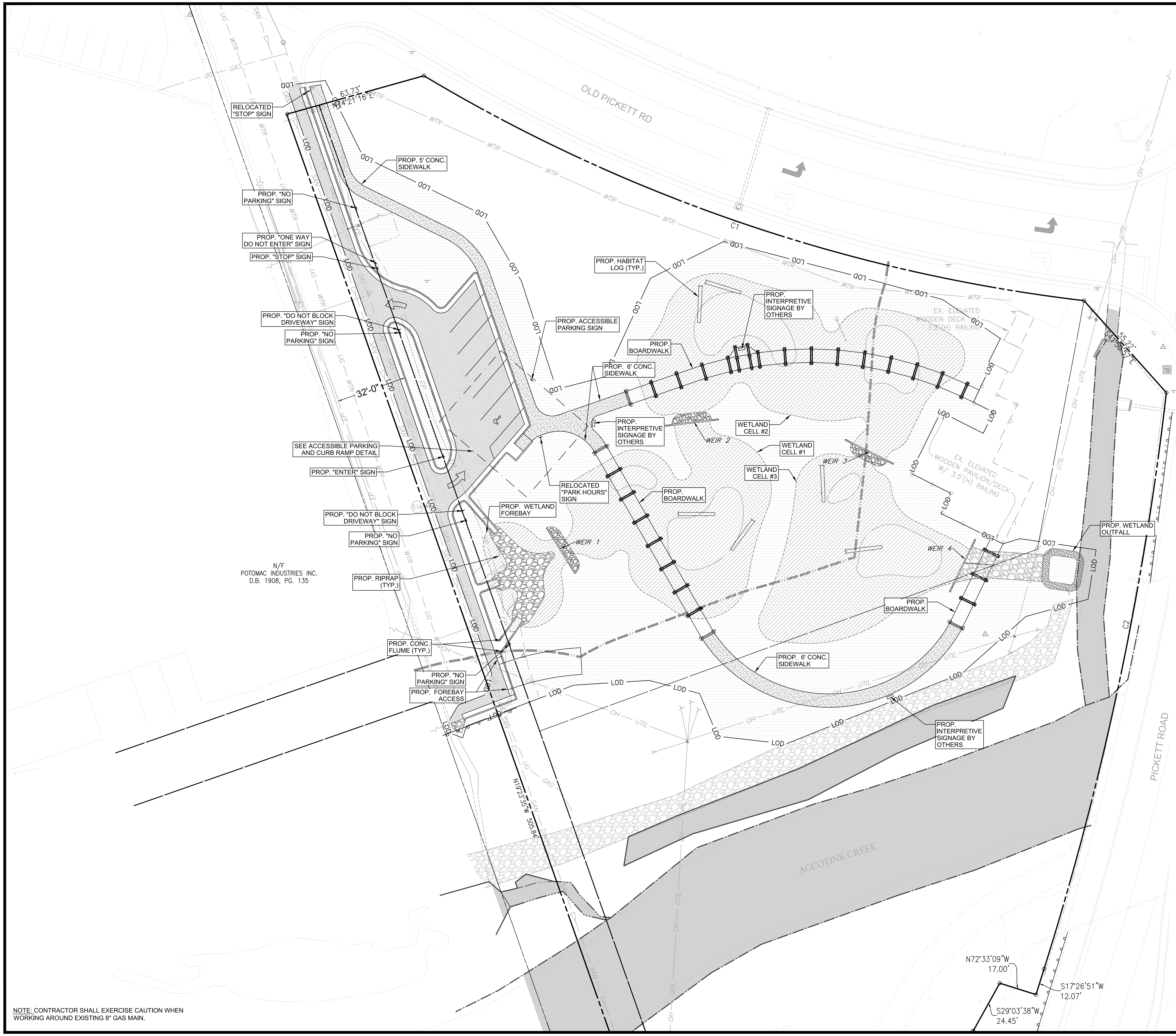
Vertical Datum: NGVD29

Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
DMC	DMC	FRG

Sheet # 21 of 55

Computer File Name: LAYOUT PLAN.dwg



NOTE: CONTRACTOR SHALL EXERCISE CAUTION WHEN WORKING AROUND EXISTING 8" GAS MAIN.

MATERIALS & SIGNAGE PLAN LEGEND

- PARCEL BOUNDARY
- 30' PRESCRIPTIVE ROW EASEMENT
- EXISTING PERMANENT CONSTRUCTION EASEMENT (D.B. 5631, PG. 103)
- EXISTING INFRASTRUCTURE
- PERENNIAL STREAM
- INTERMITTENT STREAM
- PALUSTRINE FORESTED WETLAND (PFO)
- FIELD-VERIFIED RPA
- SAN — SURVEYED SANITARY SEWER
- OH — UTIL — SURVEYED OVERHEAD UTILITY LINE
- UG — WTR — EXISTING UNDERGROUND WATER LINE
- UG — GAS — EXISTING UNDERGROUND GAS LINE
- EP — SURVEYED EDGE OF PAVEMENT
- LOD — LIMITS OF DISTURBANCE
- PROPOSED INFRASTRUCTURE
- PROPOSED WSE CONTOUR
- PROPOSED HABITAT LOG
- PROPOSED WEIR
- PROPOSED SIGNAGE

PROP. ASPHALT	PROP. CONCRETE
PROP. NORMAL POOL WATER SURFACE	PROP. 18" DEEP CLASS 1 RIPRAP
PROP. COBBLE (MIN. 12" DEEP)	PROP. 18" DEEP CLASS 1 REINFORCED BED MIXTURE
PROP. STRUCTURE ROCKS	PROP. PLANTED AREA (SEE LANDSCAPE PLAN, SHEET 40)

20 10 0 20 40 60
SCALE: 1"=20'

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Materials and Signage Plan

Prepared For: NOVA Parks

Gateway Regional Park

City of Fairfax, Virginia

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No.	Date	Description	Rev. By	App. By

DATE: August 2025 SCALE: 1" = 20' C.I.: 1'

Horizontal Datum: NAD83
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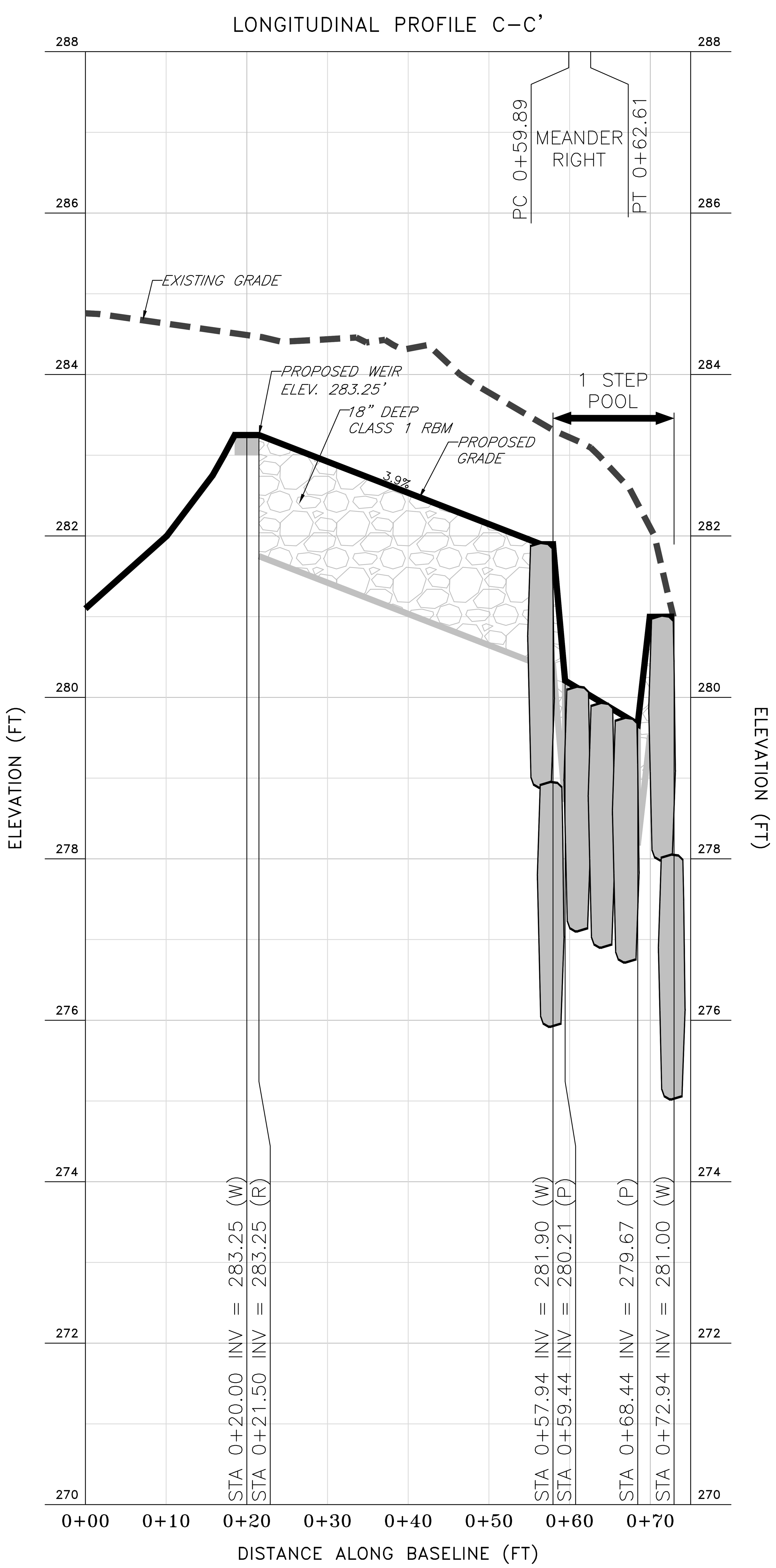
Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
DMC	DMC	FRG

Sheet # 22 of 55

Computer File Name: MATERIALS & SIGNAGE PLAN.dwg

LONGITUDINAL PROFILE C–C'



PROFILE LEGEND

EXISTING STREAM INVERT PROJECTED TO PROPOSED CENTERLINE

PROPOSED STREAM INVERT ALONG PROPOSED CENTERLINE

CLASS 1 REINFORCED BED MIX (RBM)

PC 0+00.00 MEANDER LEFT PT 0+10.00 — PC & PT LOCATIONS WITH LINE OR CURVE DESIGNATION REFERENCED FROM STAKEOUT DATA

STRUCTURE ROCKS

"REINFORCED BED MIXTURE" (RBM) SPECIFICATIONS

REINFORCED BED MIXTURE (RBM) IS UTILIZED IN THE BED OF THE STREAM, AND IN SOME CASES OTHER AREAS, TO PROVIDE A STABLE SUBSTRATE OR FILL AREA. THE RBM PRODUCT VARIES IN ITS MATERIAL, MANUFACTURING PROCESS AND INSTALLATION EXECUTION, AS DESCRIBED BELOW:

MATERIAL: GENERALLY, RBM SHALL CONSIST OF ROCK (RIP RAP) MIXED WITH BANK RUN GRAVEL, COARSE SAND AND TOPSOIL. THERE ARE FOUR (4) TYPES OF RBM, EACH CATEGORIZED BY THEIR LARGEST ROCK SIZE WHICH RANGES FROM VDOT CLASS A1 TO VDOT CLASS III. THEY ARE REFERRED TO AS "SMALL COBBLE RBM", "LARGE COBBLE RBM", "CL A1 RBM", "CL I RBM", "CL II RBM" AND "CLIII RBM" THROUGHOUT THESE PLANS.

EACH TYPE OF RBM MUST MEET THE MATERIAL SPECIFICATIONS PROVIDED IN TABLE 1 BELOW.

TABLE 1		PORTION OF VOLUME PER RBM MIXTURE					
MATERIAL CATEGORY	MATERIAL SIZE RANGE	SMALL COBBLE RBM	LARGE COBBLE RBM	CL A1 RBM	CL I RBM	CL II RBM	CL III RBM
ROCK	SMALL COBBLE - D50 = 4" - 6"	20%	5%				
	LARGE COBBLE - D50 = 8" - 12"	20%	40%				
	VDOT CL A1 RIPRAP - D_{50} = 6.7" - 10.8"			35 - 40%		10 - 15%	10 - 15%
	VDOT CL I RIPRAP - D_{50} = 13.2"				35 - 40%		
	VDOT CL II RIPRAP - D_{50} = 19.2"					55- 65%	
	VDOT CL III RIPRAP - D_{50} = 26.4"						55- 65%
COBBLE	2.5" - 10.1" (64 - 256 mm)			5 - 10%	5 - 10%	3 - 7%	3 - 7%
BANK RUN GRAVEL	WELL GRADED GRAVEL (0.08" - 2.5") D_{50} = 1.3"	15 - 25%	20 -30%	30 - 35%	30 - 35%	7 - 12%	7 - 12%
COARSE SAND	0.04" - 0.08" (1 - 2 mm)	12 - 17%	12 - 17%	12 - 17%	12 - 17%	5 - 10%	5 - 10%
TOPSOIL	LOAM OR SILT LOAM WITH 3 - 5% ORGANIC CONTENT	7 - 12%	7 - 12%	7 - 12%	7 - 12%	3 - 7%	3 - 7%
WOODCHIPS		5 -10%	5 -10%	5 - 10%	5 - 10%		

1. EACH RBM TYPE SHALL CONTAIN THE PERCENTAGE BY VOLUME OF THE MATERIALS AS SPECIFIED IN TABLE 1.
2. THE ROCK PORTION OF ANY RBM MIXTURE SHALL CONSIST OF DIABASE STONE AND/OR RIVER WASHED COBBLE (SIMILAR IN COLOR TO THE NATIVE MATERIAL FOUND ON SITE) AND SHALL HAVE A D_{50} SIZE AS SPECIFIED IN TABLE 1 ABOVE FOR THE TYPE OF RBM SPECIFIED.
3. THE BANK RUN GRAVEL MAY INCLUDE UP TO 5% CLAY, SILT AND/OR SAND AND UP TO 25% COBBLE (D_{50}= 3" - 8"). THE GRAVEL MUST HAVE A NATURAL COLOR SIMILAR TO THE NATIVE MATERIAL FOUND ON SITE.
4. THE SAND PORTION OF THE MIXTURE SHALL CONSIST OF A WELL MIXED SAND PREDOMINANTLY 1.0 - 2.0 MM IN SIZE AND SUBJECT TO THE PROJECT ENGINEER'S APPROVAL. WASHED CONCRETE IS NOT REQUIRED, BUT SAND MUST HAVE A NATURAL COLOR SIMILAR TO THE NATIVE MATERIAL FOUND ON SITE.
5. THE TOPSOIL PORTION OF THE MIXTURE SHALL CONSIST OF 50% SIFTED, UNWASHED COARSE SAND (WITH FINES ALLOWED), 25% COMPOSTED LEAF/BARK MULCH, AND 25% MINERAL SILT OR FINER MATERIAL (STONE DUST FROM ROCK CRUSHING OPERATIONS OR ANY SILT/CLAY).
6. DUE TO INCONSISTENCIES IN MATERIAL NORMALLY ENCOUNTERED IN THE BANK RUN GRAVEL, SAND AND TOPSOIL COMPONENTS, EACH MIX MUST BE REVIEWED AND APPROVED BY THE ENGINEER BEFORE INSTALLATION.

MANUFACTURING PROCESS

7. CL A1 AND CL I RBM TYPES MUST BE MIXED BY THE MANUFACTURER AT THEIR FACILITY. THE MIXTURE MUST BE APPROVED BY THE PROJECT ENGINEER AT THE SITE FOR CONFORMANCE WITH MATERIAL SIZE AND MIXTURE PERCENTAGES PROVIDED IN TABLE 1 PRIOR TO BEING PLACED AS SPECIFIED IN THE PLANS.
8. CL II AND CL III RBM TYPES SHALL CONSIST OF CL A1 RBM MIXED/WASHED INTO THE VOIDS OF CL II OR CL III RIPRAP, RESPECTIVELY. THE CONTRACTOR MUST ORDER THE GRAVEL, SAND AND TOPSOIL PREMIXED FROM THE MANUFACTURER SEPARATELY FROM THE ROCK COMPONENTS. THE GRAVEL, SAND AND TOPSOIL MIXTURE AND ROCK COMPONENT MUST BE APPROVED SEPARATELY BY THE PROJECT ENGINEER AT THE SITE FOR CONFORMANCE WITH MATERIAL SIZE AND MIXTURE PERCENTAGES PROVIDED IN TABLE 1 PRIOR TO BEING PLACED AS SPECIFIED IN THE PLANS.

INSTALLATION/EXECUTION PROCESS

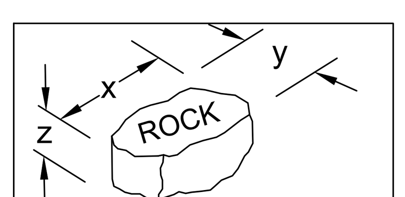
9. THE CONTRACTOR SHALL PREPARE THE SUBGRADE IN PREPARATION OF RBM INSTALLATION TO THE DEPTH REQUIRED TO ACHIEVE THE RBM DEPTH, WIDTH AND INVERTS INDICATED ON THE LONGITUDINAL PROFILE AND TYPICAL DETAILS.
10. FOR CL A1 AND CL I RBM WITH INSTALLATION DEPTHS EQUAL TO OR LESS THAN 18 INCHES, THE PREMIXED PRODUCT MAY BE PLACED IN A SINGLE LIFT. FOR DEPTHS GREATER THAN 18 INCHES, THE RBM MUST BE PLACED IN LIFTS NO GREATER THAN 12 INCHES. THE CONTRACTOR SHALL INSPECT THE INSTALLATION OF RBM TO ENSURE THE PRODUCT IS INSTALLED AS A HETEROGENEOUS MIXTURE VISUALLY FREE OF VOIDS GREATER THAN 1 SQUARE INCH.
11. FOR CL II AND CL III RBM, THE CONTRACTOR SHALL INSTALL THE MIXTURE USING THE FOLLOWING METHOD TO ENSURE MINIMUM VOIDS REMAIN WITHIN THE PLACED MATERIAL:
    1) STARTING AT THE UPSTREAM END OF THE REACH, THE LARGEST ROCK COMPONENT IS INSTALLED FIRST TIGHT ENOUGH SUCH THAT ROCKS ARE IN CONTACT WITH ADJACENT ROCKS AND THE VOIDS BETWEEN ROCKS ARE NO MORE THAN 12 INCHES.
    2) THE CL A1 ROCK IS THEN DROPPED INTO VOIDS GREATER THAN 8 INCHES BUT ARE NOT PLACED TO COVER VOIDS FROM THE TOP. VOIDS SHOULD REMAIN OPEN FROM THE SURFACE.
    3) THE MIXTURE OF GRAVEL, SAND AND TOPSOIL SHALL BE WASHED INTO THE VOIDS BY A "PUMPING AND WASHING" TECHNIQUE, OR TOPDRESSED IF THE PUMPING AND WASHING TECHNIQUE IS NOT FEASIBLE. A TEMPORARY POOL SHALL BE INSTALLED WITHIN THE STREAM CHANNEL AT THE DOWNSTREAM LIMIT OF ACTIVE CHANNEL WORK ZONE. WATER SHALL BE PUMPED FROM THIS POOL TO THE UPSTREAM LIMIT OF THE WORK ZONE TO WASH THE SMALLER MATERIAL MIXTURE INTO THE VOIDS OF THE LARGER ROCK AS MUCH AS NECESSARY SUCH THAT THE OVERALL RBM PRODUCT IS A MIXTURE VISUALLY FREE OF VOIDS GREATER THAN 1 SQUARE INCH.
12. REFER TO THE GRADING PLAN AND LONGITUDINAL PROFILE FOR THE LIMITS OF PLACEMENT, TYPE AND DEPTH OF THE RBM. ADDITIONAL DETAIL REGARDING PLACEMENT IS PROVIDED IN SPECIFIC STRUCTURE AND FEATURE CONSTRUCTION DETAILS.

STRUCTURE ROCK TABLE

STRUCTURE ROCK SIZE IS INDICATED BY CHANNEL SIZE AS SPECIFIED IN THE TABLE BELOW.

TABLE A. CHANNEL W-BKF > 10FT			
ROCK	X-AXIS DIMENSION (FT)	Y-AXIS DIMENSION (FT)	Z-AXIS DIMENSION (FT)
FOOTER ROCK	3	2.5	2.5
ANCHOR ROCK	3	2.5	2.5
TOP ROCK	3	2.5	2.5
SPLASH ROCK	3	2.5	2.5
SURFACE HABITAT ROCK	1.5	1.5	0.7

ALL STRUCTURE ROCK SHALL MEET THE MINIMUM SIZE REQUIREMENTS SPECIFIED IN THE STRUCTURE ROCK TABLE AND IN NO CASE SHALL THE SMALLEST DIMENSION OF STRUCTURE ROCK BE LESS THAN 1.5-FEET AND THE CUMULATIVE VOLUME OF THE X, Y AND Z AXIS BE LESS THAN 7.5 CU. FT. FOR A CHANNEL WITH BANKFULL WIDTH LESS THAN 10 FEET OR 18 CU. FT. FOR A CHANNEL WITH BANKFULL WIDTH GREATER THAN 10 FEET.



3 PRIMARY DIMENSIONS OF ROCK:
x = LONGEST DIMENSION
y = INTERMEDIATE DIMENSION
z = SHORTEST DIMENSION

CONSTRUCTION TOLERANCES:

STRUCTURES - LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ALL STRUCTURES AND ALL ASSOCIATED STRUCTURE STAKEOUT POINTS SHALL BE AS FOLLOWS:

Vertical Tolerance	*+/- 0.1-foot maximum*
Horizontal Tolerance	*+/- 0.5-foot maximum*

CHANNELS - LOCATIONS, ELEVATIONS, AND DIMENSIONS OF ALL CHANNEL FEATURES (AS SPECIFIED ON THE GRADING PLAN, LONGITUDINAL PROFILE, GEOMETRY PLAN, AND DETAILED CROSS SECTIONS) SHALL BE AS FOLLOWS:

Vertical Tolerance	*+/- 0.2-foot maximum*
Horizontal Tolerance	*+/- 0.5-foot maximum*

10 5 0 10 20 30
SCALE: 1"=10'

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Wetland Outfall Profile and RBM Specifications

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS				
No.	Date	Description	Rev. By	App. By

DATE: August 2025 SCALE: 1" = 10' C.I.: 1'

Horizontal Datum: NAD83

Vertical Datum: NGVD29

Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
ES	ES	FRG

Sheet #
23 of 55

Computer File Name:
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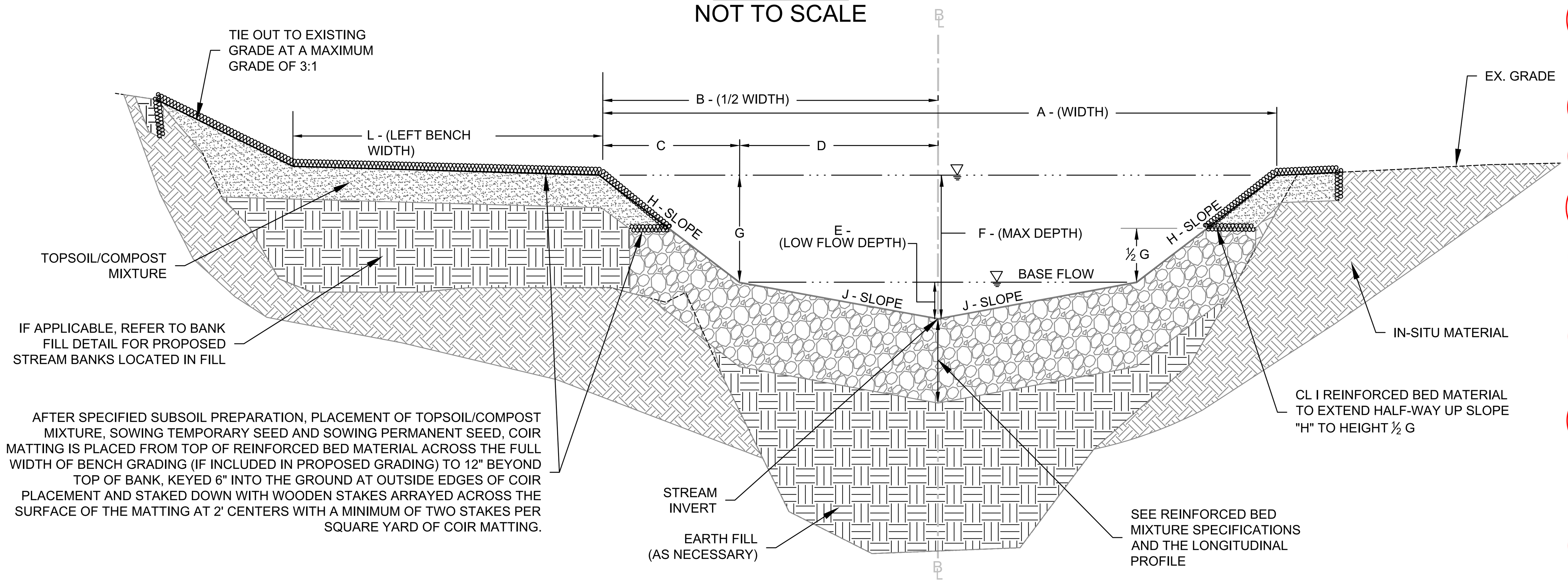
RIFFLE

NOT TO SCALE



ORIENTATION LOOKING DOWNSTREAM

SECTION LOCATION			RIFFLE CROSS-SECTION DIMENSIONS											
REACH ID	PER BASELINE STATION[1]		CROSS-SECTION PARAMETER (FT)											
	FROM	TO	A	B	C	D	E	F	G	H[2]	J[2]	K[3]	L[3]	NOTES
OUTFALL	10+01.50	10+34.94	12.0	6.0	2.4	3.6	0.4	1.2	0.8	3.0:1	9.0:1	*	*	*VARIES - SEE GRADING PLAN

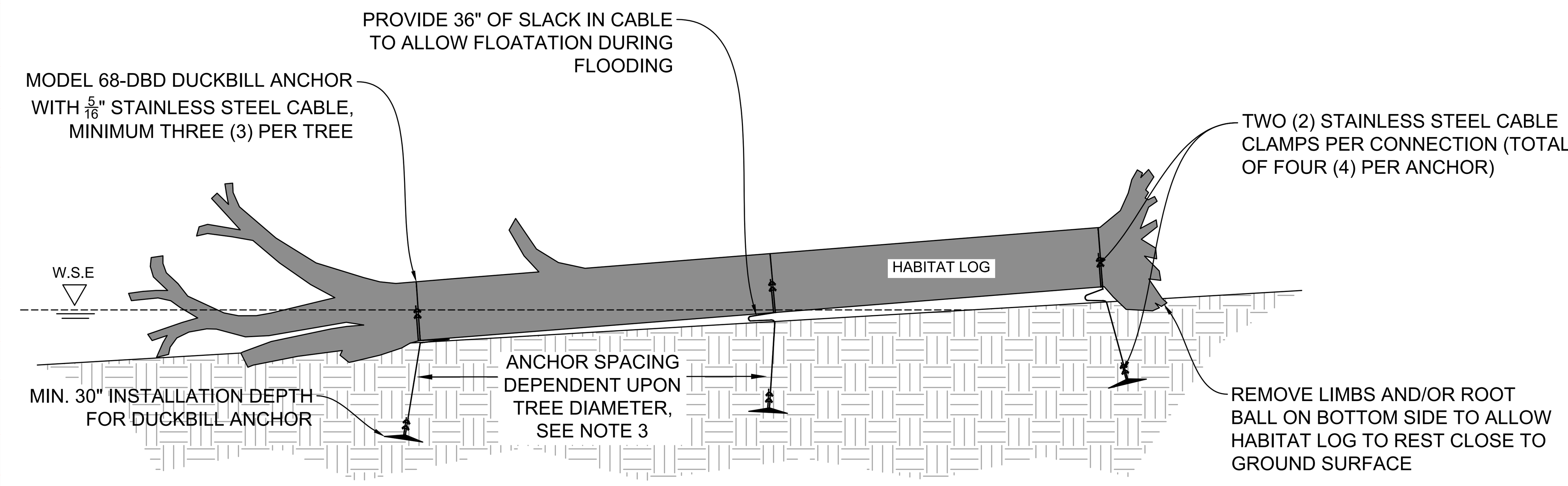
SEE GENERAL STRUCTURE NOTES AND THE ROCK AND LOG GRADE CONTROL STRUCTURE CONSTRUCTION NOTES FOR ADDITIONAL INFORMATION.

RIFFLE NOTES:

1. REFER TO THE GRADING PLAN AND LONGITUDINAL PROFILE SHEETS FOR PLACEMENT OF ROCK STRUCTURES WITHIN THE RIFFLE SECTIONS SPECIFIED ABOVE.
2. VARIABLES "H" & "J" ARE SLOPES EXPRESSED AS HORIZONTAL:VERTICAL (H:V).
3. VARIABLES MAY BE ADJUSTED TO MINIMIZE DISTURBANCE TO TREES. IF BENCH WIDTHS ARE NOT SPECIFIED, OVERBANK AREAS SHOULD BE GRADED WITH A 2% CROSS SLOPE EXTENDING AS FAR AS POSSIBLE WHILE STILL ALLOWING 3:1 (MAX.) TIE OUT SLOPES. VARIABLE "L" IS THE LEFT BENCH WIDTH AND VARIABLE "K" (NOT DEPICTED IN THIS TYPICAL DETAIL) IS THE RIGHT BENCH WIDTH.

HABITAT LOG DETAIL

NOT TO SCALE



FORESIGHT PRODUCTS: DUCKBILL HOLDING CAPACITIES[1]			
Model #	Working Load* (lbs)	Wire Rope Capacity (lbs)	Standard Install Depth (in)
40	300	480	20
68	**1100**	**1700**	**30**
88	3000	8100	42
138	5000	9800	60

*Normal (Class 5) Soil Conditions

Dry Density of Red Oak[2] 42 pcf **40** pcf used in calcs to be conservative

Tree Dia. (ft)[3]	Bole Vol (cf) per 10' Length	Crown Vol (assumes 10% of bole vol)	Total Wood Vol (cf)	Wood Weight (lb)	Bouyant Force (lb)	Net Force (lb)
1.5	17.7	1.8	19.4	777.5	1213.0	435.4
2	31.4	15.7	47.1	1885.0	2940.5	1055.6
2.5	49.1	24.5	73.6	2945.2	4594.6	1649.3
3	70.7	35.3	106.0	4241.2	6616.2	2375.0

[1] www.earthanchor.net/duckbill/holding-capacities/

[2] www.engineeringtoolbox.com

[3] Assumes constant diameter for full length of log (conservative)

L:\32000s\32000\32047.02\Admin\04-ENGR\[Duckbill Calcs.xlsx]Sheet1

HABITAT LOG NOTES

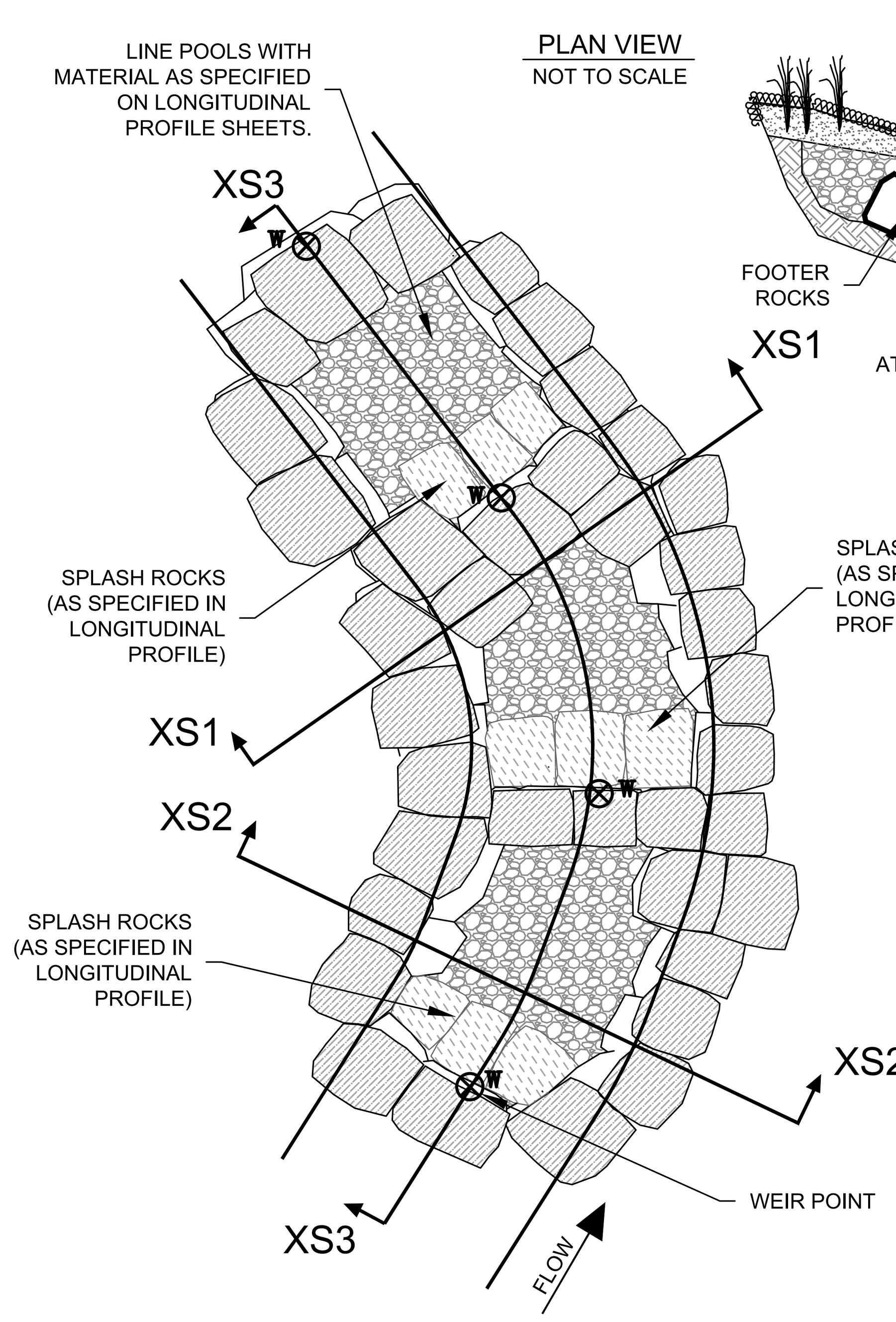
1. HABITAT LOGS SHALL ONLY BE RED OR WHITE OAK.
2. CONTRACTOR TO SELECT AND STOCKPILE TREES TO BE USED AS HABITAT LOGS.
3. A MINIMUM OF 3 DUCKBILL ANCHORS ARE REQUIRED FOR EACH HABITAT LOG PLACEMENT.
4. REQUIRED ANCHOR SPACING SHALL BE:
   <24" DBH = 12 FT
   >24" DBH = 6 FT
5. INSTALL DUCKBILL ANCHORS TO A MINIMUM DEPTH OF 30".
6. ADJUSTMENTS TO SELECTED TREES, ANCHOR SIZE, AND SPACING MAY BE MADE, SUBJECT TO THE DISCRETION OF THE ENGINEER OF RECORD.
7. TREES TO BE USED AS HABITAT LOGS SHOULD RETAIN APPROXIMATELY 10% OF TREE CANOPY AND/OR ROOT BALL.

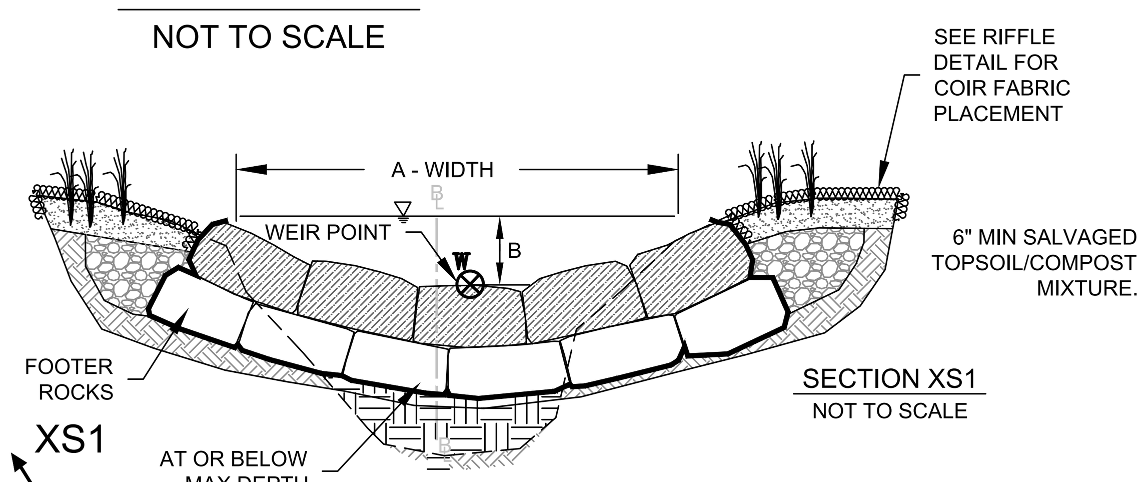
STEP POOL

NOT TO SCALE

PLAN VIEW

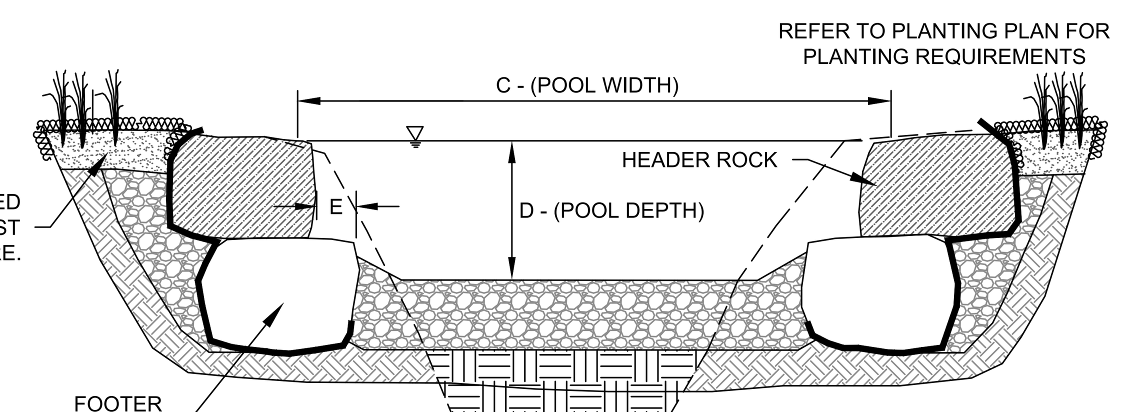
NOT TO SCALE





SECTION XS1

NOT TO SCALE

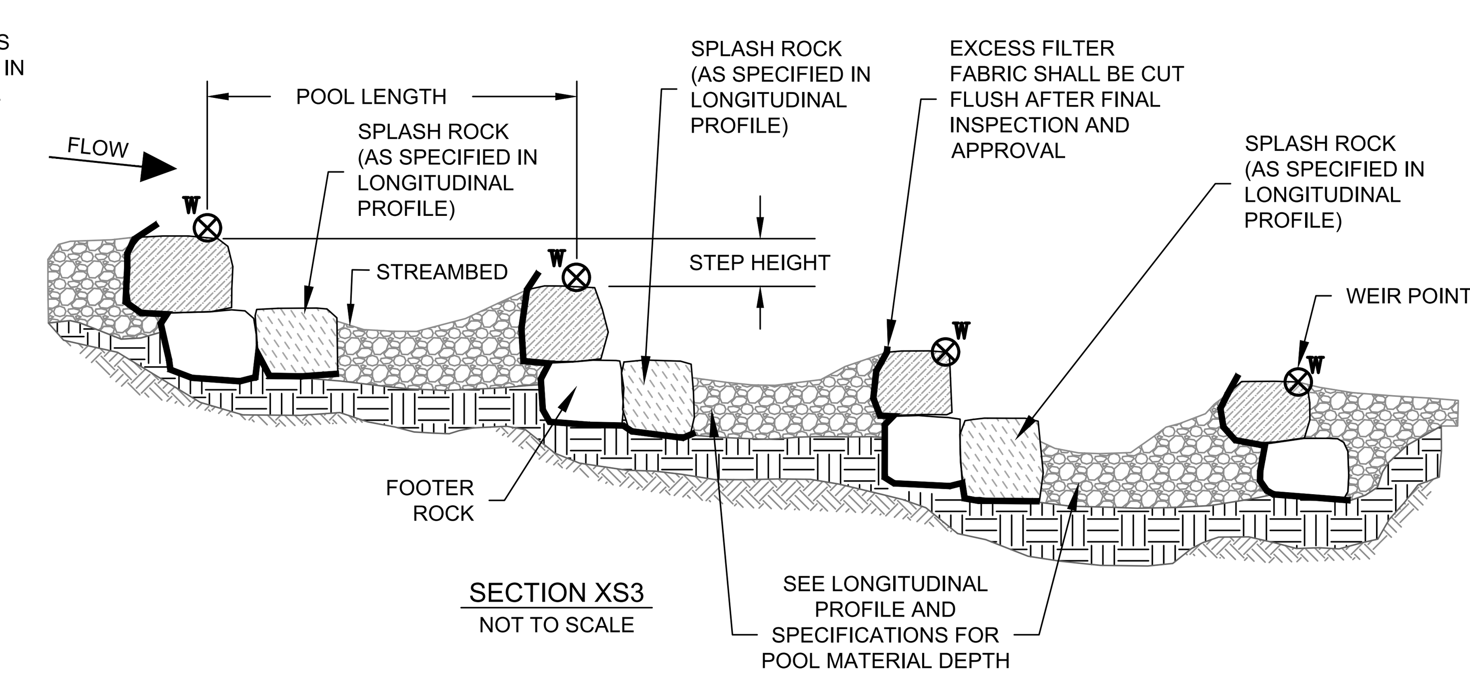


SECTION XS2

NOT TO SCALE

IN ALL CASES HEADER ROCK SEAMS SHALL NOT ALIGN WITH FOOTER ROCK SEAMS BELOW, THERE SHALL BE A MINIMUM OVERLAP OF 6". WHERE MULTIPLE COURSES OF FOOTER ROCK SEAMS SHALL NOT ALIGN WITH UNDERLYING FOOTER ROCK SEAMS.

SEE GENERAL STRUCTURE NOTES AND THE ROCK AND LOG GRADE CONTROL STRUCTURE CONSTRUCTION NOTES FOR ADDITIONAL INFORMATION.



SECTION XS3

NOT TO SCALE

STRUCTURE LOCATION			STEP POOL DIMENSIONS					
REACH ID	PER BASELINE STATION		PARAMETER (FT)					NUMBER OF POOLS
	FROM	TO	A	B	C	D	E	
OUTFALL	10+34.94	10+52.94	12.0	1.2	12.0	2.8	1.0	1

⊗ WEIR POINTS		
STATION	WEIR POINT #	ELEVATION (FT)
10+37.94	1	281.90
10+52.94	2	281.00

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Construction Details (1)

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REVISIONS

No.	Date	Description	Rev. By	App. By
1	02/17/26	DETAIL MOVED FROM SHEET 30	SH	DC

C.I.: N/A

SCALE: N/A

DATE: August 2025

Horizontal Datum:

Vertical Datum:

Boundary and Topo Source: N/A

Design	Draft	Approved
DMC	DMC	FRG

Sheet #

24 of 55

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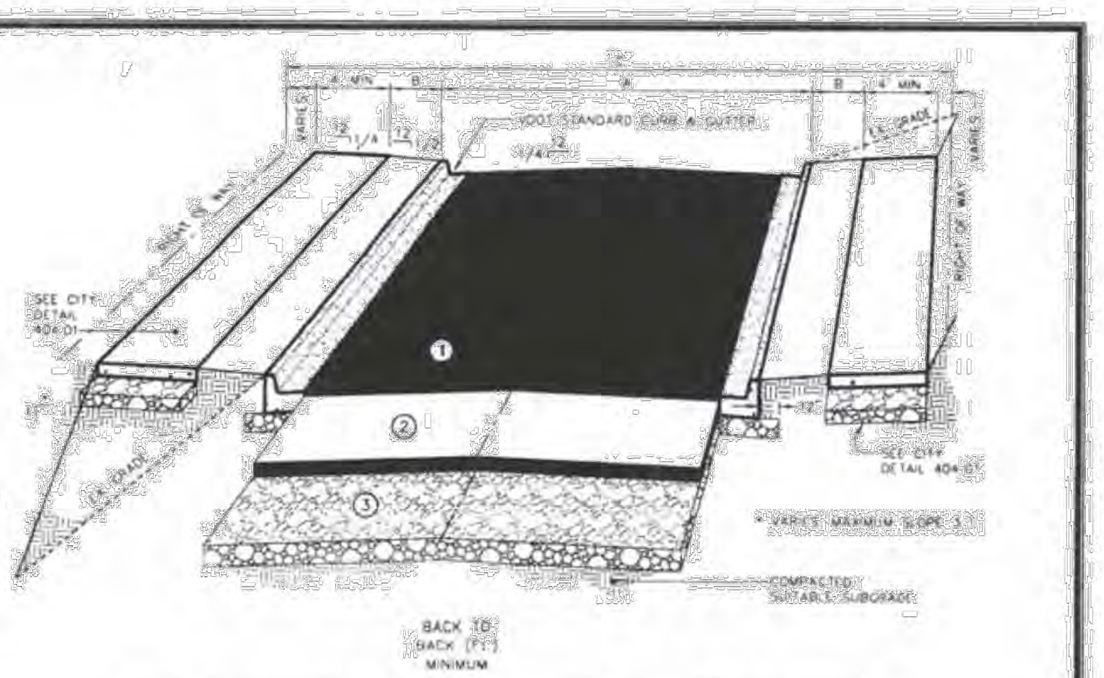


MATRIX #1 – GEOMETRIC PROPERTIES						
	FACE TO FACE CURB OR EDGE PAVEMENT MINIMUM	EDGE S/W TO BACK CURB OR EDGE PAVEMENT MINIMUM	PAVEMENT SECTION: RIDING SURFACE	PAVEMENT SECTION: BASE	PAVEMENT SECTION: AGGREGATE BASE	R.O.W. (MINIMUM)
CLASSIFICATION	A	B	1	2	3	C
RESIDENTIAL	36'-0"	[illegible]	2" SM-9.5A	4" BM-25.0	8" No. 21A	50'
COLLECTOR	[illegible]	3'-0"	2" SM-9.5A	4" BM-25.0	8" No. 21A	60'
ALLEYS	19'-0"	[illegible]	2" SM-9.5A	4" BM-25.0	8" No. 21A	N/A
SERVICE DRIVES	22'-0"	3'-0"	2" SM-9.5A	4" BM-25.0	8" No. 21A	N/A
ARTERIALS & THOROUGHFARES	52'-0"	4'-0"	3" SM-9.5D	6" BM-25.0	10" No. 21A	100'
PRIVATE ACCESSWAYS	30'-0"	N/A	2" SM-9.5A	3" BM-25.0	6" No. 21A	N/A
PARKING BAYS	N/A	N/A	2" SM-9.5A	3" BM-25.0	6" No. 21A	N/A

NOTES:
- For all street classifications within R.O.W. and private

Department of Public Works
10455 Armstrong Street
Fairfax, VA 22030-3630

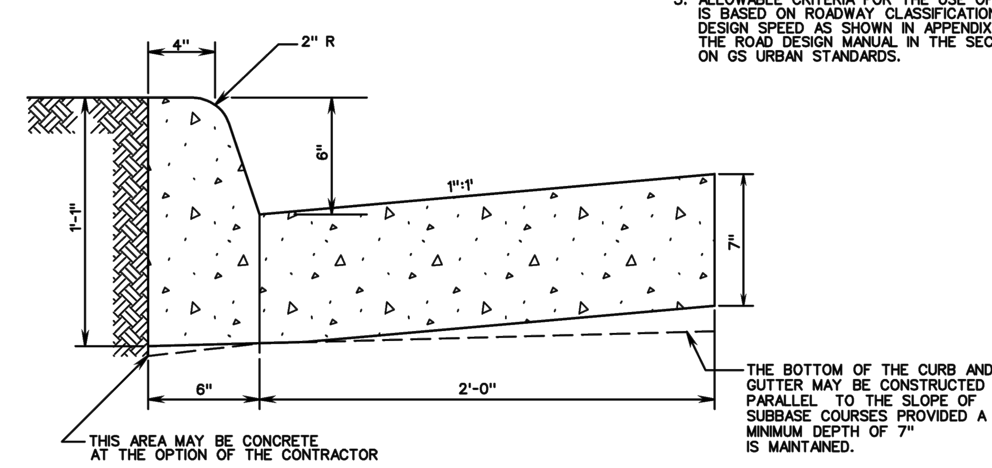
CITY of FAIRFAX
USE WITH THE FAIRFAX STANDARD SPECIFICATIONS ONLY

TYPICAL CURB and GUTTER STREET SECTION

SCALE: Note To Scale | DETAIL #: 401.01
REVISION DATE: January 2010 | Sheet #: 1 of 1

CG-6

NOTES:
1. THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
2. CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI IF PRECAST.
3. COMBINATION CURB & GUTTER HAVING A RADIUS OF 300 FEET OR LESS (ALONG FACE OF CURB) SHALL BE PAID FOR AS RADIAL COMBINATION CURB & GUTTER.
4. FOR USE WITH STABILIZED OPEN-GRADED DRAINAGE LAYER, THE BOTTOM OF THE CURB & GUTTER SHALL BE CONSTRUCTED PARALLEL TO THE SLOPE OF SUBBASE COURSES AND TO THE DEPTH OF THE PAVEMENT.
5. ALLOWABLE CRITERIA FOR THE USE OF CG-6 IS BASED ON ROADWAY CLASSIFICATION AND DESIGN SPEED AS SHOWN IN APPENDIX A OF THE ROAD DESIGN MANUAL IN THE SECTION ON GS URBAN STANDARDS.



SPECIFICATION REFERENCE: 105, 502

COMBINATION 6" CURB AND GUTTER

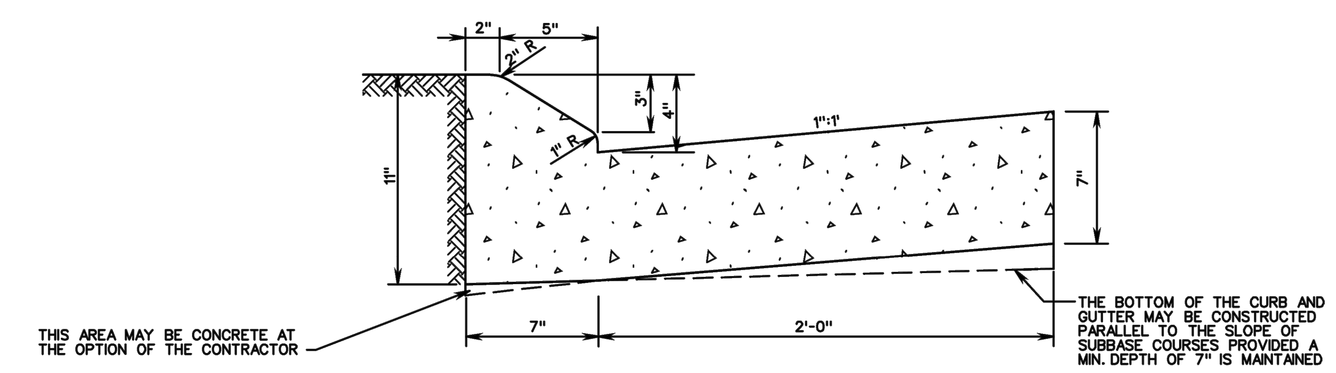
VIRGINIA DEPARTMENT OF TRANSPORTATION

VDOT ROAD AND BRIDGE STANDARDS | REVISION DATE | SHEET 1 OF 1 | 201.03

2016 ROAD & BRIDGE STANDARDS

CG-7

NOTES:
1. THIS ITEM MAY BE PRECAST OR CAST IN PLACE.
2. CONCRETE TO BE CLASS A3 IF CAST IN PLACE, 4000 PSI IF PRECAST.
3. COMBINATION CURB & GUTTER HAVING A RADIUS OF 300 FEET OR LESS (ALONG FACE OF CURB) SHALL BE PAID FOR AS RADIAL COMBINATION CURB & GUTTER.
4. FOR USE WITH STABILIZED OPEN-GRADED DRAINAGE LAYER, THE BOTTOM OF THE CURB AND GUTTER SHALL BE CONSTRUCTED PARALLEL TO THE SLOPE OF SUBBASE COURSES AND TO THE DEPTH OF THE PAVEMENT.
5. ALLOWABLE CRITERIA FOR THE USE OF CG-7 IS BASED ON ROADWAY CLASSIFICATION AND DESIGN SPEED AS SHOWN IN APPENDIX A OF THE VDOT ROAD DESIGN MANUAL IN THE SECTION ON URBAN GS STANDARDS.
6. WHEN THIS STANDARD IS TO BE TIED INTO EXISTING BARRIER CURB, THE TRANSITION IS TO BE MADE WITHIN 10' OR THE CHANGE IN STANDARDS CAN BE MADE AT REGULAR OPENINGS.
7. WHEN COMBINATION MOUNTABLE CURB AND GUTTER IS USED, THE STANDARD ENTRANCE GUTTERS OR STANDARD CONNECTION FOR STREET INTERSECTIONS ARE TO HAVE THE MOUNTABLE CURB CONFIGURATION INCORPORATED.



VDOT ROAD AND BRIDGE STANDARDS | SHEET 1 OF 1 | REVISION DATE | 201.04

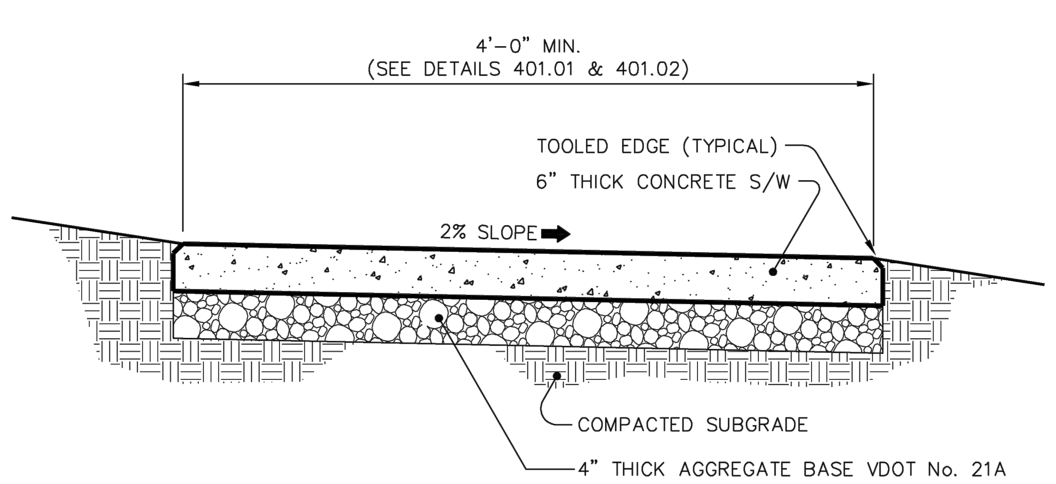
COMBINATION 4" CURB AND GUTTER

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE: 105, 502

2016 ROAD & BRIDGE STANDARDS

Details Provided by APPIAN Consulting Engineers — 10/17/2005 – 9:37:38 AM



NOTES:
1. Concrete to be Class A3 or better.
2. Longitudinal expansion joint not to exceed 80 feet.

Department of Public Works
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Fairfax, VA 22030-3630

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STANDARD SIDEWALK DETAIL

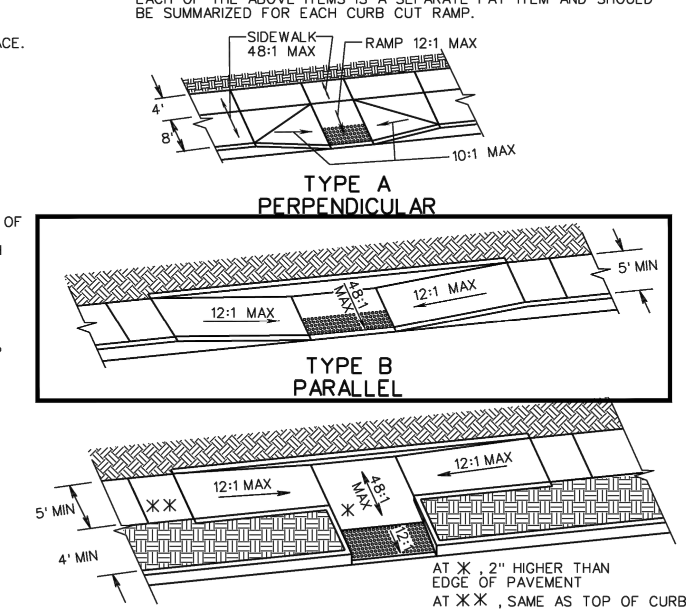
SCALE: Not To Scale | DETAIL #: 404.01
REVISION DATE: July, 2005 | SHEET #: 1 of 1

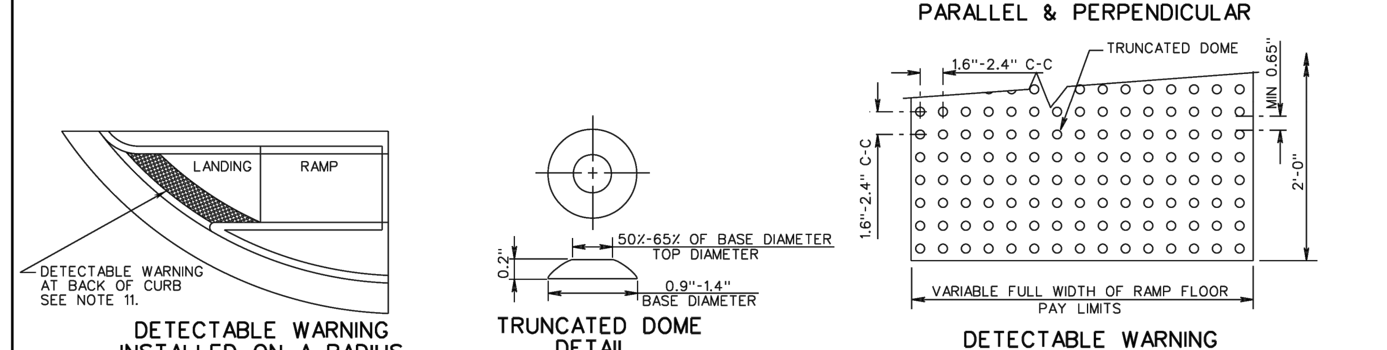
2016 ROAD & BRIDGE STANDARDS

CG-12

GENERAL NOTES:
1. THE DETECTABLE WARNING SHALL BE PROVIDED BY TRUNCATED DOMES.
2. ALL DETECTABLE WARNING SURFACE PRODUCTS SHALL MEET THE REQUIREMENTS OF SECTION 504 OF THE SPECIFICATIONS FOR CG-12 DETECTABLE WARNING SURFACE. DETECTABLE WARNING SUFACE PRODUCTS USED SHALL BE FROM THE MATERIALS APPROVED PRODUCT LIST NUMBER 72.
3. SLOPING SIDES OF CURB RAMP MAY BE POURED MONOLITHICALLY WITH RAMP FLOOR OR BY USING PERMISSIBLE CONSTRUCTION JOINT WITH REQUIRED BARS.
4. REQUIRED BARS ARE TO BE NO. 5 X 8" PLACED 1' CENTER TO CENTER ALONG BOTH SIDES OF THE RAMP FLOOR, MID-DEPTH OF RAMP FLOOR. MINIMUM CONCRETE COVER 1½".
5. ROADWAY CURB / CURB AND GUTTER SLOPE TRANSITIONS ADJACENT TO CURB RAMPS ARE INCLUDED IN PAYMENT FOR CURB / CURB AND GUTTER.
6. CURB RAMPS ARE REQUIRED FOR SIDEWALKS AND SHARED USE PATHS. THE WIDTH OF THE CURB RAMP SHALL MATCH SIDEWALK WIDTH. WHEN CURB RAMPS ARE USED IN CONJUNCTION WITH A SHARED USE PATH, THE MINIMUM WIDTH SHALL BE THE WIDTH OF THE SHARED USE PATH.
7. DETECTABLE WARNINGS SHALL EXTEND THE FULL WIDTH OF THE CURB RAMP LANDING FLOOR.
8. CURB RAMPS WILL BE INSTALLED AND LOCATED WITHIN PEDESTRIAN CROSSWALKS AS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER. CURB RAMPS SHOULD NOT BE LOCATED BEHIND VEHICLE STOP LINES, LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC.
9. RAMPS MAY BE PLACED ON RADIAL OR TANGENTIAL SECTIONS PROVIDED THAT THE CURB OPENING IS PLACED WITHIN THE LIMITS OF THE CROSSWALK AND THAT THE SLOPE AT THE CONNECTION OF THE CURB OPENING IS PERPENDICULAR TO THE CURB.
10. DETECTABLE WARNING SURFACE PANELS SHALL BE INSTALLED FLUSH WITH THE BACK OF CURB.
11. WHERE CURB RAMPS INTERSECT A RADIAL SECTION OF CURB AT ENTRANCES OR STREET CONNECTIONS THE DETECTABLE WARNING SURFACE SHALL HAVE A FACTORY RADIUS OR BE FIELD-MODIFIED AS RECOMMENDED BY THE MANUFACTURER TO MATCH THE BACK OF CURB. SEE CG-12-INS PAGES 204.06 AND 204.07 FOR METHODS OF INSTALLING DETECTABLE WARNINGS ON A RADIUS.

NOTE: COMPONENTS OF CURB RAMPS CONSIST OF THE FOLLOWING:
HYDRAULIC CEMENT SIDEWALK (DEPTH IN INCHES, AREA IN SQUARE YARDS)
CURB WHEN REQUIRED (CG-2 OR CG-3 IN LINEAR FEET)
DETECTABLE WARNING SURFACE (AREA IN SQUARE YARDS)
EACH OF THE ABOVE ITEMS IS A SEPARATE PAY ITEM AND SHOULD BE SUMMARIZED FOR EACH CURB CUT RAMP.





VDOT ROAD AND BRIDGE STANDARDS | SHEET 1 OF 5 | REVISION DATE 04/19 | 204.01

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

CG-12 DETECTABLE WARNING SURFACE
(GENERAL NOTES)

VIRGINIA DEPARTMENT OF TRANSPORTATION

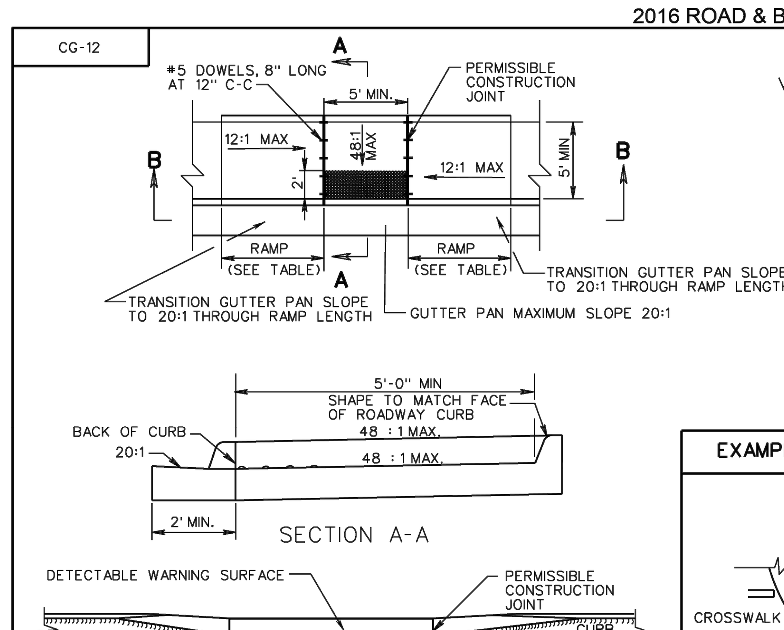
SPECIFICATION REFERENCE: 105, 502, 504

2016 ROAD & BRIDGE STANDARDS

NOTE: MODIFIED FOR ONE-WAY PEDESTRIAN FLOW. SEE SHEET 26.

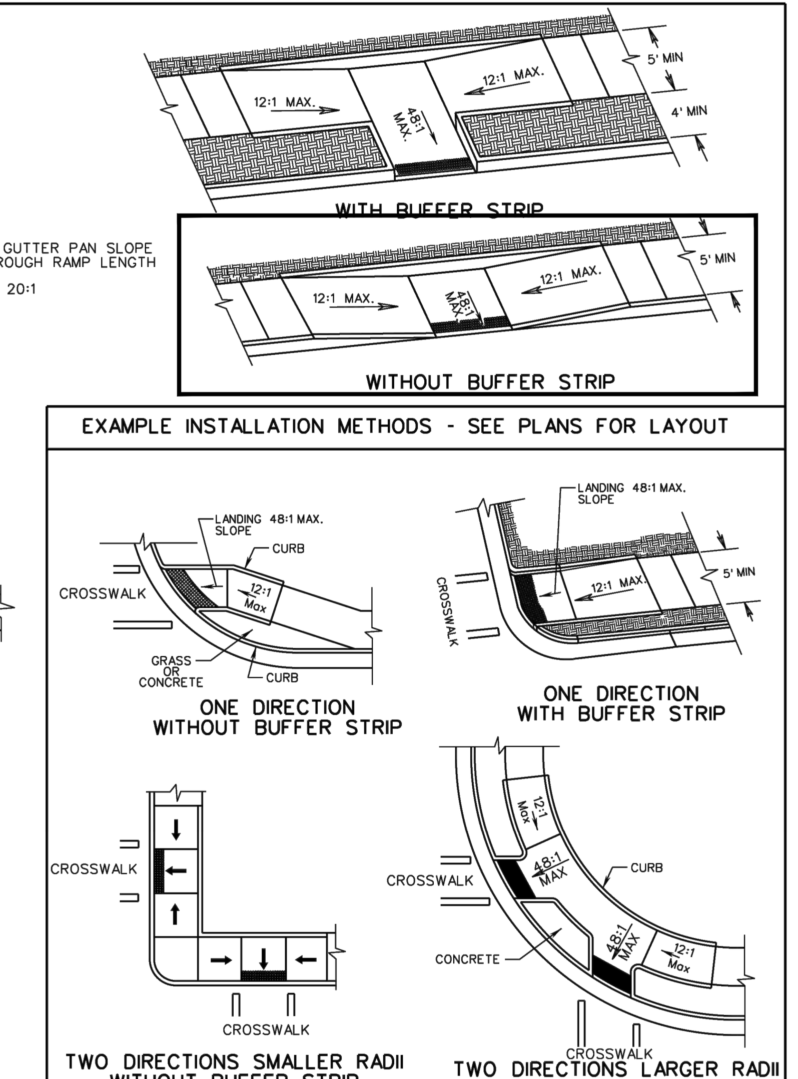
2016 ROAD & BRIDGE STANDARDS

CG-12



NOTES:
1. FOR GENERAL NOTES ON THE DETECTABLE WARNING SURFACE, SEE SHEET 1 OF 5.
2. THE REQUIRED LENGTH OF A PARALLEL RAMP IS LIMITED TO 15 FEET, REGARDLESS OF THE SLOPE.
3. GUTTER PAN SHALL BE A MAXIMUM SLOPE OF 20:1 AT THE RAMP OPENING.
4. DIAGONAL PLACEMENT IS NOT PERMITTED.

TYPE B PARALLEL APPLICATION		
ROADWAY GRADE IN PERCENT	MINIMUM RAMP LENGTH IN FEET: 4" CURB	MINIMUM RAMP LENGTH IN FEET: 6" CURB
0	4	6
1	5	7
2	5	8
3	6	9
4	8	12
5	10	15
6	14	15



VDOT ROAD AND BRIDGE STANDARDS | SHEET 3 OF 5 | REVISION DATE 04/19 | 204.03

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

CG-12 DETECTABLE WARNING SURFACE
TYPE B (PARALLEL) APPLICATION

VIRGINIA DEPARTMENT OF TRANSPORTATION

SPECIFICATION REFERENCE: 105, 502, 504

2016 ROAD & BRIDGE STANDARDS

NOTE: MODIFIED FOR ONE-WAY PEDESTRIAN FLOW. SEE SHEET 26.

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Phone: 703-679-5600 • Fax: 703-679-5601
www.wetlands.com

Construction Details (2)

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025 | SCALE: N/A | C.I.: N/A

Horizontal Datum:

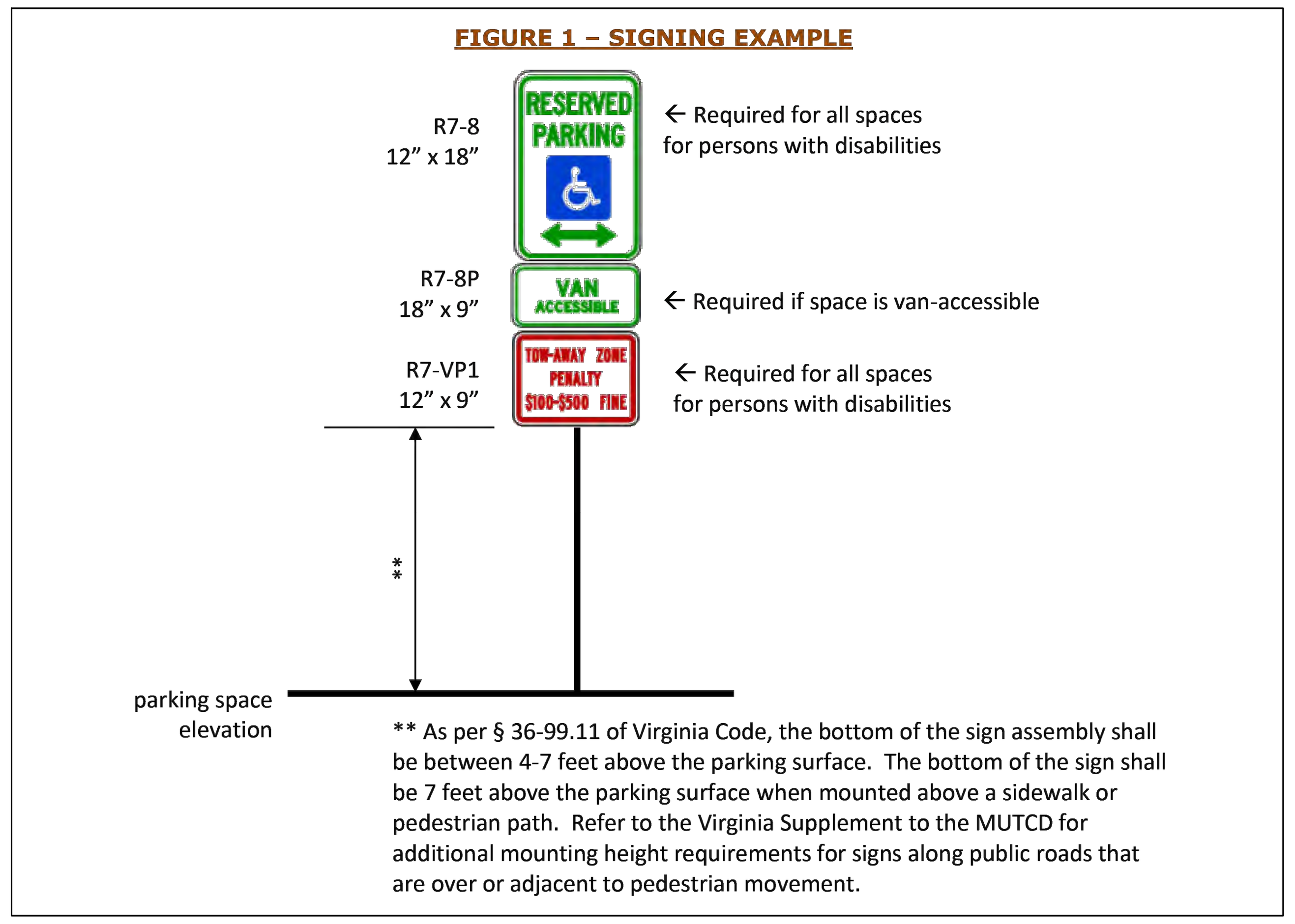
Vertical Datum:

Boundary and Topo Source: N/A

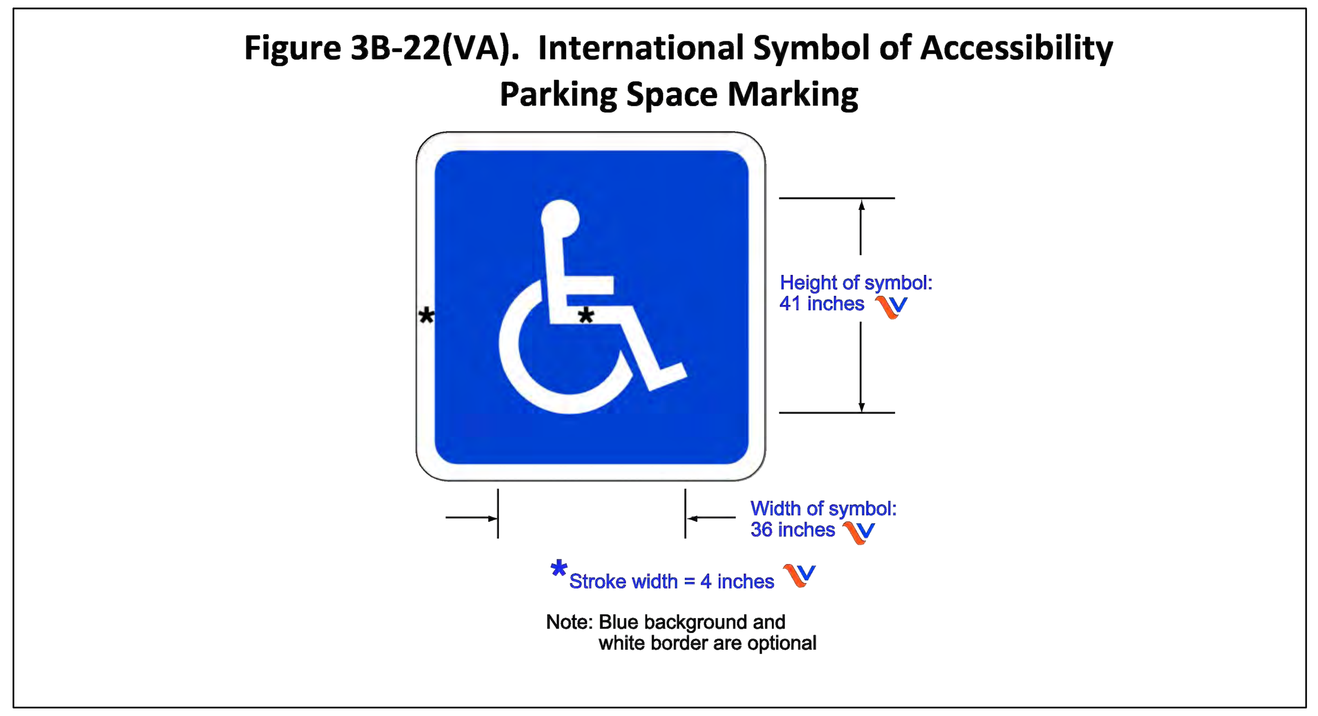
Design	Draft	Approved
DMC	DMC	FRG

Sheet # 25 of 55

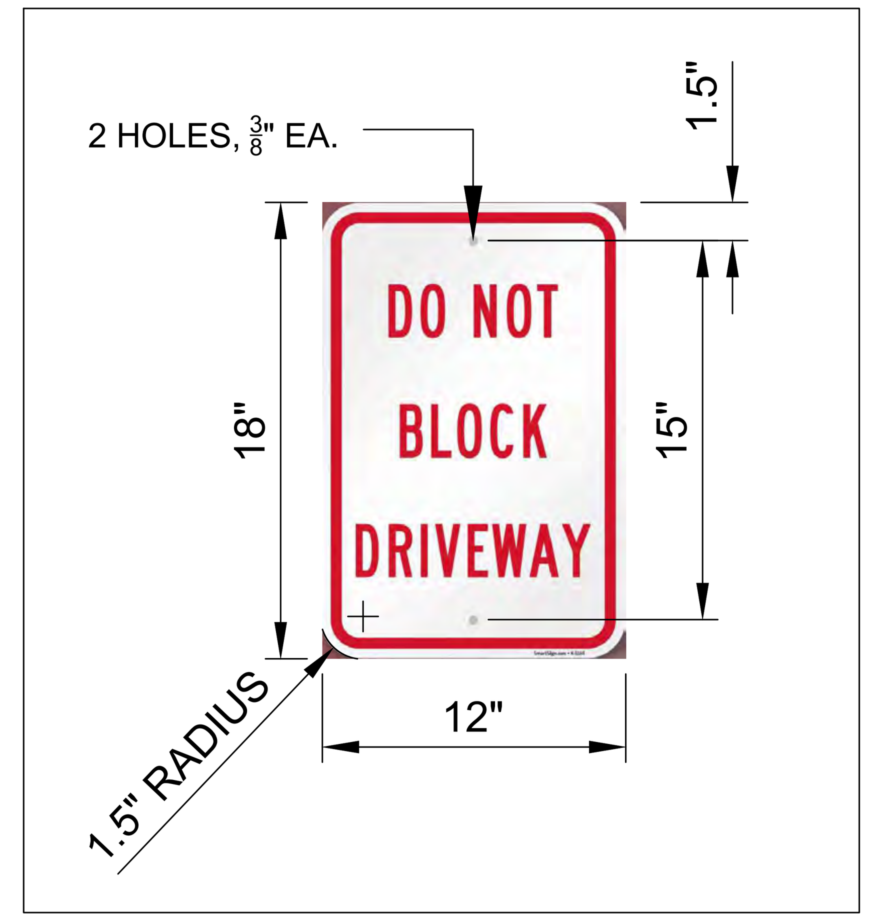
Computer File Name: L:\2000s\22000\22047.02\CADD\04-ENGR\12-sig sub plans\et_construction CONSTRUCTION DETAILS.dwg



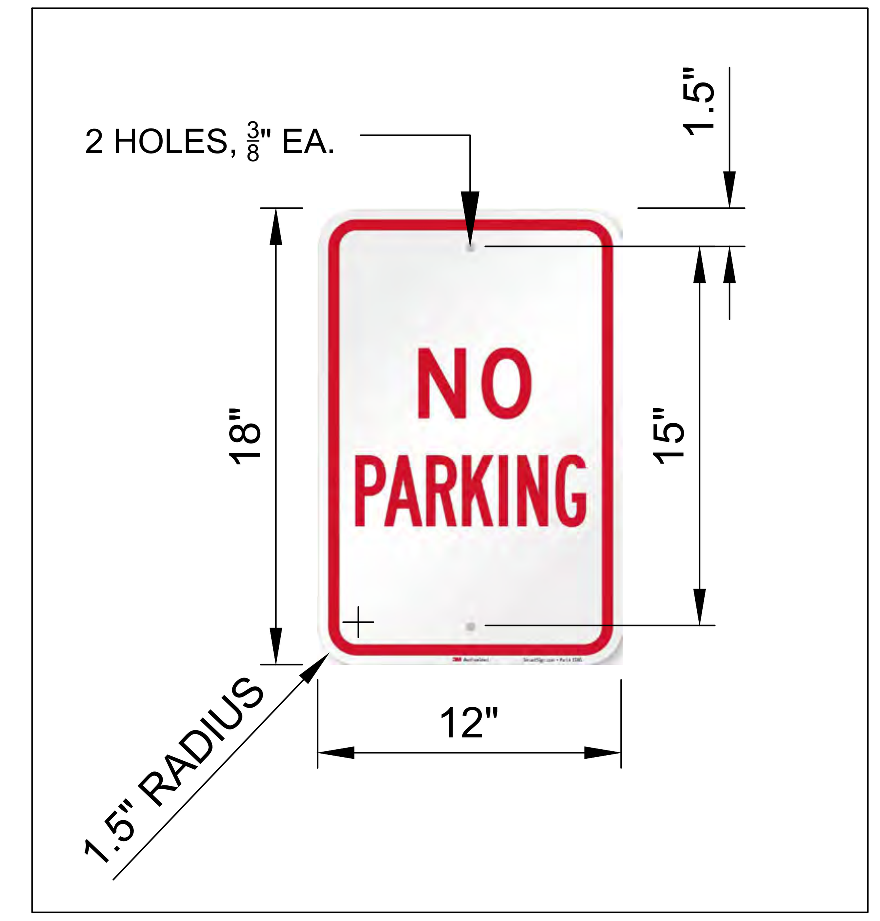
FROM VDOT TRAFFIC ENGINEERING DIVISION MEMORANDUM TE-284.1 (JANUARY 28, 2015)



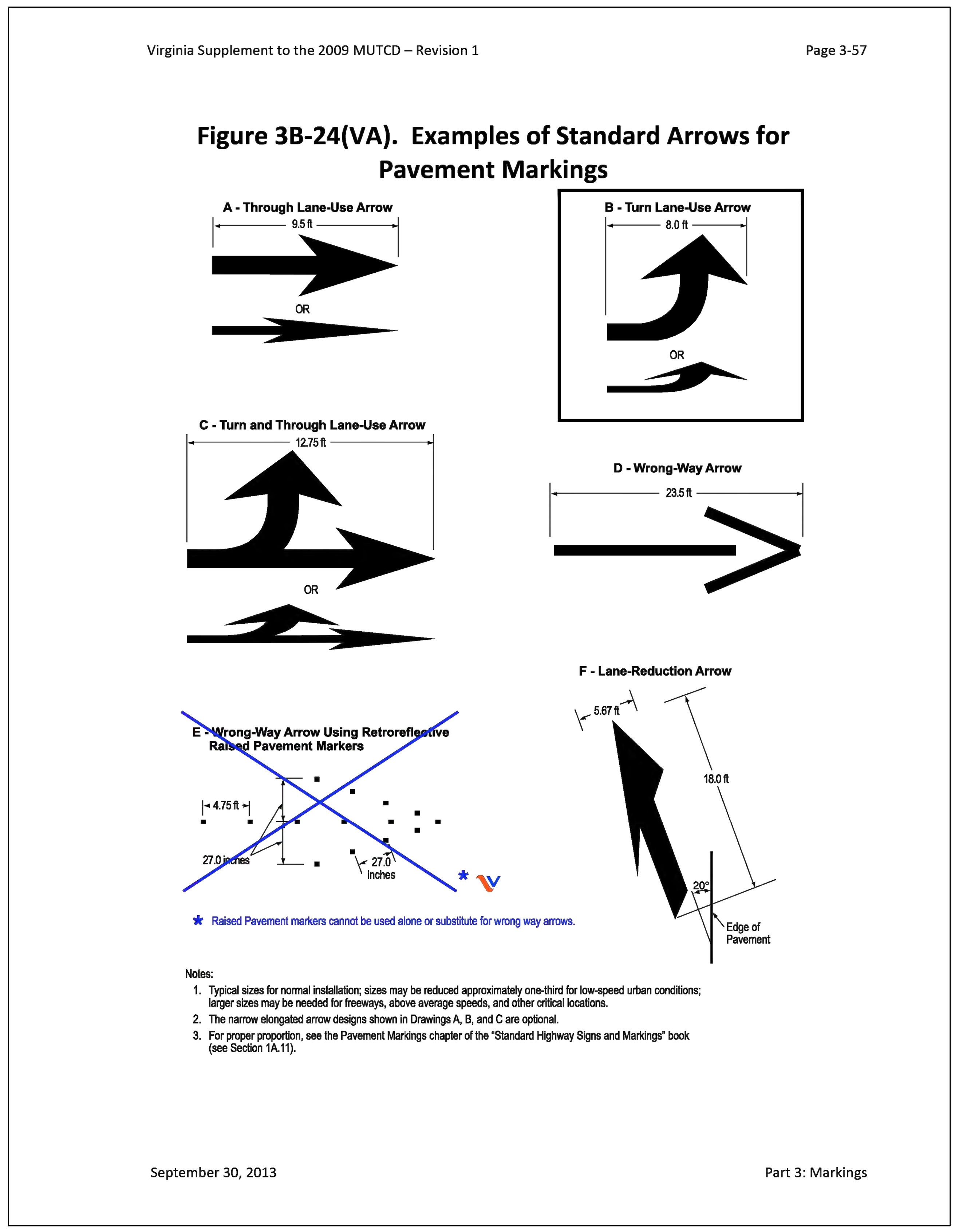
FROM THE VIRGINIA SUPPLEMENT TO THE 2009 MUTCD - REVISION 1, PG. 3-55 (SEPTEMBER 30, 2013)



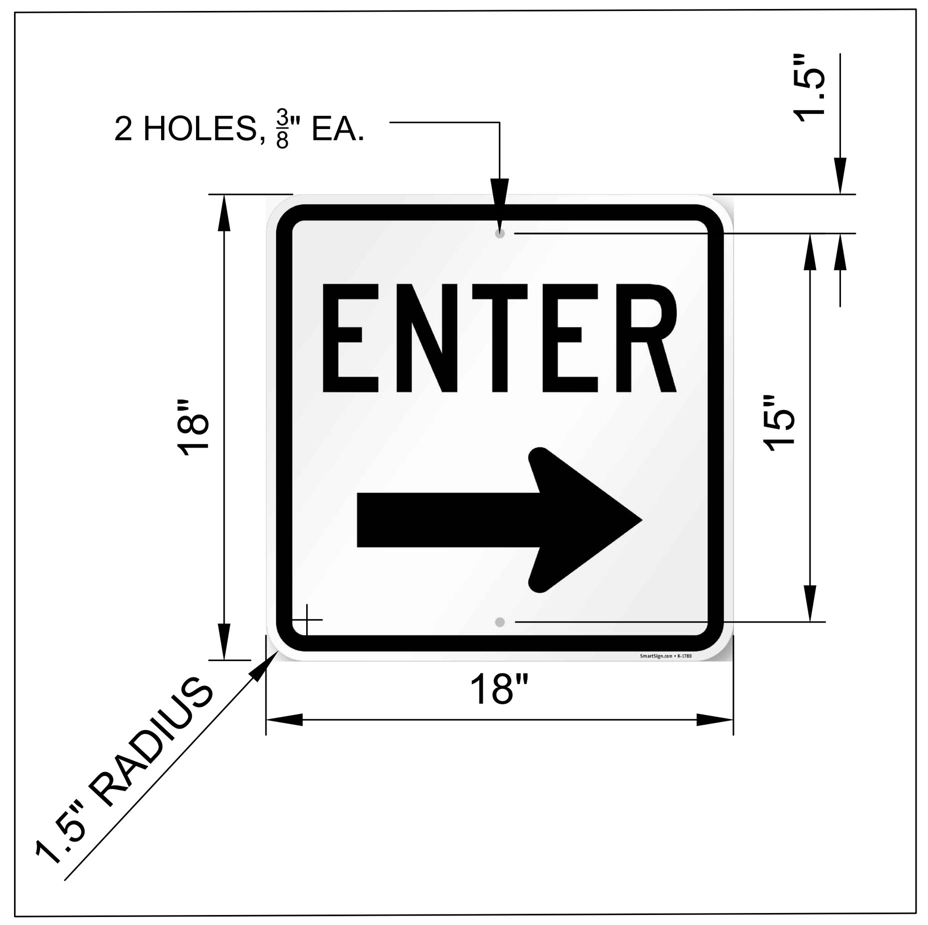
"DO NOT BLOCK DRIVEWAY" SIGN



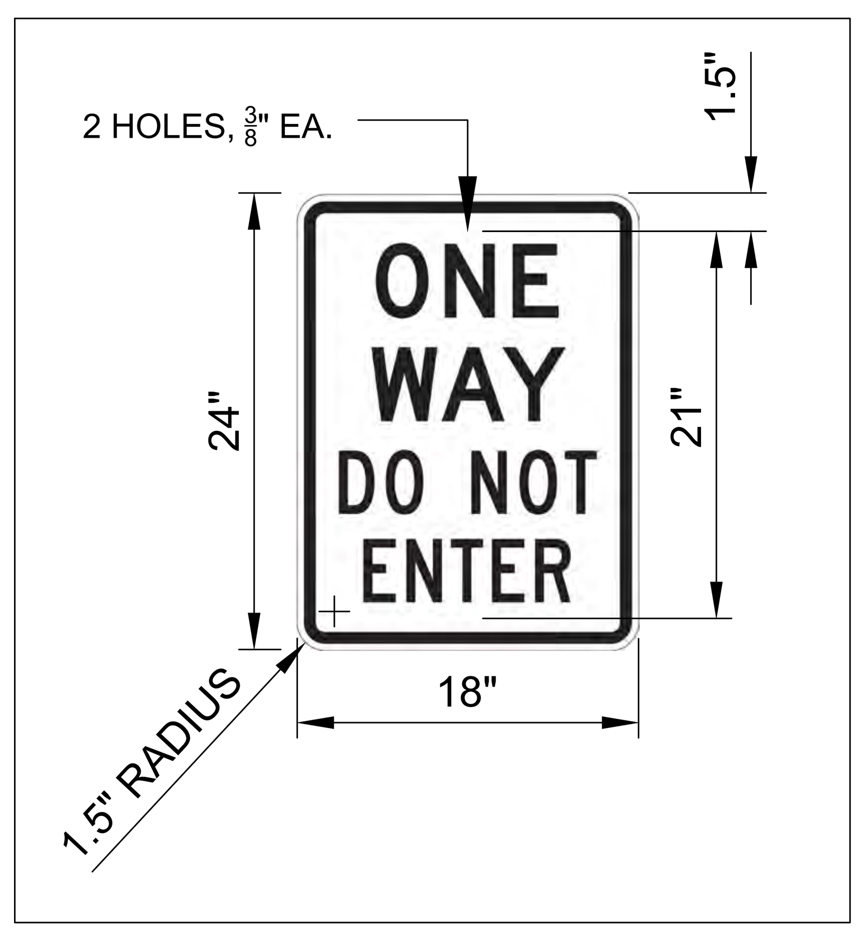
"NO PARKING" SIGN



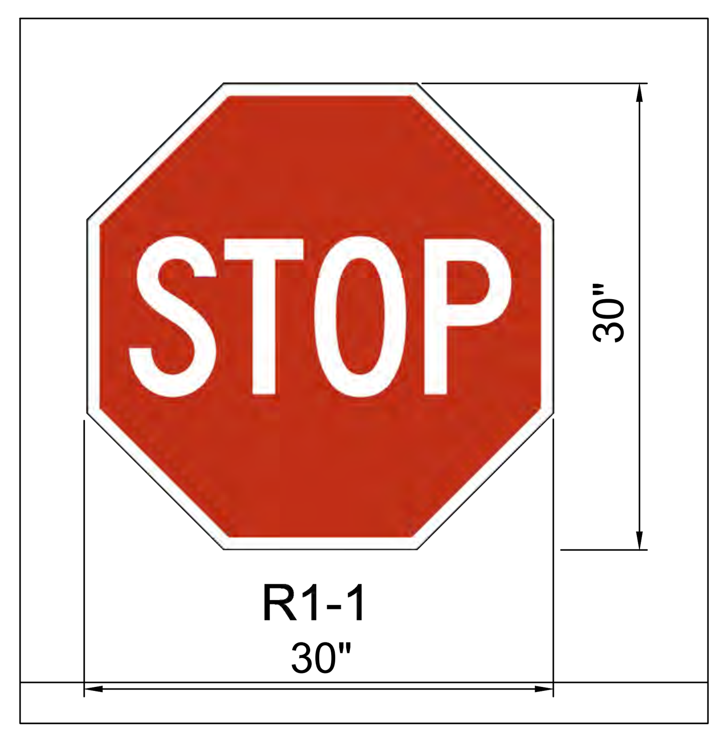
FROM THE VIRGINIA SUPPLEMENT TO THE 2009 MUTCD - REVISION 1, PG. 3-57 (SEPTEMBER 30, 2013)



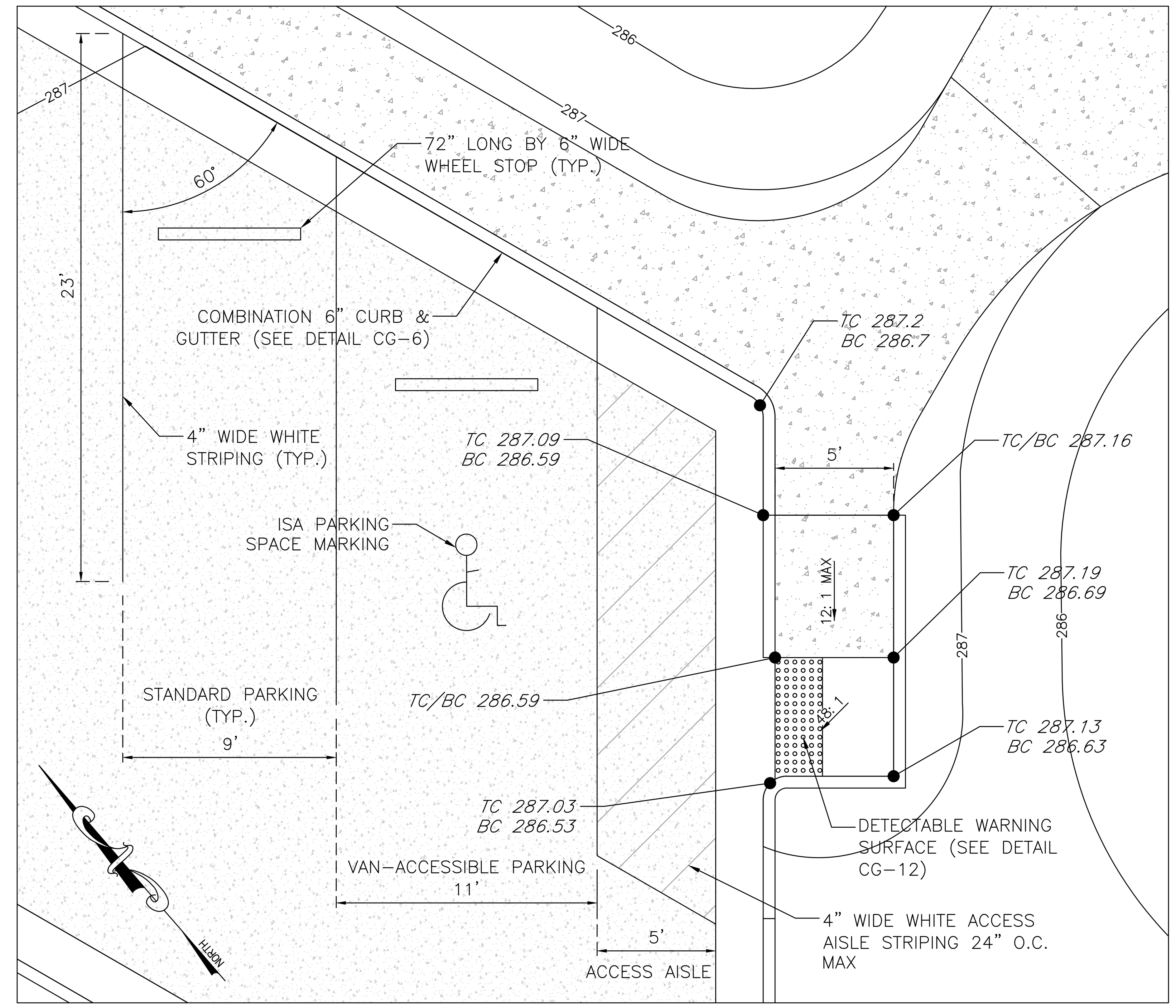
"ENTER" SIGN



"ONE WAY DO NOT ENTER" SIGN



"STOP" SIGN - R1-1
PER MUTCD-11, SECTION 2B.04
(DECEMBER 2023)



ACCESSIBLE PARKING AND CURB RAMP DETAIL
SCALE: 1" = 4'

Wetland Studies and Solutions, Inc.
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Gainesville, Virginia 20155
Phone: 703-679-5600 • Fax: 703-679-5601
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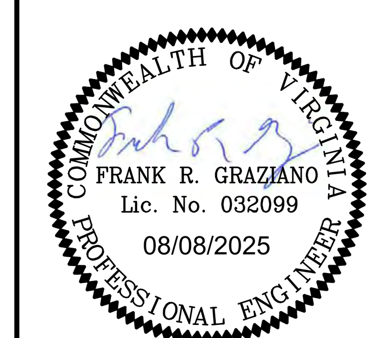


REVISIONS

No.	Date	Description	Rev. By	App. By

C.I.: N/A
SCALE: N/A
DATE: August 2025

Horizontal Datum:
Vertical Datum:
Boundary and Topo Source: N/A

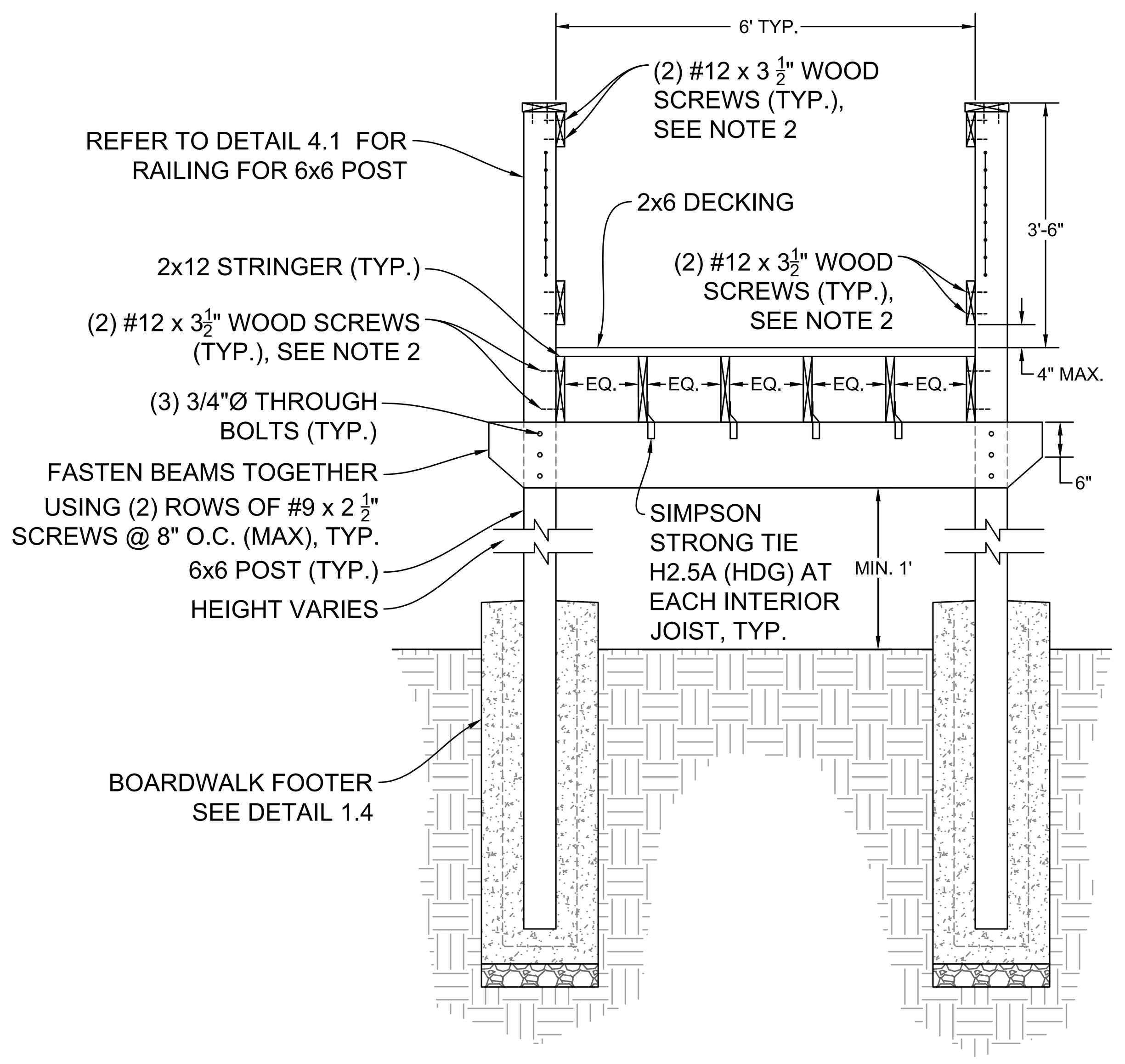
Design	Draft	Approved
DMC	DMC	FRG

Sheet #
26 of 55

Computer File Name:
CONSTRUCTION DETAILS.dwg

BOARDWALK CONSTRUCTION DETAILS

SCALE: AS SHOWN

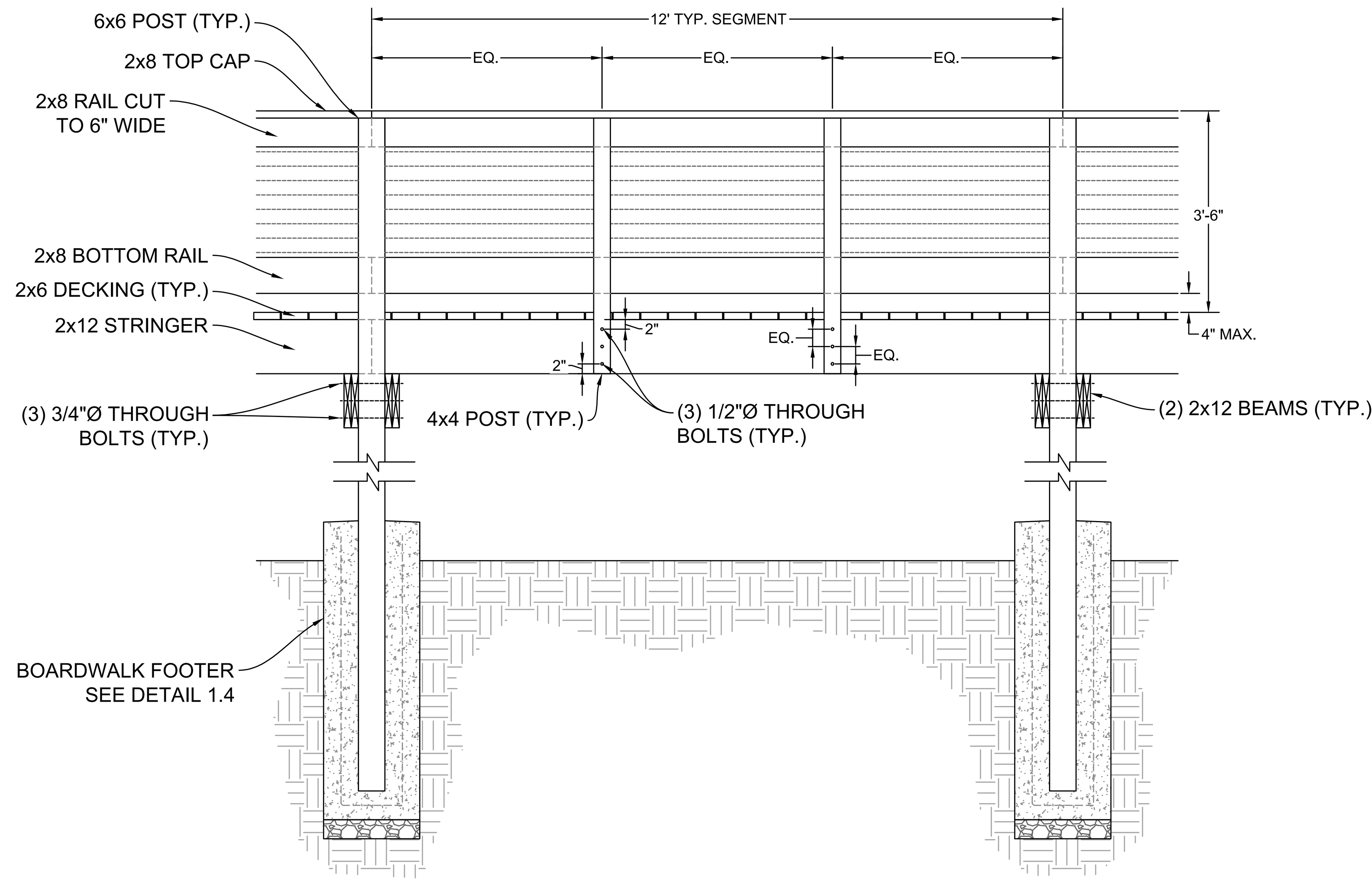


1.1 TYPICAL BOARDWALK X-SECTION AT 6x6 POST

SCALE: 1" = 2'

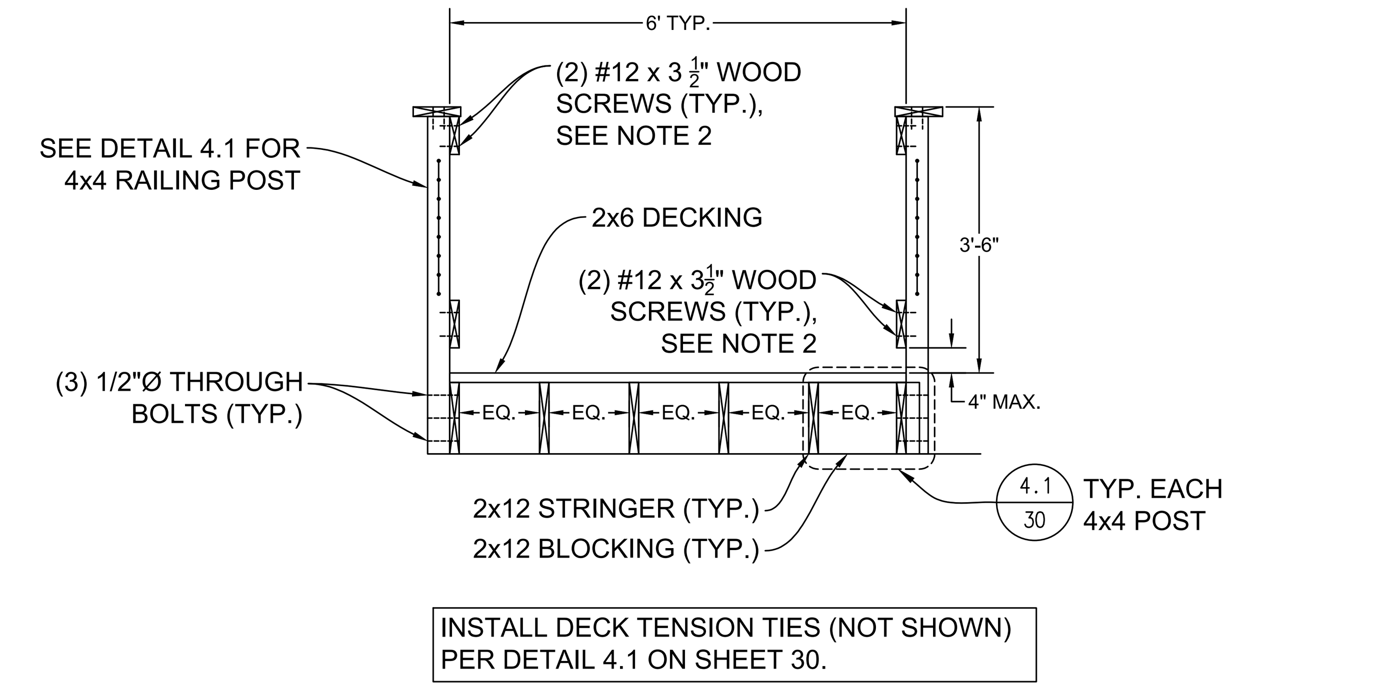
NOTES:

1. ON CURVED BOARDWALK SEGMENTS, SUBSTITUTE 3"x3" 18 GA. GALVANIZED IN LIEU OF SIMPSON STRONG TIE H2.5A
2. SCREWS ARE TO BE A MINIMUM 1 1/2" FROM END OF MEMBER ADJACENT TO JOINTS. DO NOT INSTALL SCREWS THROUGH JOINTS BETWEEN MEMBERS.



1.2 TYP. BOARDWALK LONGITUDINAL ELEVATION (12' SECTION)

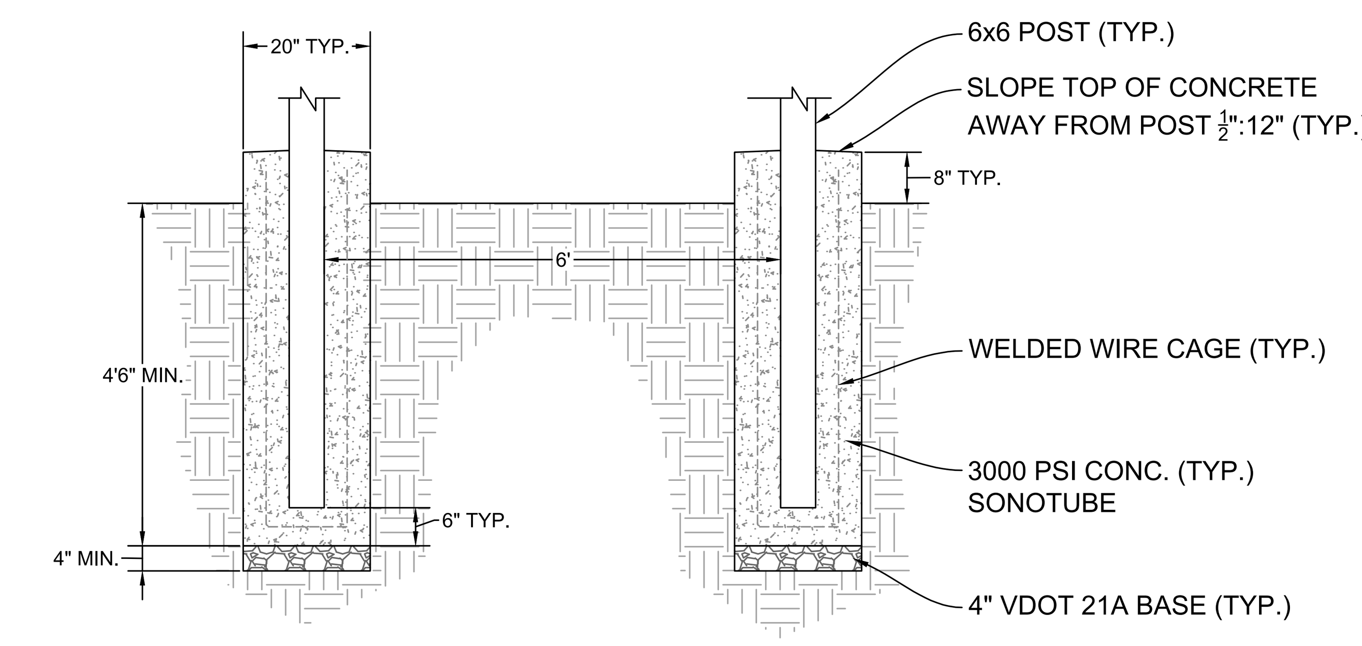
SCALE: 1" = 2'



1.3 TYPICAL BOARDWALK X-SECTION AT RAILING POST

SCALE: 1" = 2'

NOT SHOWN: INSTALL DECK TENSION TIE AT EACH 4x4 POST AND ADJACENT STRINGER



1.4 TYPICAL BOARDWALK SONOTUBE FOUNDATIONS

SCALE: 1" = 2'

STRUCTURAL NOTES

1. GENERAL

A. THE BOARDWALK IS DESIGNED UNDER THE PROVISIONS OF THE 2021 VIRGINIA CONSTRUCTION CODE BASED ON THE 2021 INTERNATIONAL BUILDING CODE AND ASCE 7-22.

B. THE FOLLOWING LOADS WERE USED IN THE DESIGN:

BOARDWALK RISK CATEGORY	II
DEAD LOAD	
SELF-WEIGHT OF MEMBERS	-
MISCELLANEOUS	5 PSF
LIVE LOAD	
ELEVATED WALKWAYS (NOT FOR EXITS)	60 PSF
NOTE: LIVE LOAD REDUCTION IS NOT ALLOWED BY CODE	
BOARDWALK SNOW LOAD	
GROUND SNOW LOAD (Pg)	67 PSF
GROUND SNOW LOAD (Pg asd)	47 PSF
FLAT-ROOF SNOW LOAD (Pf)	56 PSF
SNOW EXPOSURE FACTOR (Ce)	1.0
RISK CATEGORY	II
THERMAL FACTOR (Ct)	1.2
WIND LOAD	
WIND SPEED (3-SECOND GUST)	
Vult	115 MPH
Vasd: (0.77*VULT)	89 MPH
WIND EXPOSURE	B
HANDRAIL AND GUARD LOADS	
HANDRAIL AND GUARD	50 PLF / 200 LB PT LOAD
INTERMEDIATE RAIL	50 LB PT LOAD

C. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING ITEMS. SUBMITTALS INCLUDE BUT MAY NOT BE LIMITED TO:
- CONCRETE MIX DESIGN
- REINFORCING STEEL
- WOOD AND CONNECTOR PRODUCT DATA

DO NOT USE CONTRACT DRAWINGS AS A BASE FOR SHOPS. REVIEW IS LIMITED TO DESIGN CONFORMANCE. CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS.

D. CONTRACTOR SHALL COORDINATE WITH THE QUALIFIED AGENCY RETAINED BY THE OWNER TO PERFORM INSPECTION AND TESTING. INSPECTIONS REQUIRED INCLUDE, BUT MAY NOT BE LIMITED TO:
- SOILS AND FOUNDATIONS
- CONCRETE

2. EARTHWORK

A. FOUNDATIONS ARE DESIGNED TO BEAR ON ENGINEERED FILL OR NATURAL SOIL WITH A CAPACITY OF 1,500 PSF, BASED ON RECOMMENDATIONS IN THE GEOTECHNICAL REPORT PREPARED BY TERRACON DATED AUGUST 18, 2023. THIS VALUE IS TO BE VERIFIED IN THE FIELD BY THE BUILDING INSPECTOR OR A QUALIFIED TESTING AGENCY.

B. BOTTOM OF ALL FOOTINGS SHALL BE A MINIMUM OF 2 FOOT-6 INCH BELOW FINISH EXTERIOR GRADE, UNLESS OTHERWISE NOTED.

3. CONCRETE

A. CONCRETE CONSTRUCTION SHALL BE PER THE APPLICABLE BUILDING CODE, ACI 318 AND ACI 301, LATEST EDITIONS.

B. CONCRETE SHALL ATTAIN THE FOLLOWING 28 DAY COMPRESSIVE STRENGTHS PER ASTM A39.
- FOOTINGS, GRADE BEAMS 3,000 PSI

C. VERIFY CONCRETE STRENGTHS WITH A MINIMUM OF ONE SET OF NINE 4X8-INCH COMPRESSION CYLINDERS, (3 @ 7 DAYS, 3 @ 28, 3 SPARE).

D. EXTERIOR CONCRETE SHALL BE AIR-ENTRAINED TO PROVIDE AN AIR CONTENT OF 6+/-1.5 PERCENT BY VOLUME.

E. PROVIDE CLEAR DISTANCE TO OUTERMOST REINFORCING, UNO, AS FOLLOWS:

CONCRETE CAST AGAINST EARTH	3 INCHES
CONCRETE EXPOSED TO EARTH OR WEATHER:	
#5 OR SMALLER	1-1/2 INCHES
#6 OR LARGER	2 INCHES

F. REINFORCING STEEL SHALL CONFORM TO A615-GR60; MESH SHALL CONFORM TO ASTM A185 WITH MINIMUM LAPS OF 8 INCHES. PLACING PLANS AND SHOP FABRICATION DETAILS SHALL BE IN ACCORDANCE WITH "THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES". FURNISH SUPPORT BARS AND ACCESSORIES IN ACCORDANCE WITH C.R.S.I. STANDARDS.

4. WOOD FRAMING

A. ALL FRAMING SHALL BE PRESERVATIVE-TREATED (PT) WITH ACZA (AMMONIACAL COPPER ZINC ARSENATE), TRADENAME CHEMONITE®, OR AN APPROVED EQUAL NON-LEACHING WOOD PRESERVATIVE TREATEMENT. PT LUMBER SHALL NOT BE INCISED.

B. ALL FRAMING SHALL BE SOUTHERN PINE (SP) #1 OR BETTER, HAVING THE FOLLOWING MINIMUM PROPERTIES (BASED ON 2X12 MEMBERS):

BENDING STRESS "Fb"	= 1,000 PSI SINGLE MEMBER USE
HORIZONTAL SHEAR "Fv"	= 175 PSI
COMPRESSION PERPENDICULAR TO GRAIN "Fc"	= 565 PSI
COMPRESSION PARALLEL TO GRAIN "Fc11"	= 1,400 PSI
MODULUS OF ELASTICITY "E"	= 1,600,000 PSI

C. PREFABRICATED JOIST HANGERS, HURRICANE TIES, AND POST CAPS SHALL BE SIZED AND ATTACHED PER MANUFACTURER'S RECOMMENDATIONS, TO ACHIEVE AT LEAST THE MINIMUM MANUFACTURER LISTED CAPACITIES, UNO ON THE DRAWINGS. FASTENERS AND CONNECTORS UTILIZED WITH TREATED LUMBER (PT) SHALL MEET G185 HOT-DIPPED GALVANIZING.

D. ALL BOLTED CONNECTIONS SHALL BE ASTM A307, GALVANIZED, AND HAVE ONE STANDARD WASHER AND ONE LOCK WASHER PER BOLT. ALL SCREW AND NAIL CONNECTIONS SHALL BE GALVANIZED.

E. ALL DECKING SHALL BE 2x6 TREX SELECT BOARDS (OR APPROVED EQUAL WOOD-POLYMER COMPOSITE) INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS. THE CONTRACTOR SHALL PROVIDE MATERIAL COLOR SAMPLES FOR APPROVAL BY OWNER.

F. ALL WOOD COMPONENTS SHALL BE STAINED WITH A WATER-BASED EXTERIOR WOOD STAIN WITH COLOR MATCHING THE EXISTING PAVILION STRUCTURE. THE CONTRACTOR SHALL PROVIDE MATERIAL COLOR SAMPLES FOR APPROVAL BY OWNER.

G. DO NOT SPLICE STRUCTURAL MEMBERS BETWEEN SUPPORTS.

WARNING: THE STRUCTURAL INTEGRITY OF THE BOARDWALK SHOWN ON THESE PLANS IS DEPENDENT UPON COMPLETION ACCORDING TO PLANS AND SPECIFICATIONS. STRUCTURAL MEMBERS ARE NOT SELF-BRACING UNTIL PERMANENTLY AFFIXED TO THE BOARDWALK. THE STRUCTURAL ENGINEERS ASSUME NO LIABILITY FOR THE STRUCTURE DURING CONSTRUCTION.

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Construction Details (4)

Prepared For: NOVA Parks

Gateway Regional Park

City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
BENJAMIN T. LINDEN
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REVISIONS

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Vertical Datum:

Boundary and Topo Source: N/A

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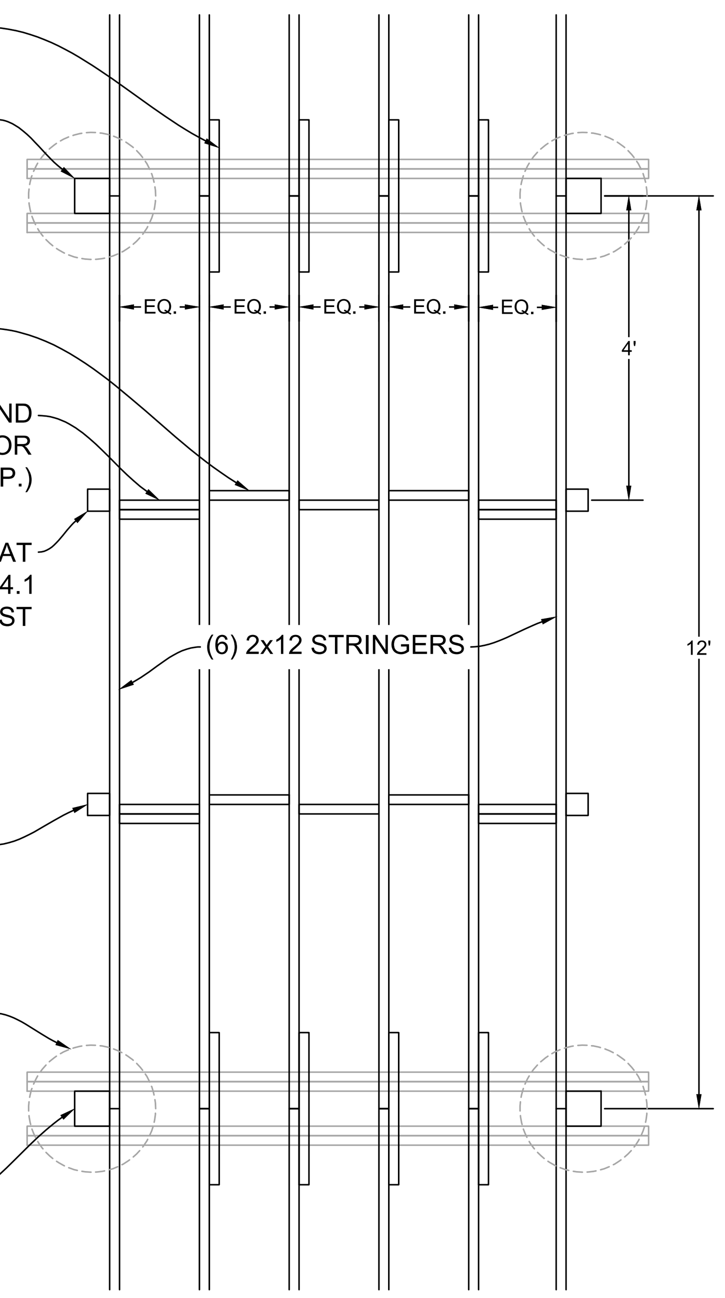
2.1 STRAIGHT BOARDWALK SEGMENT FRAMING DETAIL (TYP.)

SCALE: 1" = 2'

NOTE: DECKING AND RAILING NOT SHOWN FOR CLARITY.

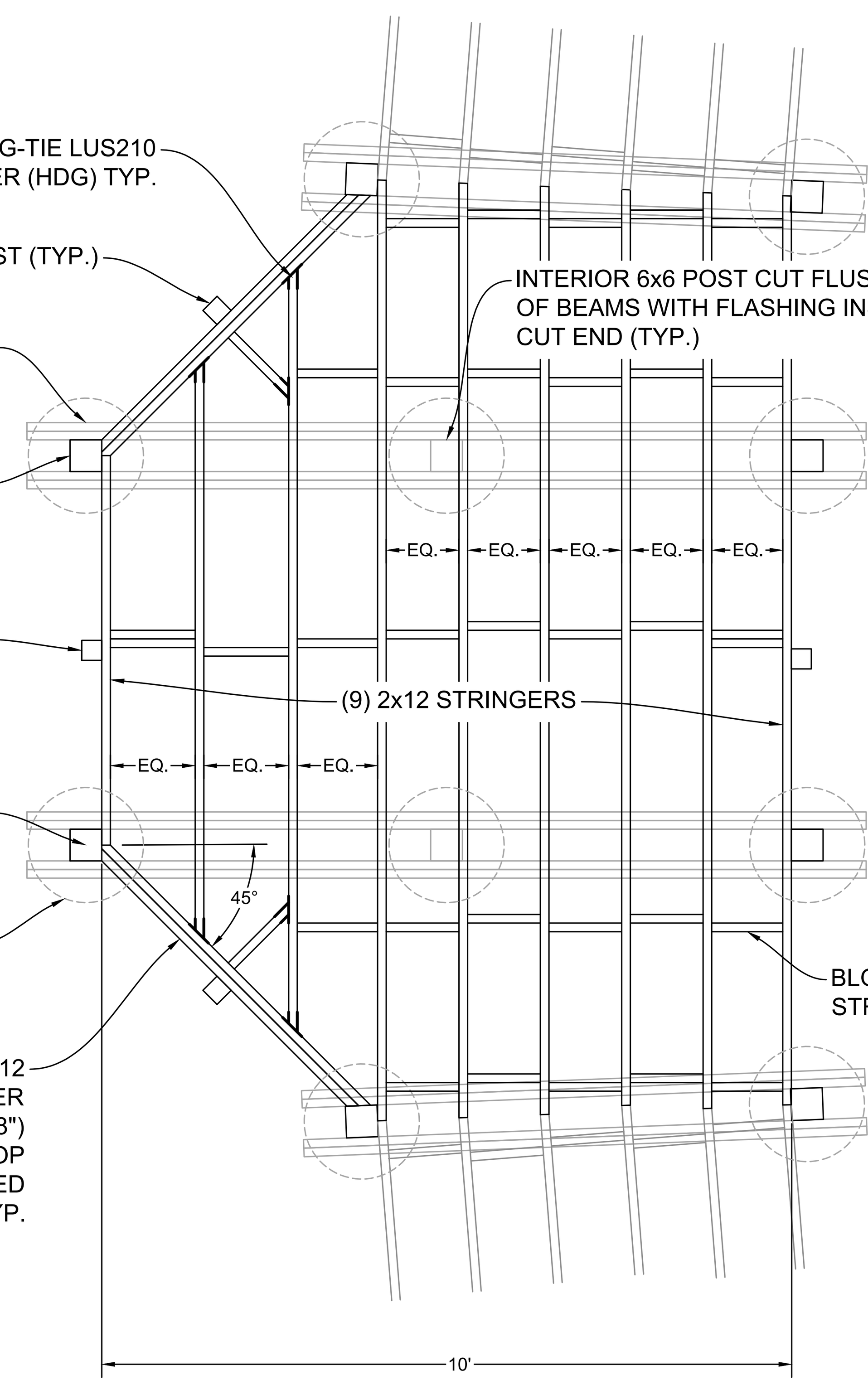


INSTALL DECK TENSION TIES (NOT SHOWN) PER DETAIL 4.1 ON SHEET 30.

2.2 CURVED BOARDWALK PLATFORM FRAMING DETAIL

SCALE: 1" = 2'

NOTE: DECKING AND RAILING NOT SHOWN FOR CLARITY.

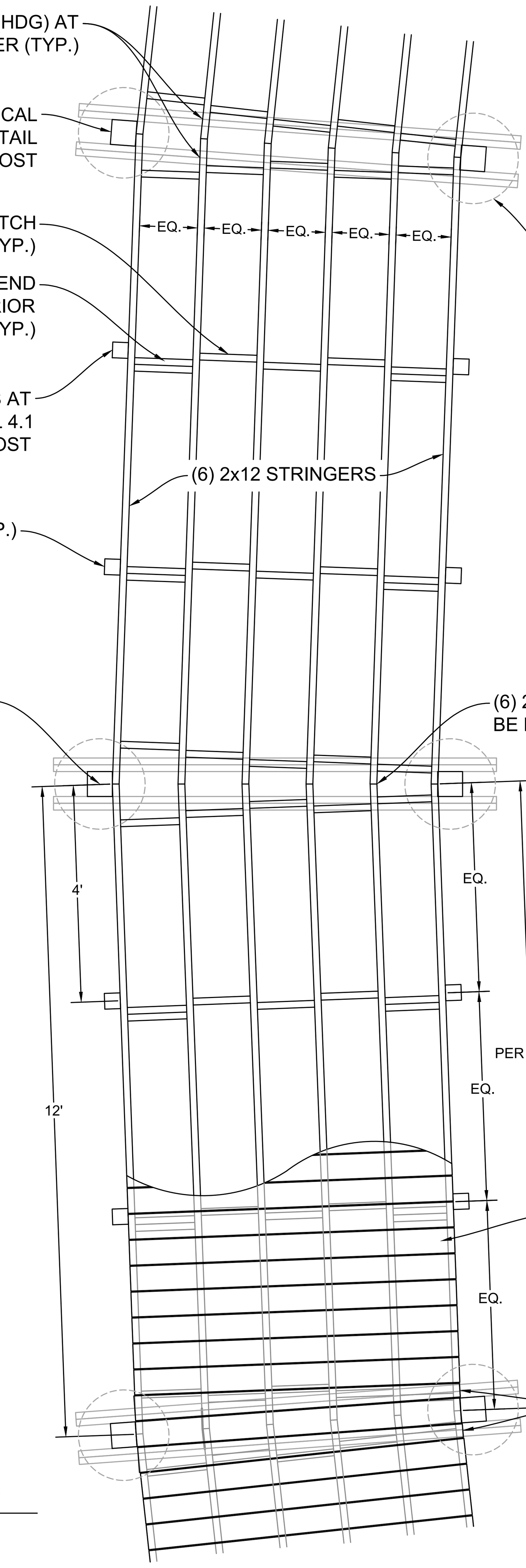


INSTALL DECK TENSION TIES (NOT SHOWN) PER DETAIL 4.1 ON SHEET 30.

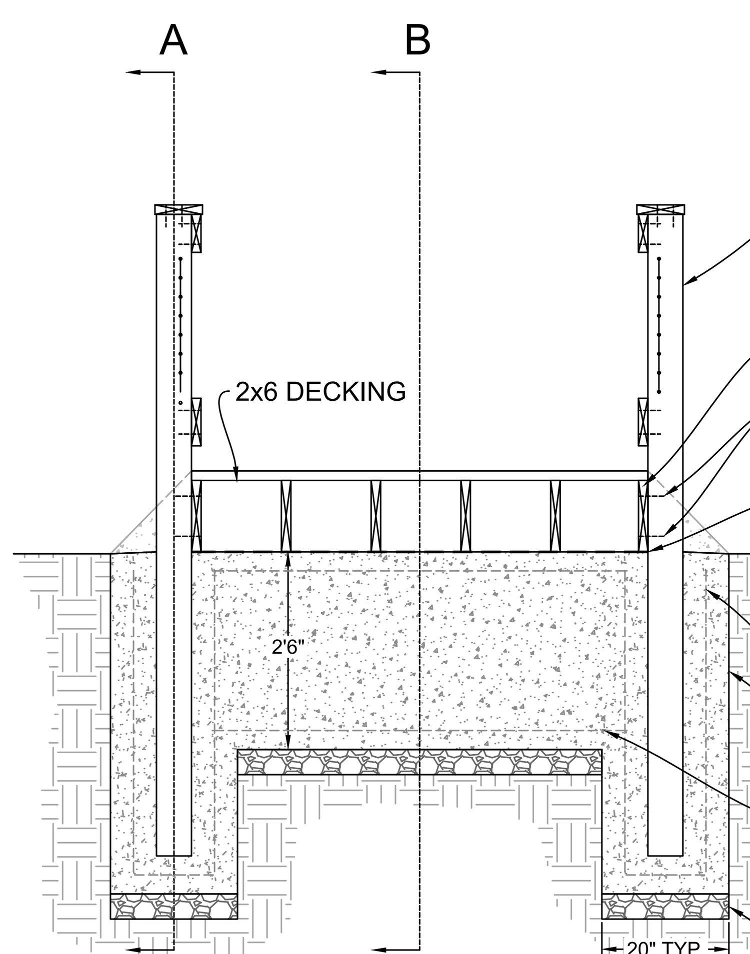
2.3 CURVED BOARDWALK SEGMENT FRAMING DETAIL

SCALE: 1" = 2'

NOTE: RAILING NOT SHOWN FOR CLARITY.

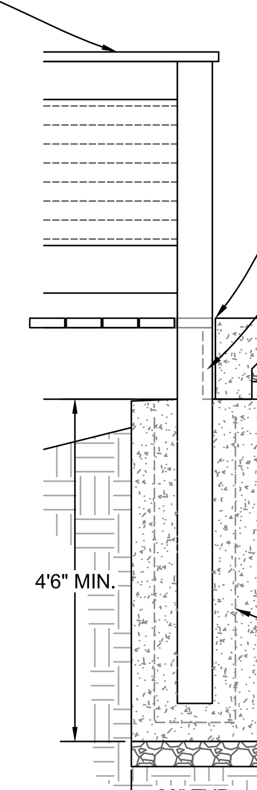


INSTALL DECK TENSION TIES (NOT SHOWN) PER DETAIL 4.1 ON SHEET 30.

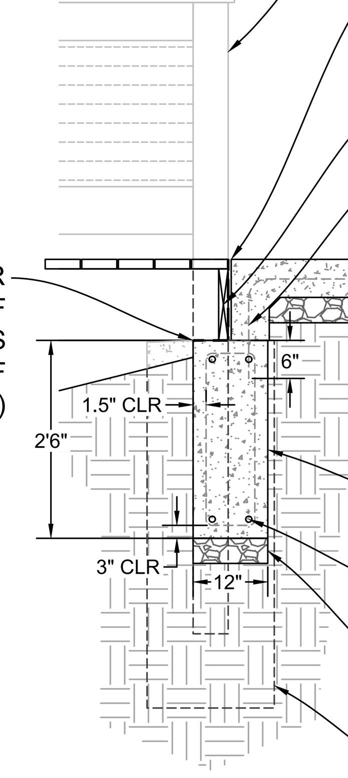


2.4 TYP. TRANSITION FROM TRAIL TO BOARDWALK

SCALE: 1" = 2'



A.



B.

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Sheet #

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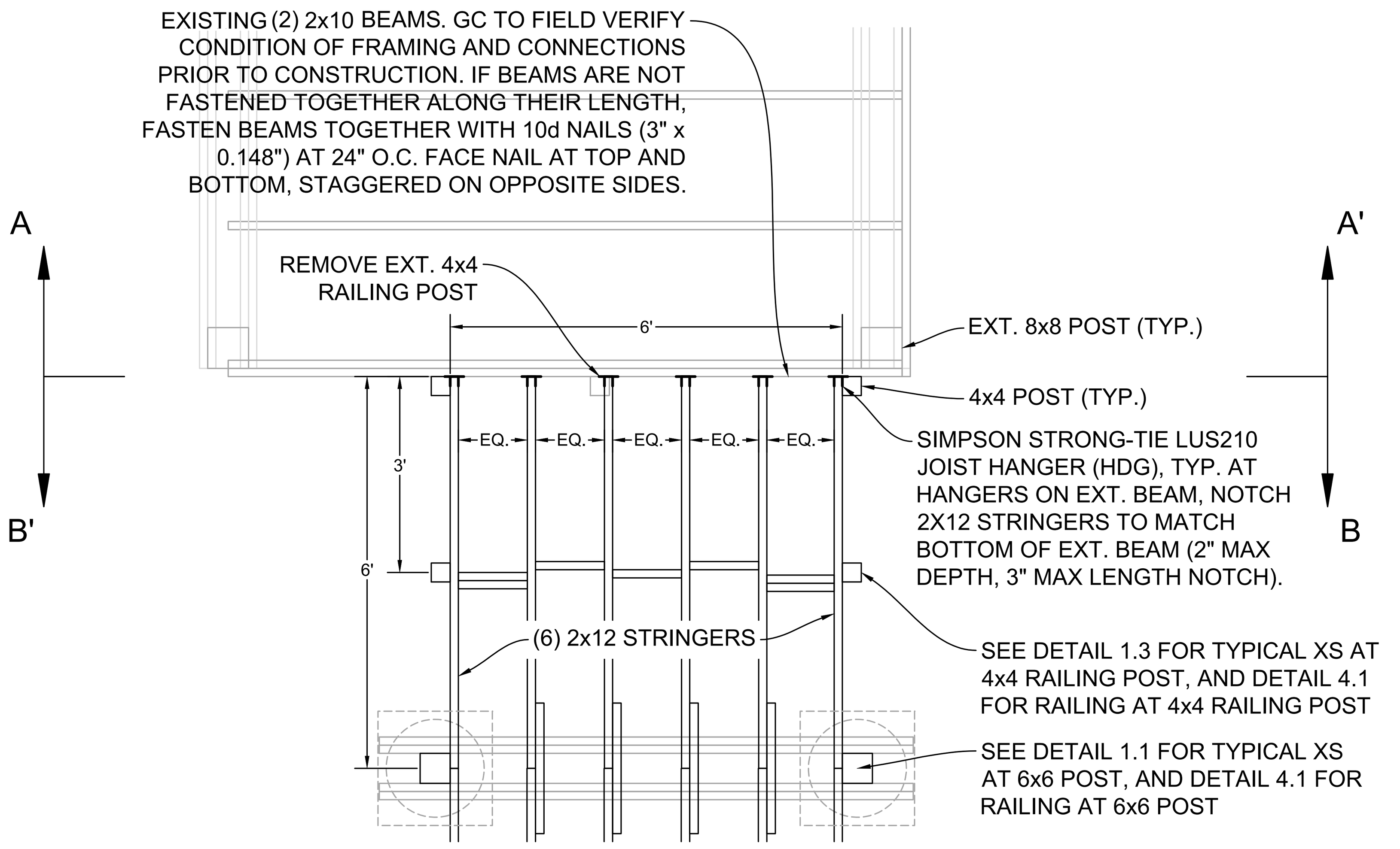
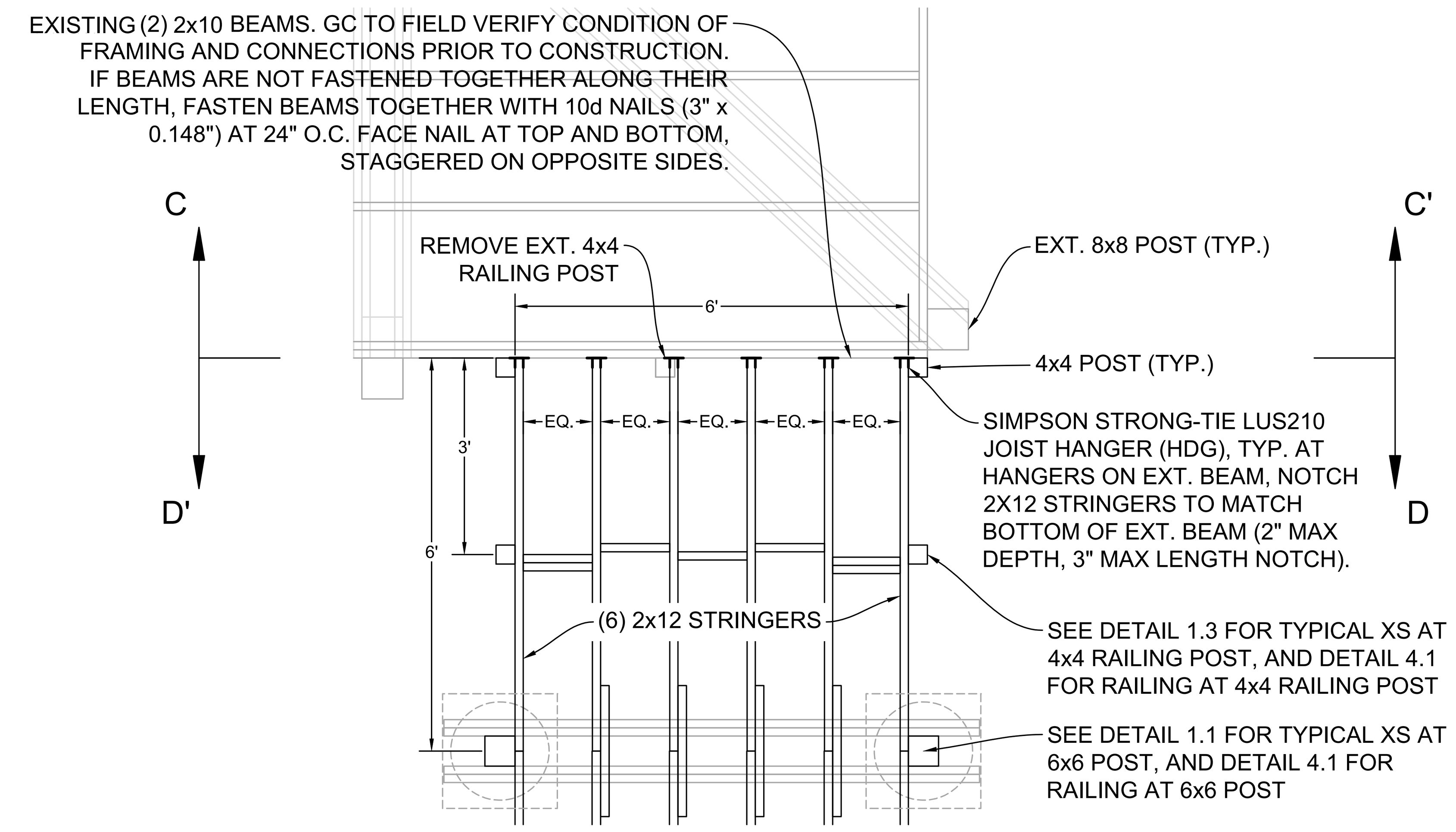
CONSTRUCTION DETAILS.dwg

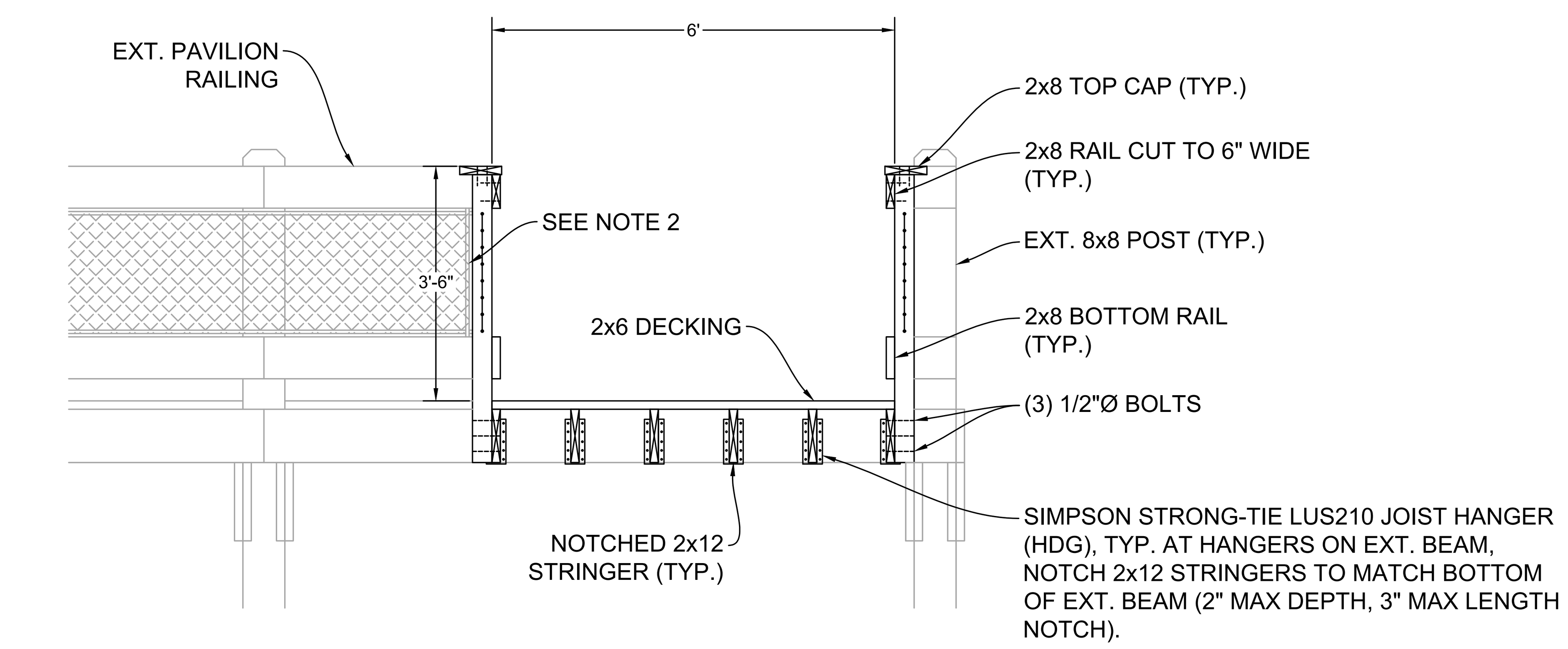
NOTES:
1. 2x6 DECKING OMITTED FOR CLARITY. SEE CURVED BOARDWALK SEGMENT FRAMING DETAIL FOR TYP. 2x6 DECKING.
2. EXT. PANELS OF CHAIN LINK FENCE AND FRAME TO BE REMOVED IN PROJECT AREA AND SAFELY STORED BY CONTRACTOR.
3. CUT EXISTING FENCE PANEL TO SIZE AND REINSTALL FENCE AND FRAME ON PROPOSED POST AS SHOWN IN DETAILS.



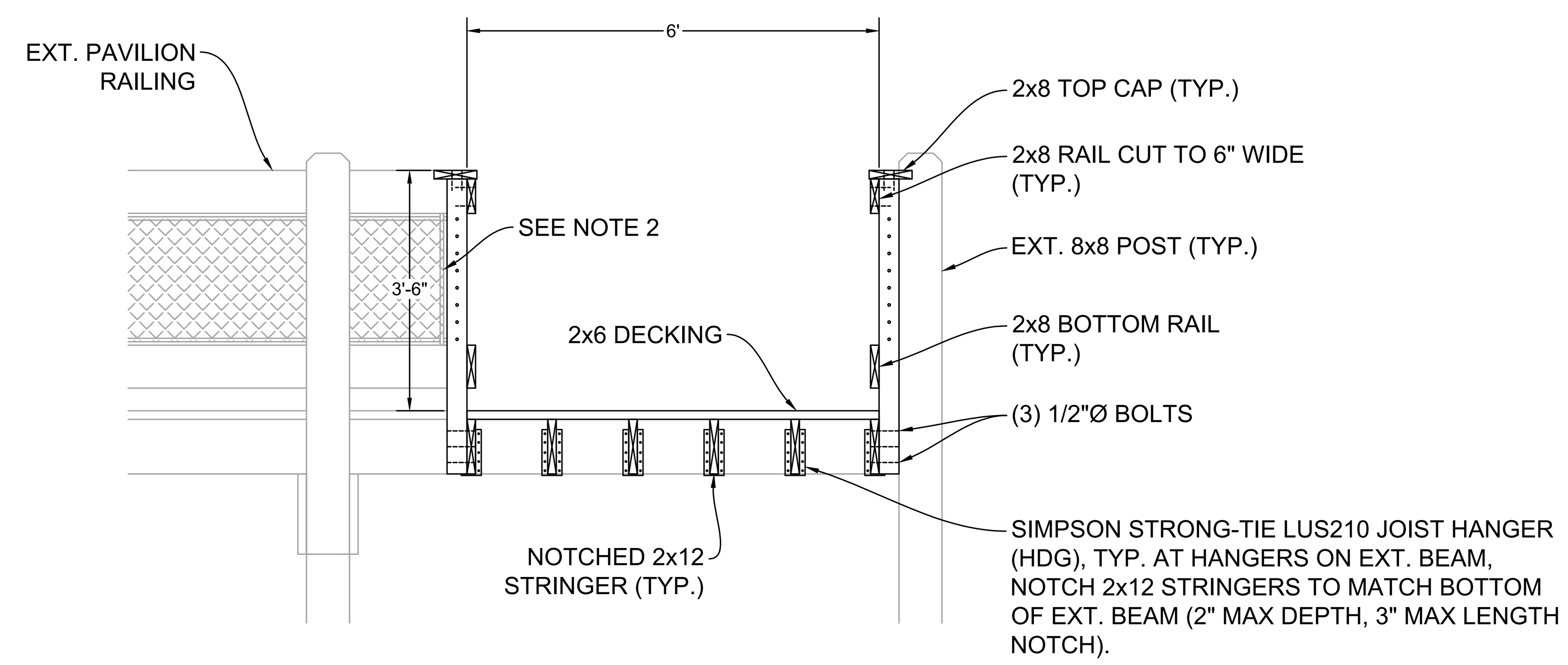
3.1 PLAN - SOUTH TRANSITION FROM BOARDWALK TO EXT. DECK/PAVILION
SCALE: 1" = 2'
NOTE: DECKING AND RAILING NOT SHOWN FOR CLARITY.



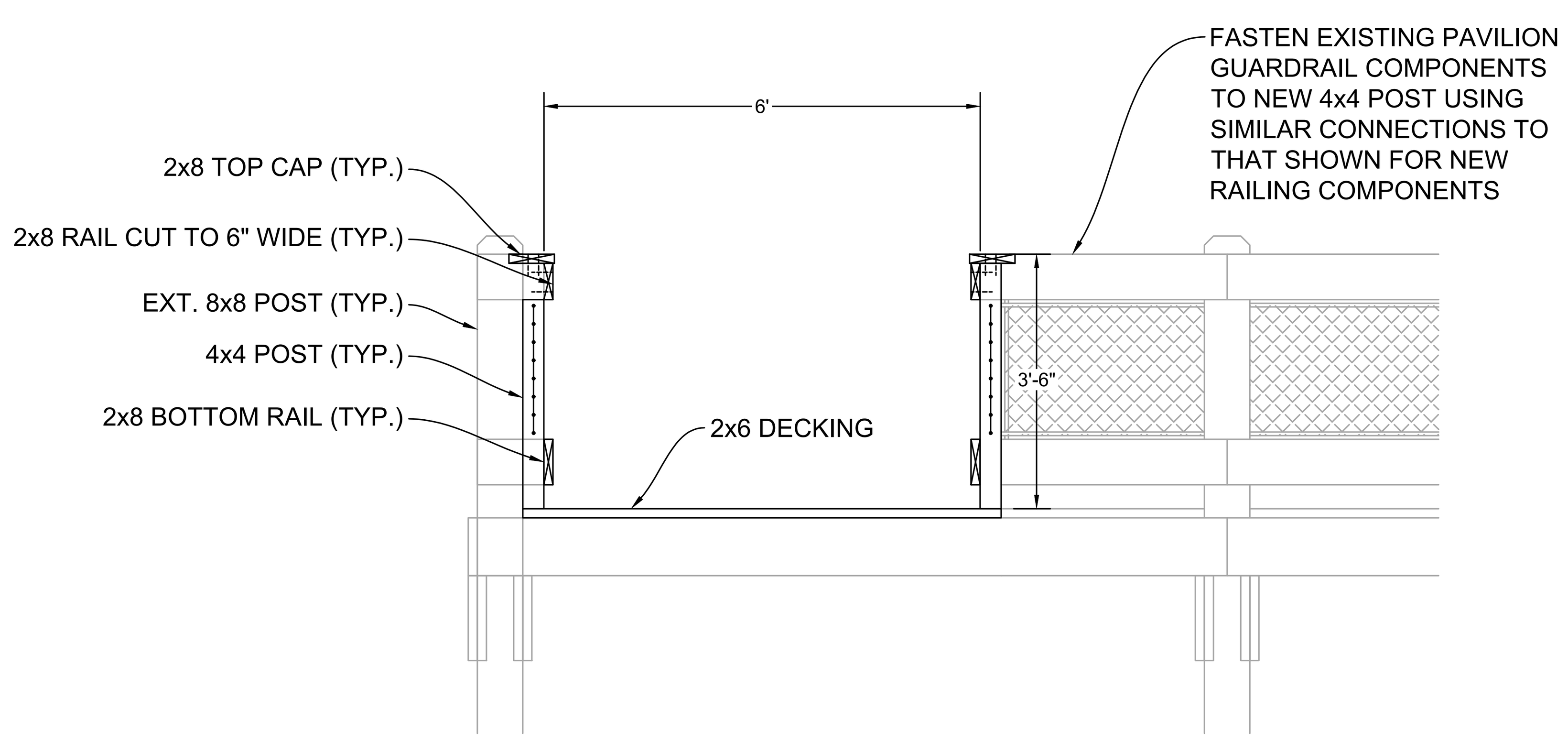
3.2 PLAN - NORTH TRANSITION FROM BOARDWALK TO EXT. DECK/PAVILION
SCALE: 1" = 2'
NOTE: DECKING AND RAILING NOT SHOWN FOR CLARITY.



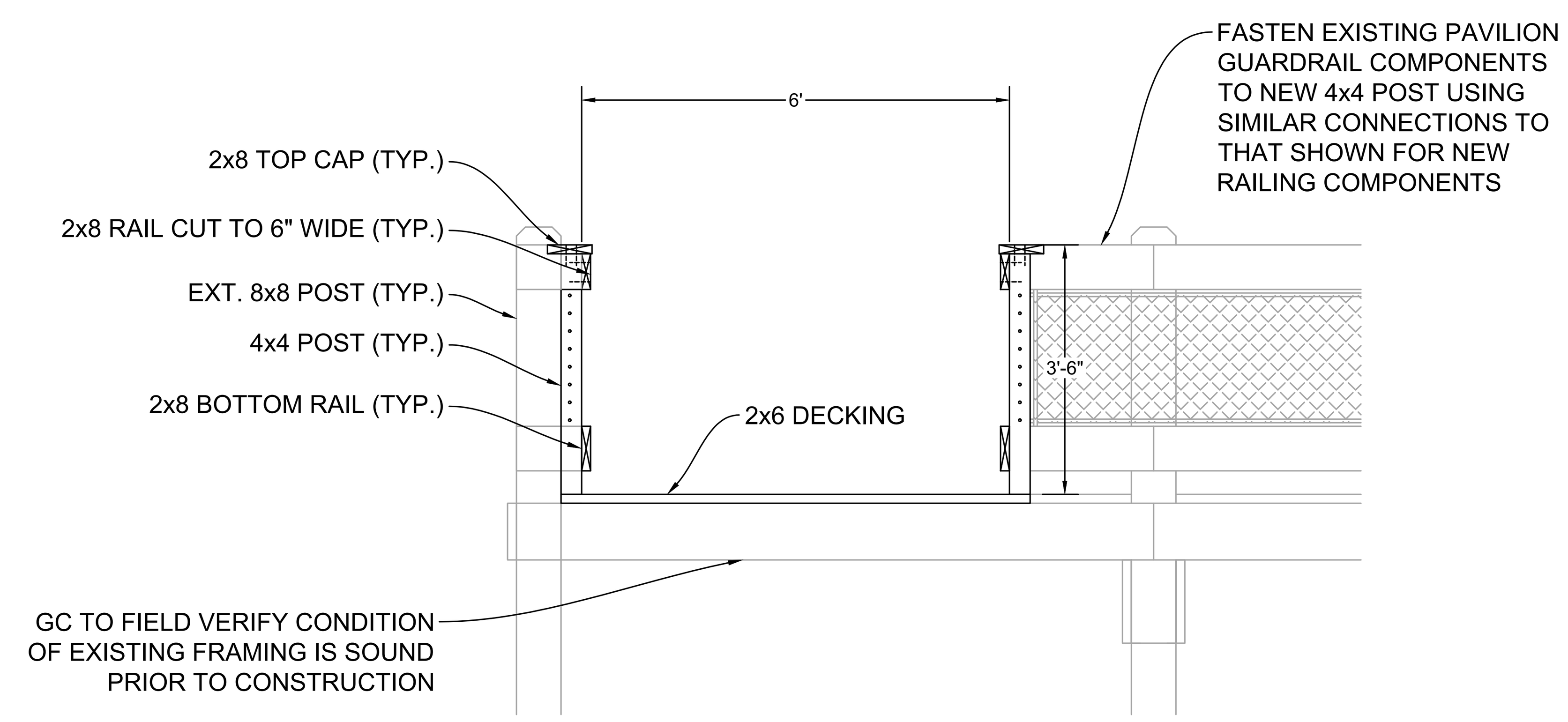
3.3 SECTION A - A' (SOUTH CONNECTION LOOKING NORTH)
SCALE: 1" = 2'



3.4 SECTION C - C' (NORTH CONNECTION LOOKING EAST)
SCALE: 1" = 2'



3.5 SECTION B - B' (SOUTH CONNECTION LOOKING SOUTH)
SCALE: 1" = 2'



3.6 SECTION D - D' (NORTH CONNECTION LOOKING WEST)
SCALE: 1" = 2'

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Construction Details (6)

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
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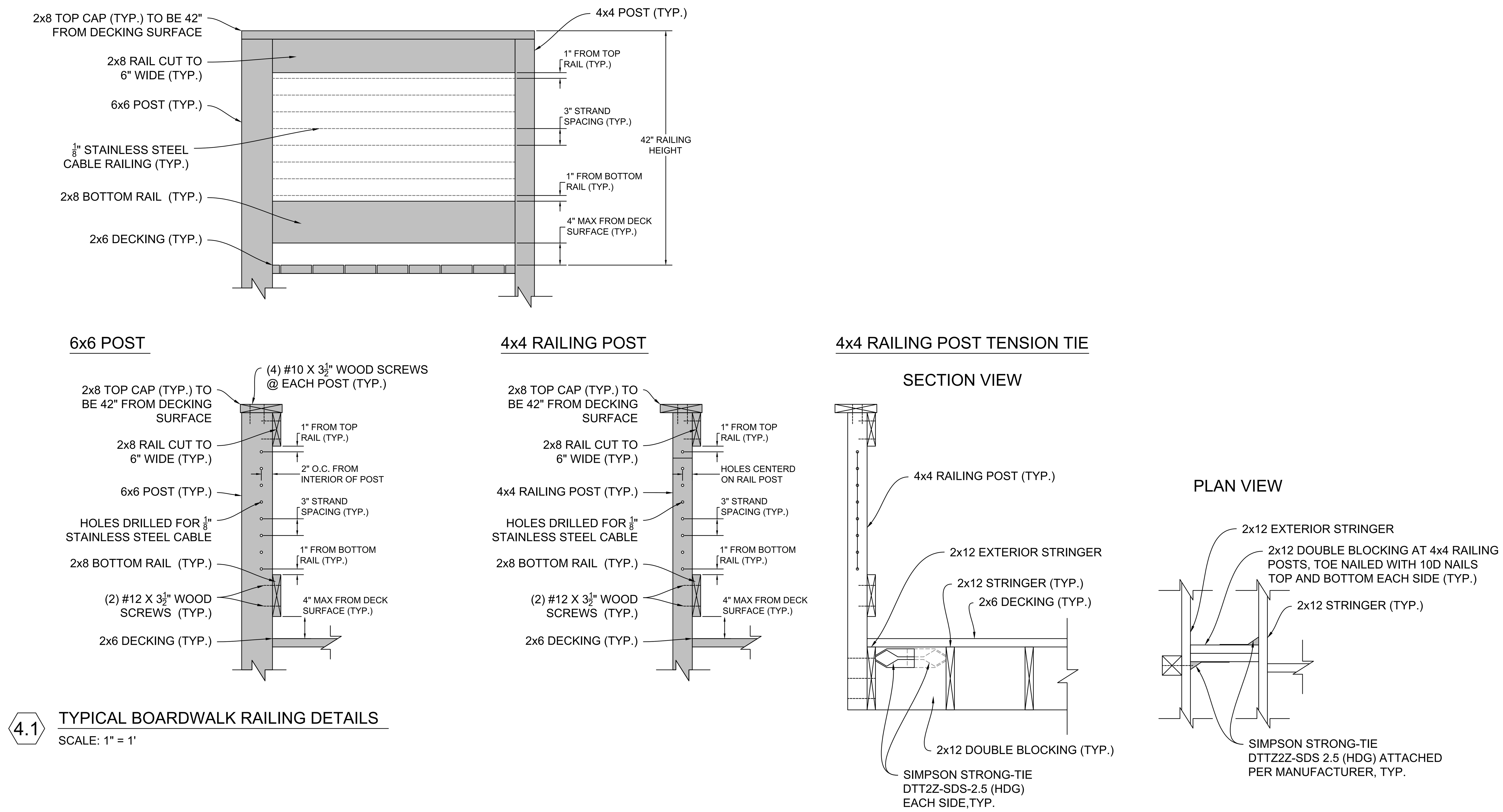
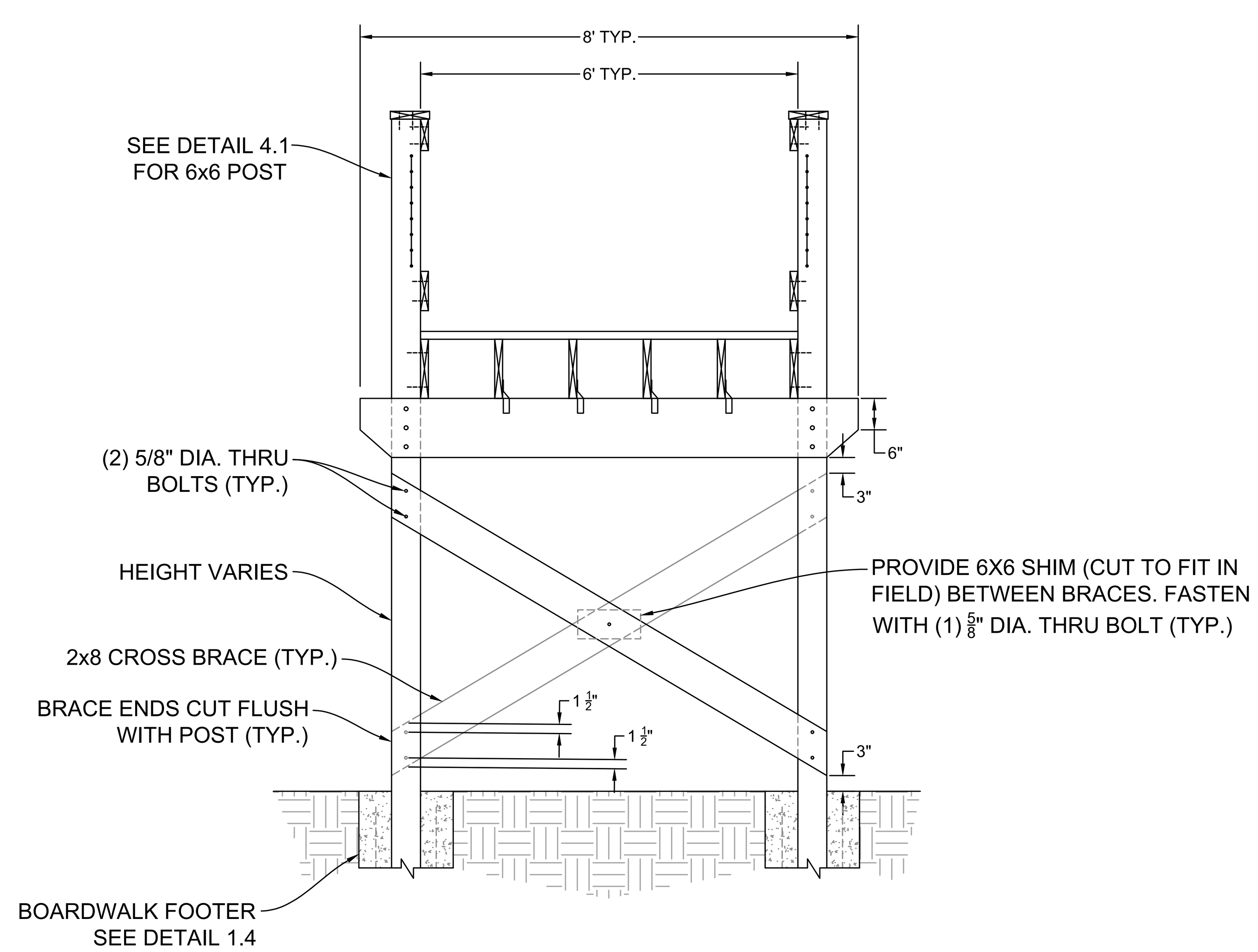


4.1 TYPICAL BOARDWALK RAILING DETAILS

SCALE: 1" = 1'



4.2 TYPICAL BOARDWALK BRACING X-SECTION AT 6x6 POST

SCALE: 1" = 2'

NOTE: FOR USE IN LOCATIONS WHERE BOARDWALK IS 4' OR MORE ABOVE FINISHED GRADE

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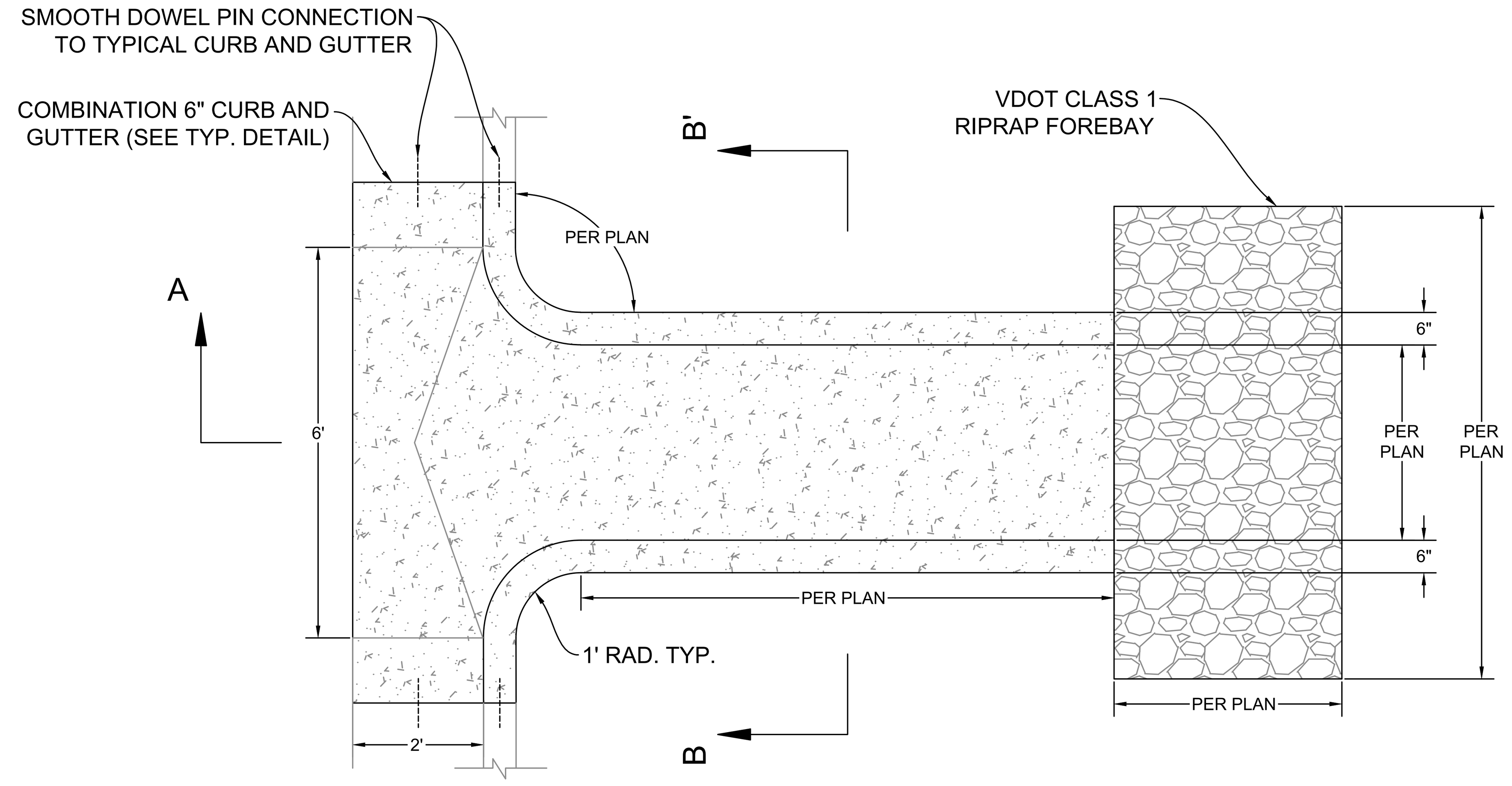
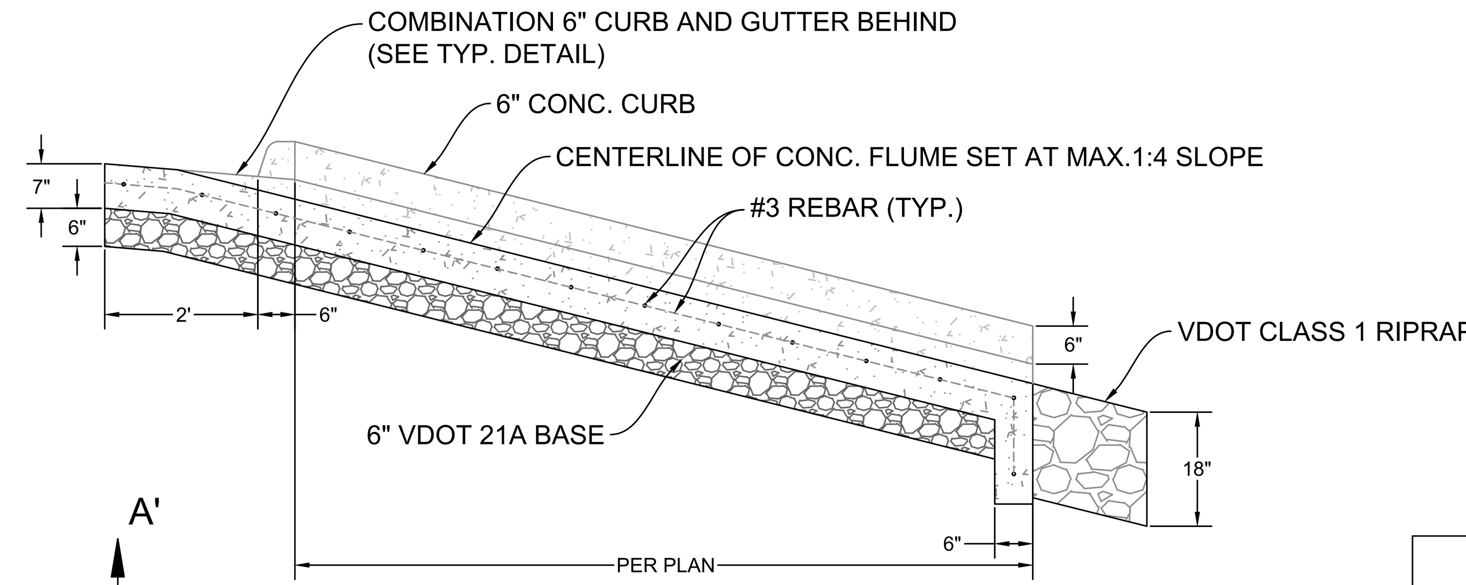
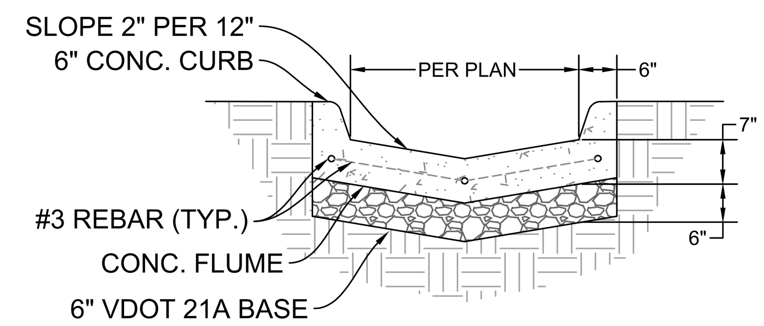
5.1 CONCRETE FLUME CONSTRUCTION DETAILS
SCALE: AS SHOWN



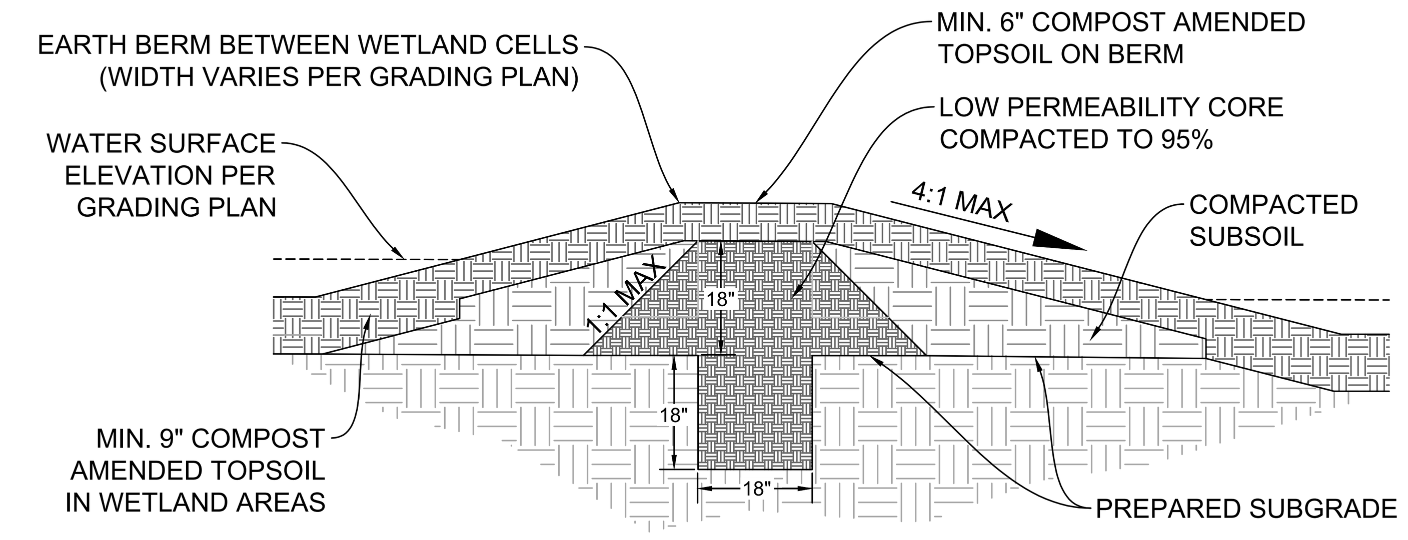
PLAN - CONCRETE FLUME WITH WINGWALLS AND RIPRAP SPLASH PAD
SCALE: 1" = 1'



SECTION A - A'
SCALE: 1" = 1'

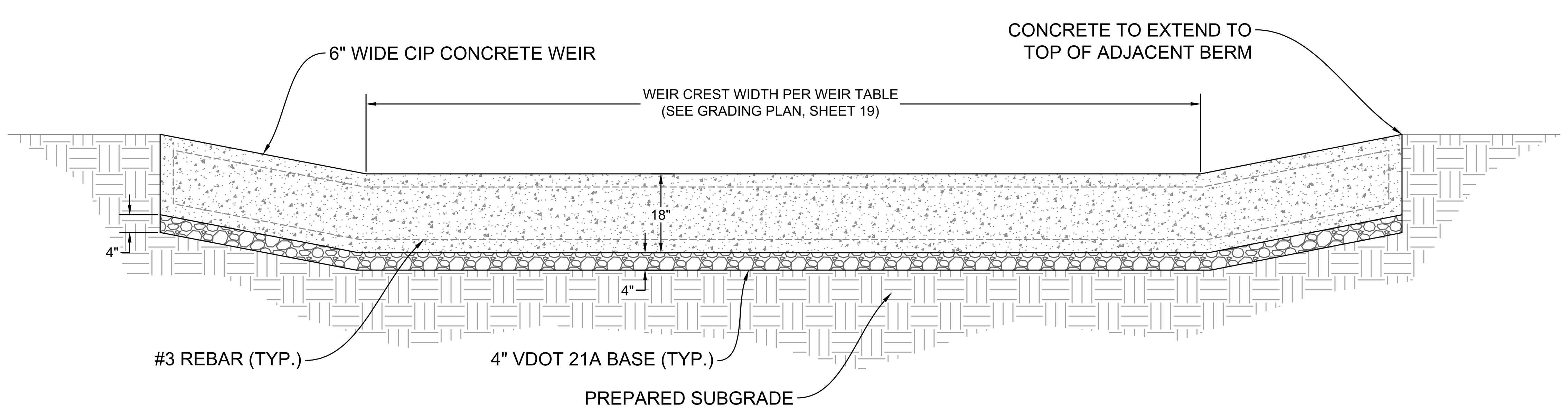


SECTION B - B'
SCALE: 1" = 1'

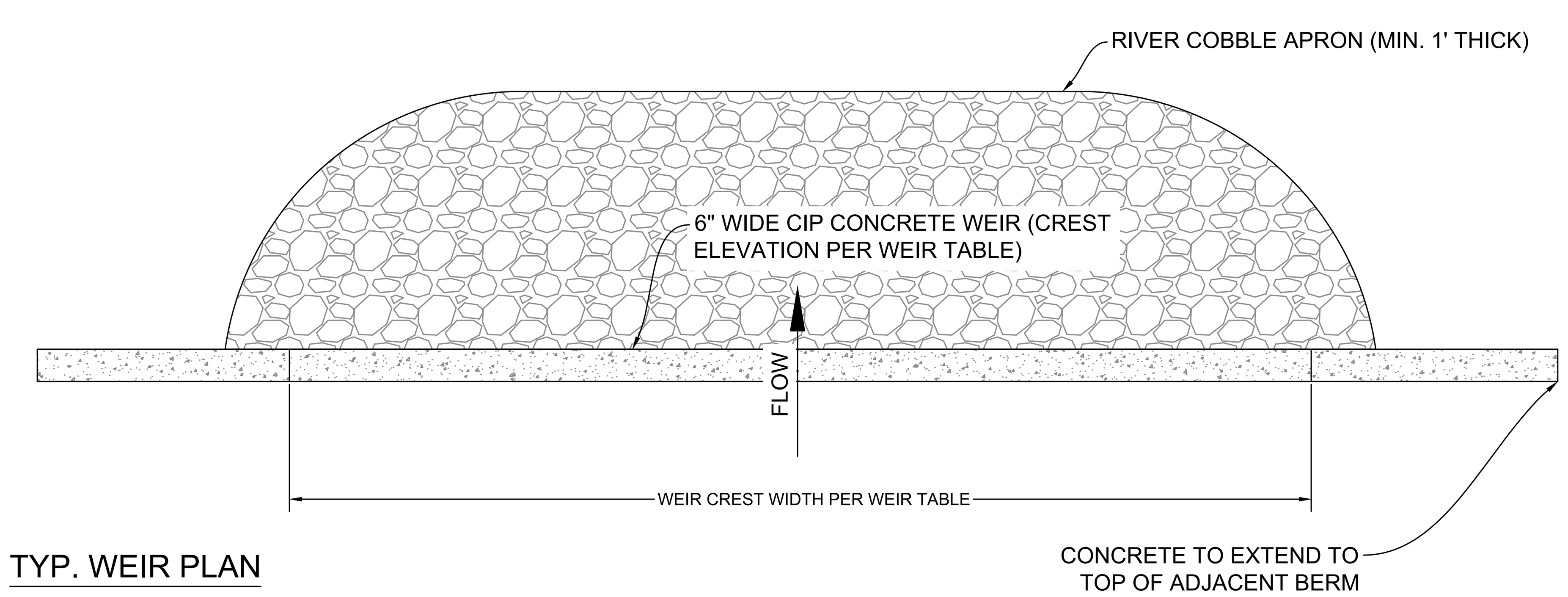


5.2 WETLAND BERM DETAIL
SCALE: 1" = 1'

5.3 WEIR CONSTRUCTION DETAILS
SCALE: AS SHOWN

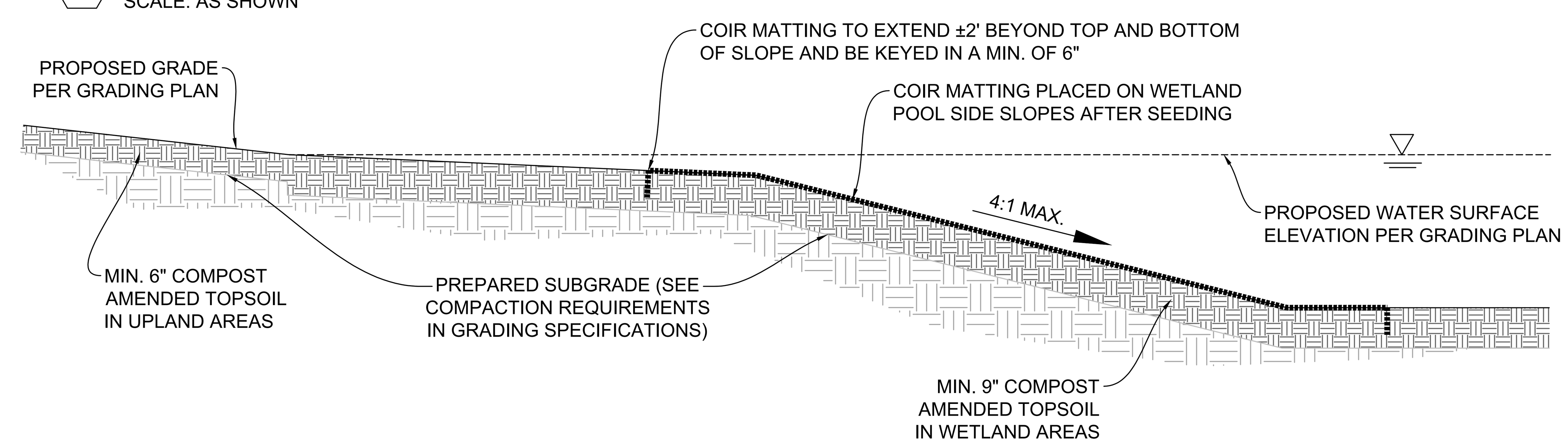


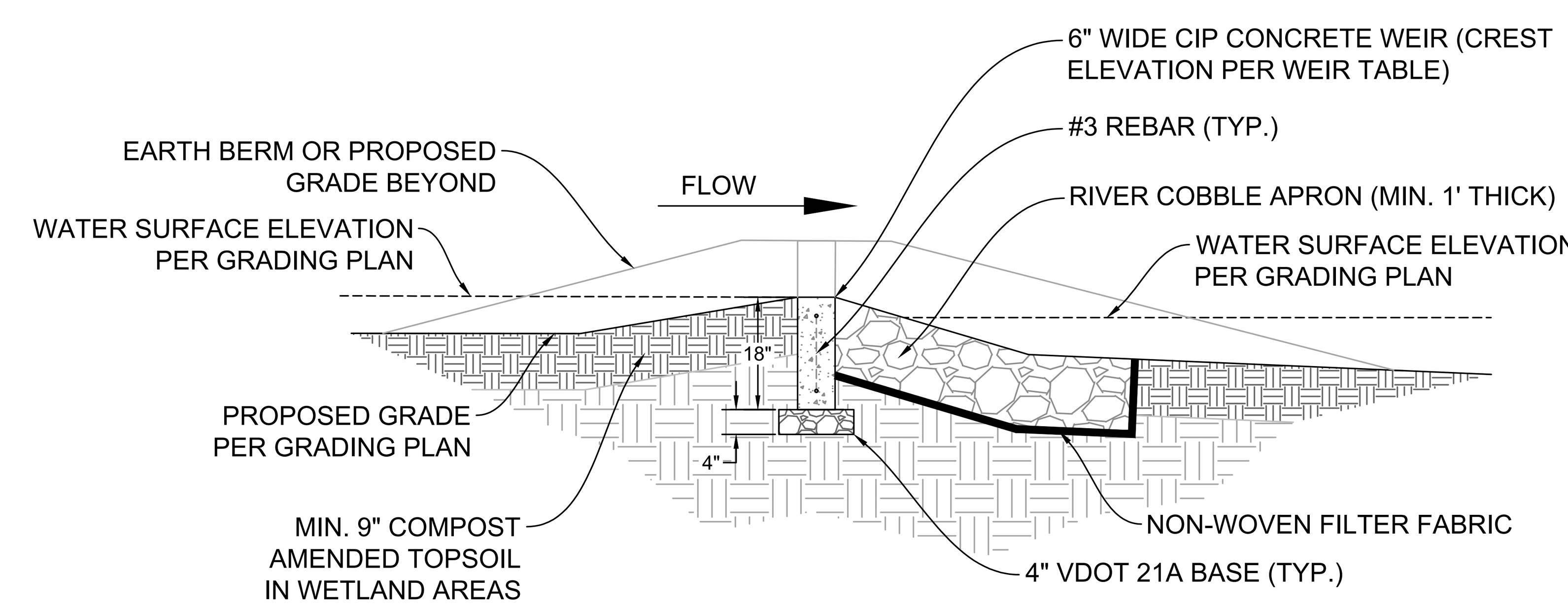
TYP. WEIR PROFILE
SCALE: 1" = 1'



TYP. WEIR PLAN
SCALE: 1" = 1'

5.4 WETLAND CONSTRUCTION DETAIL
SCALE: AS SHOWN





TYP. WEIR CROSS SECTION
SCALE: 1" = 1'

NOTE: RIVER COBBLE SIZE FOR WEIR APRONS SHALL BE 4" TO 8" WITH A D_{50} OF 6".

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City of Fairfax, Virginia

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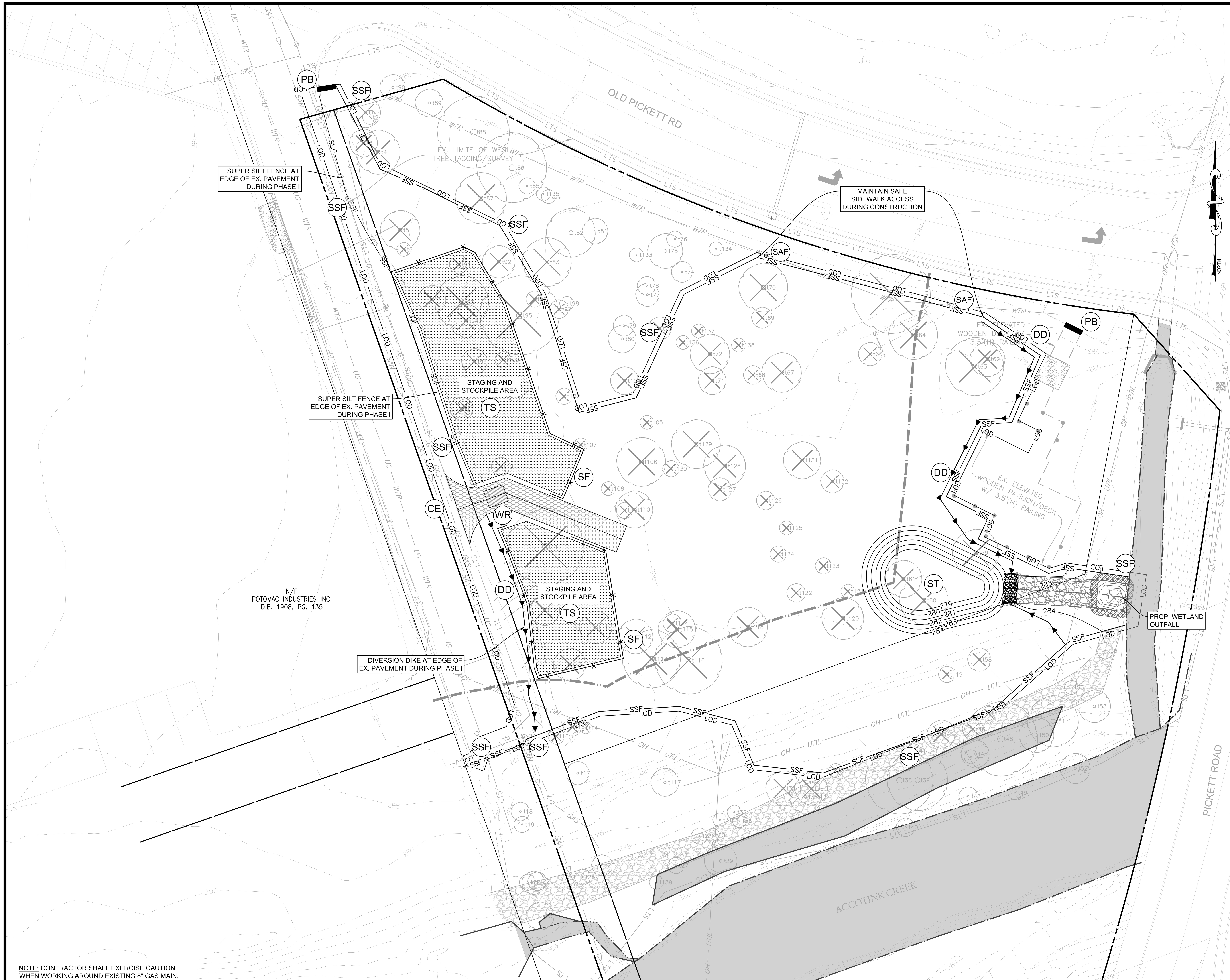

NOTE: CONTRACTOR SHALL EXERCISE CAUTION WHEN WORKING AROUND EXISTING 8" GAS MAIN.

SEDIMENT TRAP TABLE

DRAINAGE AREA TO SEDIMENT TRAP (AC)	1.33
VOLUME REQUIRED (134 CY PER AC)	180
WET STORAGE (67 CY PER AC)	90
DRY STORAGE (67 CY PER AC)	90
VOLUME PROVIDED (CY)	187
WET STORAGE (CY)	90
DRY STORAGE (CY)	97

EROSION & SEDIMENT CONTROL PLAN LEGEND

- PARCEL BOUNDARY
- 30' PRESCRIPTIVE ROW EASEMENT
- EXISTING PERMANENT CONSTRUCTION EASEMENT (D.B. 5631, PG. 103)
- EXISTING INFRASTRUCTURE
- 290 EXISTING CONTOURS (1')
- PERENNIAL STREAM
- INTERMITTENT STREAM
- PALUSTRINE FORESTED WETLAND (PFO)
- FIELD-VERIFIED RPA
- SAN SURVEYED SANITARY SEWER
- OH UTIL SURVEYED OVERHEAD UTILITY LINE
- EP SURVEYED EDGE OF PAVEMENT
- UG WTR EXISTING UNDERGROUND WATER LINE
- UG GAS EXISTING UNDERGROUND GAS LINE
- LTS LIMITS OF TREE SURVEY
- t100 SURVEYED TREE (≥ 6" DBH)
- t100 SURVEYED TREE TO BE REMOVED
- PROPOSED ACCESS
- PROPOSED STAGING AND STORAGE
- LOD LIMITS OF DISTURBANCE
- 290 PROPOSED CONTOUR (1')
- PROPOSED WSE CONTOUR
- PROPOSED INFRASTRUCTURE
- PROPOSED HABITAT LOG
- PROPOSED WEIR
- PROPOSED STREAM CENTERLINE
- PROPOSED BANKFULL
- STEP POOL

EROSION/SEDIMENT CONTROL QUANTITIES

NO.	TITLE	KEY	SYMBOL	UNITS	QUANTITY
3.02	WASH RACK	WR		EA	1
3.02	TEMP. STONE CONSTRUCTION ENTRANCE	CE		EA	1
3.05	SILT FENCE WITH WIRE SUPPORT (SUPER SILT FENCE)	SSF	SSF	LF	1,104
3.05	SILT FENCE WITHOUT WIRE SUPPORT	SF	X	LF	340
3.09	TEMPORARY DIVERSION DIKE	DD		LF	282
3.13	TEMPORARY SEDIMENT TRAP	ST	ST	EA	1
N/A	PEDESTRIAN BARRICADE	PB	PB	EA	2
3.31	TEMPORARY SEEDING	TS	TS	AC	0.14
3.32	PERMANENT SEEDING	PS	PS	AC	0.78
3.01	SAFETY FENCE	SAF	SAF	LF	100

20 10 0 20 40 60

SCALE: 1"=20'

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Erosion & Sediment Control Plan - Ph. 1

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025 SCALE: 1" = 20' C.I.: 1'

Horizontal Datum: NAD83
Vertical Datum: NGVD29
Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
DMC	DMC	FRG

Sheet # 32 of 55

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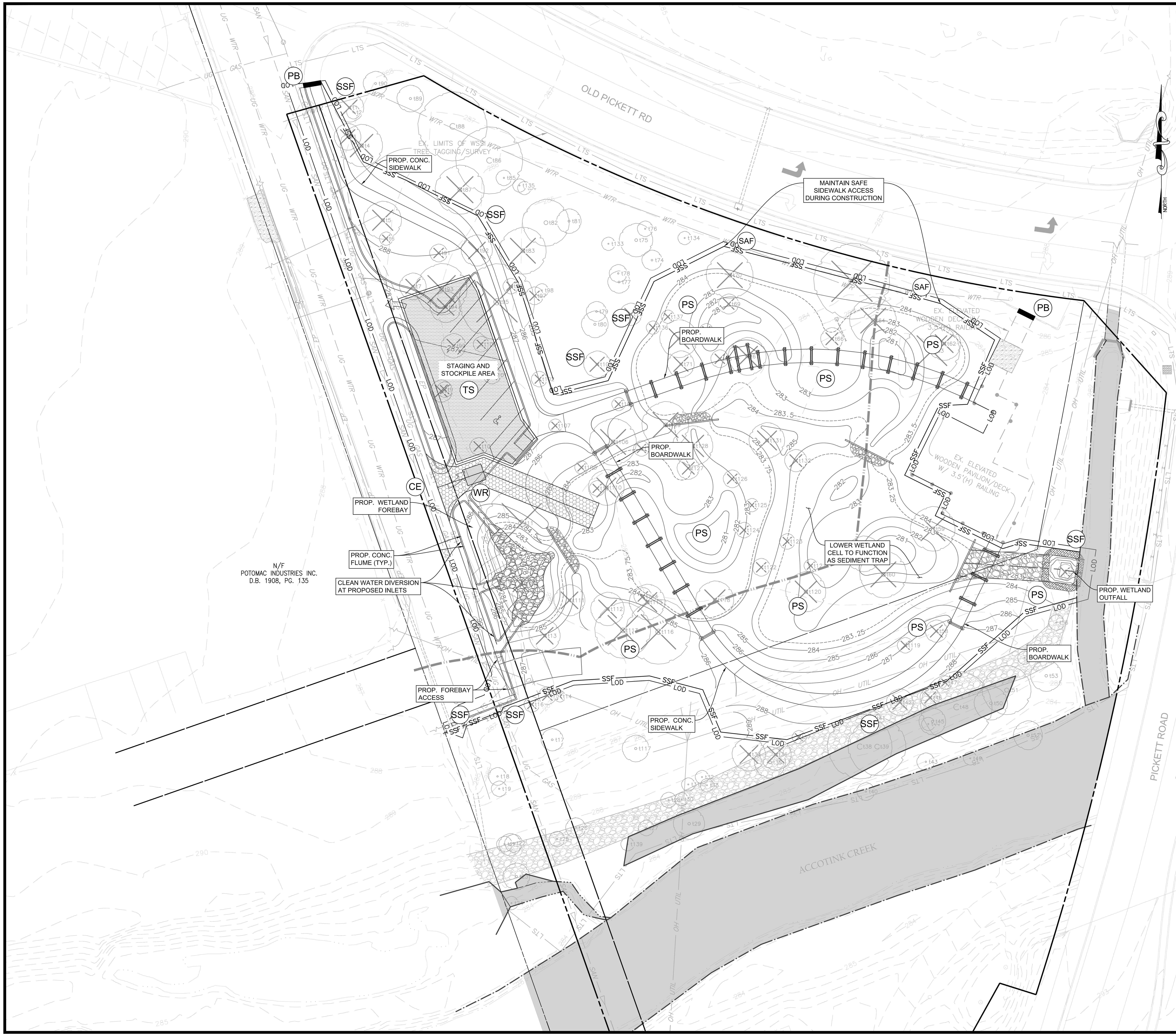

EROSION & SEDIMENT CONTROL PLAN LEGEND

- PARCEL BOUNDARY
- 30' PRESCRIPTIVE ROW EASEMENT
- EXISTING PERMANENT CONSTRUCTION EASEMENT (D.B. 5631, PG. 103)
- EXISTING INFRASTRUCTURE
- EXISTING CONTOURS (1')
- PERENNIAL STREAM
- INTERMITTENT STREAM
- PALUSTRINE FORESTED WETLAND (PFO)
- FIELD-VERIFIED RPA
- SURVEYED SANITARY SEWER
- SURVEYED OVERHEAD UTILITY LINE
- SURVEYED EDGE OF PAVEMENT
- EXISTING UNDERGROUND WATER LINE
- EXISTING UNDERGROUND GAS LINE
- LIMITS OF TREE SURVEY
- SURVEYED TREE (≥ 6" DBH)
- SURVEYED TREE TO BE REMOVED
- PROPOSED ACCESS
- PROPOSED STAGING AND STORAGE
- LIMITS OF DISTURBANCE
- PROPOSED CONTOUR (1')
- PROPOSED WSE CONTOUR
- PROPOSED INFRASTRUCTURE
- PROPOSED HABITAT LOG
- PROPOSED WEIR
- PROPOSED STREAM CENTERLINE
- PROPOSED BANKFULL
- STEP POOL

EROSION/SEDIMENT CONTROL QUANTITIES

NO.	TITLE	KEY	SYMBOL	UNITS	QUANTITY
3.02	WASH RACK	WR		EA	1
3.02	TEMP. STONE CONSTRUCTION ENTRANCE	CE		EA	1
3.05	SILT FENCE WITH WIRE SUPPORT (SUPER SILT FENCE)	SSF	SSF	LF	1,104
3.05	SILT FENCE WITHOUT WIRE SUPPORT	SF	X	LF	340
3.09	TEMPORARY DIVERSION DIKE	DD		LF	282
3.13	TEMPORARY SEDIMENT TRAP	ST	ST	EA	1
N/A	PEDESTRIAN BARRICADE	PB	PB	EA	2
3.31	TEMPORARY SEEDING	TS	TS	AC	0.14
3.32	PERMANENT SEEDING	PS	PS	AC	0.78
3.01	SAFETY FENCE	SAF	SAF	LF	100

NOTES:

1. EXCAVATED WETLAND CELLS TO FUNCTION AS SEDIMENT BASINS DURING CONSTRUCTION - SEE EROSION & SEDIMENT CONTROL NARRATIVE (SHEET 34).
2. CONTRACTOR SHALL EXERCISE CAUTION WHEN WORKING AROUND EXISTING 8" GAS MAIN.

20 10 0 20 40 60

SCALE: 1"=20'

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DMC	DMC	FRG

Sheet #
33 of 55

Computer File Name: E&S PLAN.dwg

EROSION AND SEDIMENT CONTROL NARRATIVE

I. PROJECT DESCRIPTION

THE INTENT OF THIS PROJECT IS TO MAKE SITE IMPROVEMENTS AND CREATE NATURAL LEARNING OPPORTUNITIES AT GATEWAY REGIONAL PARK LOCATED AT 3333 OLD PICKETT ROAD IN THE CITY OF FAIRFAX, VIRGINIA. THE PROPOSED IMPROVEMENTS INCLUDE A SMALL PARKING LOT ON THE NORTHWESTERN SIDE OF THE PARCEL AND A CONSTRUCTED STORMWATER WETLAND FEATURE IN THE CENTER OF THE SITE. BOARDWALKS AND CONCRETE PATHS WILL CONNECT THE PROPOSED PARKING LOT TO THE EXISTING DECK/PAVILION STRUCTURE AT THE NORTHEAST CORNER OF THE SITE.

THE WETLAND IS DESIGNED AS A LEVEL II CONSTRUCTED WETLAND PER THE VIRGINIA STORMWATER BMP DESIGN MANUAL. IT FEATURES A FOREBAY AND MEANDERING FLOW PATH THROUGH THREE WETLAND CELLS SEPARATED BY STONE WEIRS. THE WETLAND WILL OUTFALL VIA A MAN-MADE CHANNEL TO AN EXISTING SMALL TRIBUTARY TO ACCOTINK CREEK. THE TOTAL DISTURBED AREA FOR THE PROJECT WILL BE ROUGHLY 50,615 SF (1.16 ACRES).

II. EXISTING SITE CONDITIONS

THE SITE CONSISTS OF AN EXISTING PUBLIC PARK (GATEWAY REGIONAL PARK) OPERATED BY NOVA PARKS. THE PARK IS LOWER IN ELEVATION THAN ADJACENT PROPERTIES, AND WATER FREQUENTLY POOLS IN LOW AREAS DURING AND AFTER RAINFALL EVENTS. THE TOPOGRAPHY GENERALLY SLOPES FROM THE NORTHWEST TO THE SOUTHEAST. A DOMINION ENERGY POWER LINE SITS ATOP AN APPROXIMATELY FOUR-FOOT TALL LINEAR BERM THAT SEPARATES THE MAJORITY OF THE PARCEL FROM ACCOTINK CREEK. A DECK/PAVILION EXTENDS SOUTHWARD INTO THE SITE FROM OLD PICKETT ROAD. MOST OF THE SITE IS TURFGRASS WITH VARIABLE TREE CANOPY COVERAGE. THE DRAINAGE AREA FOR THE CONSTRUCTED WETLAND IS 3.82 ACRES WITH 60.47% IMPERVIOUSNESS (SEE SHEET 39).

III. ADJACENT PROPERTY

THE SITE IS BORDERED TO THE NORTH BY OLD PICKETT ROAD, TO THE EAST BY PICKETT ROAD, AND TO THE SOUTH BY ACCOTINK CREEK. WILCOXON PARK, OWNED BY THE CITY OF FAIRFAX, LIES SOUTH OF ACCOTINK CREEK. AN ACCESS ROAD, SHARED WITH NATIONAL ASPHALT PAVING, BORDERS THE SITE TO THE WEST. CONSTRUCTION AND PERMANENT ACCESS TO THE PARK WILL UTILIZE THIS ENTRANCE.

IV. OFF-SITE AREAS

NO OFF-SITE LAND DISTURBING ACTIVITIES ARE PROPOSED.

V. CRITICAL AREAS

THE PROPOSED OUTFALL CHANNEL CONNECTING THE CONSTRUCTED WETLAND TO THE EXISTING TRIBUTARY TO ACCOTINK CREEK WILL BE PROTECTED WITH THE INSTALLATION OF REINFORCED BED MATERIAL SUBSTRATE AND AN ENERGY DISSIPATION STRUCTURE (STEP POOL) (SEE SHEET 23).

VI. SOIL

THE SOILS LOCATED WITHIN THE PROJECT AREA ARE CODORUS SILT LOAM (29A) AND URBAN LAND. CODORUS SILT LOAM MAKES UP THE MAJORITY OF THE PROJECT AREA. THIS SOIL HAS POOR DRAINAGE AND LOW EROSION POTENTIAL.

VII. CRITICAL EROSION AREAS

THERE ARE NO AREAS ON SITE WITH POTENTIALLY SERIOUS EROSION PROBLEMS.

VIII. EROSION AND SEDIMENT 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), LATEST EDITION.

A. STRUCTURAL PRACTICES
- 3.02 - TEMPORARY STONE CONSTRUCTION ENTRANCE WITH WASH RACK
- 3.05 - SILT FENCE WITHOUT WIRE SUPPORT
- 3.05 - SILT FENCE WITH WIRE SUPPORT (SUPER SILT FENCE)
- 3.09 - TEMPORARY DIVERSION DIKE
- 3.13 - TEMPORARY SEDIMENT TRAP
- 3.01 - SAFETY FENCE
- N/A - PEDESTRIAN BARRICADE

B. VEGETATIVE PRACTICES
- 3.30 - TOPSOIL (STOCKPILE)
- 3.31 - TEMPORARY SEEDING
- 3.32 - PERMANENT SEEDING

IX. EROSION AND SEDIMENTATION CONTROL PHASING

PHASE I - THE CONSTRUCTION ENTRANCE AND WASH RACK WILL BE INSTALLED. PERIMETER CONTROLS INCLUDING SUPER-SILT FENCE, SILT FENCE, SAFETY FENCE, AND DIVERSION DIKES WILL BE INSTALLED TO DIVERT CLEAN WATER FROM THE DISTURBED AREA AND PREVENT SEDIMENT-LADEN WATER FROM LEAVING THE SITE UNTREATED. A SEDIMENT TRAP WILL BE INSTALLED TO TREAT WATER FROM WITHIN THE DISTURBED AREA. TEMPORARY SEEDING PER TABLE 3.31-C (THIS SHEET) WILL BE APPLIED IN STOCKPILE AREAS WHERE PERMANENT GRADE WILL NOT BE ACHIEVED WITHIN 14 DAYS.

PHASE II - AFTER INSTALLATION OF PROPOSED IMPROVEMENTS, CLEAN WATER DIVERSIONS (SANDBAGS) WILL BE PLACED AT EACH WETLAND FOREBAY INLET TO DIVERT CLEAN WATER FROM THE SITE. TEMPORARY SEEDING PER TABLE 3.31-C (THIS SHEET) WILL BE APPLIED IN STOCKPILE AREAS WHERE PERMANENT GRADE WILL NOT BE ACHIEVED WITHIN 14 DAYS. PERMANENT SEEDING WILL STABILIZE DISTURBED AREAS. SEE VEGETATION SCHEDULES (SHEET 41) FOR SEED MIX COMPOSITION. PERIMETER CONTROL DIVERSION DIKES WILL BE REMOVED. SUPER-SILT FENCE PERIMETER CONTROL AND SAFETY FENCE WILL REMAIN UNTIL SITE IS STABILIZED.

X. MANAGEMENT STRATEGIES
1. CONSTRUCTION WILL BE SEQUENCED SO THAT GRADING CAN BEGIN AND END AS QUICKLY AS POSSIBLE.
2. THE PERIMETER OF THE LOD WILL BE STAKED AND/OR FLAGGED.
3. EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED PRIOR TO CONSTRUCTION.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL PRACTICES.
5. DEBRIS AND TEMPORARY EROSION AND SEDIMENT CONTROLS WILL BE REMOVED AFTER ADEQUATE STABILIZATION HAS BEEN ACHIEVED AND THE PROJECT IS COMPLETE.
6. NO SECTION OF THE PROPOSED OUTFALL CHANNEL WILL BE LEFT UNSTABILIZED OVERNIGHT.

XI. PERMANENT STABILIZATION

ALL AREAS DISTURBED AND/OR SUBJECT TO GRADING SHALL BE SEEDED AND MULCHED, OR SODDED WITHIN 7 DAYS AFTER FINAL GRADE IS REACHED. SEED MIX WILL INCLUDE FAST GERMINATING TEMPORARY SPECIES AS WELL AS A PERMANENT SEED MIX SUITED TO SUB-AREAS OF THE PROJECT (SEE LANDSCAPE PLAN AND VEGETATION SCHEDULES, SHEETS 40-43).

XII. STORMWATER MANAGEMENT

THIS PROJECT WILL PROVIDE WATER QUALITY AS WELL AS CHANNEL PROTECTION. THE PROPOSED IMPROVEMENTS WILL NOT RESULT IN INCREASED DISCHARGES LEAVING THE SITE. SEE SHEETS 36-39.

XIII. MAINTENANCE

1. THE CONTRACTOR SHALL MAKE A DAILY REVIEW OF AREAS OF CONSTRUCTION ACTIVITY TO ENSURE THAT EROSION AND SEDIMENT CONTROL DEVICES ARE PROPERLY LOCATED FOR EFFECTIVENESS. WHERE DEFICIENCIES EXIST, ADDITIONAL MEASURES SHALL BE PROMPTLY INSTALLED. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PROVIDING ANY ADDITIONAL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES THAT MAY BE REQUIRED, COMMENSURATE WITH THEIR SCHEDULING SEQUENCE OF CONSTRUCTION, TO PREVENT EROSION AND SEDIMENT RELATED DAMAGE TO THE PROPERTY OF OTHERS, TO ADJACENT AND/OR DOWNSTREAM WATERWAYS, OR TO THE PROJECT, DURING CONSTRUCTION AND PRIOR TO PERMANENT STABILIZATION OF ALL DISTURBED AREAS.
2. THE CONTRACTOR SHALL INSTALL ANY AND ALL EROSION AND SEDIMENT CONTROLS DEEMED NECESSARY TO ACCOUNT FOR SITE- AND ACTIVITY-SPECIFIC ISSUES DETERMINED BY THE ENGINEER'S REPRESENTATIVE.
3. PERSONNEL CONDUCTING THE REQUIRED AND PERIODIC OVERSIGHT INSPECTIONS SHALL OBTAIN THE CERTIFICATIONS OR QUALIFICATIONS FOR EROSION AND SEDIMENT CONTROL REQUIRED BY THE CITY OF FAIRFAX PRIOR TO INSPECTING THE PROJECT.
4. THE CONTRACTOR AND/OR PROJECT ENGINEER WILL REDLINE THE APPROVED PLANS AS NEEDED TO INCLUDE ANY ONSITE CHANGES AS THEY OCCUR.
5. ALL RECORDS (E.G. ESC PLANS, INSPECTION REPORTS, ENFORCEMENT REPORTS, SWPPP'S, ETC.) WILL BE RETAINED FOR A PERIOD OF NO LESS THAN THREE (3) YEARS.

MINIMUM STANDARDS NARRATIVE

MS-1 (SOIL STABILIZATION): SOIL SHALL BE STABILIZED PURSUANT TO THE EROSION AND SEDIMENT CONTROL NARRATIVE, SECTIONS VIII-XI.

MS-2 (SOIL STOCKPILE STABILIZATION): SILT FENCE WILL BE PLACED AROUND ANY SOIL THAT WILL BE STOCKPILED FOR LONGER THAN ONE DAY, IN THE LOCATIONS SHOWN ON THE EROSION AND SEDIMENT CONTROL PLAN (SHEETS 32-33).

MS-3 (PERMANENT STABILIZATION): PERMANENT STABILIZATION SHALL BE APPLIED PURSUANT TO THE EROSION AND SEDIMENT CONTROL NARRATIVE, SECTION XI (THIS SHEET). SPECIFICS REGARDING SEEDING AND PLANTINGS ARE PROVIDED IN THE LANDSCAPE PLAN, PLANTING SCHEDULE, AND PLANTING NOTES & DETAILS SHEETS.

MS-4 (SEDIMENT BASINS & TRAPS): PURSUANT TO THE EROSION AND SEDIMENT CONTROL NARRATIVE, SECTION IX, THE SEDIMENT TRAP SHALL BE CONSTRUCTED AS A FIRST STEP (PHASE I) AND MADE FUNCTIONAL BEFORE UPSLOPE LAND DISTURBANCE TAKES PLACE.

MS-5 (STABILIZATION OF EARTHEN STRUCTURES): ALL EARTHEN STRUCTURES SHALL BE SEEDED UPON ACHIEVING FINAL GRADE.

MS-6 (SEDIMENT BASINS & TRAPS) THE SEDIMENT TRAP WAS DESIGNED BASED ON A TOTAL DRAINAGE AREA OF 1.33 ACRES TO BE SERVED, AND PROVIDES A TOTAL OF 187 CUBIC YARDS OF STORAGE CAPACITY.

MS-7 (CUT/FILL SLOPES DESIGN & CONSTRUCTION): THERE ARE NO SLOPES STEEPER THAN 3:1 ASSOCIATED WITH THIS PROJECT. ALL SLOPES WILL BE STABILIZED WITH PERMANENT SEED MIX AND/OR VEGETATED.

MS-8 (CONCENTRATED RUNOFF DOWN SLOPES): THERE ARE NO SLOPES STEEPER THAN 3:1 ASSOCIATED WITH THIS PROJECT. ALL SLOPES WILL BE STABILIZED WITH PERMANENT SEED MIX AND/OR VEGETATED. RUNOFF FLOWING DOWN SLOPES WILL BE CONTAINED WITHIN CONCRETE CONVEYANCE FLUMES AND THE CONSTRUCTED WETLAND OUTFALL CHANNEL.

MS-9 (SLOPE MAINTENANCE): NOT APPLICABLE, NO SLOPES ARE PROPOSED TO BE DISTURBED AS PART OF THIS PROJECT.

MS-10 (STORM SEWER INLET PROTECTION): PURSUANT TO THE EROSION AND SEDIMENT CONTROL NARRATIVE, SECTION IX, STORMWATER INLETS PROPOSED TO BE CONSTRUCTED AS PART OF THIS PROJECT WILL BE PROTECTED BY CLEAN WATER DIVERSIONS (SANDBAGS) UNTIL SITE IS STABILIZED.

MS-11 (STORMWATER CONVEYANCE PROTECTION): PURSUANT TO THE EROSION AND SEDIMENT CONTROL NARRATIVE, SECTION IX (THIS SHEET), ADEQUATE OUTLET PROTECTION AND CHANNEL LINING SHALL BE INSTALLED BEFORE NEWLY CONSTRUCTED STORMWATER CONVEYANCE CHANNELS ARE MADE OPERATIONAL. THE PROPOSED WETLAND OUTFALL CHANNEL SHALL BE INSTALLED IN PHASE I OF THE EROSION AND SEDIMENT CONTROL PLAN, BEFORE CONSTRUCTION OF THE WETLAND. THE PROPOSED CONVEYANCE FLUMES CONNECTING THE CURB-AND-GUTTER SYSTEM TO THE WETLAND FOREBAY WILL BE PROTECTED WITH CLEAN WATER DIVERSIONS UNTIL PROJECT CONSTRUCTION IS COMPLETE.

MS-12 (WORK IN LIVE WATERCOURSE): PROPOSED WORK WILL TIE INTO AN EXISTING LIVE WATERCOURSE AND WILL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETE.

MS-13 (CROSSING LIVE WATERCOURSE): NOT APPLICABLE, NO CROSSING OF A LIVE WATERCOURSE IS PROPOSED AS PART OF THIS PROJECT.

MS-14 (REGULATION OF WATERCOURSE WORK OR CROSSING): THE PROPOSED WORK WITHIN THE WATERCOURSE IS BEING REGULATED BY NATIONWIDE PERMIT 18.

MS-15 (STABILIZATION OF WATERCOURSE): PROPOSED WORK WILL TIE INTO AN EXISTING LIVE WATERCOURSE AND WILL BE STABILIZED IMMEDIATELY AFTER WORK IN THE WATERCOURSE IS COMPLETE. ONLY AS MUCH AS CAN BE STABILIZED IN ONE DAY SHALL BE DISTURBED. NO WORK IN OR AROUND THE LIVE WATERCOURSE SHALL BE LEFT UNSTABILIZED OVERNIGHT.

MS-16 (UNDERGROUND UTILITY LINE CONSTRUCTION): NOT APPLICABLE, NO UNDERGROUND UTILITIES ARE PROPOSED TO BE CONSTRUCTED AS PART OF THIS PROJECT.

MS-17 (VEHICULAR SEDIMENT TRAPPING): A STONE CONSTRUCTION ENTRANCE WITH A WASH RACK AND TEMPORARY SEDIMENT TRAP SHALL BE PLACED AT THE ENTRANCE TO THE PROJECT SITE. DETAILS ARE PROVIDED ON SHEET 35 AND THE LOCATION OF THE CONSTRUCTION ENTRANCE WITH APPURTENCES ARE SHOWN ON THE EROSION & SEDIMENT CONTROL PLAN (SHEETS 32-33).

MS-18 (REMOVAL OF TEMPORARY MEASURES): THIS MINIMUM STANDARD IS ADDRESSED IN THE EROSION AND SEDIMENT CONTROL NARRATIVE, SECTION X (THIS SHEET).

MS-19 (STORMWATER MANAGEMENT): THE PROPOSED CONSTRUCTED WETLAND DESIGN WILL PROVIDE WATER QUALITY PROTECTION AND WILL NOT RESULT IN INCREASED DISCHARGES LEAVING THE SITE, AS MENTIONED IN THE EROSION AND SEDIMENT CONTROL NARRATIVE, SECTION XII (THIS SHEET) AND DETAILED IN SHEETS 36-39.

TABLE 3.31-C

TEMPORARY SEEDING PLANT MATERIALS, SEEDING RATES, AND DATES

1992

SPECIES	SEEDING RATE		NORTH[a]			SOUTH[b]			PLANT CHARACTERISTICS
	Acre	1000 ft^2	3/1 to 4/30	5/1 to 8/15	8/15 to 11/1	2/15 to 4/30	5/1 to 9/1	9/1 to 11/15	
OATS (Avena sativa)	3 bu. (up to 100 lbs., not less than 50 lbs.)	2 lbs.	X	-	-	X	-	-	Use spring varieties (e.g., Noble).
RYE[d] (Secale cereale)	2 bu. (up to 110 lbs., not less than 50 lbs.)	2.5 lbs.	X	-	X	X	-	X	Use for late fall seedings, winter cover. Tolerates cold and low moisture.
GERMAN MILLET (Setaria italica)	50 lbs.	approx. 1 lb.	-	X	-	-	X	-	Warm-season annual. Dies at first frost. May be added to summer mixes.
ANNUAL RYEGRASS[c] (Lolium multi-florum)	60 lbs.	1½ lbs.	X	-	X	X	-	X	May be added in mixes. Will mow out of most stands.
WEEPING LOVEGRASS (Eragrostis curvula)	15 lbs.	5½ ozs.	-	X	-	-	X	-	Warm-season perennial. May bunch. Tolerates hot, dry slopes and acid, infertile soils. May be added to mixes.
KOREAN LESPEDEZA[c] (Lespedeza stipulacea)	25 lbs.	approx. 1½ lbs.	X	X	-	X	X	-	Warm season annual legume. Tolerates acid soils. May be added to mixes.

[a] Northern Piedmont and Mountain region. See Plates 3.22-1 and 3.22-2.
[b] Southern Piedmont and Coastal Plain.
[c] May be used as a cover crop with spring seeding.
[d] May be used as a cover crop with fall seeding.
X May be planted between these dates.
- May not be planted between these dates.

3.31

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Erosion & Sediment Control Narrative

Prepared For: NOVA Parks

Gateway Regional Park

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34 of 55

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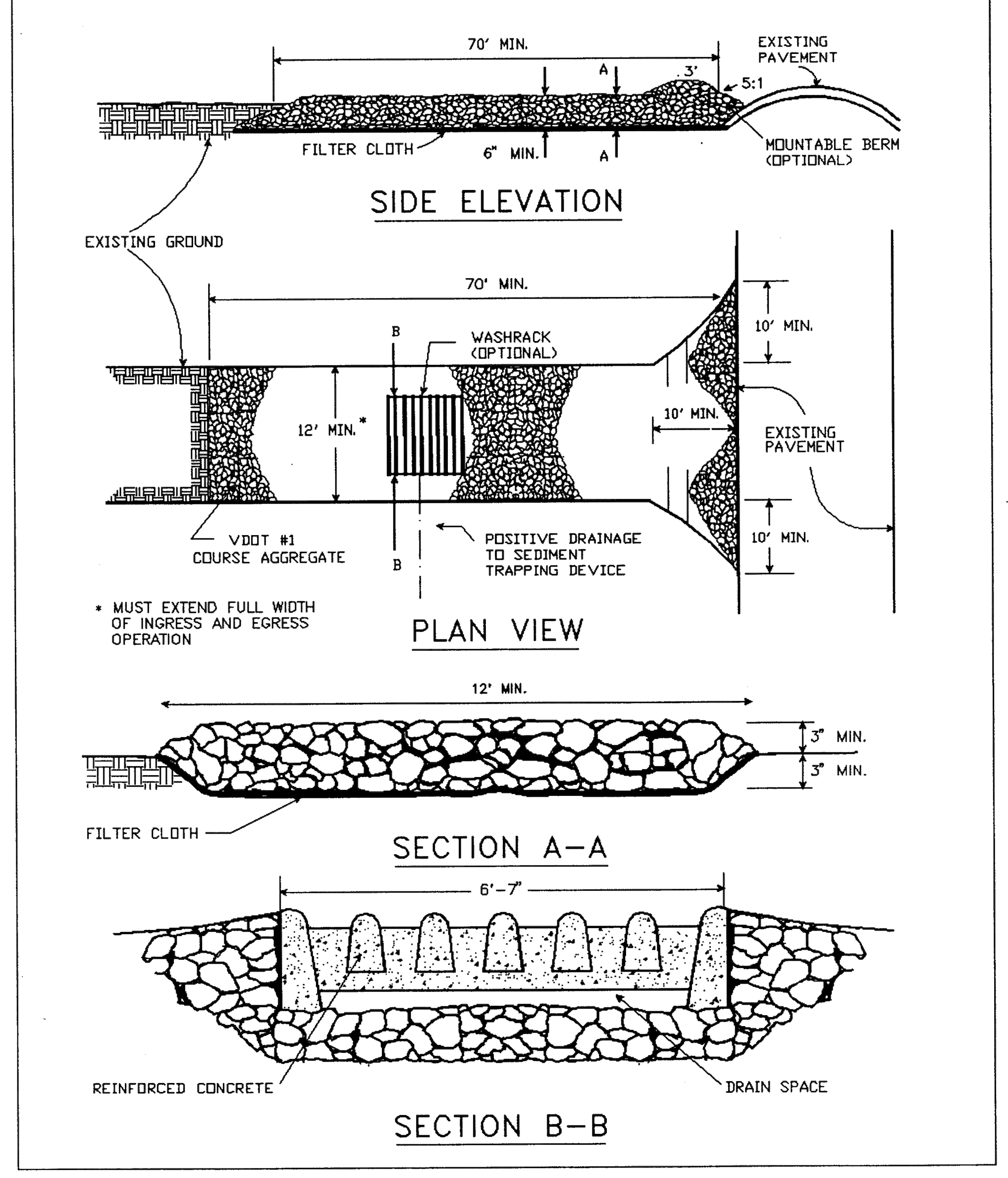
CE

1992 3.02

WR

STONE CONSTRUCTION ENTRANCE

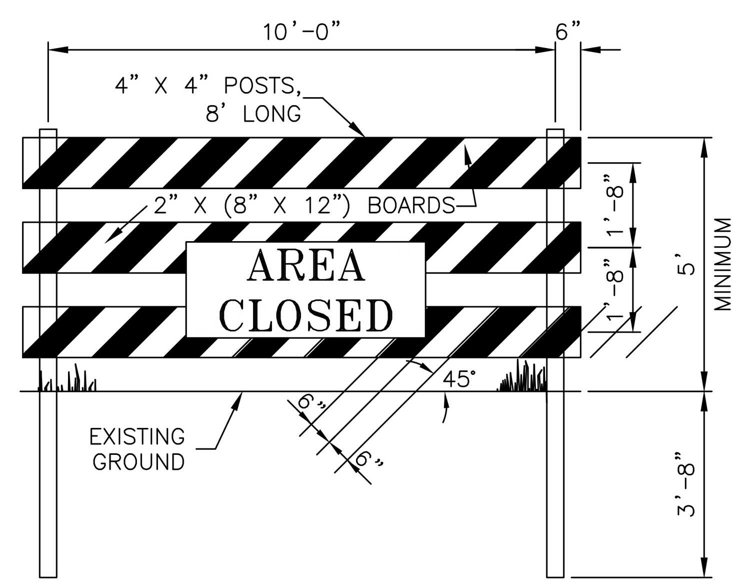


Source: Adapted from 1983 Maryland Standards for Soil Erosion and Sediment Control, and Va. DSWC

Plate 3.02-1

III - 9

PB **PEDESTRIAN BARRICADE**



- LUMBER DIMENSIONS ARE NOMINAL SIZES.
- THE REFLECTORIZED AREA SHALL HAVE A SMOOTH, SEALED ENCAPSULATED LENS MATERIAL OUTER SURFACE. THE PREDOMINANT COLOR FOR OTHER BARRICADE COMPONENTS SHALL BE WHITE, EXCEPT THAT UNPAINTED GALVANIZED METAL OR ALUMINUM COMPONENTS MAY BE USED. BECAUSE OF THEIR VULNERABLE POSITION AND POSSIBLE HAZARD THEY COULD CREATE, BARRICADES SHOULD BE CONSTRUCTED OF LIGHTWEIGHT MATERIALS AND HAVE NO RIGID STAY BRACING.
- PLANKS ARE TO FASTENED TO POSTS WITH 2½" X 6½" CARRIAGE BOLTS AND WASHERS OR 2⅞" X 4" LAG SCREWS AND WASHERS. BOLTS AND SCREWS ARE NOT TO BE PLACED CLOSER THAN 2" FROM THE EDGE OF PLANKS.

CHARACTERISTICS

COLOR OF STRIPES	REFLECTORIZED RED AND REFLECTORIZED WHITE
WIDTH OF RAIL	8" MIN. – 12" MAX.
NUMBER OF REFLECTORIZED RAIL FACES	3 IF FACING TRAFFIC IN 1 DIRECTION 6 IF FACING TRAFFIC IN 2 DIRECTIONS

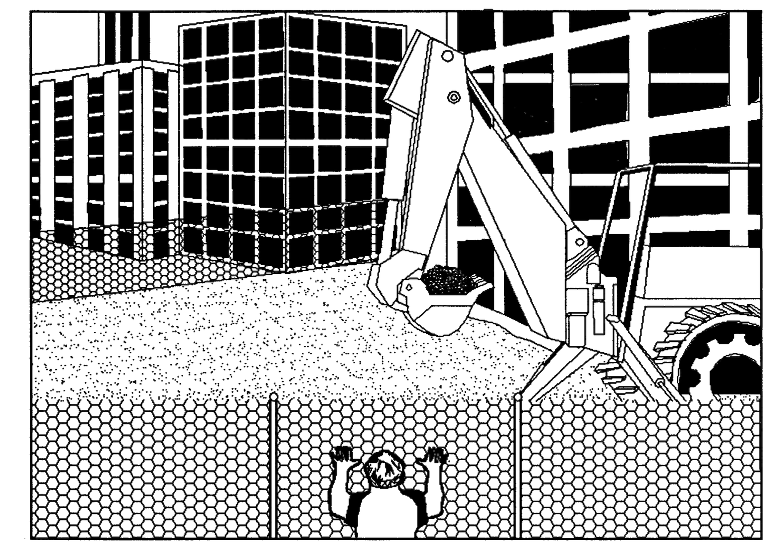
THIS BARRICADE AND OTHER TRAFFIC BARRICADES ARE DESCRIBED IN THE LATEST EDITION OF VDOT'S WORK AREA PROTECTION MANUAL STANDARDS AND GUIDELINES AND MUTCD.

ADAPTED FROM FAIRFAX COUNTY (VA) PUBLIC FACILITIES MANUAL SEC. 7-0406.10, PLATE NO. 20-7, STD NO. TB-1 (STANDARD TRAFFIC BARRIER).

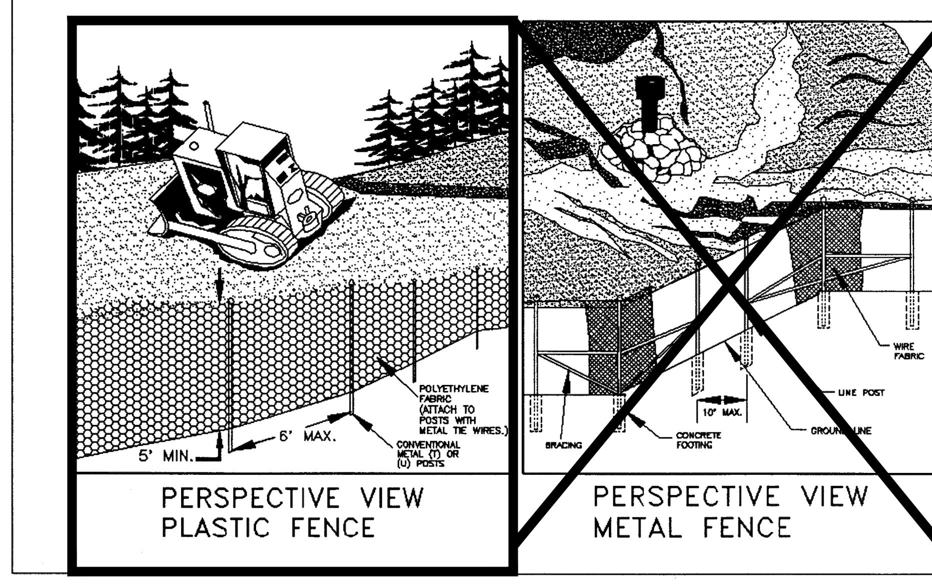
SAF

1992 3.01

SAFETY FENCE



PERSPECTIVE VIEW



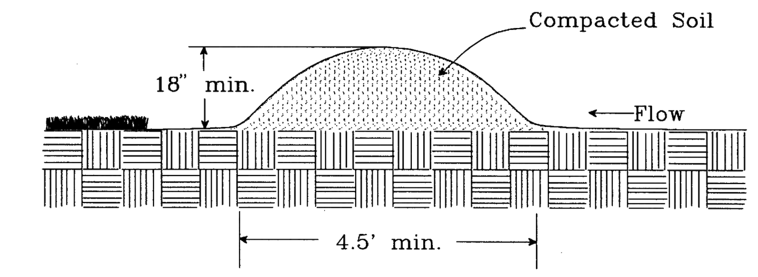
Source: Adapted from Conwed Plastics and VDOT Road and Bridge Standards

Plate 3.01-1

III - 5

DD

TEMPORARY DIVERSION DIKE



Source: Va. DSWC

Plate 3.09-1

TABLE 3.01-A

PHYSICAL PROPERTIES OF PLASTIC SAFETY FENCE

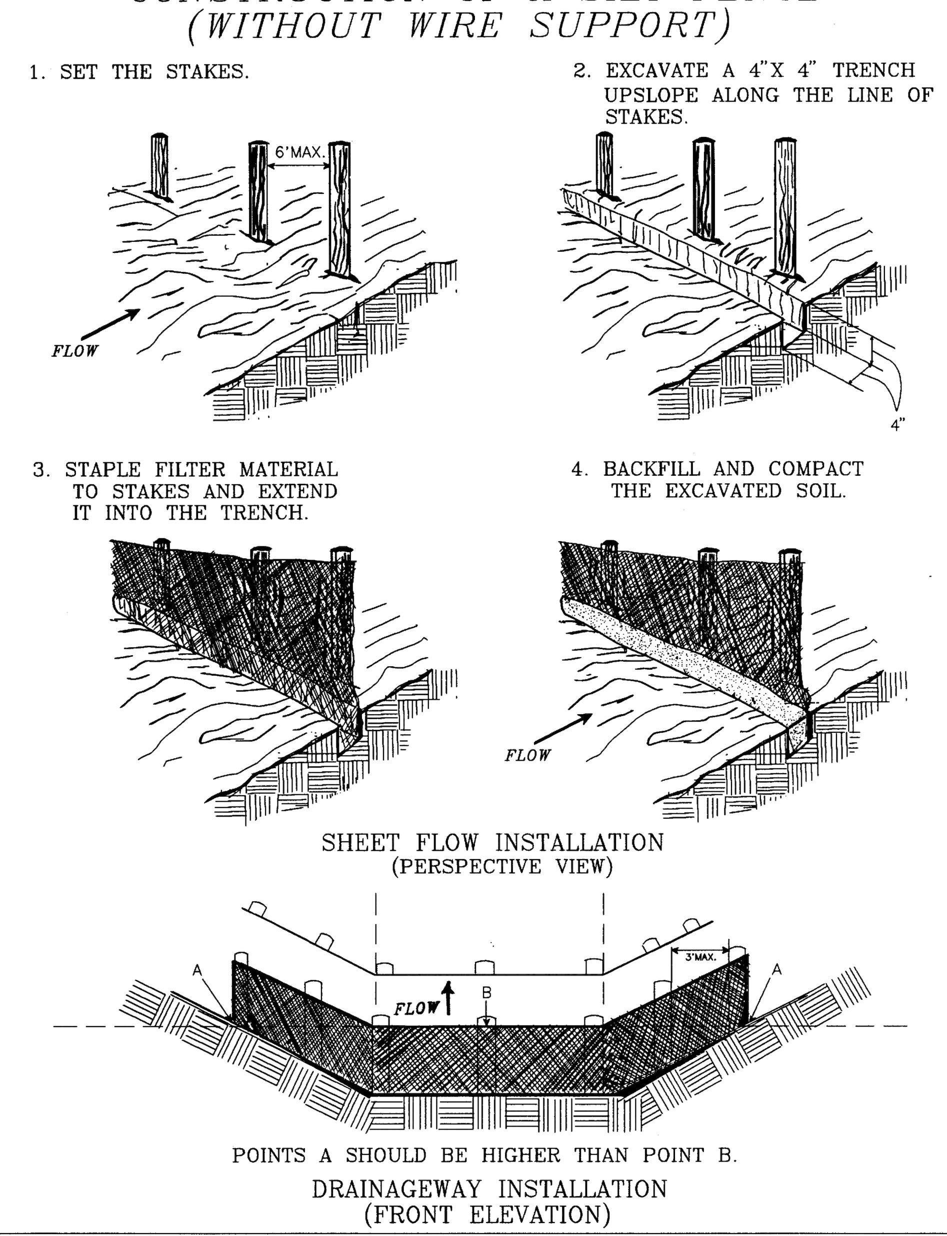
Physical Property	Test	Requirements
Recommended color	N/A	"International" orange
Tensile yield	ASTM D638	Average 2000 lbs. per 4 ft. width
Ultimate tensile strength	ASTM D638	Average 2900 lbs. per 4 ft. width
Elongation at break(%)	ASTM D638	Greater than 1000%
Chemical resistance	N/A	Inert to most chemicals and acids

Source: Conwed Plastics

SF

1992 3.05

CONSTRUCTION OF A SILT FENCE (WITHOUT WIRE SUPPORT)



Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

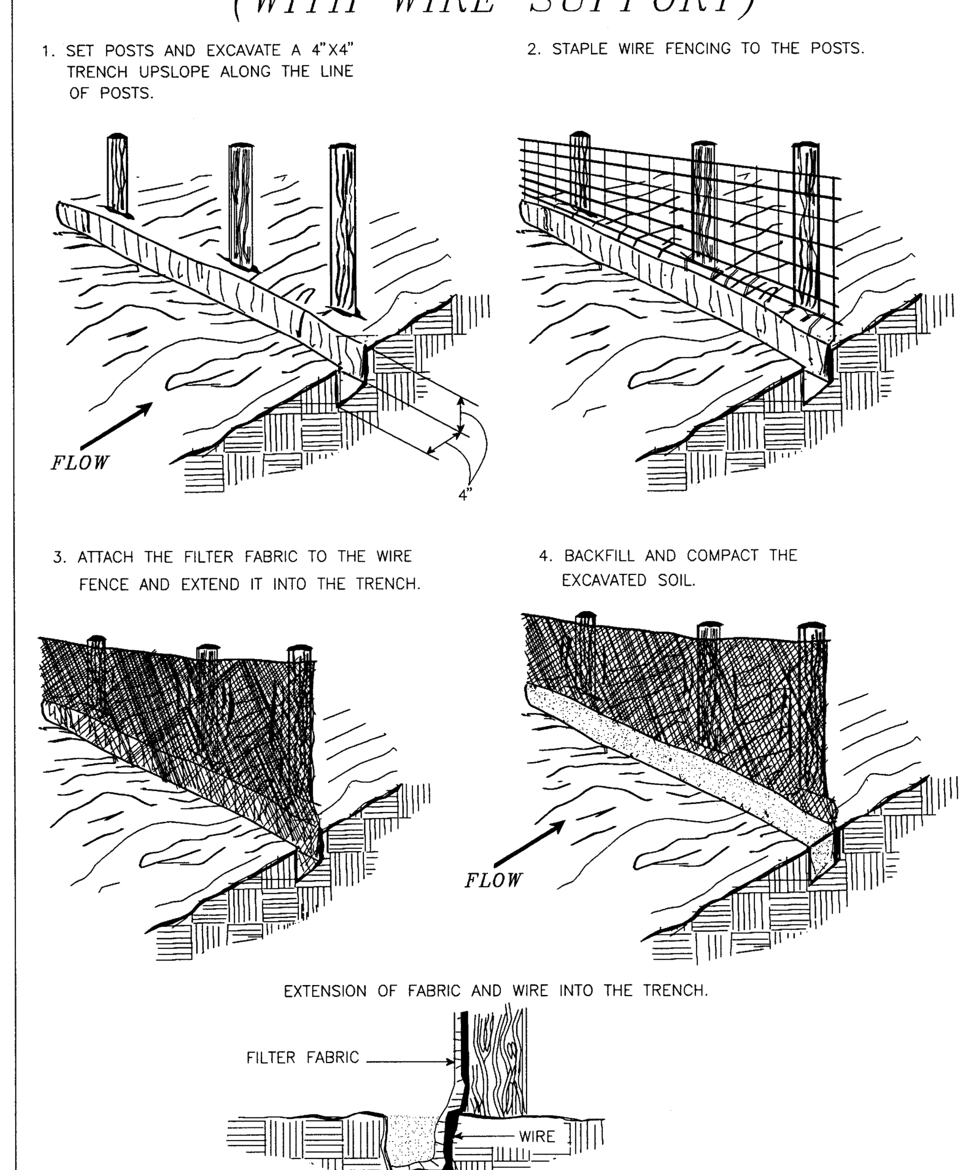
Plate 3.05-2

III - 25

SSF

1992 3.05

CONSTRUCTION OF A SILT FENCE (WITH WIRE SUPPORT)



Source: Adapted from Installation of Straw and Fabric Filter Barriers for Sediment Control, Sherwood and Wyant

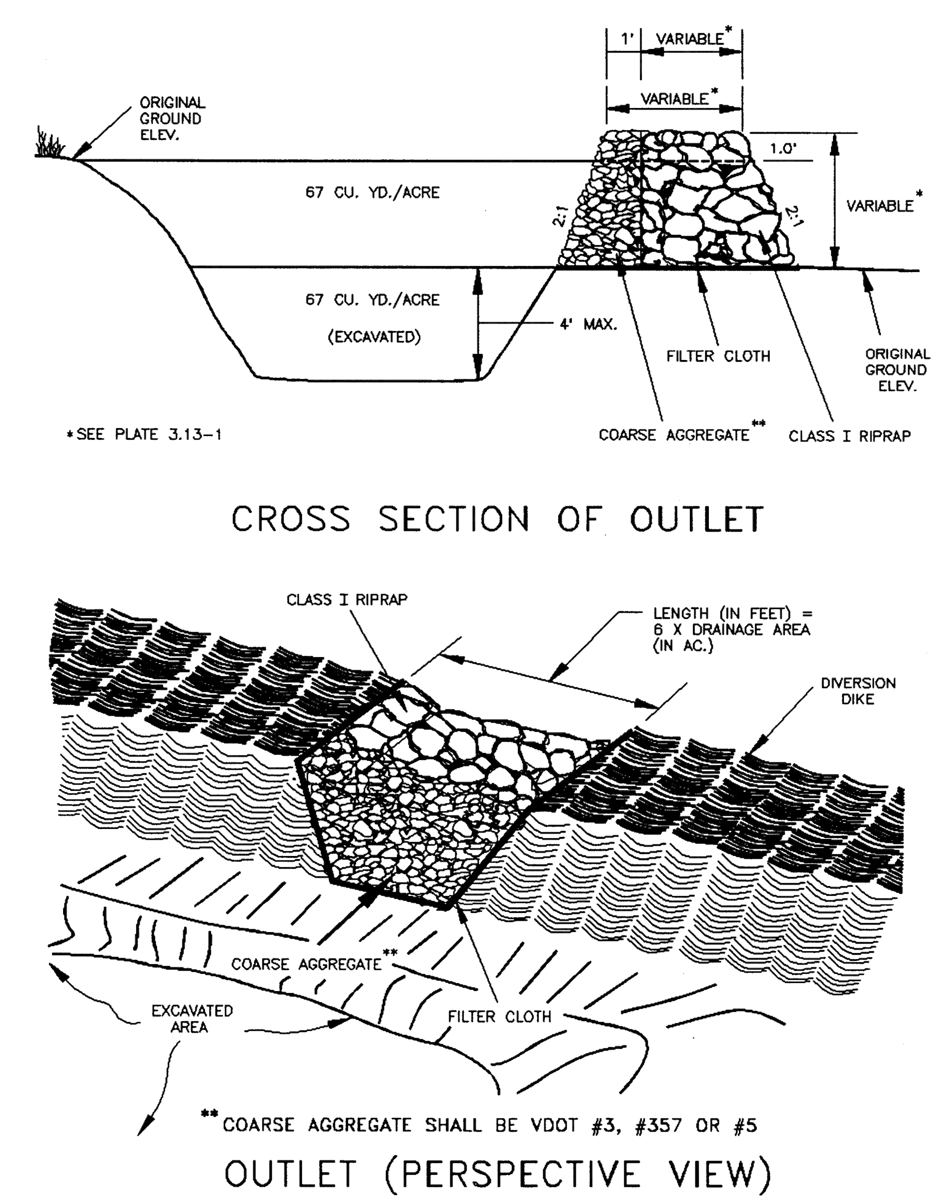
Plate 3.05-1

III - 24

ST

1992 3.13

TEMPORARY SEDIMENT TRAP



Source: Va. DSWC

Plate 3.13-2

III - 76

Wetland Studies and Solutions, Inc.
a DAVEY company
5300 Wellington Branch Drive • Suite 100
Gainesville, Virginia 20155
Phone: 703-679-5600 • Fax: 703-679-5601
www.wetlands.com

Erosion & Sediment Control Details

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025 SCALE: N/A C.I.: N/A

Horizontal Datum:

Vertical Datum:

Boundary and Topo Source: N/A

Design	Draft	Approved
DMC	DMC	FRG

Sheet #
35 of 55

Computer File Name:
E&S PLAN.dwg

STORMWATER MANAGEMENT NARRATIVE

BACKGROUND

THE INTENT OF THIS PROJECT IS TO INCREASE ATTENDANCE AND NATURAL LEARNING OPPORTUNITIES AT GATEWAY REGIONAL PARK LOCATED AT 3333 OLD PICKETT ROAD IN FAIRFAX, VIRGINIA (EXHIBIT 1). THE PROPOSED IMPROVEMENTS INCLUDE A SMALL PARKING LOT ON THE NORTHWESTERN SIDE OF THE PARCEL AND A CONSTRUCTED WETLAND FEATURE IN THE CENTER OF THE SITE. BOARDWALKS AND CONCRETE PATHS WILL CONNECT THE PROPOSED PARKING LOT TO THE EXISTING PAVILION STRUCTURE ON THE EASTERN SIDE OF THE SITE.

THE EXISTING SITE CONDITIONS ARE MANAGED TURF WITH VARIABLE CANOPY COVERAGE. UNDERLYING SOIL TYPES ARE CODORUS SILT LOAM BELONGING TO THE HYDROLOGIC SOIL GROUP (HSG) D, AND URBAN LAND BELONGING TO THE HSG D. STORMWATER ENTERS THE SITE VIA A COMBINATION OF SHEETFLOW FROM THE ACCESS ROAD AND SHALLOW CHANNEL FLOW IN EROSIONAL FEATURES. THE SITE GENERALLY SLOPES FROM THE NORTHWEST TO THE SOUTHEAST. THERE IS AN EXISTING DRAIN WITHIN A SMALL DEPRESSION JUST NORTH OF THE EXISTING PAVILION THAT IS NOT FUNCTIONAL AS THE DEPRESSION REGULARLY FLOODS. STORMWATER EXITS THE SITE TO A SMALL TRIBUTARY THAT PARALLELS PICKETT RD. AT THE SOUTHEAST CORNER OF THE SITE.

A PORTION OF THE EXISTING PARK LAWN AND TREES WILL BE CONVERTED TO PARKING AND FOOTPRINT OF THE CONSTRUCTED WETLAND. THE PROPOSED LIMITS OF DISTURBANCE (LOD) TOTALS 50,615 SF (1.16 AC) (EXHIBIT 2). THE PROPOSED IMPROVEMENTS INCLUDE THE ADDITION OF IMPERVIOUS FEATURES INCLUDING THE PARKING LOT, CURB AND GUTTER, AND PATHS. OTHER IMPROVEMENTS WILL INCLUDE THE IMPLEMENTATION OF NATIVE VEGETATION IN AND SURROUNDING THE WETLAND.

WATER QUALITY REQUIREMENTS SHALL BE MET AND EXCEEDED THROUGH THE PROPOSED LEVEL II CONSTRUCTED WETLAND. ADEQUATE OUTFALL REQUIREMENTS SHALL BE MET WITH A MAN-MADE CONVEYANCE DESIGNED TO CONVEY THE 2-YR 24-HR STORM EVENT WITHOUT CAUSING EROSION. AN ANALYSIS OF FLOOD PROTECTION REQUIREMENTS DETERMINED THAT THERE WILL BE NO INCREASE IN POST-DEVELOPMENT FLOWS AS DESCRIBED BELOW.

THE PARCEL (TAX MAP: 48 3 02 015) IS OWNED BY THE CITY OF FAIRFAX:
10455 ARMSTRONG STREET, ROOM 316
FAIRFAX VA 22030
(703) 385-7850

WATER QUALITY: LEVEL II CONSTRUCTED WETLAND

THE PROPOSED LEVEL II CONSTRUCTED WETLAND IS DESIGNED IN ACCORDANCE WITH THE BMP CLEARINGHOUSE DESIGN SPECIFICATION NO. 13. STORMWATER FROM THE DRAINAGE AREA WILL BE DIRECTED TO A SEDIMENT FOREBAY FOR PRETREATMENT VIA PROPOSED CURB AND GUTTER ALONG THE EXISTING ACCESS ROAD ON THE WESTERN SIDE OF THE SITE. FROM THE FOREBAY STORMWATER ENTERS THREE CONSECUTIVE WETLAND CELLS BEFORE EXITING THE SITE VIA A MAN-MADE OUTFALL CHANNEL.

THE WETLAND IS SIZED TO TREAT THE CONTRIBUTING DRAINAGE AREA OF 3.81 AC (REFER TO WETLAND CALCULATIONS ON SHEET 39). WATER QUALITY CALCULATIONS DEMONSTRATE A PHOSPHORUS REMOVAL (SEE SHEET 37).

THE ON-SITE TREATMENT REQUIREMENT WILL BE EXCEEDED BY THE WETLAND RESULTING IN A SURPLUS OF 2.94 WATER QUALITY CREDITS.

WATER QUANTITY

THE DRAINAGE AREA OF THE SITE IS 3.81 AC AS SHOWN IN EXHIBITS 3A AND 3B. RUNOFF WILL LEAVE THE SITE AS CONCENTRATED FLOW VIA A MANMADE OUTFALL CHANNEL THAT DRAINS INTO A TRIBUTARY TO ACCOTINK CREEK. THE SITE WAS ANALYZED FOR CHANNEL AND FLOOD PROTECTION AS DESCRIBED BELOW (PER VSMP REGULATIONS 9VAC25-870).

CURVE NUMBERS DERIVED FROM LAND COVER AND HSGS WERE USED TO DETERMINE THE RUNOFF RATES FOR THE LIMITS OF ANALYSIS (LOA) DRAINAGE AREAS. USING TR-55, IT WAS DETERMINED THAT THE PROPOSED CONDITION WILL NOT INCREASE RUNOFF FROM THE LOA. THE LOA DRAINAGE AREA LAND USES AND CURVE NUMBERS ARE SHOWN GRAPHICALLY IN EXHIBITS 3A AND 3B AND AS A TABLE IN EXHIBIT 4. A SUMMARY OF CALCULATIONS IS PROVIDED AS EXHIBIT 5.

CHANNEL PROTECTION

THE STORMWATER CONVEYANCE DOWNSTREAM OF THE LOD IS A STABLE STREAM/DRAINAGE CHANNEL APPROXIMATELY 40' FROM ACCOTINK CREEK. THE PROPOSED MANMADE STORMWATER CONVEYANCE SYSTEM CONSISTS OF AN APPROXIMATELY 50' LONG OUTFALL CHANNEL WITH CLASS I REINFORCED BED MATERIAL SUBSTRATE. A STEP POOL WILL ALSO BE INCORPORATED AT THE END OF THE OUTFALL FOR ENERGY DISSIPATION. THE OUTFALL HAS BEEN DESIGNED TO CONVEY POST-DEVELOPMENT PEAK FLOW RATES FROM THE 10-YR 24-HR STORM EVENT (REFER TO OUTFALL DESIGN CALCULATIONS ON SHEET 39) WHICH EXCEEDS THE REQUIREMENT TO MEET THE 2-YR 24-HR POST-DEVELOPMENT PEAK FLOW RATE. THEREFORE, THE CHANNEL PROTECTION REQUIREMENT IS SATISFIED PER 9VAC25-870-66-B-1-A.

FLOOD PROTECTION

PER 9VAC25-870-66-C-3-C, THE LIMITS OF ANALYSIS FOR FLOOD PROTECTION SHALL EXTEND TO THE POINT WHERE THE CONVEYANCE SYSTEM ENTERS A MAPPED FLOODPLAIN OR OTHER FLOOD-PRONE AREA. SINCE THE ENTIRE SITE IS WITHIN THE MAPPED FLOODPLAIN, THE LIMITS OF ANALYSIS SHALL BE THE POINT AT WHICH THE PROPOSED OUTFALL MEETS THE TRIBUTARY TO ACCOTINK CREEK. AN ANALYSIS OF PRE-DEVELOPMENT AND POST-DEVELOPMENT FLOW RATES (REFER TO PRE AND POST DEVELOPMENT FLOW RATE CALCULATIONS ON SHEET 39) DETERMINED THAT POST DEVELOPMENT FLOW RATES WILL NOT INCREASE FROM PRE-DEVELOPMENT FLOW RATES. ADDITIONALLY, THE MANMADE OUTFALL CONVEYANCE IS DESIGNED TO CONVEY THE 100-YR 24-HR STORM EVENT (SEE CROSS SECTION BELOW). THEREFORE, FLOOD PROTECTION REQUIREMENT IS SATISFIED.

OUTFALL ANALYSIS

TO DEMONSTRATE ADEQUATE OUTFALL PER 9VAC25-870-66-B-1-A, CALCULATIONS ARE PROVIDED FOR THE MANMADE OUTFALL CHANNEL, AS SHOWN ON SHEET 39.

SUMMARY

AS PROPOSED, WATER QUALITY REQUIREMENTS TO REDUCE POLLUTANT LOADING BY 20% SHALL BE MET VIA THE LEVEL II CONSTRUCTED WETLAND. WATER QUANTITY REQUIREMENTS ARE MET ACCORDING TO THE CRITERIA SET FORTH IN 9VAC25-870-66, INCLUDING ADEQUATE OUTFALL AND NOT INCREASING FLOW RATES.

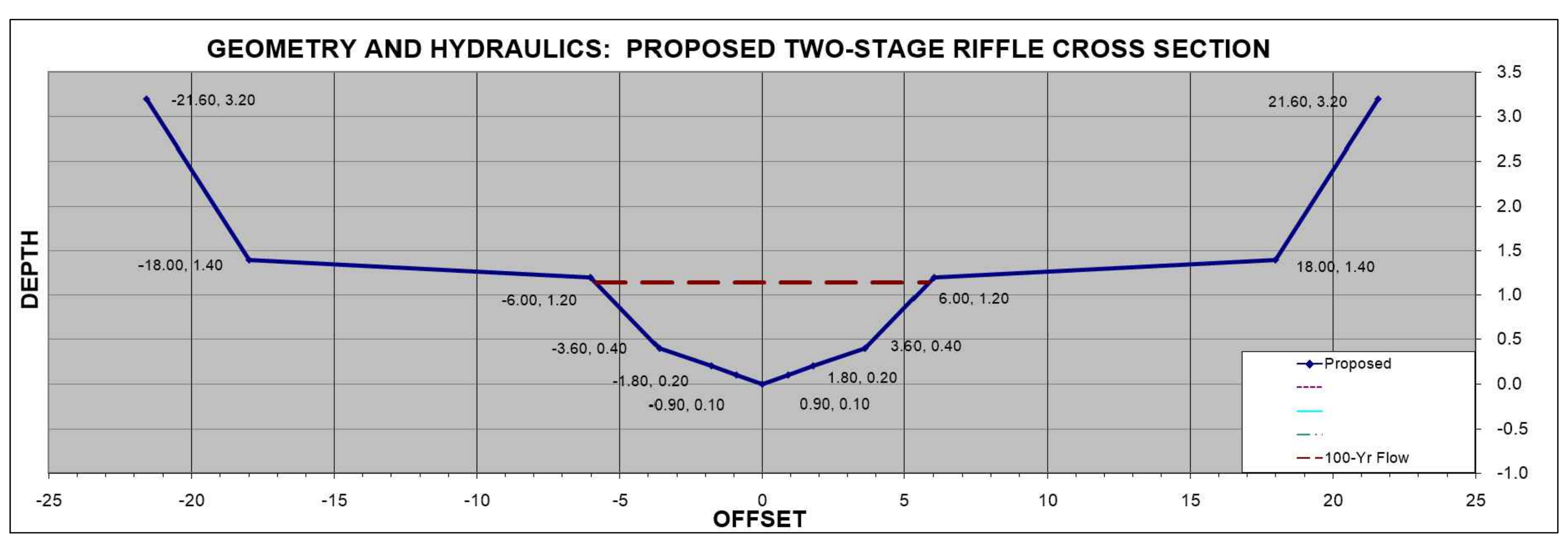
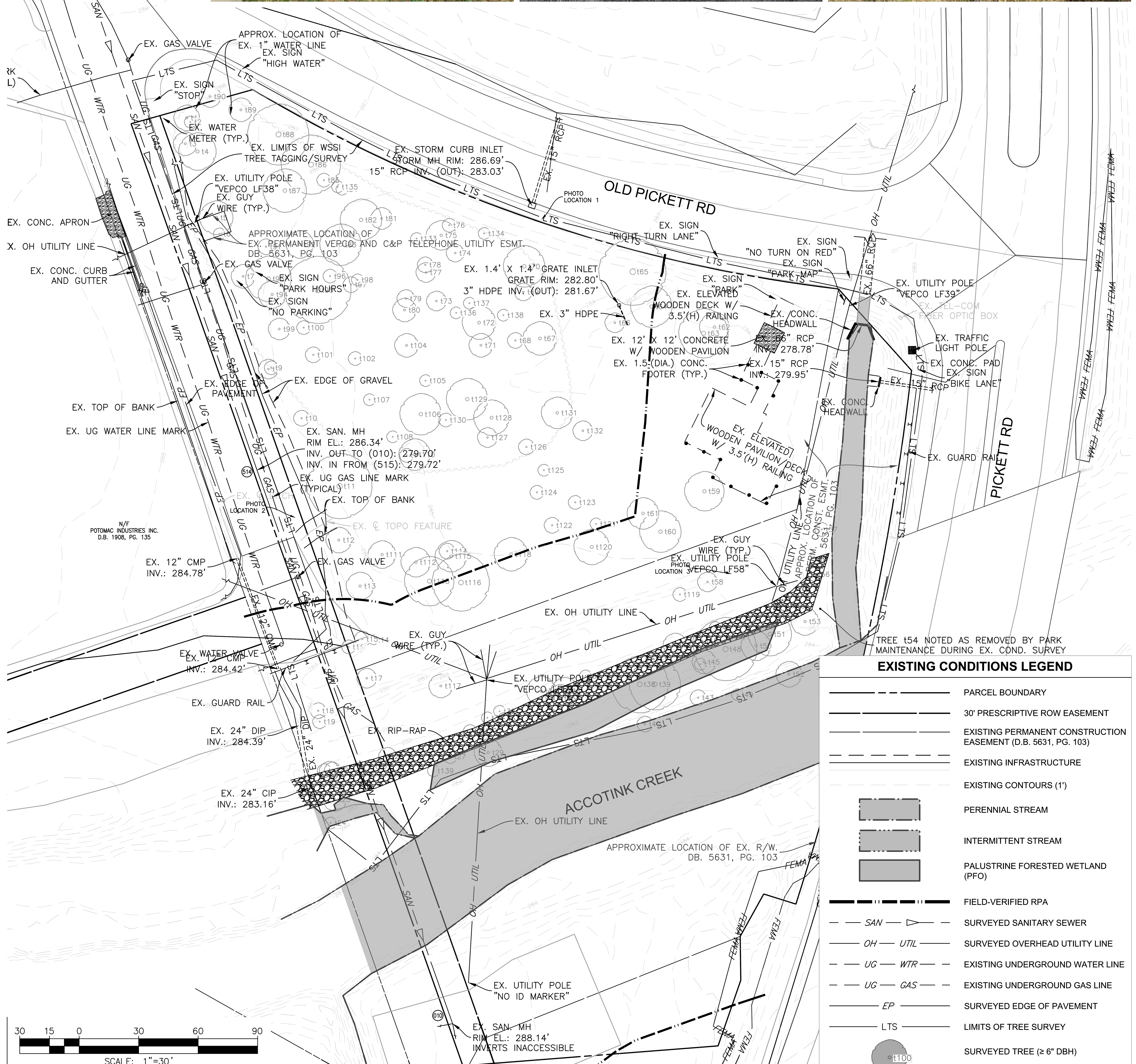


EXHIBIT 1: EXISTING CONDITIONS MAP


PHOTO 1: PONDING IN INTERIOR OF SITE


PHOTO 2: SHALLOW CHANNEL INFLOW


PHOTO 3: LOCATION OF PROPOSED OUTFALL



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Stormwater Management Narrative

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
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REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025
SCALE: 1" = 30'
C.I.: N/A

Horizontal Datum:
Vertical Datum:
Boundary and Topo Source: N/A

Design	Draft	Approved
DMC	DMC	FRG

Computer File Name: L:\32000s\32000\32047.02\CADD\04-ENGR\12-sig sub planset_construction SWM PLAN.dwg

Project Name: GATEWAY REGIONAL PARK
Date: 7/24/2023
Linear Development Project? No

CLEAR ALL (Ctrl+Shift+R)

data input cells
constant values
calculation cells
final results

Site Information

Post-Development Project (Treatment Volume and Loads)

Enter Total Disturbed Area *(acres)* → 1.16

Maximum reduction required:	*20%*
The site's net increase in impervious cover (acres) is:	*0.16*
Post-Development TP Load Reduction for Site (lb/yr):	*0.44*

Check:
BMP Design Specifications List: 2013 Draft Stds & Specs
Linear project? No
Land cover areas entered correctly? ✓
Total disturbed area entered? ✓

Pre-ReDevelopment Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed forest/open space				0.34	0.34
Managed Turf (acres) -- disturbed, graded for yards or other turf to be				0.68	0.68
Impervious Cover (acres)				0.14	0.14
					1.16

Post-Development Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals
Forest/Open Space (acres) -- undisturbed, protected forest/open space or reforested				0.14	0.14 *
Managed Turf (acres) -- disturbed, graded for yards or other turf to be				0.72	0.72
Impervious Cover (acres)				0.30	0.30
Area Check	OK.	OK.	OK.	OK.	1.16

** Forest/Open Space areas must be protected in accordance with the Virginia Runoff Reduction Method*

Constants

Annual Rainfall (inches)	43
Target Rainfall Event (inches)	1.00
Total Phosphorus (TP) EMC (mg/L)	0.26
Total Nitrogen (TN) EMC (mg/L)	1.86
Target TP Load (lb/acre/yr)	0.41
Pj (unitless correction factor)	0.90

Runoff Coefficients (Rv)

	A Soils	B Soils	C Soils	D Soils
Forest/Open Space	0.02	0.03	0.04	0.05
Managed Turf	0.15	0.20	0.22	0.25
Impervious Cover	0.95	0.95	0.95	0.95

LAND COVER SUMMARY -- PRE-REDEVELOPMENT

Land Cover Summary-Pre

Pre-ReDevelopment	Listed	Adjusted[1]
Forest/Open Space Cover (acres)	0.34	0.18
Weighted Rv(forest)	0.05	0.05
% Forest	29%	18%
Managed Turf Cover (acres)	0.68	0.68
Weighted Rv(turf)	0.25	0.25
% Managed Turf	59%	68%
Impervious Cover (acres)	0.14	0.14
Rv(impervious)	0.95	0.95
% Impervious	12%	14%
Total Site Area (acres)	**1.16**	**1.00**
Site Rv	**0.28**	**0.31**

Treatment Volume and Nutrient Load

Pre-ReDevelopment Treatment Volume (acre-ft)	0.0267	0.0260
Pre-ReDevelopment Treatment Volume (cubic feet)	1,162	1,133
Pre-ReDevelopment TP Load (lb/yr)	**0.73**	**0.71**
Pre-ReDevelopment TP Load per acre (lb/acre/yr)	0.63	0.71
Baseline TP Load (lb/yr) (**0.41 lbs/acre/yr** applied to pre-redevelopment area excluding pervious land proposed for new impervious cover)		0.41

LAND COVER SUMMARY -- POST DEVELOPMENT

Land Cover Summary-Post (Final)

Post ReDev. & New Impervious	
Forest/Open Space Cover (acres)	0.14
Weighted Rv(forest)	0.05
% Forest	12%
Managed Turf Cover (acres)	0.72
Weighted Rv (turf)	0.25
% Managed Turf	62%
Impervious Cover (acres)	0.30
Rv(impervious)	0.95
% Impervious	26%
Final Site Area (acres)	**1.16**
Final Post Dev Site Rv	**0.41**

Land Cover Summary-Post

Post-ReDevelopment	
Forest/Open Space Cover (acres)	0.14
Weighted Rv(forest)	0.05
% Forest	14%
Managed Turf Cover (acres)	0.72
Weighted Rv (turf)	0.25
% Managed Turf	72%
ReDev. Impervious Cover (acres)	0.14
Rv(impervious)	0.95
% Impervious	14%
Total ReDev. Site Area (acres)	**1.00**
ReDev Site Rv	**0.32**

Land Cover Summary-Post

Post-Development New Impervious	
New Impervious Cover (acres)	0.16
Rv(impervious)	0.95

Treatment Volume and Nutrient Load

Final Post-Development Treatment Volume (acre-ft)	0.0393
Final Post-Development Treatment Volume (cubic feet)	1,713
Final Post-Development TP Load (lb/yr)	**1.08**
Final Post-Development TP Load per acre (lb/acre/yr)	0.93

Post-ReDevelopment Treatment Volume (acre-ft)	0.0267
Post-ReDevelopment Treatment Volume (cubic feet)	1,162
Post-ReDevelopment Load (TP) (lb/yr)*	0.73
Post-ReDevelopment TP Load per acre (lb/acre/yr)	0.73
Max. Reduction Required (Below Pre-ReDevelopment Load)	20%
TP Load Reduction Required for Redeveloped Area (lb/yr)	**0.16**

Post-Development Treatment Volume (acre-ft)	0.0127
Post-Development Treatment Volume (cubic feet)	552
Post-Development TP Load (lb/yr)	0.35
TP Load Reduction Required for New Impervious Area (lb/yr)	**0.28**

[1] Adjusted Land Cover Summary:
Pre ReDevelopment land cover minus pervious land cover (forest/open space or managed turf) acreage proposed for new impervious cover.

Adjusted total acreage is consistent with Post-ReDevelopment acreage (minus acreage of new impervious cover).

Column I shows load reduction requriement for new impervious cover (based on new development load limit, 0.41 lbs/acre/year).

Post-Development Requirement for Site Area

TP Load Reduction Required (lb/yr)	0.44

Nitrogen Loads (Informational Purposes Only)

Pre-ReDevelopment TN Load (lb/yr)	5.22	Final Post-Development TN Load (Post-ReDevelopment & New Impervious) (lb/yr)	7.70

Drainage Area A

CLEAR BMP AREAS

Drainage Area A Land Cover (acres)

	A Soils	B Soils	C Soils	D Soils	Totals	Land Cover Rv
Forest/Open Space (acres)				0.14	0.14	0.05
Managed Turf (acres)				0.72	0.72	0.25
Impervious Cover (acres)				0.30	0.30	0.95
				Total	1.16	

Total Phosphorus Available for Removal in D.A. A (lb/yr)	1.06
Post Development Treatment Volume in D.A. A (ft^3)	1,688

Stormwater Best Management Practices (RR = Runoff Reduction)

--Select from dropdown lists--

Practice	Runoff Reduction Credit (%)	Managed Turf Credit Area (acres)	Impervious Cover Credit Area (acres)	Volume from Upstream Practice (ft^3)	Runoff Reduction (ft^3)	Remaining Runoff Volume (ft^3)	Total BMP Treatment Volume (ft^3)	Phosphorus Removal Efficiency (%)	Phosphorus Load from Upstream Practices (lb)	Untreated Phosphorus Load to Practice (lb)	Phosphorus Removed By Practice (lb)	Remaining Phosphorus Load (lb)	Downstream Practice to be Employed
12. Constructed Wetland (no RR)													
12.b. Constructed Wetland #2 (Spec #13)	0	0.72	0.30	0	0	1,688	1,688	75	0.00	1.06	0.79	0.26	

Nitrogen Removal Efficiency (%)	Nitrogen Load from Upstream Practices (lbs)	Untreated Nitrogen Load to Practice (lbs)	Nitrogen Removed By Practice (lbs)	Remaining Nitrogen Load (lbs)
12. Constructed Wetland (no RR)				
55	0.00	7.58	4.17	3.41

DEQ Virginia Runoff Reduction Method Re-Development Compliance Spreadsheet - Version 3.0

BMP Design Specifications List: **2013 Draft Stds & Specs**

Update Summary Sheet
Print Preview Print

Site Summary

Project Title: GATEWAY REGIONAL PARK
Date: 45131

Total Rainfall (in):	43
Total Disturbed Acreage:	1.16

Site Land Cover Summary

Pre-ReDevelopment Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.34	0.34	29
Managed Turf (acres)	0.00	0.00	0.00	0.68	0.68	59
Impervious Cover (acres)	0.00	0.00	0.00	0.14	0.14	12
					1.16	100

Post-ReDevelopment Land Cover (acres)

	A soils	B Soils	C Soils	D Soils	Totals	% of Total
Forest/Open (acres)	0.00	0.00	0.00	0.14	0.14	12 *
Managed Turf (acres)	0.00	0.00	0.00	0.72	0.72	62
Impervious Cover (acres)	0.00	0.00	0.00	0.30	0.30	26
					1.16	100

* Forest/Open Space areas must be protected in accordance with the Virginia Runoff Reduction Method

Site Tv and Land Cover Nutrient Loads

	Final Post-Development (Post-ReDevelopment & New Impervious)	Post-ReDevelopment	Post-Development (New Impervious)	Adjusted Pre-ReDevelopment
Site Rv	0.41	0.32	0.95	0.31
Treatment Volume (ft^3)	1,713	1,162	552	1,133
TP Load (lb/yr)	1.08	0.73	0.35	0.71

Pre-ReDevelopment TP Load per acre (lb/acre/yr)	Final Post-Development TP Load per acre (lb/acre/yr)	Post-ReDevelopment TP Load per acre (lb/acre/yr)
0.71	**0.93**	**0.73**

Total TP Load Reduction Required (lb/yr)	**0.44**	0.16	0.28

	Final Post-Development Load (Post-ReDevelopment & New Impervious)	Pre-ReDevelopment
TN Load (lb/yr)	7.70	5.22

Site Compliance Summary

Maximum % Reduction Required Below Pre-ReDevelopment Load	20%

Total Runoff Volume Reduction (ft^3)	0
Total TP Load Reduction Achieved (lb/yr)	0.79
Total TN Load Reduction Achieved (lb/yr)	4.17
Remaining Post Development TP Load (lb/yr)	0.28
Remaining TP Load Reduction (lb/yr) Required	**0.00**

** TARGET TP REDUCTION EXCEEDED BY 0.35 LB/YEAR **

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DEQ Virginia Runoff Reduction Method Spreadsheet
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DATE: August 2025 SCALE: 1" = 30' C.I.: N/A

Horizontal Datum:
Vertical Datum:
Boundary and Topo Source: N/A

Design	Draft	Approved
DMC	DMC	FRG

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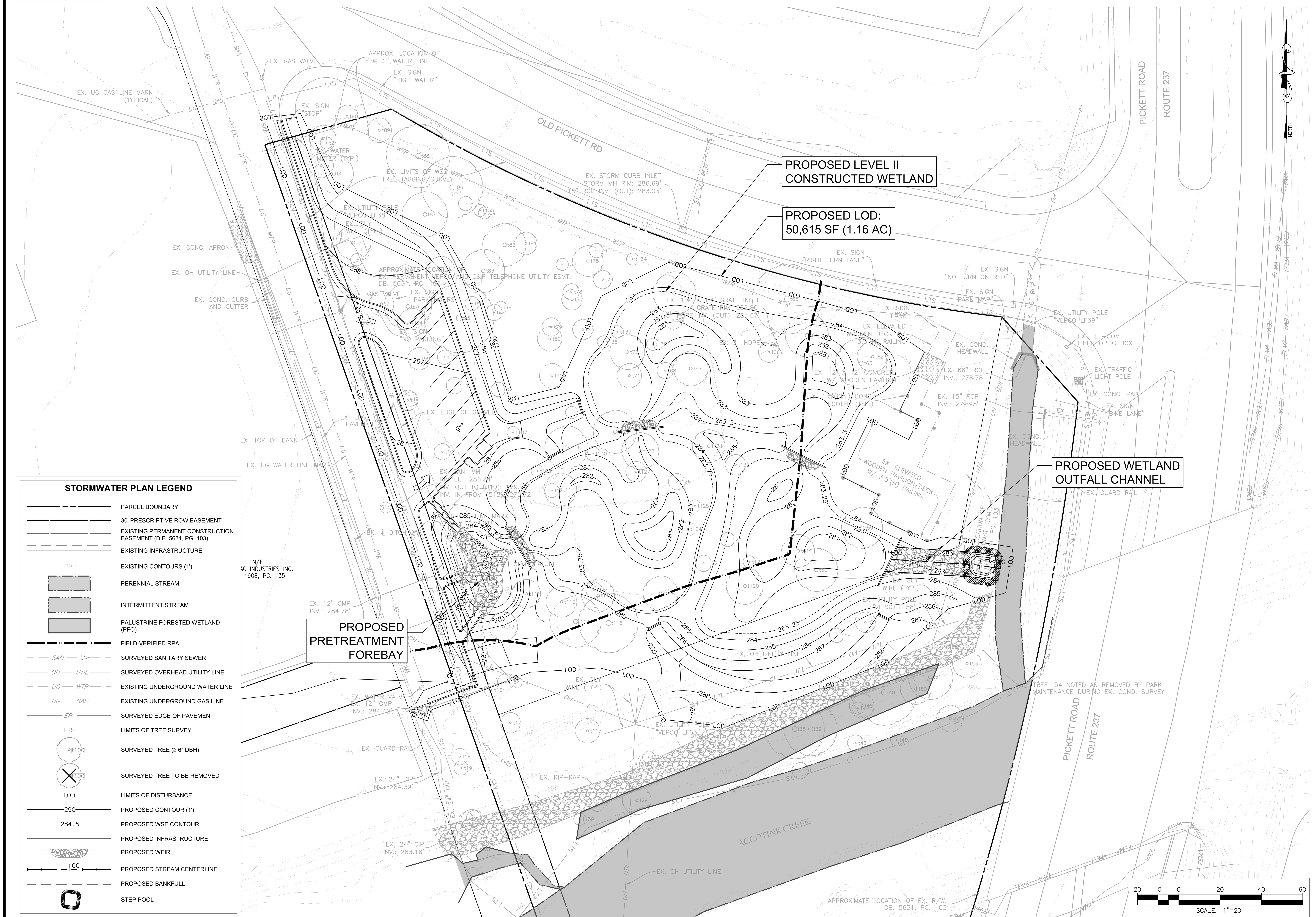
EXHIBIT 2: SWM PLAN



STORMWATER PLAN LEGEND

- PARCEL BOUNDARY
- 30' PRESCRIPTIVE ROW EASEMENT
- EXISTING PERMANENT CONSTRUCTION EASEMENT (D.B. 5631, PG. 103)
- EXISTING INFRASTRUCTURE
- EXISTING CONTOURS (1')
- PERENNIAL STREAM
- INTERMITTENT STREAM
- PALUSTRINE FORESTED WETLAND (PFO)
- FIELD-VERIFIED RPA
- SURVEYED SANITARY SEWER
- SURVEYED OVERHEAD UTILITY LINE
- EXISTING UNDERGROUND WATER LINE
- EXISTING UNDERGROUND GAS LINE
- SURVEYED EDGE OF PAVEMENT
- LIMITS OF TREE SURVEY
- SURVEYED TREE (≥ 6" DBH)
- SURVEYED TREE TO BE REMOVED
- LIMITS OF DISTURBANCE
- PROPOSED CONTOUR (1')
- PROPOSED WSE CONTOUR
- PROPOSED INFRASTRUCTURE
- PROPOSED WEIR
- PROPOSED STREAM CENTERLINE
- PROPOSED BANKFULL
- STEP POOL

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Stormwater Management Plan

Prepared For: NOVA Parks

Gateway Regional Park

City of Fairfax, Virginia

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DATE: August 2025 SCALE: 1" = 20' C.I.: 1'

Horizontal Datum: NAD83
Vertical Datum: NGVD29
Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
DMC	DMC	FRG

Computer File Name:
SWM PLAN.dwg

EXHIBIT 3A: EXISTING LAND COVER MAP

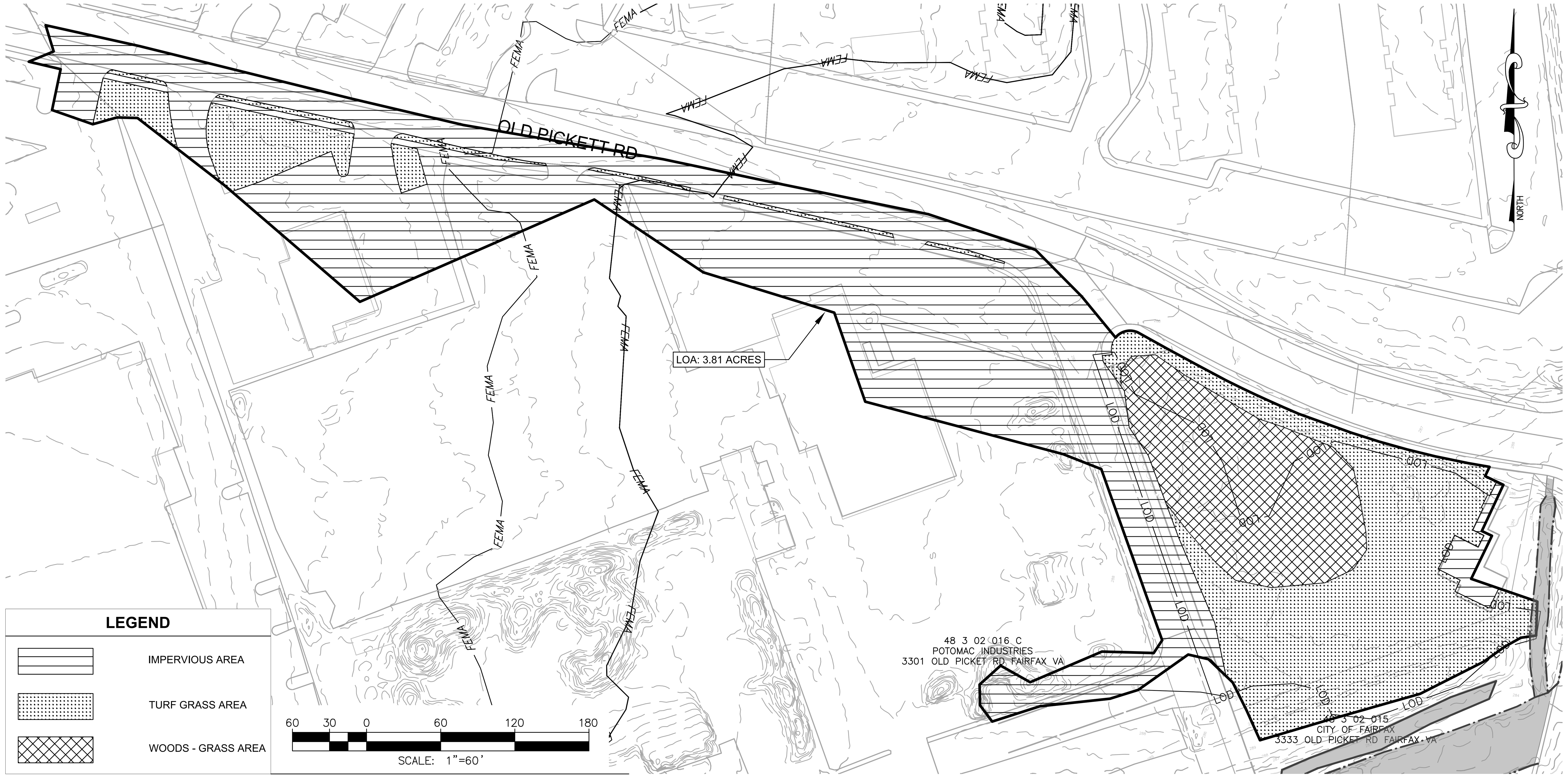

EXHIBIT 3B: PROPOSED LAND COVER MAP

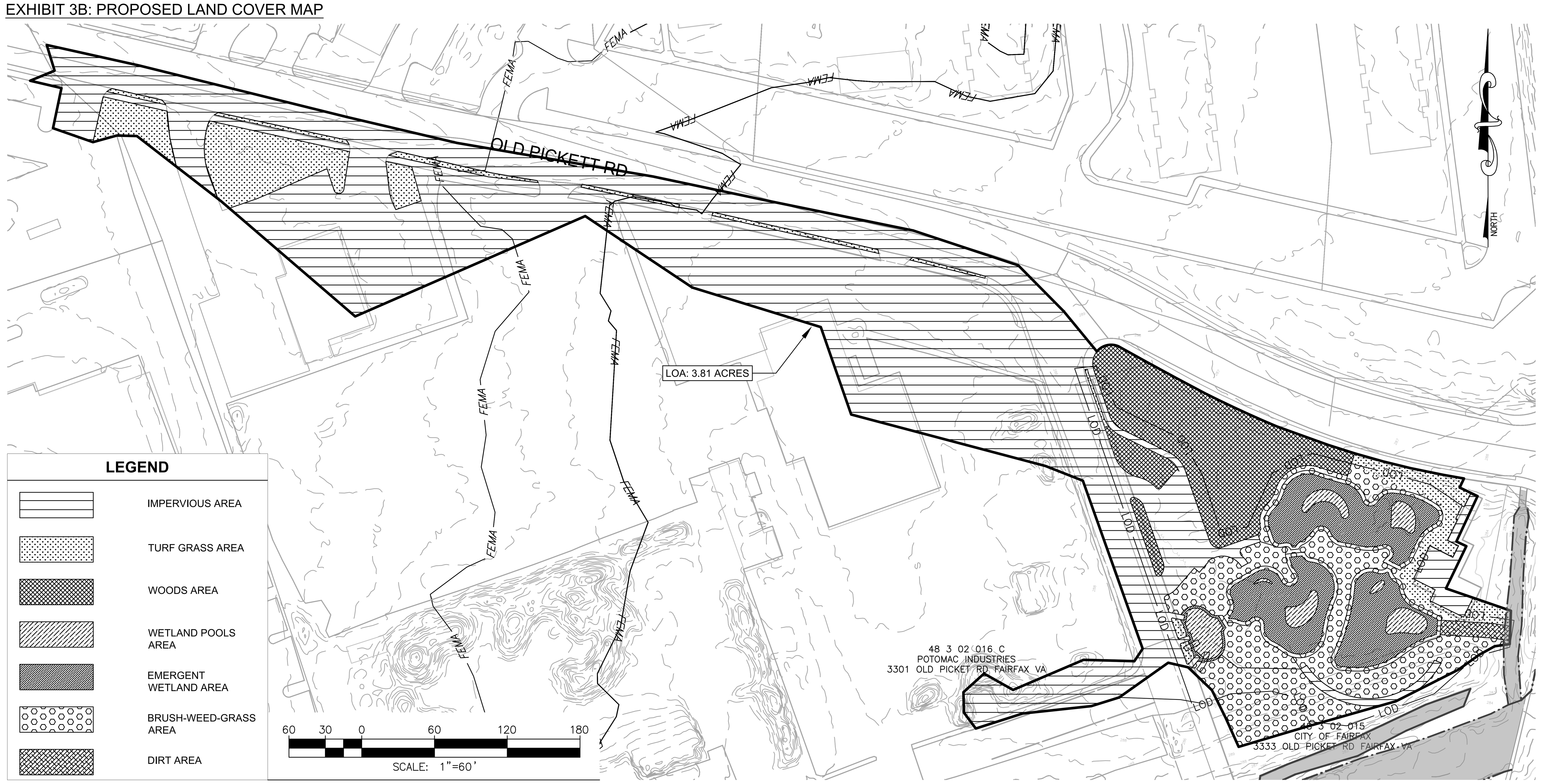

EXHIBIT 4: CURVE NUMBER TABLES

Gateway Regional Park - Existing Curve Number Analysis

SUBSHED	COVERTYPE	HSG	CN	AREA (ACRES)	COMPOSITE
1	Impervious Areas - Streets and Roads - Paved; curbs and storm sewers	D	98	2.24	219.2
	Open space - Good condition; grass cover > 75%	D	80	1.07	85.7
	Woods - Grass Combination - Good	D	79	0.51	40.0
WATERSHED TOTALS			90	3.81	345

Gateway Regional Park - Proposed Curve Number Analysis

SUBSHED	COVERTYPE	HSG	CN	AREA (ACRES)	COMPOSITE
1	Impervious Areas - Streets and Roads - Paved; curbs and storm sewers	D	98	2.32	227.4
	Wetland Pools	D	0	0.07	0.0
	Emergent Wetland	D	83	0.28	23.6
	Open space - Good condition; grass cover > 75%	D	80	0.31	24.7
	Woods - Good	D	77	0.31	24.1
	Brush - Weed - Grass mixture	D	73	0.49	36.0
	Dirt	D	89	0.02	1.4
WATERSHED TOTALS			89	3.81	337

EXHIBIT 5: SUMMARY CALCS TABLE

Site	Variables			1-yr 24-hr Storm Event			2-yr 24-hr Storm Event			10-yr 24-hr Storm Event			100-yr 24-hr Storm Event		
	Area (sq ft)	Weighted CN[a]	S[b]	Qdepth[c] (in)	RV[d] (cf)	Qsite[e] (cfs)	Qdepth[c] (in)	RV[d] (cf)	Qsite[e] (cfs)	Qdepth[c] (in)	RV[d] (cf)	Qsite[e] (cfs)	Qdepth[c] (in)	RV[d] (cf)	Qsite[e] (cfs)
Pre-Construction LOA	166,167	90	1.11	0.01	196	**8.17**	0.03	437	**10.34**	0.08	1119	**17.76**	0.17	2384	**32.37**
Post-Construction LOA	166,167	89	1.24	0.01	120	**7.82**	0.02	313	**9.98**	0.07	900	**17.42**	0.15	2041	**32.08**

[a] *Weighted Curve Number information based on TR-55 Cover Type and HSG D.*
[b] *Initial Abstraction (S) = 1000/CN - 10*
[c] *Q depth = (P - 0.2S)^2 / (P + 0.8S), where Precipitation (P) = precipitation per NOAA Atlas 14 Precipication Depths at Vienna, Tysons Corner*
[d] *RV = Q depth (in) * (1 ft / 12 in) * Drainage Area (sq ft)*
[e] *Qsite for each site condition was computed using the U.S. Soil Conservation Service (SCS) TR-55 hydrologic analysis model.*
[f] *Limits of analysis for Channel Protection (2-yr) and Flood Protection (10-Yr) are determined as the drainage area to the site. The pre- construction Curve Numbers (and corresponding Q_{site}) are less than the post-construction Curve Numbers (and corresponding Q_{site}).*

WETLAND CALCULATIONS

Wetland - Contributing Watershed Treatment Volume Calculation

Area Type	Area (AC)	Area (SF)	Area %	Runoff Coefficient	Weighted Rv
Impervious - D Soil	2.31	98623	60.47%	0.95	0.57
Turf - D Soil	1.15	49432	30.10%	0.25	0.08
Forest - D Soil	0.36	15688	9.43%	0.05	0.00
	3.82				0.65

Water Quality event (in.) 1.5

$T_V = [1.5(R_V)(A)]/12$

$[1.5(0.65)(3.82)] / 12 = 0.31$

Treatment Volume Required: **0.31** acre-feet

Forebay Sizing

Forebay	Drainage Area (ac)	Total Treatment Volume (T_V) (ac ft)	T_V Entering Forebay	% of Tv Entering Forebays	Min. Forebay Volume (15% of Total T_V)	Forebay Volume (acre feet)
Forebay 1	2.54	0.31	0.28	90%	15%	**0.04**

Total forebay volume should be at least 15% of the Treatment Volume T_V flowing through forebays.

Minimum total forebay volume = (0.28)(0.15) = **0.04 acre feet**

Level II Constructed Wetland

Wetland Surface Area (sq ft)	% Emergent Zone	% Transition Zone	% Deep Pool zone	Average Depth (ft)
20478*	65	19	16	0.64

*Includes emergent surface area +6", relative to normal pool.

Level II Wetland - Cell Information

Cell	Average Depth (ft)	Max. Depth (ft)	Surface Area (sq ft)
Forebay	1.45	3.5	1268
Cell 1	0.64	3.75	5276
Cell 2	0.58	2.5	7017
Cell 3	0.53	2.25	4818
			18379

WETLAND STORAGE VOLUME

CELL	ELEV	SF	VOLUME (CF)	VOLUME (AC/FT)
FOREBAY	281	16		
	282	149	83	
	283	379	264	
	284	1078	729	
	284.5	1268	587	
		SUBTOTAL:	1662	0.04
CELL 1	280	21		
	281	213	117	
	282	609	411	
	283	1668	1139	
	283.25	1997	458	
	283.75	5276	1818	
		SUBTOTAL:	3943	0.09
CELL 2	281	348		
	282	1125	737	
	283	2620	1873	
	283.5	7017	2409	
		SUBTOTAL:	5018	0.12
CELL 3	281	230		
	282	786	508	
	282.75	1688	928	
	283	2029	465	
	283.25	4818	856	
		SUBTOTAL:	2756	0.06
		TOTAL:	13379	0.31

ADEQUATE WATER BALANCE

DP = RF_M * EF * WS/WL - ET - INF - RES

DP	Minimum depth of pool (in)
RF_M	Monthly rainfall during drought (in)
EF	Fraction of rainfall that enters the stormwater wetland
WS/WL	Ratio of contributing drainage area to wetland surface area
ET	Summer evapotranspiration rate (in) (Assume 8")
INF	Monthly infiltration loss (Assume 7.2" @ 0.01 in/hr)
RES	Reservoir of water for a factor of safety (Assume 6")

DP = 0" - 8" - 7.2" - 6" Assumes worse case summer rainfall of 0"

DP = **21.2"**

Proposed pool depth minimum: **30"**

Level II Wetland - Flow Path

Flow Path Ratio = LFP/L

LFP = Length of flow path during water quality storm event

L = Length from inlet to outlet

Flow Path Ratio = 542/177

Flow Path Ratio = **3.06**

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Stormwater Flow & Wetland Calculations

Prepared For: NOVA Parks

Gateway Regional Park

City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025 SCALE: 1" = 60' C.I.: N/A

Horizontal Datum:

Vertical Datum:

Boundary and Topo Source: N/A

Design	Draft	Approved
DMC	DMC	FRG

Computer File Name:
SWM PLAN.dwg

NOTES:

1. CONTRACTOR SHALL EXERCISE CAUTION WHEN WORKING AROUND EXISTING 8" GAS MAIN.
2. SEE RPA NNI TREATMENT & PLANTING PLAN (SHEET 45) FOR PROPOSED PLANTINGS OUTSIDE THE LOD, AND RPA PLANTING CALCULATIONS.

TREE CANOPY COVERAGE CALCULATIONS		
	ACREAGE	SQ. FT.
Parcel Area	2.67	116,219
Zoning District	RM - Residential Medium	
20-Year Canopy Coverage Required	20%	
Required Canopy	0.53	23,244
Canopy Coverage Provided		
Proposed Canopy	0.15	6,475
Existing Canopy To Be Preserved	0.40	17,433
Total Canopy Coverage Provided (sq. ft.)	0.55	23,908
20-Year Canopy Coverage Provided	21%	
Canopy Coverage Met	YES	
Requirement is met … 23,908 sq. ft. is greater than 23,244 sq. ft.		

LANDSCAPE PLAN LEGEND

- PARCEL BOUNDARY
- 30' PRESCRIPTIVE ROW EASEMENT
- EXISTING PERMANENT CONSTRUCTION EASEMENT (D.B. 5631, PG. 103)
- EXISTING INFRASTRUCTURE
- EXISTING CONTOURS (1')
- PERENNIAL STREAM
- INTERMITTENT STREAM
- PALUSTRINE FORESTED WETLAND (PFO)
- FIELD-VERIFIED RPA
- SURVEYED SANITARY SEWER
- SURVEYED OVERHEAD UTILITY LINE
- EXISTING UNDERGROUND WATER LINE
- EXISTING UNDERGROUND GAS LINE
- SURVEYED EDGE OF PAVEMENT
- LIMITS OF TREE SURVEY
- SURVEYED TREE (≥ 6" DBH)
- SURVEYED TREE TO BE REMOVED
- LIMITS OF DISTURBANCE
- PROPOSED CONTOUR (1')
- PROPOSED INFRASTRUCTURE
- PROPOSED HABITAT LOG
- PROPOSED WEIR
- PROPOSED STREAM CENTERLINE
- PROPOSED BANKFULL
- STEP POOL
- PROPOSED SHRUB
- PROPOSED TREE
- PROPOSED MULCHED BED
- TURFGRASS SODDING AREA
- SUPPLEMENTAL WETLAND PLANTING AREA - ZONE 1
- RESTORATION SEEDING AREA
- SUPPLEMENTAL WETLAND PLANTING AREA - ZONE 2
- SUPPLEMENTAL MEADOW PLANTING AREA
- SUPPLEMENTAL WETLAND PLANTING AREA - ZONE 3

SEE SHEET 41 FOR ALL PLANTING, SEEDING, AND SODDING SCHEDULES.

20 10 0 20 40 60

SCALE: 1"=20'

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Landscape Plan

Prepared For: NOVA Parks

Gateway Regional Park

City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025

SCALE: 1" = 20' C.I.: 1'

Horizontal Datum: NAD83

Vertical Datum: NGVD29

Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
DMC	SEH	FRG

Sheet #
40 of 55

Computer File Name:

GATEWAY REGIONAL PARK VEGETATION SCHEDULE

CODE	BOTANICAL / COMMON NAME	SIZE	STATUS	QTY	10-YEAR CANOPY CREDIT PER TREE (SF)	TOTAL 10-YEAR CANOPY CREDIT (SF)
TREES						
ACRU	Acer rubrum / Red Maple	2" Cal. / 10' Ht.	FAC	5	200	1000
AMAR	Amelanchier arborea / Downy Serviceberry	1.5" Cal. / 8' Ht.	FAC	6	75	450
ASTR	Asimina triloba / Pawpaw	1.5" Cal. / 8' Ht.	FAC	9	75	675
BENI	Betula nigra / River Birch	2" Cal. / 10' Ht.	FACW	3	150	450
CACA	Carpinus caroliniana / American Hornbeam	1.5" Cal. / 8' Ht.	FAC	6	75	450
NYSY	Nyssa sylvatica / Black Gum	2" Cal. / 10' Ht.	FAC	4	150	600
PLOC	Platanus occidentalis / American Sycamore	2" Cal. / 10' Ht.	FACW	2	200	400
QUBI	Quercus bicolor / Swamp White Oak	2" Cal. / 10' Ht.	FACW	3	200	600
QUPA	Quercus palustris / Pin Oak	2" Cal. / 10' Ht.	FACW	3	200	600
QUPH	Quercus phellos / Willow Oak	2" Cal. / 10' Ht.	FAC	4	200	800
TADI	Taxodium distichum / Bald Cypress	2" Cal. / 10' Ht.	OBL	3	150	450
	SUBTOTAL:			48		6,475

CODE	BOTANICAL / COMMON NAME	SIZE	STATUS (EMP)	STATUS (AGCP)	QTY
SHRUBS					
ARAR	Aronia arbutifolia / Red Chokeberry	1 gal.	FACW	FACW	13
CEOC	Cephalanthus occidentalis / Buttonbush	1 gal.	OBL	OBL	10
CLAL	Clethra alnifolia / Summersweet	1 gal.	FAC	FAC	28
COAM	Cornus amomum / Silky Dogwood	1 gal.	FACW	FACW	11
CORA	Cornus racemosa / Gray Dogwood	1 gal.	FAC	FAC	11
HIMO	Hibiscus moscheutos / Rose Mallow	1 gal.	OBL	OBL	23
ITVI	Itea virginica / Virginia Sweetspire	1 gal.	OBL	OBL	15
RHAR	Rhus aromatica 'Gro-Low' / 'Gro-Low' Fragrant Sumac	1 gal.	UPL		25
SACA	Sambucus canadensis / American Elderberry	1 gal.	FAC	FAC	13
VIDE	Viburnum dentatum / Arrowwood Viburnum	1 gal.	FAC	FAC	6
	SUBTOTAL:				155

SYMBOL	BOTANICAL / COMMON NAME	SIZE	STATUS (EMP)	STATUS (AGCP)	SPACING	QTY
GROUND COVERS						
	SUPPLEMENTARY WETLAND PLANTING ZONE 1					3,333 sf
	Peltandra virginica / Arrow Arum	Plug or Quart	OBL	OBL	25% @ 36" o.c.	95
	Pontederia cordata / Pickerel Weed	Plug or Quart	OBL	OBL	25% @ 36" o.c.	95
	Sagittaria latifolia / Broadleaf Arrowhead	Plug or Quart	OBL	OBL	25% @ 36" o.c.	95
	Scirpus cyperinus / Wool Grass	Plug or Quart	FACW	FACW	25% @ 36" o.c.	95
	SUPPLEMENTARY WETLAND PLANTING ZONE 2					11,108 sf
	Carex lurida / Lurid Sedge	Plug or Quart	OBL	OBL	20% @ 36" o.c.	257
	Iris versicolor / Blue Flag	Plug or Quart	OBL	OBL	20% @ 36" o.c.	257
	Ludwigia alternifolia / Bushy Seedbox	Plug or Quart	FACW	FACW	20% @ 36" o.c.	257
	Mimulus ringens / Monkeyflower	Plug or Quart	OBL	OBL	20% @ 36" o.c.	257
	Sparganium americanum / Bur-reed	Plug or Quart	OBL	OBL	20% @ 36" o.c.	257
	SUPPLEMENTARY WETLAND PLANTING ZONE 3					3,579 sf
	Bidens aristosa / Tickseed Sunflower	Plug or Quart	FACW	FACW	20% @ 36" o.c.	83
	Chelone glabra / White Turtlehead	Plug or Quart	OBL	OBL	20% @ 36" o.c.	83
	Helenium autumnale / Autumn Sneezeweed	Plug or Quart	FACW	FACW	20% @ 36" o.c.	83
	Lobelia cardinalis / Cardinal Flower	Plug or Quart	FACW	FACW	20% @ 36" o.c.	83
	Symphyotrichum puniceum / Swamp Aster	Plug or Quart	OBL	OBL	20% @ 36" o.c.	83
	SUPPLEMENTARY MEADOW PLANTING					4,319 sf
	Anemone virginiana / Tall Thimbleweed	Plug or Quart	FACU		7% @ 36" o.c.	35
	Asclepias tuberosa / Butterfly Milkweed	Plug or Quart	NI		6% @ 36" o.c.	30
	Carex pensylvanica / Pennsylvania Sedge	Plug or Quart	NI		6% @ 36" o.c.	30
	Conoclinium coelestinum / Blue Mistflower	Plug or Quart	FAC		7% @ 36" o.c.	35
	Elymus hystrix / Bottlebrush Grass	Plug or Quart	UPL		7% @ 36" o.c.	35
	Elymus virginicus / Virginia Wild Rye	Plug or Quart	FACW		7% @ 36" o.c.	35
	Eurybia divaricata / White Wood Aster	Plug or Quart	NI		7% @ 36" o.c.	35
	Monarda didyma / Scarlet Bee Balm	Plug or Quart	FAC		7% @ 36" o.c.	35
	Penstemon digitalis / Beardtongue	Plug or Quart	FAC		6% @ 36" o.c.	30
	Phlox divaricata / Woodland Phlox	Plug or Quart	FACU		7% @ 36" o.c.	35
	Pycnanthemum incanum / Hoary Mountain Mint	Plug or Quart	NI		7% @ 36" o.c.	35
	Schizachyrium scoparium / Little Bluestem	Plug or Quart	FACU		6% @ 36" o.c.	30
	Solidago juncea / Early Goldenrod	Plug or Quart	FACU		7% @ 36" o.c.	35
	Tradescantia virginiana / Virginia Spiderwort	Plug or Quart	FAC		7% @ 36" o.c.	35
	Tripsacum dactyloides / Eastern Gamagrass	Plug or Quart	FACW		6% @ 36" o.c.	30
	SUBTOTAL:					22,339 sf

GATEWAY REGIONAL PARK RESTORATION SEEDING SCHEDULE

SPECIES GROUP		SPECIES	INDICATOR STATUS (EMP)	SEEDING RATE (LBS/AC)[1]	TOTAL MIN. LBS/AC
E&S CONTROL COVER CROP		LOLIUM PERENNE spp. MULTIFLORUM (ANNUAL RYEGRASS)	FACU	45	60
		CHAMAECRISTA FASCICULATA (PARTRIDGE PEA)	FACU	15	
RESTORATION SEED MIX	GRASS MIX	AGROSTIS PERENNANS (AUTUMN BENTGRASS)	FACU	5	24
		DESCHAMPSIA CESPITOSA (TUFTED HAIRGRASS)	FACW	5	
		DICHANTHELIUM CLANDESTINUM (DEER TONGUE GRASS)	FAC	5	
		PANICUM DICHOTOFLORUM (SMOOTH PANICGRASS)	FACW	5	
		PANICUM RIGIDULUM (REDTOP PANICGRASS)	FACW	4	
	SEDGE / RUSH MIX	CAREX GRAYI (GRAY'S SEDGE)	FACW	0.2	3.6
		CAREX CRINITA (FRINGED SEDGE)	OBL	0.2	
		CAREX VULPINOIDEA (FOX SEDGE)	OBL	1	
		JUNCUS EFFUSUS (SOFT RUSH)	FACW	1	
		JUNCUS TENUIS (PATH RUSH)	FAC	1	
		SCIRPUS ATROVIRENS (GREEN BULRUSH)	OBL	0.2	
	HERBACEOUS MIX	ASCLEPIAS INCARNATA (SWAMP MILKWEED)	OBL	0.2	1.1
		ASCLEPIAS SYRIACA (COMMON MILKWEED)	FACU	0.3	
		PENTHORUM SEDOIDES (DITCH STONECROP)	OBL	0.1	
		RUDBECKIA FULGIDA (ORANGE CONEFLOWER)	FAC	0.1	
		SYMPHYOTRICHUM NOVAE-ANGLIAE (NEW ENGLAND ASTER)	FACW	0.1	
		ZIZIA AUREA (GOLDEN ALEXANDERS)	FAC	0.3	
				TOTAL SEEDING RATE (LBS/AC)	88.7
				TOTAL AREA TO BE SEEDED (AC)	0.78
				TOTAL PURE LIVE SEED REQUIRED (LBS)	69.5

[1] *All seeding rates are expressed in pounds of pure live seed (PLS).*

GATEWAY REGIONAL PARK SOD SCHEDULE

PLANTING ZONE	SPECIES	INDICATOR STATUS (EMP)	SPECIES COMPOSITION	SOD QUANTITY	
				AREA (SF):	6,053
				AREA (AC):	0.14
SODDING AREA	KENTUCKY 31 OR TURF-TYPE TALL FESCUE	FACW	90%		
	KENTUCKY BLUE GRASS	FAC	10%		
SOD TOTAL (SF)			100%		6,053

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Planting Schedules

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025 | SCALE: N/A | C.I.: N/A

Horizontal Datum:

Vertical Datum:

Boundary and Topo Source: N/A

Design	Draft	Approved
DMC	SEH	FRG

Computer File Name:

I. General
1. Landscape Specifications: Landscape specifications shall be as outlined below. Any item or procedure not mentioned below shall be as specified in the Landscape specification guidelines published by the Landscape Contractors Association (latest edition).
2. Plant Materials: The Landscape Contractor shall furnish and install and/or dig, ball, burlap, and transplant plant materials called for on the drawings and/or listed in the plant schedule. The City reserves the right to inspect plant material at the nursery source, before off-loading at the project site, when in storage or prior to installation.
3. Plant Names: Plant names used in the plant schedule shall be identified in accordance with Hortus Third, by L.H. Bailey, 1976.
4. Plant Standards: Plant materials shall be equal to or better than the requirements of the "American Standard for Nursery Stock" (ANSI Z60.1 latest edition), as published by the American Association of Nurseryman (hereinafter referred to as AAN standards). Plants shall be typical of their species and variety, shall have a normal habit of growth, and shall be first quality, sound, vigorous, well branched, and with healthy, well-furnished root systems. They shall be free of disease, insect pests, and mechanical injuries.
(A) Plants shall be nursery grown and shall have been grown under the same climatic conditions as the location of the subject project for at least two years before planting. Neither heeled-in plant, nor plants from cold storage will be accepted.
(B) Collected plants or transplanted trees when specified by the landscape architect may be used, provided that locations and soil conditions will permit proper balling.
5. Materials for Planting:
(A) Stakes for guying trees shall be sound oak or other approved hardwood. Three stakes spread 120-degrees apart shall be used when detailed. Notch stakes for wire. See details. Trees located between sidewalk and curb shall have two stakes.
(B) Tree Guys: Provide wire ties and guys of 2-strand, twisted, pliable galvanized steel wire not lighter than 12-gauge with zinc coated turnbuckles. Provide w-ply garden hose not less than 0.5-inch hose size, cut to lengths to protect tree trunks from damage by wires. Provide 14-gauge wire for trees less than 12-ft. height. Wire for guy may be twisted when a turnbuckle is not specified by the landscape architect. Use of tree ties in lieu of wire is acceptable.
(C) Mulching: Mulch shall consist of double shredded hardwood mulch.
6. Planting Schedule: A professional horticulturist/nurseryman shall be consulted to determine the proper time, based on plant species and weather conditions, to move and install plant materials to minimize stress to the plant. Planting of deciduous material may be continued during the winter months provided there is no frost on the ground and frost-free soil planting mixtures are used.

Department of Public Works
10455 Armstrong Street
Fairfax, VA 22030-3630

CITY of FAIRFAX
USE WITH THE FAIRFAX STANDARD SPECIFICATIONS ONLY

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PLANTING NOTES DETAIL

SCALE: Not To Scale	DETAIL # 8.08
REVISION DATE: December 2016	SHEET # 1 of 3

II. Planting Execution
1. Excavation of Plant Pits
(A) Circular Pits, with vertical sides shall be excavated for all plants. In heavy soils, slope the sides outward. The diameter of the holes shall be 18-inches greater than the diameter of the ball for trees, or 1.5 times the diameter of shrubs and container grown material.
(B) The depth of pits shall allow for one-eighth of the tree root ball or container depth to be above existing grade.
(C) Obstructions encountered in excavated or planted areas shall be removed or plants relocated as approved.
(D) Plants shall be planted plumb, at slightly above grade as in the nursery (in relation to finished grade); tamp topsoil under and around base of ball to fill all voids. Remove all burlap, ropes, plastic or synthetic twine or film, and wires from sides and tops of balls, but do not remove burlap from under ball. Thoroughly water when hole is two-thirds full of topsoil. Mix soil amendments thoroughly with soil mixture. Backfill pit halfway and tamp as pit is filled. Do not over compact remainder of backfill. After watering, 3" of mulch shall be applied over a 3" earth berm to create a shallow watering basin around the tree.
(E) Shrubs shall be planted in conformance with deciduous shrub planting Detail 8.05.

III. Staking and Guying
1. Each tree or evergreen shall be immediately staked or guyed after planting.
(A) Deciduous trees 2-2.5" caliper or larger and all evergreen trees shall be staked and guyed with three 2" x 2" x 6' hardwood stakes per tree, spread 120-degrees apart. Hardwood stakes shall be driven no less than 10-inches below subgrade and outside the root ball. A double strand of 12-gauge galvanized wire shall be twisted and threaded through 0.5-inch garden hose to protect the tree trunk and secured to the hardwood stake. Notch stakes for wire.
(B) The 12-gauge galvanized wire shall be placed at a 45-degree angle from the tree to the stake. See Detail 8.04.

IV. Plant Pruning, Edging, and Mulching
1. Pruning shall be by experienced landscape personnel. Remove broken or damaged branches and roots. Cut back and thin deciduous material to retain two-thirds of the initial branches. Cut back evergreens to give compact uniform appearance. Damaged or pruned tree leaders shall be cause for rejection. Do not cut leaders.
2. If foliage is present on deciduous plant material, they shall be sprayed with an anti-desiccant, which slows down the transpiration process, through reducing the danger of dehydration.
3. The areas around isolated plants shall be edged and cultivated to the full diameter of the pit.
4. After cultivation, plant material shall be mulched with a three-inch layer of double shredded mulch over the entire area of the bed or saucer.

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PLANTING NOTES DETAIL

SCALE: Not To Scale	DETAIL # 8.08
REVISION DATE: December 2016	SHEET # 2 of 3

II. Warranty: Plant material shall have a one-year warranty commencing on the date of initial acceptance. Plant material shall be alive and in satisfactory condition at the end of the warranty period. Plant material will be considered dead if 25% or more of the material is found to be dead. Trees with a leader that has died will be considered dead. Trees with 25% or more crown found to be dead will also be considered dead.
(A) Dead plants shall be replaced in the next planting period or as approved.
(B) Replacements shall be of same type and size of specie originally specified or as approved.
(C) The warranty shall be for a one-time only replacement.
(D) Contractor will not be responsible for vandalism or losses due to abnormal weather conditions.

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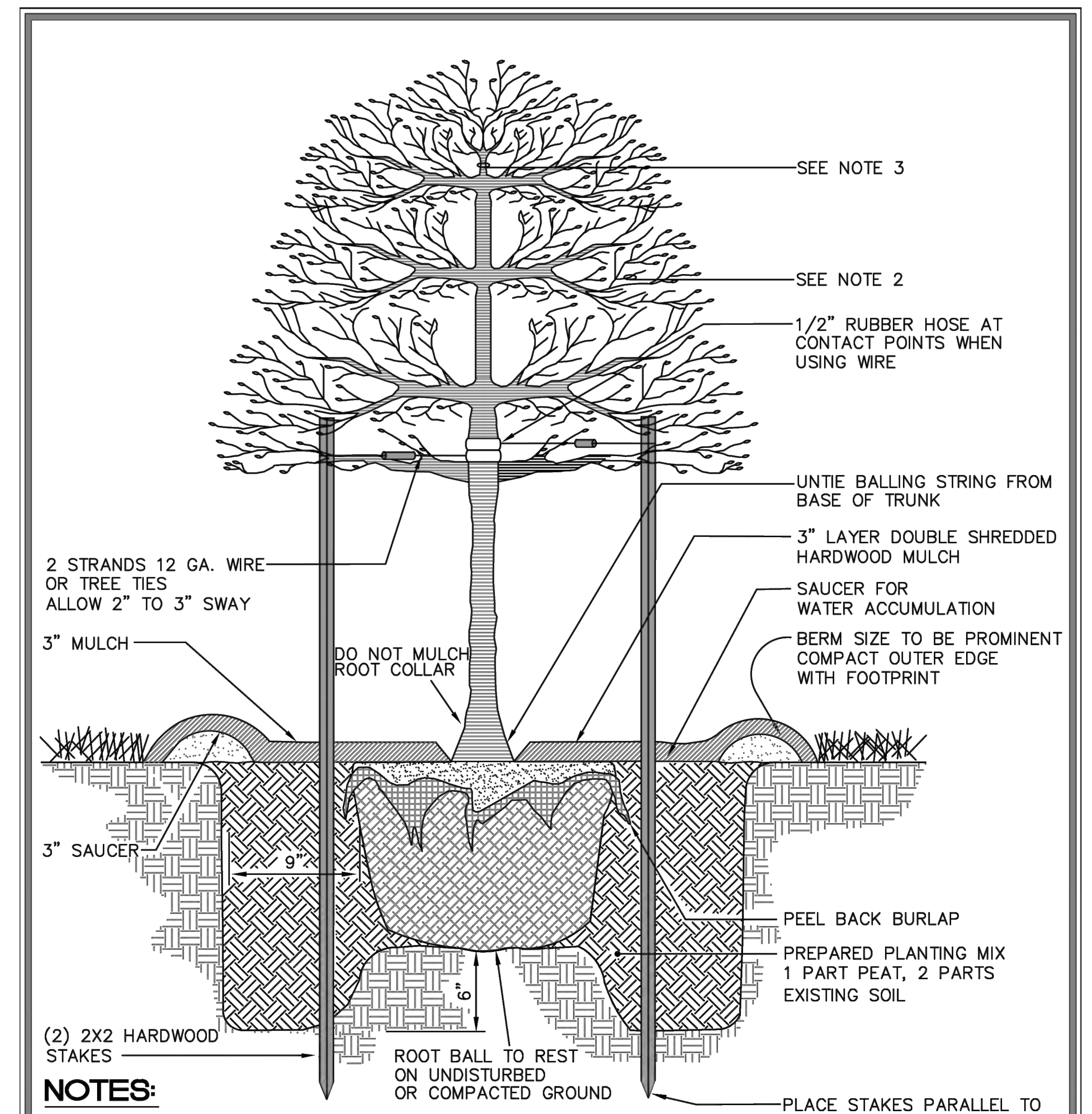
PLANTING NOTES DETAIL

SCALE: Not To Scale	DETAIL # 8.08
REVISION DATE: December 2016	SHEET # 3 of 3



NOTES:
1. See Detail 8.08 for Planting Notes.
2. Prune only to remove dead or damaged branches. Raising branches is to be performed when approved to provide clearances for pedestrians.
3. Never prune the leader.
4. Remove non-decomposing material from root ball.
5. Remove stakes and wire at end of warranty period or at end of one growing season as approved.

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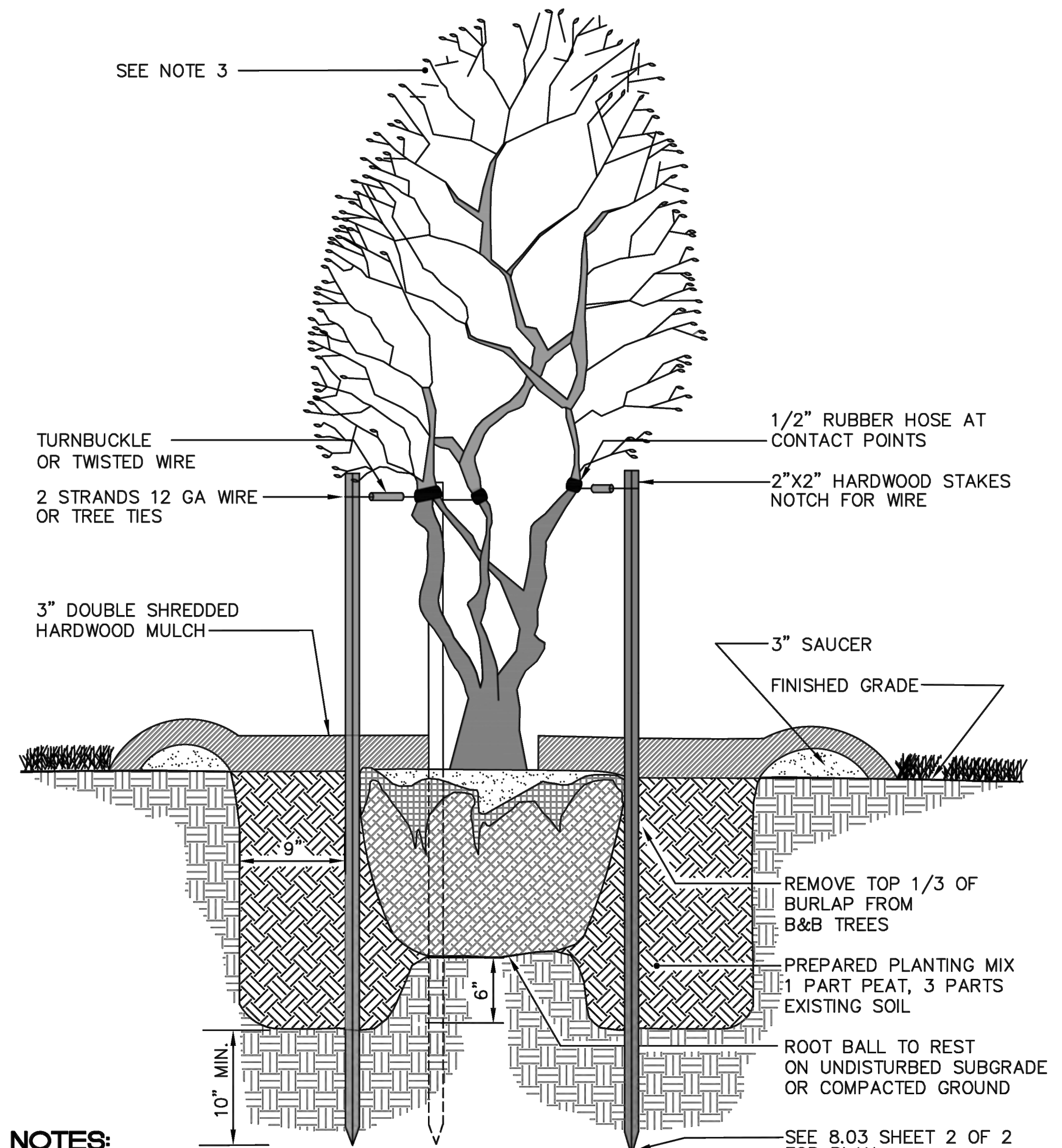
SINGLE-STEM TREE PLANTING UPRIGHT STAKING DETAIL

SCALE: Not To Scale	DETAIL # 8.01
REVISION DATE: December 2016	SHEET # 1 of 1



NOTES:
1. See Detail 8.08 for Planting Notes.
2. Prune only to remove dead or damaged branches. Raising of branches is to be performed when approved to provide clearances for pedestrians.
3. Never prune the leader.
4. Remove non-decomposing material from root ball.
5. Remove stakes and wire at end of warranty period or at end of one growing season as approved.

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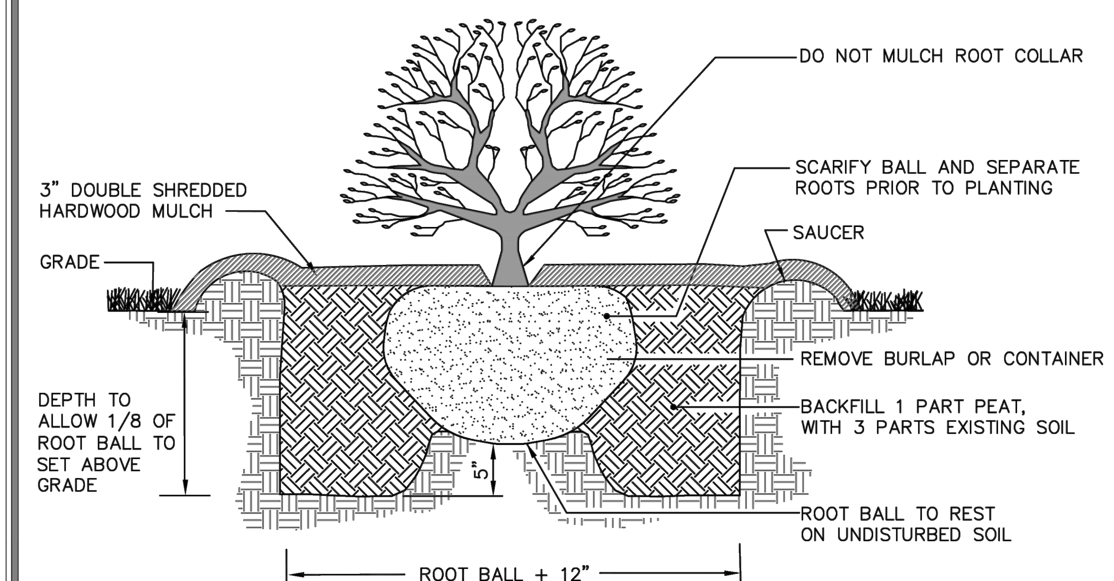
MULTI-STEM TREE PLANTING and STAKING DETAIL

SCALE: Not To Scale	DETAIL # 8.03
REVISION DATE: December 2016	SHEET # 1 of 2



NOTES:
1. See Detail 8.08 for Planting Notes.
2. For shrub mass planting rototill the entire bed to 6" minimum depth. Individual shrub pits shall be excavated thereafter.

Department of Public Works
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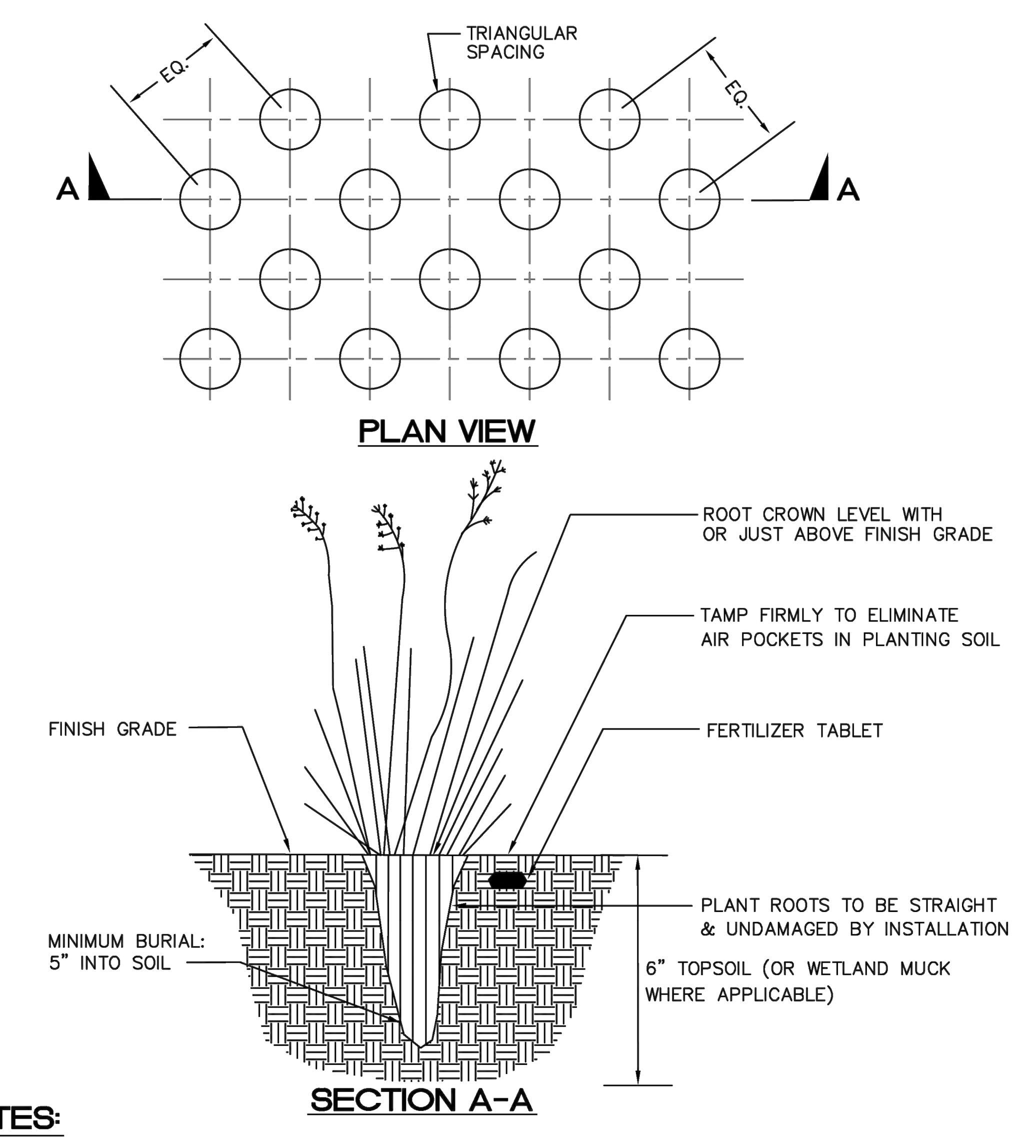
SHRUB DETAIL CONTAINER AND B&B

SCALE: Not To Scale	DETAIL # 8.05
REVISION DATE: December 2016	SHEET # 1 of 1



NOTES:
1. See Detail 8.08 for Planting Notes.
2. Layout plants in prepared bed as shown.
3. Spacing as specified per plant schedule.
4. Planting mix shall consist of 2" peat moss or 1" depth of compost (not to exceed 4 cubic yards of compost per 1000 sq. ft.) and tilled into the previously loosened planting bed.
5. Leaves and root crown to remain undamaged during planting.
6. Create planting hole with auger or as approved.

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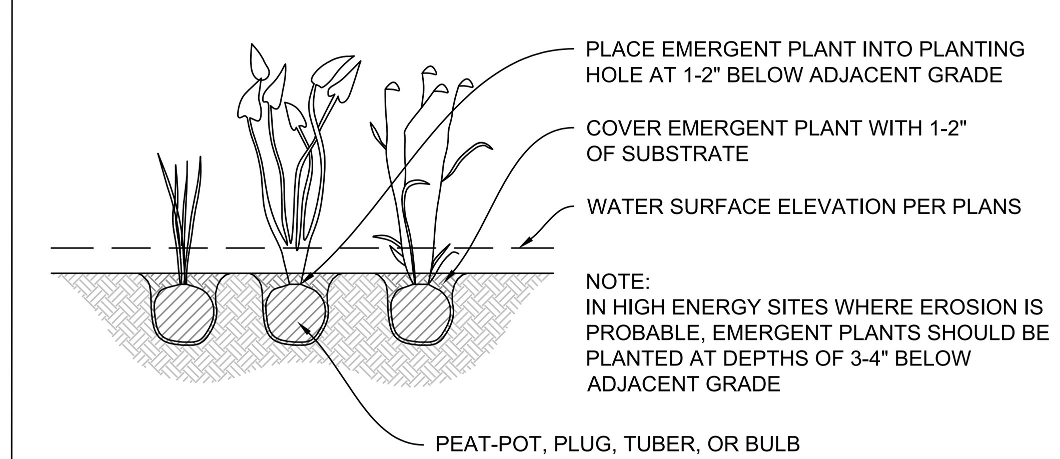
PLUG PLANTING DETAIL

SCALE: Not To Scale	DETAIL # 8.07
REVISION DATE: December 2016	SHEET # 1 of 1

EMERGENT PLANTING DETAIL

NOT TO SCALE



CITY OF FAIRFAX LANDSCAPE NOTES

1. THE AREA SURROUNDING ALL TREES, SHRUBS, AND GROUNDCOVER SHALL BE TOPPED WITH TWO INCHES OF SHREDDED HARDWOOD BARK MULCH.
2. NO CHANGES SHALL BE PERMITTED TO THE PLANT LIST UNLESS APPROVED BY THE CITY OF FAIRFAX.
3. TREES SHALL BE CLASSIFIED AS PER "AMERICAN STANDARD FOR NURSERY STOCK" AS ADOPTED BY THE AMERICAN ASSOCIATION OF NURSERYMEN. PLANT MATERIAL BELOW THIS STANDARD SHALL NOT BE CONSIDERED.
   a. ALL PLANTS MUST CONFORM TO REQUIREMENTS PER PLANT LIST;
   b. ALL PLANT MATERIALS MUST BE NURSERY GROWN STOCK;
   c. ALL TREES MUST BE WELL-BRANCHED, FULL CROWN.
4. AT LEAST 5 DAYS BEFORE BEING PLANTED, THE SITE PLAN COORDINATOR SHALL BE NOTIFIED THAT PLANTS ARE AVAILABLE FOR INSPECTION.
5. NO PERSON SHALL REMOVE OR DESTROY ANY TREE WHICH IS FIVE (5) INCHES OR GREATER IN CALIPER, MEASURED SIX (6) INCHES ABOVE GROUND LEVEL, ON ANY LOT GREATER THAN ONE-HALF (1/2) ACRE WITHOUT FIRST OBTAINING A TREE REMOVAL PERMIT FROM THE ZONING ADMINISTRATOR. ANY TREE REMOVED, DAMAGED, OR DESTROYED WILL BE REPLACED AT THE DISCRETION OF THE ZONING ADMINISTRATOR.

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Planting Notes & Details (1)

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025 | SCALE: N/A | C.I.: N/A

Horizontal Datum:

Vertical Datum:

Boundary and Topo Source: N/A

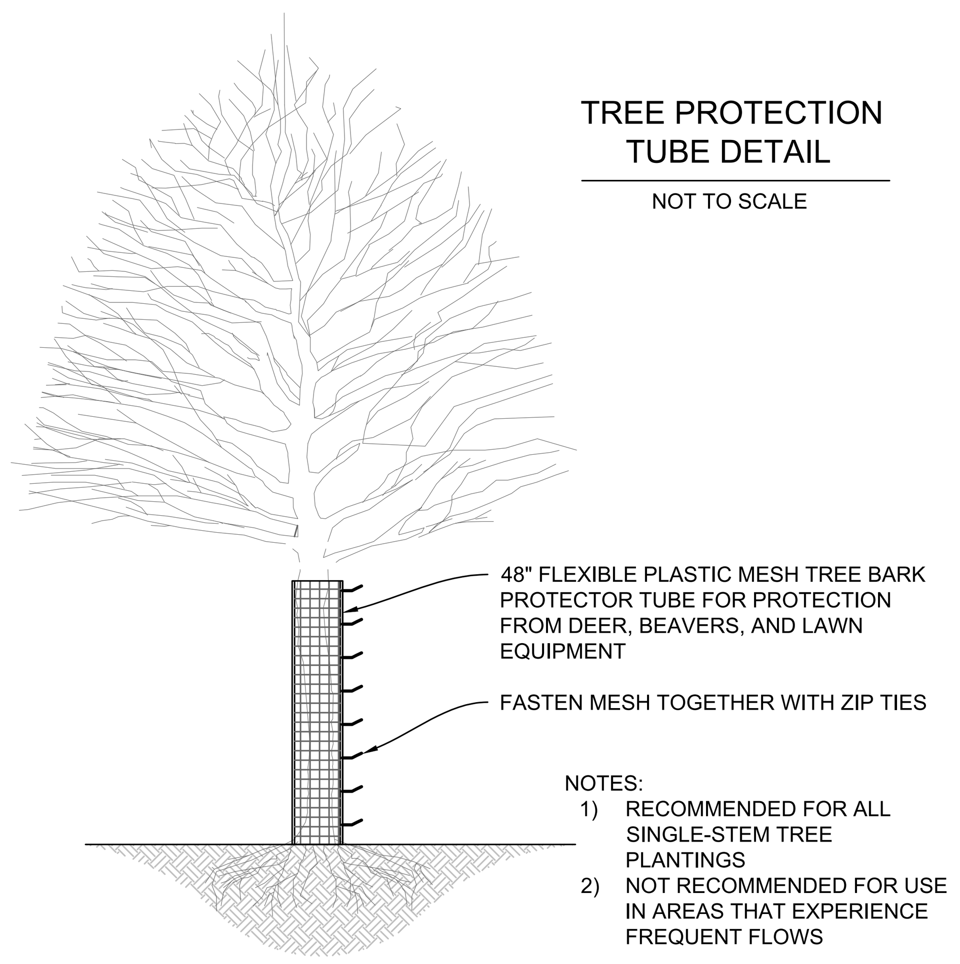
Design	Draft	Approved
DMC	SEH	FRG

Sheet #
42 of 55

Computer File Name:

TREE PROTECTION TUBE DETAIL

NOT TO SCALE

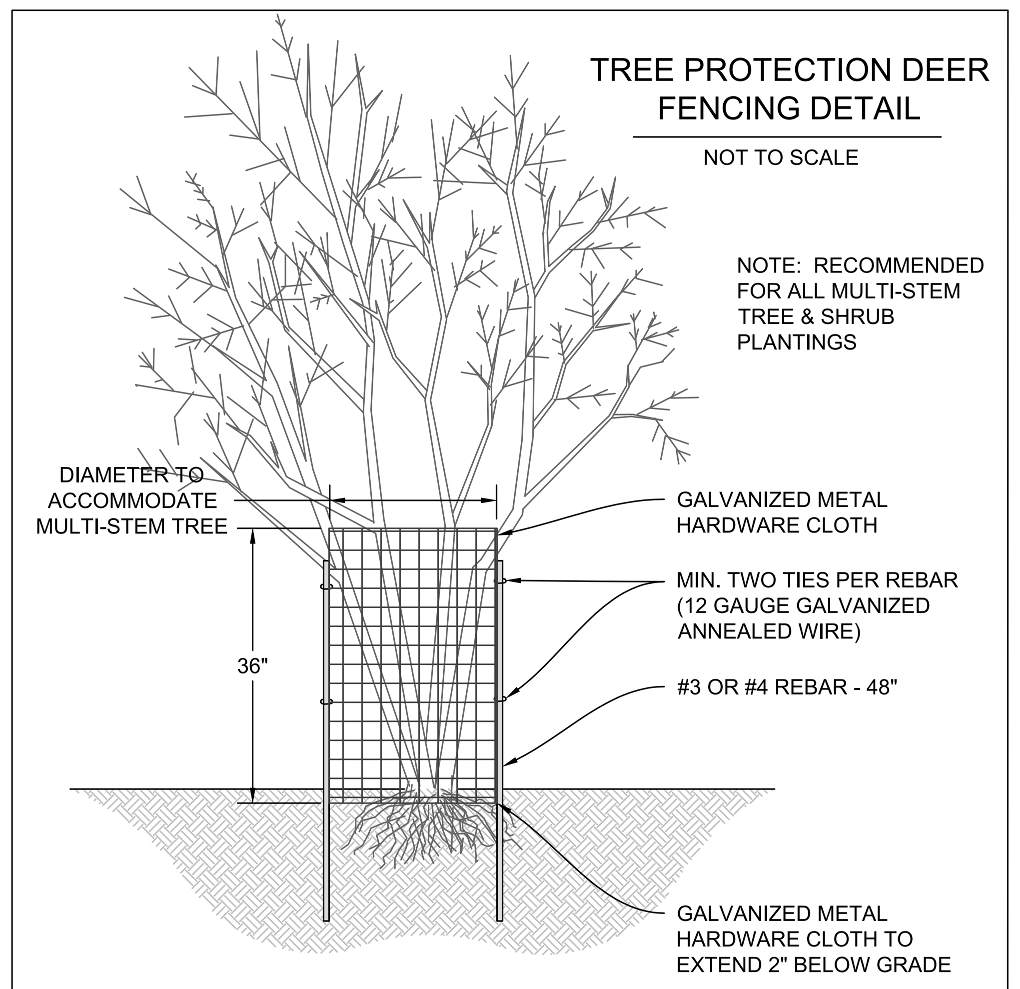


NOTES:
1) RECOMMENDED FOR ALL SINGLE-STEM TREE PLANTINGS
2) NOT RECOMMENDED FOR USE IN AREAS THAT EXPERIENCE FREQUENT FLOWS

TREE PROTECTION DEER FENCING DETAIL

NOT TO SCALE

NOTE: RECOMMENDED FOR ALL MULTI-STEM TREE & SHRUB PLANTINGS



PLANTING & SEEDING NOTES

1. PLAN DETAILS ARE INCORPORATED INTO THIS SPECIFICATION BY REFERENCE.
2. 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 FROM HARDINESS ZONES 6 AND 7, FROM THE EASTERN OR CENTRAL PORTIONS OF THE U.S., PRIOR TO PLANTING.
3. 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 WETLAND STUDIES AND SOLUTIONS, INC. (WSSI) TO INSPECT THE PLANT SOURCE AREAS AT WSSI'S DISCRETION. ANY SUCH INSPECTION IS NOT DEEMED APPROVAL OF THE PLANT MATERIALS.
4. PLANTING SHALL ONLY BE PERMITTED BETWEEN SEPTEMBER 30 AND MARCH 31. NO PLANTING SHALL OCCUR WHEN THE SOIL IS FROZEN. SEEDING SHALL BE COMPLETED DURING MARCH THROUGH MAY OR SEPTEMBER THROUGH NOVEMBER. THESE TIME LIMITS MAY NOT BE MODIFIED UNLESS APPROVED BY WETLAND STUDIES AND SOLUTIONS, INC., IN ADVANCE WITH THE RISK OF SURVIVAL BORNE SOLELY BY THE CONTRACTOR.
5. 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).
6. 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 WITHOUT FURTHER CONSTRICTION OF THE ROOT BALL.
7. FERTILIZE EACH PLUG CONTAINER PLANT WITH A 5 GRAM TABLET OF CONTROLLED RELEASE FERTILIZER. FERTILIZE EACH QUART CONTAINER WITH A 10 GRAM TABLET. USE A 20 GRAM TABLET OF FERTILIZER WITH EACH 1 GALLON CONTAINER. GENERALLY, FOR EACH 12 TO 18 INCHES OF PLANT HEIGHT OR FOR EACH 1/2" OF TREE DIAMETER AT THE BASE, USE 20 GRAMS FOR SLOW GROWING PLANTS OR 40 GRAMS FOR FAST GROWING PLANTS OR POOR SOIL SITUATIONS. SAID FERTILIZER TABLETS SHALL BE AGRIFORM 20-10-5 OR APPROVED EQUIVALENT, APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
8. AS RECOMMENDED BY THE CONTRACTOR AND APPROVED BY ENGINEER, THE CONTRACTOR SHALL WATER THE PLANTS AS NEEDED DURING THE ONE-YEAR WARRANTY PERIOD OR UNTIL FINAL ACCEPTANCE.
9. REFER TO APPLICABLE SKETCHES WITHIN THIS PLAN SET FOR ADDITIONAL GUIDANCE ON PLANTING REQUIREMENTS.
10. INVASIVE SPECIES SHALL BE REMOVED AS SPECIFIED IN THE GUIDELINES TITLED: *A MANAGEMENT GUIDE FOR INVASIVE PLANTS IN SOUTHERN FORESTS*. A PDF OF THIS DOCUMENT CAN BE FOUND ONLINE AT: HTTPS://WWW.SRS.FS.USDA.GOV/PUBS/GTR/GTR_SRS131.PDF. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR PESTICIDE APPLICATION. PESTICIDES SHALL ONLY BE APPLIED BY A VIRGINIA CERTIFIED PESTICIDE APPLICATOR.

SEEDING SPECIFICATIONS

1. THE NATIVE SEED MIX SPECIFIED ON THE VEGETATION SCHEDULE IS A CUSTOM SEED MIX. CONTRACTOR SHALL PROVIDE SEED TAGS TO THE CITY OF FAIRFAX AND OBTAIN WRITTEN APPROVAL PRIOR TO THE COMMENCEMENT OF ANY WORK.
2. SEED SHALL HAVE BEEN COLLECTED THE SAME YEAR OF SEEDING. A SEED GERMINATION AND PURITY RATE OF AT LEAST 75% IS REQUIRED. EVIDENCE OF SUCH SHALL BE PROVIDED TO OWNER'S REPRESENTATIVE PRIOR TO PLANTING.
3. THE SPECIFIED SEED SHALL BE BROADCAST IN AREAS SPECIFIED ON THE PLANTING PLAN AT THE RATES SPECIFIED ON THE VEGETATION SCHEDULE. FOLLOWING SEEDING, MECHANICALLY SOW SEED TO A DEPTH OF 1/8TH OF AN INCH BY THE USE OF A CULTIPACKER, YORK RAKE, OR HAND RAKE.
4. 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 THE UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
5. 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 SUCCESS OF SEEDING.
6. FERTILIZER IS TO BE BROADCAST AND RAKED INTO THE TOP ONE INCH OF TOP SOIL IMMEDIATELY BEFORE SEEDING. FERTILIZER SHALL HAVE A FORMULATION OF 10-10-10 AND BE APPLIED AT A RATE OF 50 POUNDS PER 1000 SQUARE FEET.
7. MULCH SHALL BE STRAW AND CAN BE SUBSTITUTED IF APPLIED AT A RATE SPECIFIED BY THE VIRGINIA EROSION AND SEDIMENT CONTROL HANDBOOK, 3RD EDITION, 1992.
8. CARE SHOULD BE EXERCISED TO ENSURE UNIFORM SEED COVERAGE IS OBTAINED. SEED SHALL BE APPLIED AT THE RATE SPECIFIED ON THE PLANTING SCHEDULE.
9. FOLLOWING THE APPLICATION OF THE NATIVE SEED MIX AND EROSION CONTROL SEED, THE DISTURBED AREA SHALL BE COVERED WITH CLEAN WHEAT STRAW TO A DEPTH OF APPROXIMATELY 1 INCH. IF THE SEED IS SOWN INTO TOPSOIL, HYDROSEEDED, OR COVERED WITH COIR MATTING, THEN NO STRAW NEEDS TO BE APPLIED.
10. NO MATTING CONTAINING PLASTIC MESH SHALL BE USED.

SODDING SPECIFICATIONS

1. SOD FURNISHED BY THE CONTRACTOR SHALL HAVE A GOOD COVER OF LIVING OR GROWING GRASS. THIS SHALL BE INTERPRETED TO INCLUDE GRASS THAT IS SEASONALLY DORMANT DURING THE COLD OR DRY SEASONS AND CAPABLE OF RENEWING GROWTH AFTER THE DORMANT PERIOD.
2. SOD SHALL BE OBTAINED FROM AREAS WHERE THE SOIL IS REASONABLY FERTILE AND CONTAINS A HIGH PERCENTAGE OF LOAMY TOPSOIL.
3. SOD SHALL BE CUT OR STRIPPED FROM LIVING, THICKLY MATTED TURF RELATIVELY FREE OF WEEDS OR OTHER UNDESIRABLE FOREIGN PLANTS, LARGE STONES, ROOTS, OR OTHER MATERIALS, WHICH MIGHT BE DETRIMENTAL TO THE DEVELOPMENT OF THE SOD OR TO FUTURE MAINTENANCE
4. AFTER INSPECTION AND APPROVAL OF THE SOURCE OF SOD BY THE CITY OF FAIRFAX ENGINEER, THE SOD SHALL BE CUT WITH APPROVED SOD CUTTERS TO A THICKNESS THAT AFTER IT HAS BEEN COMPACTED, IT SHALL HAVE A UNIFORM THICKNESS OF NOT LESS THAN 2 INCHES.
5. SOD SECTIONS OR STRIPS SHALL BE CUT IN UNIFORM WIDTHS, NOT LESS THAN 10 INCHES, AND IN LENGTHS OF NOT LESS THAN 18 INCHES, BUT OF SUCH LENGTH AS MAY BE READILY LIFTED WITHOUT BREAKING, TEARING, OR LOSS OF SOIL. WHERE STRIPS ARE REQUIRED, THE SOD SHALL BE ROLLED WITHOUT DAMAGE WITH THE GRASS FOLDED INSIDE.
6. MOW HIGH GRASS EXCEEDING 5-INCH HEIGHT BEFORE CUTTING SOD.
7. THE SOD SHALL BE TRANSPLANTED WITHIN 24 HOURS FROM THE TIME IT IS STRIPPED, UNLESS CIRCUMSTANCES BEYOND THE CONTRACTOR'S CONTROL MAKE STORING NECESSARY. IN SUCH CASES, SOD SHALL BE STORED IN AN UNROLLED CONDITION, IRRIGATED, AND PROTECTED FROM EXPOSURE TO AIR DRAFTS AND SUN AND FROM FREEZING.
8. SOD SHALL BE CUT AND MOVED ONLY WHEN THE SOIL MOISTURE CONDITIONS ARE SUCH THAT FAVORABLE RESULTS CAN BE EXPECTED. WHERE THE SOIL IS TOO DRY, PERMISSION TO CUT SOD MAY BE GRANTED ONLY AFTER IT HAS BEEN WATERED SUFFICIENTLY TO MOISTEN THE SOIL TO THE DEPTH THE SOD IS TO BE CUT.
9. SODDING SHALL BE PERFORMED ONLY DURING THE SEASONS WHEN SATISFACTORY RESULTS CAN BE EXPECTED. FROZEN SOD SHALL NOT BE USED AND SOD SHALL NOT BE PLACED UPON FROZEN SOIL. SOD MAY BE TRANSPLANTED DURING PERIODS OF DROUGHT WITH THE APPROVAL OF THE CITY OF FAIRFAX ENGINEER PROVIDED THE SOD BED IS WATERED TO MOISTEN THE SOIL TO A DEPTH OF AT LEAST 4 INCHES IMMEDIATELY PRIOR TO LAYING THE SOD.
10. THE SOD SHALL BE MOIST AND SHALL BE PLACED ON A MOIST EARTH BED.
11. PITCHFORKS SHALL NOT BE USED TO HANDLE SOD, AND DUMPING FROM VEHICLES WILL NOT BE PERMITTED.
12. THE SOD SHALL BE CAREFULLY PLACED BY HAND, EDGE TO EDGE AND WITH STAGGERED JOINTS, IN ROWS AT RIGHT ANGLES TO THE SLOPES, COMMENCING AT THE BASE OF THE AREA TO BE SODDED AND WORKING UPWARD.
13. THE SOD SHALL IMMEDIATELY BE PRESSED FIRMLY INTO CONTACT WITH THE SOD BED BY TAMPING OR ROLLING WITH APPROVED EQUIPMENT TO PROVIDE A TRUE AND EVEN SURFACE TO ENSURE KNITTING WITHOUT DISPLACEMENT OF THE SOD OR DEFORMATION OF THE SURFACES OF SODDED AREAS.
14. WHERE THE SOD MAY BE DISPLACED DURING SODDING OPERATIONS, THE WORKMEN, WHEN REPLACING THE SOD, SHALL WORK FROM LADDERS OR TREATED PLANKS TO PREVENT FURTHER DISPLACEMENT.
15. SCREENED SOIL OF GOOD QUALITY SHALL BE USED TO FILL ALL CRACKS BETWEEN SOD SECTIONS. THE QUANTITY OF THE FILL SOIL SHALL NOT CAUSE SMOTHERING OF THE GRASS.
16. WHERE THE GRADES ARE SUCH THAT THE FLOW OF WATER WILL BE FROM PAVED SURFACES ACROSS SODDED AREAS, THE SURFACE OF THE SOIL IN THE SOD AFTER COMPACTION SHALL BE SET APPROXIMATELY 1 INCH BELOW THE PAVEMENT EDGE.
17. ADEQUATE WATER AND WATERING EQUIPMENT MUST BE ON HAND BEFORE SODDING BEGINS, AND SOD SHALL BE KEPT MOIST UNTIL IT HAS BECOME ESTABLISHED AND ITS CONTINUED GROWTH ASSURED. CONTRACTOR SHALL WATER SODDED AREAS A MINIMUM OF 1 INCH OF WATER, TWICE PER WEEK UNTIL RE-ESTABLISHED AND ONCE PER WEEK THEREAFTER UNTIL WORK IS ACCEPTED. IN ALL CASES, WATERING SHALL BE DONE IN A MANNER TO AVOID EROSION FROM THE APPLICATION OF EXCESSIVE QUANTITIES AND TO AVOID DAMAGE TO THE FINISHED SURFACE.

MULCH SPECIFICATIONS

1. THREE INCHES (3") OF DOUBLE SHREDDED HARDWOOD MULCH SHALL BE SPREAD ON MULCH BED AREAS (AS INDICATED ON LANDSCAPE PLAN) UPON COMPLETION OF PLANTING.

PRODUCT HANDLING, STORAGE, AND DELIVERY

1. 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 SHALL BE REJECTED.
2. ALL PLANT MATERIALS SHALL BE STORED AND DELIVERED IN SUCH A FASHION AND FOR TIME INTERVALS CONSISTENT WITH SOUND SILVICULTURAL PRACTICES.
3. 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 PHYSICAL DAMAGE MAY RESULT TO THE PLANTS.
4. PLANT MATERIAL MAY BE RANDOMLY INSPECTED BY THE CITY OF FAIRFAX AND/OR THE PROJECT LANDSCAPE ARCHITECT 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 A REASONABLE TIME FRAME (I.E. 1-WEEK). UNACCEPTABLE MATERIAL IS TO BE DEFINED AS THE FOLLOWING:
   (A) PLANTS WITH BENT TRUNKS OR MULTIPLE LEADERS, UNLESS CHARACTERISTICS FOR THE SPECIES;
   (B) PLANTS WITH DISEASED TRUNKS, STEMS, OR LEAVES;
   (C) PLANTS WITH PEST-INFESTED TRUNKS, STEMS, OR LEAVES;
   (D) PLANTS OF INSUFFICIENT SIZE (LESS THAN A SPECIFIED HEIGHT);
   (E) PLANTS OF THE WRONG SPECIES/SUB-SPECIES;
   (F) PLANTS HAVING ROOT GIRDLING IN THE CONTAINER;
   UNLESS OTHERWISE APPROVED BY PROJECT LANDSCAPE ARCHITECT. JUSTIFICATION FOR USE OF TENTATIVELY REJECTED MATERIAL MAY BE PRESENTED TO THE PROJECT LANDSCAPE ARCHITECT.

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Planting Notes & Details (2)

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025 SCALE: N/A C.I.: N/A

Horizontal Datum:

Vertical Datum:

Boundary and Topo Source: N/A

Design	Draft	Approved
DMC	SEH	FRG

Sheet #
43 of 55

Computer File Name:

GATEWAY REGIONAL PARK WATER QUALITY IMPACT ASSESSMENT (WQIA)

Gateway Regional Park is located at 3333 Old Pickett Road in the City of Fairfax, Virginia. Sheet 1 of this plan set contains a Vicinity Map with the exact location of this project within the City. Site improvements proposed within this plan set include the addition of a constructed wetland stormwater management facility as a central feature, and associated features designed to enhance accessibility and usage of this public park, creating educational opportunities for visitors. The proposed features include a small parking lot on the northwestern side of the parcel, boardwalks and concrete sidewalks connecting the parking lot to the existing pavilion structure on the east side of the site, interpretive signage, and native plantings. The constructed wetland will outfall into an existing tributary to Accotink Creek through a short channel designed using Natural Channel Design (NCD) techniques, as described on Sheet 23. The project will result in a net benefit of improved quality of water leaving the site and entering into Accotink Creek, generating water quality credits and providing a demonstrated reduction of pollutant loading by at least 20%. Water quality benefits are detailed in the stormwater management plan, Sheets 36-39.

Pursuant to the City of Fairfax Zoning Ordinance Chapter 110, Division 4. Chesapeake Bay Preservation Ordinance, Section 110-4.18.4.B of the Chesapeake Bay Preservation Ordinance (Ordinance): *"Development in resource protection areas (RPAs) shall be subject to review and approval by the city and may be permitted if it: ...3. Is a flood-control or stormwater management facility that drains or treats water from multiple development projects or from a significant portion of a watershed..."* and §110-4.18.10.A: *"The following uses shall be exempt from the criteria contained in §4.18: A. Construction, installation, operation and maintenance of...public roads, public trails, and their appurtenant structures"* and §110-4.18.10.C: *"The following land disturbances within the RPA shall be exempted from §4.18:...(ii) passive recreation facilities, such as boardwalks, trails, and pathways..."* As a result, this WQIA has been developed for the improvements proposed at Gateway Regional Park in this plan set as required in §110-4.18.8.B, and pursuant to the requirements of §4.18.4.B and §4.18.10. A discussion of the project as it pertains to the WQIA requirements is provided below:

1) Location of the components of any RPA, including the 100-foot buffer area;

The boundaries of the "City of Fairfax Mapped RPA" (from City of Fairfax Digital Data) and "Field Verified RPA" and their associated core components are depicted on this sheet. These RPA boundaries were defined as follows:

The "City of Fairfax Mapped RPA" boundary is from City of Fairfax Digital Data.

The "Field-Verified RPA" extends landward of the RPA core components (as defined in §4.18.2). Accotink Creek, a USGS mapped perennial stream, and a perennial tributary to Accotink Creek area present on the site. Two additional streams were identified during WSSI's May 2023 delineation and stream assessments were conducted. Palustrine forested wetlands (PFO) were also delineated on the site. The limits of the "Existing RPA" depicted within this exhibit are based on a 100 foot offset from the delineated intermittent and perennial water bodies and jurisdictional wetlands that are RPA core components, as described in the report titled "Gateway Regional Park Waters of the U.S. (Including Wetlands) Delineation and Resource Protection Area Evaluation," dated July 17, 2023 (Jurisdictional Determination #NAO-2023-01971). Please refer to the "Gateway Regional Park Resource Protection Area (RPA) Site-Specific Study" submitted concurrently with this plan set for more information.

2) Location and nature of the proposed improvements, including: type of paving material; areas of clearing or grading; location of any structures, drives, or other impervious cover; and sewage disposal systems or reserve drainfield sites;

The proposed project involves the creation of a Level II Constructed Wetland BMP facility, designed in accordance with the Virginia DCR Stormwater Design Specification No. 13 (Allowed Use, pursuant to §110-4.18.4.B), and associated site improvements to increase usage of the existing park, create natural learning opportunities, and access the existing overhead utility line paralleling Accotink Creek (Exemptions, pursuant to §110-4.18.10). Proposed improvements are depicted on this sheet. Improvements include the necessary clearing and grading to create the constructed wetland, creation of wetland weirs and an outfall step pool structure designed in accordance with NCD methods (see Sheet 23), the addition of boardwalks and a concrete sidewalk for recreational pedestrian access and maintenance of an overhead utility line, re-paving a portion of the asphalt access road (and adding a curb-and-gutter system), seeding, sodding, and the installation of native plantings as shown in this plan set (see Landscape Plan, Sheets 40-43). Due to the minor disturbance necessary to connect the step pool outfall of the proposed constructed wetland to the existing perennial stream channel, the proposed work will require a Nationwide Permit (NWP) #18 for permanent impacts, from the US Army Corps of Engineers (COE). This permit will be obtained prior to the start of construction. The total disturbance within the Field-Verified RPA is approximately 17,119 sf (0.39 ac). There are no proposed sewage disposal systems or reserve drainfield sites.

Impervious cover has been limited within the RPA to provide a functional curb-and-gutter system for the existing public access road, and create a practical, accessible pathway for park users and overhead utility maintenance (Exemptions, pursuant to §110-4.18.10). The curb-and-gutter system will channel stormwater runoff into the proposed constructed wetland forebay instead of pooling and creating erosional features at the southern end of the access road as in current existing conditions (see Sheet 36). In total, the proposed Exempt improvements create a minimal net increase of 597 square feet of impervious cover within the RPA. Encroachment and impervious area calculations are provided below.

3) Type and location of proposed best management practices to meet the required general performance standards specified in section 110-4.18.7;

The constructed wetland and associated site improvements proposed within the RPA are self-mitigating. The work will involve the creation of a stormwater management BMP facility that treats a 3.82-acre watershed draining to Accotink Creek, which will reduce the sediment supply to downstream receiving waters, exceed on-site water quality treatment requirements and generate water quality credits, and result in the installation of native vegetation throughout the riparian corridor. The project will also create natural learning opportunities and community engagement through better accessibility and the addition of interpretive signage. Any adverse impacts will be temporary in nature and will ultimately lead to a much improved RPA condition. A two-phased Erosion & Sediment Control Plan prepared in accordance with the 1992 Virginia Erosion and Sediment Control Handbook (VESCH) is provided on sheets 32-35.

4) Location of existing vegetation on site, including the number and type of trees and other vegetation to be removed in the buffer to accommodate the encroachment or modification;

Trees greater than or equal to 6-inches dbh were surveyed within the project area (north of Accotink Creek). No trees will be impacted outside of this area. The 20 trees proposed to be removed from within the RPA are shown and described on this sheet. A detailed analysis of the tree impacts is shown in this plan set on the Tree Inventory and Tree Conservation Plans (Sheets 7-11).

5) A revegetation plan that supplements the existing buffer vegetation in a manner that provides for pollutant removal, erosion and runoff control.

Disturbed areas will be revegetated in accordance with Virginia DCR Stormwater Design Specification No. 13, Level II constructed wetland. Outside the limits of the proposed constructed wetland, a robust mix of additional native trees, shrubs, and forbs are provided. All plant materials to be used are native species (other than turfgrass in limited, select areas for maintenance accessibility) and appropriate to site conditions. All pervious areas of the site will be sodded or seeded upon completion of grading, using seed mixes that include species for temporary erosion & sediment control at rates in accordance with the 1992 VESCH. The proposed planting is detailed in this plan set on the Landscape Plan, Planting Schedules, and Planting Notes & Details sheets (40-43). Additional plantings are proposed outside the limits of disturbance to meet RPA planting requirements--see RPA Planting sheet (Sheet 45) for more information.

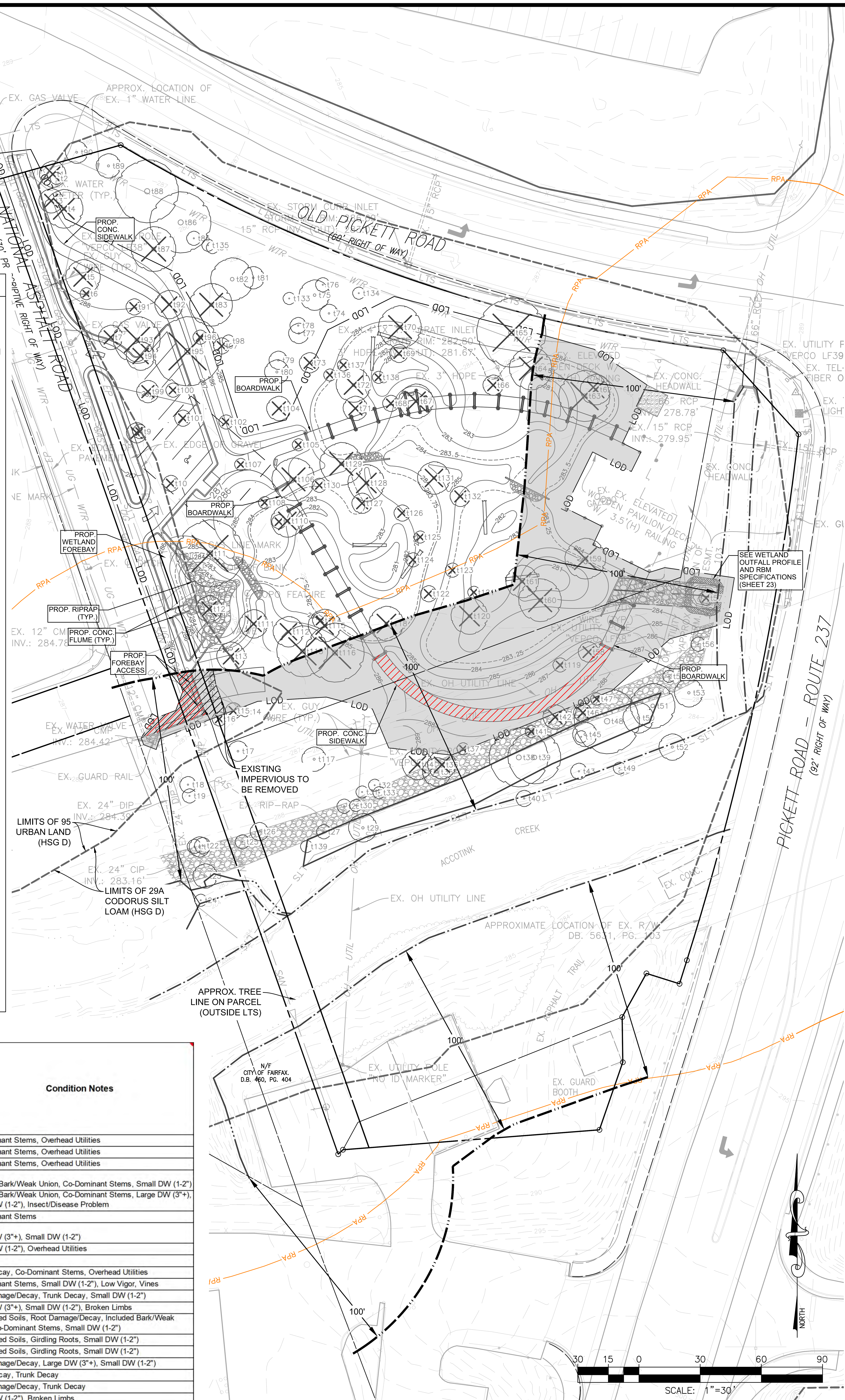
EXEMPT RPA ENCROACHMENT SUMMARY			
Encroachment Area		***SF***	***AC***
Proposed public road improvements and passive recreation facilities*		17,119	0.39
Existing Impervious (Public Road)	Total	556	0.01
	To Be Removed	247	0.01
Proposed Impervious**	Public Road	344	0.01
	Passive Recreation Facilities	809	0.02
	Total Proposed Impervious	1153	0.03
Net Impervious Increase**		597	0.01

**Proposed disturbance is entirely within prior historic disturbance footprint.*

***Impervious areas are included in disturbance areas.*

ALLOWED USE RPA ENCROACHMENT SUMMARY		
Encroachment Area	***SF***	***AC***
Proposed SWM Facility*	17,119	0.39

**Proposed disturbance is entirely within prior historic disturbance*



WQIA LEGEND

- PARCEL BOUNDARY
- 30' PRESCRIPTIVE ROW EASEMENT
- EXISTING PERMANENT CONSTRUCTION EASEMENT (D.B. 5631, PG. 103)
- EXISTING INFRASTRUCTURE
- EXISTING CONTOURS (1')
- PERENNIAL STREAM
- INTERMITTENT STREAM
- PALUSTRINE FORESTED WETLAND (PFO)
- FIELD-VERIFIED RPA
- CITY OF FAIRFAX MAPPED RPA
- SURVEYED SANITARY SEWER
- SURVEYED OVERHEAD UTILITY LINE
- SURVEYED EDGE OF PAVEMENT
- LIMITS OF TREE SURVEY
- SURVEYED TREE (≥ 6" DBH)
- SURVEYED TREE TO BE REMOVED
- LIMITS OF DISTURBANCE
- PROPOSED CONTOUR (1')
- PROPOSED WSE CONTOUR
- PROPOSED INFRASTRUCTURE
- PROPOSED HABITAT LOG
- PROPOSED WEIR
- PROPOSED STREAM CENTERLINE
- PROPOSED BANKFULL
- STEP POOL
- EXISTING/PROPOSED RPA ENCROACHMENT
- EXISTING IMPERVIOUS AREAS INSIDE RPA
- PROPOSED IMPERVIOUS AREAS INSIDE RPA

TREES TO BE REMOVED WITHIN RPA

Tree #	DBH (Diameter at 4.5 feet above grade)	Common Name	Botanical Name	Condition Rating %	Condition Rating	Dead Tree (Y/N)	Condition Notes
14	4,3	pear, Callery	Pyrus calleryana	60%	Fair	NO	Co-Dominant Stems, Overhead Utilities
15	6,5	pear, Callery	Pyrus calleryana	60%	Fair	NO	Co-Dominant Stems, Overhead Utilities
16	5,5	pear, Callery	Pyrus calleryana	60%	Fair	NO	Co-Dominant Stems, Overhead Utilities
34	7,4,7,5, 7,7	maple, red	Acer rubrum	60%	Fair	NO	Included Bark/Weak Union, Co-Dominant Stems, Small DW (1-2")
36	11,8	ash, green	Fraxinus pennsylvanica	45%	Fair	NO	Included Bark/Weak Union, Co-Dominant Stems, Large DW (3"+), Small DW (1-2"), Insect/Disease Problem
37	5,3	pear, Callery	Pyrus calleryana	60%	Fair	NO	Co-Dominant Stems
41	5,3	ash, green	Fraxinus pennsylvanica	0%	Dead	YES	Large DW (3"+), Small DW (1-2")
42	12	maple, red	Acer rubrum	70%	Good	NO	Small DW (1-2"), Overhead Utilities
46	9	maple, red	Acer rubrum	75%	Good	NO	
47	5,3	boxelder	Acer negundo	60%	Fair	NO	Trunk Decay, Co-Dominant Stems, Overhead Utilities
57	6,3	pear, Callery	Pyrus calleryana	40%	Poor	NO	Co-Dominant Stems, Small DW (1-2"), Low Vigor, Vines
58	10	maple, red	Acer rubrum	65%	Good	NO	Root Damage/Decay, Trunk Decay, Small DW (1-2")
59	20	oak, white	Quercus alba	65%	Good	NO	Large DW (3"+), Small DW (1-2"), Broken Limbs
60	15,15	hickory, pignut	Carya glabra	60%	Fair	NO	Compacted Soils, Root Damage/Decay, Included Bark/Weak Union, Co-Dominant Stems, Small DW (1-2")
61	16	hickory, pignut	Carya glabra	70%	Good	NO	Compacted Soils, Girdling Roots, Small DW (1-2")
62	15	hickory, pignut	Carya glabra	70%	Good	NO	Compacted Soils, Girdling Roots, Small DW (1-2")
63	25	maple, red	Acer rubrum	70%	Good	NO	Root Damage/Decay, Large DW (3"+), Small DW (1-2")
116	29	maple, red	Acer rubrum	40%	Poor	NO	Basal Decay, Trunk Decay
119	7	maple, red	Acer rubrum	60%	Fair	NO	Root Damage/Decay, Trunk Decay
120	18	hickory, pignut	Carya glabra	70%	Good	NO	Small DW (1-2"), Broken Limbs

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Water Quality Impact Assessment

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

SCALE: 1" = 20' C.I.: 1'

DATE: August 2025

Horizontal Datum: NAD83

Vertical Datum: NGVD29

Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
DMC	SEH	FRG

Computer File Name:
WATER QUALITY IMPACT ASSESSMENT.dwg

RPA PLANTING REQUIREMENTS

DISTURBED AREA WITHIN RPA:
17,115 SF
0.39 AC

REQUIRED PLANTINGS PER ACRE (PER FAIRFAX COUNTY PFM TABLE 12.13B):

OVERSTORY 1.5" CAL.	109	UNDERSTORY 3/4" CAL.	218	SHRUB 1 GALLON	654
PLANTINGS REQUIRED FOR DISTURBED RPA ACREAGE:	**42**		**85**		**256**
PLANTINGS PROVIDED IN RPA:					
WITHIN LOD	4		5		42
WITHIN RPA PLANTING AREA	4		80		213
PLANTING EQUIVALENTS (NNI TREATMENT)*	34		-		-
TOTAL	**42**		**85**		**255**

***NNI TREATMENT PLANTING EQUIVALENTS**

NNI REMOVAL AREA:	0.52 AC	
OVERSTORY TREE COST 1.5" CAL.	$ 820.50	
HOURLY NNI REMOVAL CREW RATE	$ 290.00	
TWO WEEKS' INITIAL REMOVAL CREW COST ESTIMATE	$ 23,200.00	
TWO FOLLOW-UP TREAMENTS COST ESTIMATE	$ 4,640.00	
TOTAL NNI REMOVAL COST ESTIMATE	$ 27,840.00	
TOTAL NNI REMOVAL COST / OVERSTORY TREE COST =	34	OVERSTORY TREE PLANTING COST EQUIVALENTS

NOTES
1. OVERSTORY TREE COST ESTIMATED BY AVERAGING 1" CAL. AND 2" CAL. TREE COSTS LISTED IN FAIRFAX COUNTY UNIT PRICE SCHEDULE.
2. NNI REMOVAL COST EQUIVALENT IS USED TO ACCOUNT FOR MAJORITY OF REQUIRED OVERSTORY TREES. BECAUSE NATIVE OVERSTORY TREES ARE ALREADY PRESENT WITHIN RPA TREATMENT AREA, FEWER PLANTINGS OF THIS SPECIES GROUP ARE PROPOSED AND MORE COST EQUIVALENTS ARE PROPOSED.

NON-NATIVE INVASIVE SPECIES (NNI) TREATMENT PLAN

GENERAL OBJECTIVES FOR NNI TREATMENT

1. AN INITIAL CLEARING AND TWO (2) FOLLOW-UP TREATMENTS ARE PROPOSED TO ACHIEVE A HIGH MEASURE OF SUCCESS, REALIZING THAT 100% CONTROL--ESPECIALLY OF THE SMALLER SPECIES--IS NOT FEASIBLE. WHILE INVASIVE REMOVAL CAN BE SUCCESSFUL IN THE SUBJECT AREAS, IT IS OUR EXPERIENCE THAT WATERWAYS AND WILDLIFE WILL SERVE AS VECTORS FOR MORE INVASIVE SPECIES. ADJACENT PROPERTIES ARE ALSO POTENTIAL INOCULATION CENTERS.
2. MANY BENEFICIAL NATIVE SPECIES ARE PRESENT ON THE SITE. CARE SHOULD BE EXERCISED TO AVOID COLLATERAL DAMAGE TO THESE TREE, SHRUB, AND HERBACEOUS SPECIES TO THE GREATEST EXTENT PRACTICABLE.

NNI TREATMENT SCHEDULE

AN INITIAL TREATMENT, USING BOTH MECHANICAL AND CHEMICAL METHODS TO TREAT ALL AREAS SHOWN ON THIS SHEET, SHALL BE PERFORMED IN FALL 2025. BEYOND THIS INITIAL TREATMENT, TWO (2) TARGETED MAINTENANCE HERBICIDE APPLICATIONS SHALL BE CONDUCTED (GROWING SEASON OF 2026).

THESE FOLLOW-UP TREATMENT EVENTS SHOULD BE SCHEDULED TO OCCUR IN JULY 2026, AND IN LATE SEPTEMBER/EARLY OCTOBER 2026. THE SUMMER (JULY) TREATMENT EVENT WILL TARGET PORCELAIN-BERRY (*AMPELOPSIS BREVIPEDUNCULATA*) AND OTHER VINES. TREATING IN JULY WILL ENSURE THAT PORCELAIN-BERRY HAS FULLY ESTABLISHED FOR THE GROWING SEASON, BUT HAS NOT YET FORMED SEEDS. THE FALL (LATE SEPTEMBER/EARLY OCTOBER) TREATMENT EVENT WILL TARGET WOODY VEGETATION, WHEN THESE SPECIES ARE MORE RECEPTIVE TO HERBICIDE AND RISK OF COLLATERAL DAMAGE TO NATIVE PLANTS IS LOWER.

SUMMARY RECOMMENDATIONS FOR NNI TREATMENT

1. VINES

VINES ARE THE MOST ABUNDANT TYPE OF NON-NATIVE INVASIVE PLANT (NNI) ON SITE. LEFT UNTREATED, THEY WILL CONTINUE TO FORM DENSE MATS THAT SMOTHER EXISTING NATIVE VEGETATION AND PREVENT REGENERATION OF NATIVE SPECIES FROM THE SEEDBANK. NNI VINES ALSO CLIMB INTO THE CANOPIES OF NATIVE TREES AND OUT-COMPETE THEIR LEAVES FOR SUNLIGHT. THE DEATH OF LARGE TREES CREATES CANOPY GAPS WHERE SUNLIGHT CAN ACCESS THE GROUND PLANE, ENHANCING THE GROWTH OF NNI SPECIES.

NNI VINE SPECIES FOUND IN THE TREATMENT AREA INCLUDE PORCELAINBERRY (*AMPELOPSIS BREVIPEDUNCULATA*), SWEET AUTUMN CLEMATIS (*CLEMATIS TERNIFLORA*), ORIENTAL BITTERSWEET (*CELASTRUS ORBICULATUS*), AND WINTER CREEPER (*EUONYMUS FORTUNEI*).

WE RECOMMEND CONTROLLING NNI VINES BY FOLIAR SPRAY OR CUT STUMP/CUT STEM HERBICIDE APPLICATIONS.

2. TREES & SHRUBS

INVASIVE SHRUBS ARE ABUNDANT THROUGHOUT THE SITE, AND SOME INVASIVE TREE SEEDLINGS/SAPLINGS ARE PRESENT. IF LEFT UNTREATED, THE SHRUBS CAN FORM DENSE, SOMETIMES IMPENETRABLE THICKETS THAT PREVENT ESTABLISHMENT OF NATIVE VEGETATION. BUSH HONEYSUCKLE (*LONICERA* SPP.) IS OF PRIMARY CONCERN. CALLERY PEAR (*PYRUS CALLERYANA*), WHITE MULBERRY (*MORUS ALBA*), AND MULTIFLORA ROSE (*ROSA MULTIFLORA*) ARE ALSO PRESENT WITHIN THE TREATMENT AREA.

WE RECOMMEND CONTROLLING THESE SHRUB AND TREE SPECIES BY FOLIAR OR CUT STUMP/CUT STEM HERBICIDE APPLICATIONS. INDIVIDUAL PLANTS OR SMALL INFESTATIONS SHOULD BE REMOVED MANUALLY WHEN POSSIBLE.

3. HERBACEOUS PLANTS

HERBACEOUS INVASIVE SPECIES LIKE JAPANESE KNOTWEED (*REYNOUTRIA JAPONICA*) CAN BE FOUND IN PATCHES IN THE TREATMENT AREA. GIVEN ITS FAST GROWTH RATE AND ABILITY TO SPREAD LOCALLY, THIS SPECIES POSES A SERIOUS THREAT TO THE LOCAL ECOSYSTEM IF NOT ADDRESSED.

INVASIVE FORBS SHOULD BE TREATED BY APPLYING A FOLIAR HERBICIDE APPLICATION DIRECTLY ONTO LEAVES OR CUT SURFACES.

GENERAL STATEMENT ON INVASIVE PLANTS AND CONTROL METHODS

THIS PROJECT RECOMMENDS THE USE OF TWO TYPES OF CHEMICALS:
- **GLYPHOSATE** (THE ACTIVE INGREDIENT IN SUCH FORMULATIONS AS AQUANEAT AQUATIC HERBICIDE, RANGER PRO HERBICIDE, ROUNDUP PRO)
- **TRICLOPYR** (THE ACTIVE INGREDIENT IN SUCH FORMULATIONS AS VASTLAN SPECIALTY HERBICIDE, GARLON 4 ULTRA, AND TRICLOPYR 4E)

THESE CHEMICALS BECOME INACTIVE ONCE THEY CONTACT THE SOIL, BIODEGRADE RELATIVELY QUICKLY, AND PRESENT MINIMAL DANGER TO PEOPLE AND WILDLIFE WHEN HANDLED PROPERLY. **HERBICIDES SHALL ONLY BE USED BY LICENSED PESTICIDE APPLICATORS. WHEN WORKING IN/NEAR WETLANDS OR WATERWAYS, ONLY EPA-APPROVED WATER-SAFE HERBICIDES SHALL BE USED.**

FOR ALL CHEMICAL APPLICATION METHODS:
- ADD AN EPA-APPROVED BLUE MARKER DYE (NOT FOOD COLORING) TO ALL HERBICIDE SOLUTIONS IN ORDER TO KEEP TRACK OF WHICH PLANTS HAVE BEEN TREATED.
- ALWAYS USE THE LOWEST CONCENTRATION THAT PROVES EFFECTIVE.
- REMEMBER, THE LABEL IS THE LAW. ALWAYS APPLY HERBICIDES IN ACCORDANCE WITH SPECIFIC LABEL INSTRUCTIONS, WHICH INCLUDE PERSONAL PROTECTIVE EQUIPMENT AND STORAGE REQUIREMENTS.

NOTES:
1. CONTRACTOR SHALL EXERCISE CAUTION WHEN WORKING AROUND EXISTING 8" GAS MAIN.
2. PLANT SYMBOLS DEPICTED ON PLAN ARE FOR GRAPHIC PURPOSES ONLY. CONTRACTOR TO FIELD-ADJUST PLANTING LOCATIONS AS NECESSARY, AVOIDING EXISTING NATIVE VEGETATION REMAINING AFTER INVASIVE SPECIES REMOVAL.
3. SEE LANDSCAPE PLAN, SCHEDULE, NOTES & DETAILS (SHEETS 40-43) FOR INFORMATION ON PROPOSED PLANTINGS WITHIN THE LOD.

GATEWAY REGIONAL PARK RPA PLANTING SCHEDULE

PLANTING ZONE	SPECIES	STOCK SIZE	QUANTITY
OVERSTORY	BETULA NIGRA (RIVER BIRCH)	1.5" CALIPER	1
	PLATANUS OCCIDENTALIS (AMERICAN SYCAMORE)		1
	QUERCUS BICOLOR (SWAMP WHITE OAK)		1
	TAXODIUM DISTICHUM (BALD CYPRESS)		1
		OVERSTORY SUBTOTAL	**4**
UNDERSTORY	ACER NEGUNDO (BOX ELDER)	3/4" CALIPER	12
	ALNUS SERRULATA (SMOOTH ALDER)		12
	AMELANCHIER ARBOREA (DOWNY SERVICEBERRY)		11
	ASIMINA TRILOBA (PAWPAW)		11
	CARPINUS CAROLINIANA (AMERICAN HORNBEAM)		11
	MAGNOLIA VIRGINIANA (SWEETBAY MAGNOLIA)		12
	SALIX NIGRA (BLACK WILLOW)		11
		UNDERSTORY SUBTOTAL	**80**
SHRUBS	ARONIA ARBUTIFOLIA (RED CHOKEBERRY)	1 GALLON	27
	CEPHALANTHUS OCCIDENTALIS (BUTTONBUSH)		26
	CLETHRA ALNIFOLIA (SUMMERSWEET)		26
	CORNUS AMOMUM (SILKY DOGWOOD)		27
	CORNUS RACEMOSA (GRAY DOGWOOD)		27
	ITEA VIRGINICA (VIRGINIA SWEETSPIRE)		26
	SAMBUCUS CANADENSIS (AMERICAN ELDERBERRY)		27
	VIBURNUM DENTATUM (ARROWWOOD VIBURNUM)		27
		SHRUB SUBTOTAL	**213**
		TOTAL PLANTINGS	**297**

PLANTING NOTES:
1) It is expected that all species listed in each zone are planted. Substitutions for selected plant species based upon availability shall be requested in writing to engineer, documenting the lack of availability.
2) Plant stock sizes and quantities are based on stock sizes and rates listed in Table 12.13B of Article 12 of the Fairfax County PFM.
3) Species shall be mixed randomly throughout the designated planting area.

RPA NNI TREATMENT & PLANTING PLAN LEGEND

- PARCEL BOUNDARY
- 30' PRESCRIPTIVE ROW EASEMENT
- EXISTING PERMANENT CONSTRUCTION EASEMENT (D.B. 5631, PG. 103)
- EXISTING INFRASTRUCTURE
- 290 — EXISTING CONTOURS (1')
- PERENNIAL STREAM
- INTERMITTENT STREAM
- PALUSTRINE FORESTED WETLAND (PFO)
- FIELD-VERIFIED RPA
- SAN — SURVEYED SANITARY SEWER
- OH — UTIL — SURVEYED OVERHEAD UTILITY LINE
- UG — WTR — EXISTING UNDERGROUND WATER LINE
- UG — GAS — EXISTING UNDERGROUND GAS LINE
- EP — SURVEYED EDGE OF PAVEMENT
- LTS — LIMITS OF TREE SURVEY
- t100 — SURVEYED TREE (≥ 6" DBH)
- t100 — SURVEYED TREE TO BE REMOVED
- LOD — LIMITS OF DISTURBANCE
- 290 — PROPOSED CONTOUR (1')
- PROPOSED INFRASTRUCTURE
- PROPOSED HABITAT LOG
- PROPOSED WEIR
- PROPOSED STREAM CENTERLINE
- PROPOSED BANKFULL
- STEP POOL
- INVASIVE SPECIES TREATMENT AREA (0.52 AC)
- PROPOSED OVERSTORY TREE
- PROPOSED UNDERSTORY TREE
- PROPOSED SHRUB

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RPA NNI Treatment & Planting Plan

Prepared For: NOVA Parks

Gateway Regional Park

City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

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Horizontal Datum: NAD83
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Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
DMC	SEH	FRG

Sheet #
45 of 55

Computer File Name:

GATEWAY REGIONAL PARK CONSTRUCTED WETLAND BMP MAINTENANCE PLAN

All recommendations in this maintenance plan have been adapted from the Virginia Department of Environmental Quality (DEQ)'s Virginia Stormwater Management Handbook, Version 1.0, effective July 01, 2024. Maintenance will be the responsibility of the Northern Virginia Regional Park Authority (NOVA Parks), as specified on the BMP maintenance agreement on this sheet.

CONSTRUCTED WETLAND BMP MAINTENANCE INSPECTION SCHEDULE

MONTHS AFTER CONSTRUCTION:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	24+
INSPECTION SCHEDULE:	Initial inspections: inspect at least twice after storm events exceeding 0.5" rainfall						Inspect at least once monthly, and within 24 hrs of each water quality storm (>1" rainfall)																		Annually*
MAINTENANCE TASKS:																									
Watering tree/shrub plantings**	Water every 3 days	Water weekly during first growing season (April-October)							As needed																
Spot Reseeding	Check for bare or eroding areas and stabilize immediately with grass cover (as specified on vegetation schedules)																								
Reinforcement Plantings									Selectively replant portions of the wetland that fail to fill in or survive																

*Annual maintenance inspections detailed on this sheet.
**Watering schedule to be adjusted as necessary depending on rainfall.

The table above details the schedule to be adhered to for the first two years following installation of the constructed wetland BMP. Generally, initial inspections shall occur for the first six months after construction. During this time, the site shall be inspected at least twice after storm events exceeding 0.5 inches of rainfall. Between 6 months and 2 years after construction, the site shall be inspected at least once monthly, and within 24 hours of each water quality storm event (rainfall exceeding 1 inch). For this 2-year time period, inspectors should pay close attention to vegetative establishment. Tree and shrub plantings should be watered per the schedule. Any bare or eroding areas should be immediately stabilized with grass cover (as specified in the Landscape Plan). After the first growing season, the wetland should be selectively replanted to fill in any areas where plantings have failed to fill in or survive.

After the first 2 years following construction, the BMP should be inspected annually. Annual maintenance inspections shall consist of the following tasks:

- Measure sediment accumulation levels in forebays and micropools
- Monitor growth and survival of emergent wetland and tree/shrub species, recording species and approximate coverage
- Inspect condition of stormwater inlets for material damage, erosion, or undercutting
- Inspect upstream and downstream banks for evidence of sloughing, animal burrows, boggy areas, woody growth, or gully erosion that may undermine embankment integrity
- Inspect wetland weirs and outfall channel for erosion, undercutting, rip-rap or RBM displacement, woody growth, and other issues
- Inspect maintenance access beside forebay to ensure it is free of woody vegetation and fully accessible to vehicles
- Inspect internal and external side slopes of wetland for evidence of sparse vegetative cover, erosion, or slumping, and make needed repairs immediately
- Note presence and coverage of invasive plant species *at least twice annually during the growing season* - begin treatment methods outlined below when coverage exceeds 15% of any wetland cell

The results of annual inspections will trigger specific maintenance tasks, in addition to routine maintenance tasks that must be conducted at least annually or more often if necessary. Routine maintenance tasks include:

- Mowing turfgrass areas as needed
- Mowing upland Restoration Seeding areas annually
- Removing small amounts of sediment
- Removing vegetative overgrowth and woody debris
- Control of invasive plant species
- Removing trash, debris, and floatables
- Replacing dead and/or diseased plant materials
- Pruning trees and shrubs as necessary
- Maintaining and replacing rjprap and RBM in outfall channel
- Nuisance control (e.g. animals, undesirable plant communities)
- Minor cleaning of forebay inlets

Basic equipment needed may include, but is not limited to: PPE, van, pickup truck, tablet, camera, shovels and other hand tools, mowers, chainsaws, vac truck, sediment dewatering equipment, street sweeper, seeding equipment, mulchers, disposal equipment. During routine maintenance, a visual assessment of the BMP should also be conducted, and any issues observed should be reported to NOVA Parks.

If any major issues are discovered, more intensive, structural maintenance tasks will need to be undertaken. These could include regrading or dredging, replacing concrete weirs or inlets if cracks are discovered, or completely refurbishing the landscaping. Equipment needed may include, but is not limited to, the items listed above as well as: dump truck, trailer, mini-excavator, excavator, track loader.

Beyond the first 2 years after construction, there are a few specific major maintenance events required for the BMP. Excess woody growth in and surrounding the wetland should be thinned approximately 5-10 years after construction. Woody species in or near the forebay maintenance access point should be removed every 2 years. Sediment should be removed from the forebay approximately every 5-7 years, or when inspections indicate that 50% of the forebay sediment storage capacity has been reached (whichever occurs first).

Management of invasive species should begin as soon as they begin to colonize the wetland and surrounding area, and may be an ongoing process. Species that may occur in the wetland include cattails (*Typha* spp.), phragmites (*Phragmites australis ssp. australis*), and other aquatic species. Species that may occur in surrounding areas include Callery pear (*Pyrus calleryana*), tree of heaven (*Ailanthus altissima*), bush honeysuckle (*Lonicera* spp.), and Japanese honeysuckle (*Lonicera japonica*). Invasive species shall be treated with a combination of mechanical and chemical treatments, utilizing spot herbicide application with an herbicide approved by the EPA for safe use near waterways.

BMP AGREEMENT# (to be filled in by staff): ____________

CITY OF FAIRFAX
STANDARD BEST MANAGEMENT PRACTICES (BMP) FACILITIES MAINTENANCE AND MONITORING AGREEMENT

THIS AGREEMENT, made and entered into this 18th day of July, 20 24, by and between NOVA PARKS, its successors and assigns, hereinafter called (the "Landowner"), and the City of Fairfax, Virginia, a Virginia municipal corporation (the "City");

WITNESSETH:

WHEREAS, the Landowner is the owner of record certain real property located within the City, and described as:

48 3 02 015
Tax map, block, and lot number

as acquired by deed recorded in the land records of the County of Fairfax, Virginia in Deed Book 9311 at Page 1, (the "Property").

WHEREAS, Landowner is proceeding to build on and develop the Property and;

WHEREAS, Erosion and Sediment Control Plan/ Plan of Development/Site Plan/Subdivision Plan (describe fully) Gateway Regional Park, (the "Plan"), which is expressly made a part hereof by reference, as approved or to be approved by the City, provides for detention or on-site treatment of stormwater within the confines of the Property and;

WHEREAS, Erosion and Sediment Control Plan/Plan of Development/Site Plan/Subdivision Plan identifies the type of structural best management practices facility or facilities as:
1) Level II Constructed Wetland
2)____________ 4)____________
3)____________ 5)____________ as
defined by the Virginia Stormwater Management Handbook and;

WHEREAS, Erosion and Sediment Control Plan/Plan of Development/Site Plan/Subdivision Plan identifies the geographic location (HUC), hydrologic unit code of each facility as:
1) PL30 (HUC as established in 4 VAC 50-60-10) 12-020700100402 (USGS HUC)
2)______(HUC as established in 4 VAC 50-60-10) ______(USGS HUC)
3)______(HUC as established in 4 VAC 50-60-10) ______(USGS HUC)
4)______(HUC as established in 4 VAC 50-60-10) ______(USGS HUC)
5)______(HUC as established in 4 VAC 50-60-10) ______(USGS HUC)

WHEREAS, Erosion and Sediment Control Plan/Plan of Development/Site Plan/Subdivision Plan identifies the impaired surface water that the best management practices facility is discharging into as:
1) perennial tributary to Accotink Creek
2)____________
3)____________
4)____________
5)____________

WHEREAS, Erosion and Sediment Control Plan/Plan of Development/Site Plan/Subdivision Plan identifies the number of acres treated by each facility as:
1) 3.81 2)____________
3)____________ 4)____________
5)____________ and;

BMP AGREEMENT# (to be filled in by staff): ____________

WHEREAS, Landowner acknowledges that the City Zoning Ordinance requires that on-site Best Management Practices, facilities, (the "Facilities"), be properly constructed and maintained, inspected on the property and;

WHEREAS, the City requires that the Facilities as shown on the Plan be constructed and adequately maintained by the Landowner.

NOW, THEREFORE, in consideration of the foregoing premises, the mutual covenants contained herein, and the following terms and conditions and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree as follows:

1. The Facilities shall be constructed by the Landowner, in accordance with the plans and specifications as identified in the Plan.
2. Landowner shall maintain the Facilities in good working condition, in a manner to be acceptable to the City, so that the Facilities perform as designed.
3. Landowner, hereby grant permission to the City, its authorized agents and employees, to enter upon the Property and to inspect the Facilities whenever the City deems it to be necessary. The purpose of the inspection shall be to assure safe and proper functioning of the Facilities, berms, outlet structures, pond areas, etc. When deficiencies are noted, the City shall give the Landowner, copies of the inspection report with its findings and evaluations within 30 days.
4. Landowner will submit inspection reports and perform maintenance in accordance with the maintenance schedule for the Facilities including sediment removal as outlined on the approved plans and the following specific requirements:
   a. Maintenance of the aforementioned facility or facilities shall conform to the maintenance requirements contained in Chapter 6 of the Northern Virginia BMP Handbook, published by the Northern Virginia Planning District Commission and Virginia Stormwater Management Handbook, First Edition, published by the Virginia Department of Conservation and Recreation Division of Soil and Water Conservation.
   b. Inspection of Facilities shall be performed every **12** months by a qualified professional licensed to perform said work in the State of Virginia; an inspection report shall be submitted to the City Zoning Administrator.
5. In the event the City, pursuant to this Agreement, enters upon the Property and takes whatever steps it deems necessary to maintain said Facilities and in performance of said work for labor, use of equipment, supplies, materials and the like on account of the Landowner's failure to perform such work, the Landowner shall reimburse the City, upon demand, within 30 days of receipt thereof for all costs incurred by the City hereunder. It is expressly understood and agreed that the City is under no obligation to maintain or repair said Facilities, and in no event shall this Agreement be construed to impose any such obligation on the City. If not paid within such 30-day period, the City shall have a lien against the Property to the extent permitted by law, in the amount of such costs, plus interest at the highest rate permitted by law.
6. Landowner shall indemnify and hold harmless the City, its officers, agents and employees for any and all damages, accidents, casualties, occurrences or claims which might arise or be asserted against the City for the construction, presence, existence of or maintenance of the Facilities by the Landowner. In the event a claim is asserted against the City, the City shall promptly notify the Landowner, and the Landowner shall defend, at its own expense, any suit based on such claim. If any judgment or claim against the City shall be allowed, the Landowner shall pay all of the City's costs and expenses in connection therewith, including attorneys' fees.
7. Landowner hereby grants permission to the City, its authorized agents and employees, and the Northern Virginia Planning District Commission, its authorized agents, employees and consultants, to enter upon the property, and to install, operate and maintain equipment to monitor the flow rate and pollutant content of the input flow, the effluent, and at intermediate points in the BMP.
8. This Agreement shall be recorded among the land records of the County of Fairfax, Virginia, and shall constitute a covenant running with the land/or equitable servitude,

BMP AGREEMENT# (to be filled in by staff): ____________

and shall be binding on the Landowner, its administrators, executors, assigns, heirs and other successors in interest.

WITNESS the following signatures and seals:

(Landowner) (Seal)
Brian Nolan, PLA
Director of Planning and Development
By: ____________
Name (type or print)

ALYSSA CHRISTIAN NOTARY PUBLIC REG # 7962172 MY COMMISSION EXPIRES 2/28/2025 COMMONWEALTH OF VIRGINIA

Attest: ____________
Secretary

WITNESS THE FOLLOWING SIGNATURE AND SEAL:

STATE OF Virginia County/City/Town of Fairfax to-wit:

I, the undersigned, A Notary Public in and for the State and County, City or Town aforesaid, do hereby certify that this day personally appeared before me in the State and County, City or Town aforesaid:

Brian G. Nolan (Name), Director of Planning & Development (Title)

whose name(s) is(are) signed to the foregoing and hereunto annexed agreement bearing the 8th day of July, 2024, and acknowledged the same before me.

Given under my hand this 18th day of July, 2024.

Notary Registration Number#: 7962172

My Commission expires: 28th day of Feb., 2025.

____
(Notary Public Signature)

BMP AGREEMENT# (to be filled in by staff): ____________

CITY OF FAIRFAX

BMP Agreement Reviewed by: ____________
Stormwater Resources Engineer

By: ____________
City Attorney – Approved as to Form

By: ____________
City Manager

Attest: ____________
City Clerk

WITNESS THE FOLLOWING SIGNATURE AND SEAL:

COMMONWEALTH OF VIRGINA
CITY OF FAIRFAX to-wit:

The foregoing instrument was acknowledged before me this:

______day of ____________,2____.by____________, as City Manager, on behalf of the City of Fairfax, Virginia.

My Commission expires: ______day of ____________,2____.

Notary Registration Number#: ____________

____
(Notary Public Signature)

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BMP Maintenance Plan
Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025 SCALE: N/A C.I.: -

Horizontal Datum: N/A
Vertical Datum: N/A
Boundary and Topo Source:
-

Design	Draft	Approved
DMC	SEH	FRG

Sheet #
46 of 55

Computer File Name:
L:\32000s\32000\32047.02\CADD\04-ENGR\12-sig sub planset_construction WATER QUALITY IMPACT ASSESSMENT.dwg

FLOODPLAIN STUDY NARRATIVE

INTRODUCTION

ON BEHALF OF THE CITY OF FAIRFAX, WETLAND STUDIES AND SOLUTIONS, INC (WSSI) IS PROPOSING IMPROVEMENTS TO THE SITE KNOWN AS GATEWAY REGIONAL PARK WHICH IS LOCATED WITHIN THE REGULATORY 100-YEAR FLOODPLAIN ASSOCIATED WITH ACCOTINK CREEK. WSSI HAS PERFORMED THIS FLOODPLAIN STUDY OF A PORTION OF ACCOTINK CREEK TO DETERMINE IF THE PROPOSED WORK RESULTS IN ANY IMPACTS TO THE REGULATORY FLOODPLAIN. ACCOTINK CREEK IS A FEMA MAPPED ZONE AE FLOOD ZONE WITHIN THE CITY OF FAIRFAX ON THE EFECTIVE FIRM. THE PURPOSE OF THE PROPOSED WORK IS TO PROVIDE AMENITY ENHANCEMENTS WHICH INCLUDE CREATING WETLAND FEATURES WHILE INTRODUCING SIDEWALKS, BOARDWALKS AND MINIMAL PARKING FOR PUBLIC INTERACTION. THE RESULTS OF THIS ANALYSIS DEMONSTRATE THAT THE PROPOSED IMPROVEMENTS RESULT IN NO RISE IN 100-YEAR FLOOD ELEVATIONS.

THE SITE

GATEWAY REGIONAL PARK IS CONTAINED WITHIN A PARCEL LOCATED IN THE SOUTHWEST QUADRANT OF THE INTERSECTION BETWEEN OLD PICKETT ROAD AND PICKETT ROAD WITHIN THE CITY OF FAIRFAX. ACCOTINK CREEK FLOWS IN THE NORTHEASTERLY DIRECTION THROUGH THE SITE, DISECTING THE SITE. THE PROPOSED LIMITS OF DISTURBANCE OF THIS PROJECT ARE CONTAINED WITHIN THE PORTION OF THE PARK LOCATED NORTH OF ACCOTINK CREEK WHICH IS ENTIRELY WITHIN THE FEMA MAPPED ZONE AE FLOOD ZONE.

THE SITE CURRENTLY IS A LIGHTLY FORESTED AREA WITH AN EXISTING ELEVATED PAVILION THAT EXPERIENCES MINIMAL PUBLIC USE. WSSI PROPOSES TO TRANSFORM THE PARK INTO A MORE PUBLIC FRIENDLY WETLAND PARK CONSISTING OF WETLAND HABITAT PLANTS AND FEATURES WITH BOARDWALKS AND OTHER ASSOCIATED PARK ELEMENTS. THE PROPOSED IMPROVEMENTS WILL INVOLVE THE REMOVAL OF TREES, INTRODUCTION OF ADDITIONAL IMPERVIOUS AREAS (SIDEWALKS, BOARDWALKS, PARKING) AND OFF-SETTING CUT AND FILL TO ACHIEVE NO NET FILL IN THE FLOODPLAIN AND NO-RISE IN FLOOD ELEVATIONS, AS DEMONSTRATED BY THIS ANALYSIS. THE NET CUT FOR PROPOSED GRADING IS 1,049 CY, WITH A MAXIMUM CUT OF 5.1 FT (WETLAND FOREBAY) AND MAXIMUM FILL OF 2.0 FT (EASTERN EDGE OF PARKING LOT).

PRIOR FLOODPLAIN DATA

THE PROPOSED IMPROVEMENTS WITHIN GATEWAY REGIONAL PARK IS ENTIRELY WITHIN A FEMA ZONE AE FLOODPLAIN OF THE CITY OF FAIRFAX, VIRGINIA AS SHOWN ON FIRM PANELS 5155240003E AND 51059C0260E, EFFECTIVE NOVEMBER 16, 2023. THE EFFECTIVE MODEL FOR ACCOTINK CREEK WAS OBTAINED FROM THE FEMA LIBRARY AND USED AS THE BASE MODEL FOR THIS FLOODPLAIN ANALYSIS.

LIMITS OF ANALYSIS

THE UPSTREAM LIMITS OF THIS STUDY AT XS 116163 EXTEND APPROXIMATELY 422 FT FROM THE UPSTREAM PROPERTY BOUNDARY TO APPROXIMATELY 860 FT DOWNSTREAM OF THE SITE AT XS 114627. THE TOTAL STUDIED LENGTH IS 1,509 FT.

DEVELOPMENT OF HYDRAULIC MODELS

HEC-RAS 5.0.7 WAS USED TO DEVELOP THE RIVERINE HYDRAULIC MODELS OF THE FLOODING SOURCE. THE EFFECTIVE MODEL OF ACCOTINK CREEK INCLUDED ONE CROSS-SECTION AT THE UPSTREAM PROPERTY BOUNDARY AND ONE CROSS-SECTION AT THE DOWNSTREAM PROPERTY BOUNDARY. THEREFORE, AN ADDITIONAL SEVEN (7) CROSS-SECTIONS WER ADDED WITHIN THE SITE IN BOTH THE EXISTING AND PROPOSED MODELS TO BE ABLE TO ANALYZE THE PROPOSED FEATURES.

HYDROLOGY

A NEW HYDROLOGIC ANALYSIS WAS NOT CONDUCTED AS PART OF THIS STUDY. THE PREVIOUSLY APPROVED 100-YEAR PEAK DISCHARGES ASSOCIATED WITH THE EFFECTIVE MODEL WERE UTILIZED IN THIS ANALYSIS.

ROUGHNESS COEFFICIENTS

MANNING'S ROUGHNESS VALUES USED IN THIS STUDY WERE CONSISTENT WITH THOSE USED IN THE EFFECTIVE MODEL AND CONFIRMED TO REPRESENT INDUSTRY STANDARDS. A N-VALUE OF 0.04 WAS USED WITHIN THE CHANNEL, WHILE OVERBANK VALUES RANGED FROM 0.05 TO 0.1.

TOPOGRAPHIC AND SURVEY DATA

THIS ANALYSIS UTILIZED CERTIFIED 1-FT CONTOUR INTERVAL AERIAL TOPOGRAPHY WITHIN THE STUDY AREA FLOWN BY NV5 GEOSPATIAL IN MARCH 2023, SUPPLEMENTED WITH FIELD-RUN SURVEY OF CHANNEL CROSS SECTIONS AND HYDRAULIC STRUCTURES PERFORMED BY WSSI IN NOVEMBER 2023. ALL THE TOPOGRAPHIC INFORMATION USED IN THIS ANALYSIS AND RESULTING FLOODPLAIN ELEVATIONS ARE RELATIVE TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88).

EXISTING CONDITIONS MODEL

THE EXISTING CONDITIONS MODEL WAS BUILT BY MAINTAINING THE LOCATIONS OF EFFECTIVE CROSS-SECTIONS AND ADDING SEVEN (7) NEW CROSS SECTIONS WITHIN THE SITE TO BE ABLE TO ANALYZE THE PROPOSED IMPROVEMENTS WITHIN THE SITE. A GEOMETRIC SURFACE WAS DEVELOPED FROM CERTIFIED 1-FT CONTOUR INTERVAL TOPOGRAPHY SUPPLEMENTED BY FIELD SURVEY OF CROSS-SECTIONS AND BRIDGE DATA AT PICKETT ROAD. CROSS-SECTION GEOMETRY DATA WAS THEN GENERATED BY CUTTING CROSS-SECTIONS OF THIS SURFACE AND EDITING BRIDGE AND ROAD DATA WITH FIELD SURVEY BRIDGE AND ROAD DATA. BANK STATIONS WERE SELECTED TO REPRESENT LOCATION OF N-VALUE APPLICATION. CHANNEL N-VALUES WERE MAINTAINED AS 0.04 WITH OVERBANK N-VALUES RANGING FROM 0.05 TO 0.1, AS USED IN THE EFFECTIVE MODEL. CONTRACTION AND EXPANSION COEFFICIENTS WERE SET TO BE 0.3 AND 0.5, RESPECTIVELY, TO ACCOUNT FOR ASSOCIATED LOSSES AT THE PICKETT ROAD BRIDGE, IN ADDITION, INEFFECTIVE FLOW AREAS WERE DEFINED AT THE UPSTREAM AND DOWNSTREAM CROSS SECTIONS OF THE EXISTING BRIDGE WITH CORRESPONDING ELEVATIONS SET AT THE LOWEST POINT ON TOP OF THE ROAD ABOVE WHICH WEIR FLOW OVER THE ROADWAY IS INITIATED. INEFFECTIVE FLOW AREAS WERE ALSO CODED IN TO REPRESENT SHADOW CONVEYANCE AREAS ASSOCIATED WITH EXISTING BUILDINGS.

THE RESULTING FLOODPLAIN IS DELINEATED ON SHEETS 48 & 49 WITH A PROFILE PROVIDED ON SHEET 52 AND CROSS-SECTIONS PROVIDED ON SHEETS 53-55.

PROPOSED CONDITIONS MODEL

THE PROPOSED CONDITIONS MODEL UTILIZED THE EXISTING CONDITIONS MODEL AS A BASE MODEL, REPLACING GEOMETRIC DATA ALONG CROSS-SECTIONS WITHIN THE SITE WITH PROPOSED SURFACE GEOMETRIC DATA. THE PROPOSED BOARDWALKS WERE MODELED AS OBSTRUCTIONS WITH THE HEIGHT EXTENDED TO THE TOP OF THE HANDRAIL. THE PROPOSED WETLAND PLANTING CONSISTS OF NATIVE TREES, SHRUBS, AND HERBACEOUS PLUGS APPROPRIATE FOR VARIOUS DEPTHS IN THE CONSTRUCTED WETLAND, WHICH WERE REPRESENTED BY OVERBANK N-VALUES OF 0.1.

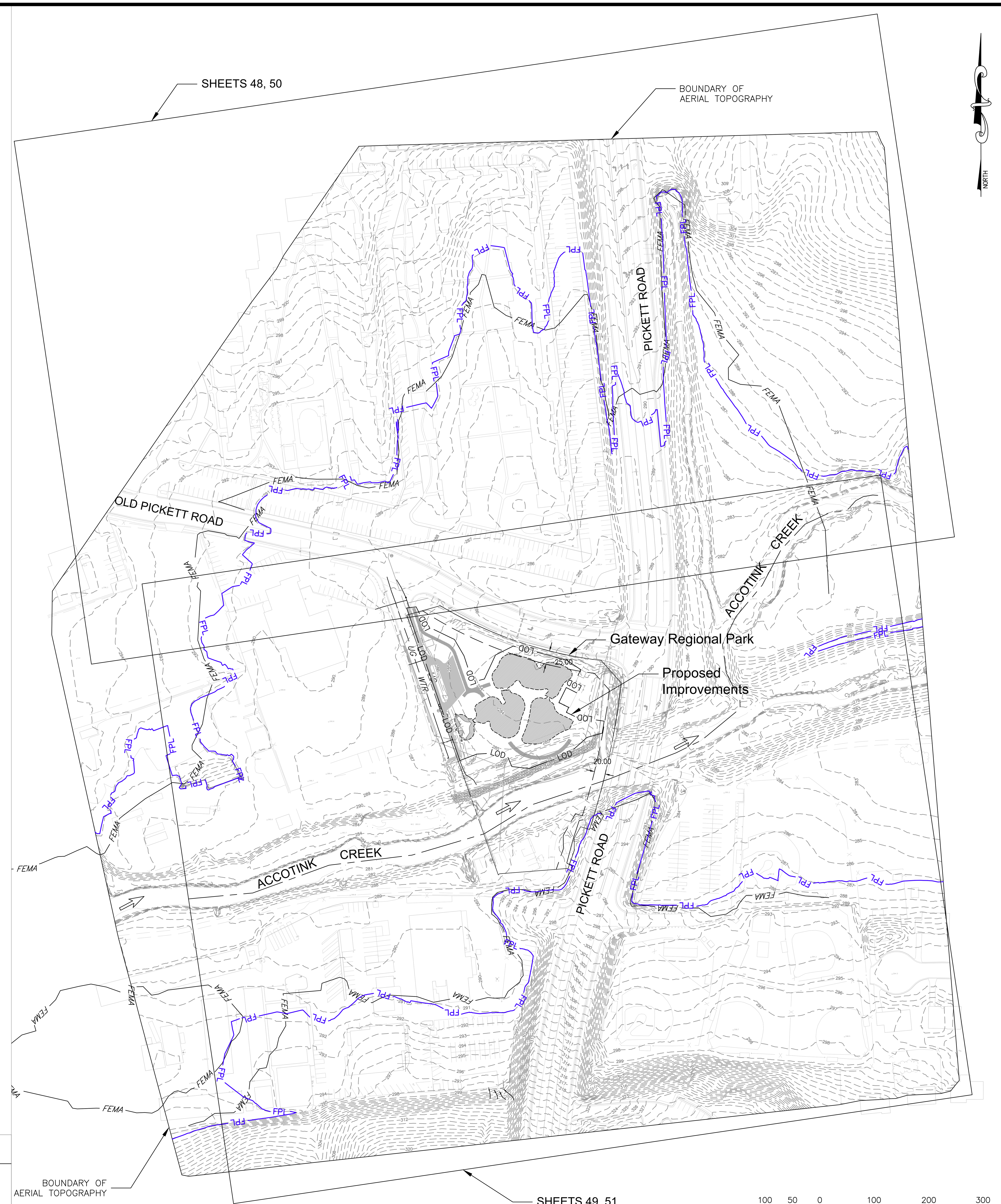
THE RESULTING FLOODPLAIN IS DELINEATED ON SHEETS 50 & 51 WITH A PROFILE PROVIDED ON SHEET 52 AND CROSS-SECTIONS PROVIDED ON SHEETS 53-55.

RESULTS AND CONCLUSIONS

THIS FLOODPLAIN STUDY ANALYZED EXISTING AND PROPOSED SITE CONDITIONS AND CONFIRM THAT THE PROPOSED ACTIVITIES WOULD NOT CAUSE ANY RISE OR ADVERSE IMPACTS TO THE 100-YEAR FLOOD ELEVATIONS. A SUMMARY OF EFFECTIVE, EXISTING AND PROPOSED FLOOD ELEVATIONS ARE PROVIDED IN THE SUMMARY TABLE PROVIDED BELOW:

CROSS SECTION	EX. WSE. (FT)	PROP. WSE. (FT)	CHANGE IN WSE.
116163	291.88	291.88	0
115978	290.82	290.82	0
115737	291.17	291.15	-0.02
115707*	291.26	291.23	-0.03
115677*	291.17	291.13	-0.04
115647*	291.1	291.05	-0.05
115617*	291.09	291.04	-0.05
115587*	291.03	291.01	-0.02
115557*	290.99	290.97	-0.02
115527*	291.02	290.99	-0.03
115470	291.03	290.98	-0.05
115214	287.8	287.8	0
114627	286.62	286.62	0

* NEWLY ADDED CROSS SECTIONS



LEGEND

- PARCEL BOUNDARY
- EXISTING CONTOURS (1')
- FEMA FLOODPLAIN
- EXISTING CONDITIONS FLOODPLAIN

100 50 0 100 200 300

SCALE: 1"=100'

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FLOODPLAIN ANALYSIS
NARRATIVE, RESULTS AND OVERALL STUDY EXHIBIT

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025 SCALE: 1" = 20' C.I.: 1'

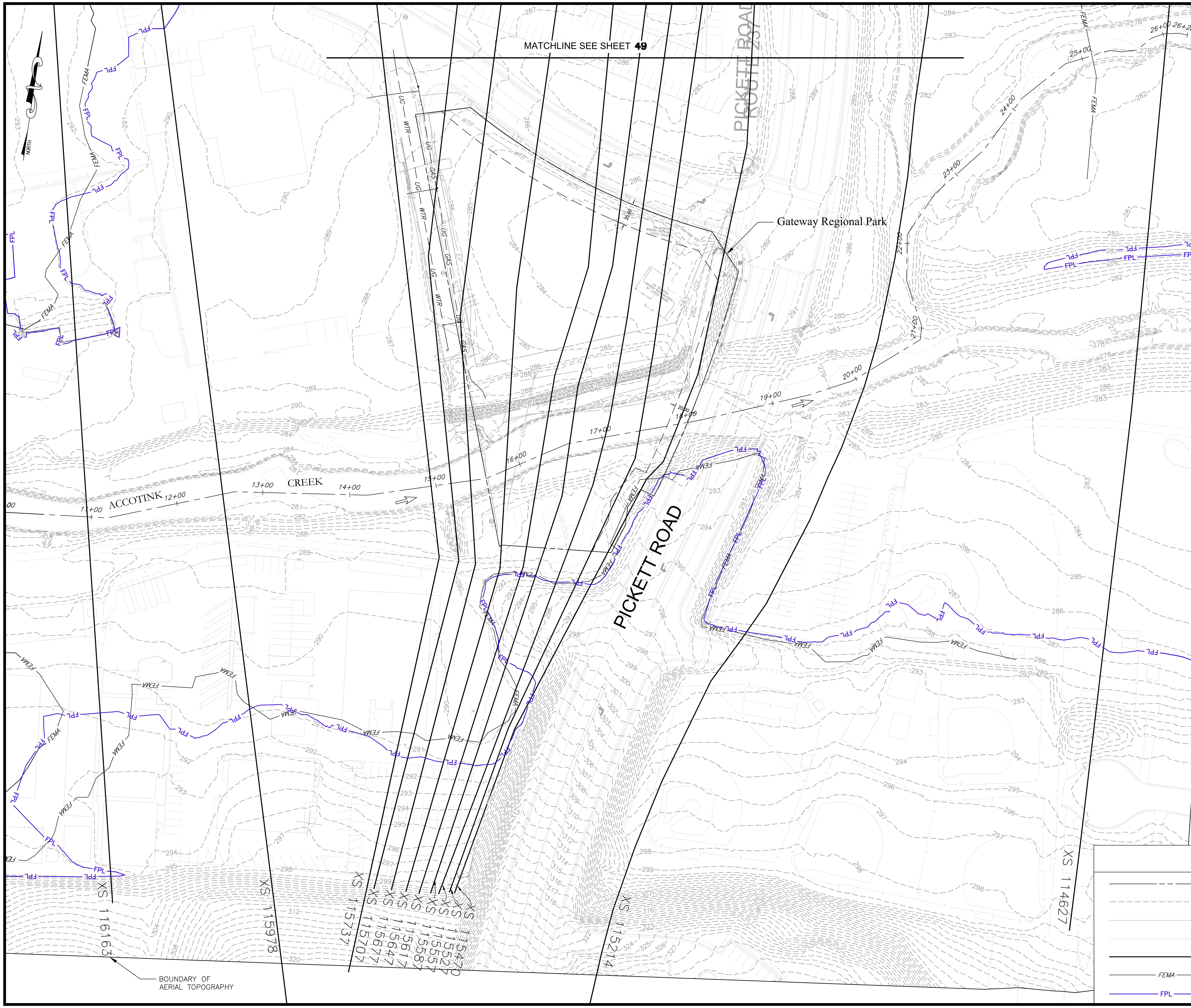
Horizontal Datum: NAD83

Vertical Datum: NAVD88

Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
RLI	RLI	FRG

Computer File Name: L:\22000s\22000\22047.02\CADD\04-ENGR\12-sig sub plans\et_construction FLOODPLAIN PLAN.dwg



CROSS SECTION	EX. WSE. (FT)	PROP. WSE. (FT)	CHANGE IN WSE.
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115647*	291.1	291.05	-0.05
115617*	291.09	291.04	-0.05
115587*	291.03	291.01	-0.02
115557*	290.99	290.97	-0.02
115527*	291.02	290.99	-0.03
115470	291.03	290.98	-0.05
115214	287.8	287.8	0
114627	286.62	286.62	0

* NEWLY ADDED CROSS SECTIONS

50 25 0 50 100 150

SCALE: 1"=50'

LEGEND

- PARCEL BOUNDARY
- EXISTING CONTOURS (1')
- PROPOSED CONTOURS
- EXISTING BUILDING/PAVEMENT
- CROSS SECTION
- FEMA ZONE A FLOODPLAIN
- EXISTING CONDITIONS FLOODPLAIN

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FLOODPLAIN ANALYSIS
EXISITNG CONDITIONS (1)

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
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No.	Date	Description	Rev. By	App. By

SCALE: 1" = 20' C.I.: 1'

DATE: August 2025

Horizontal Datum: NAD83

Vertical Datum: NAVD88

Boundary and Topo Source:
NV5 Geospatial

Design	Draft	Approved
RLI	RLI	FRG

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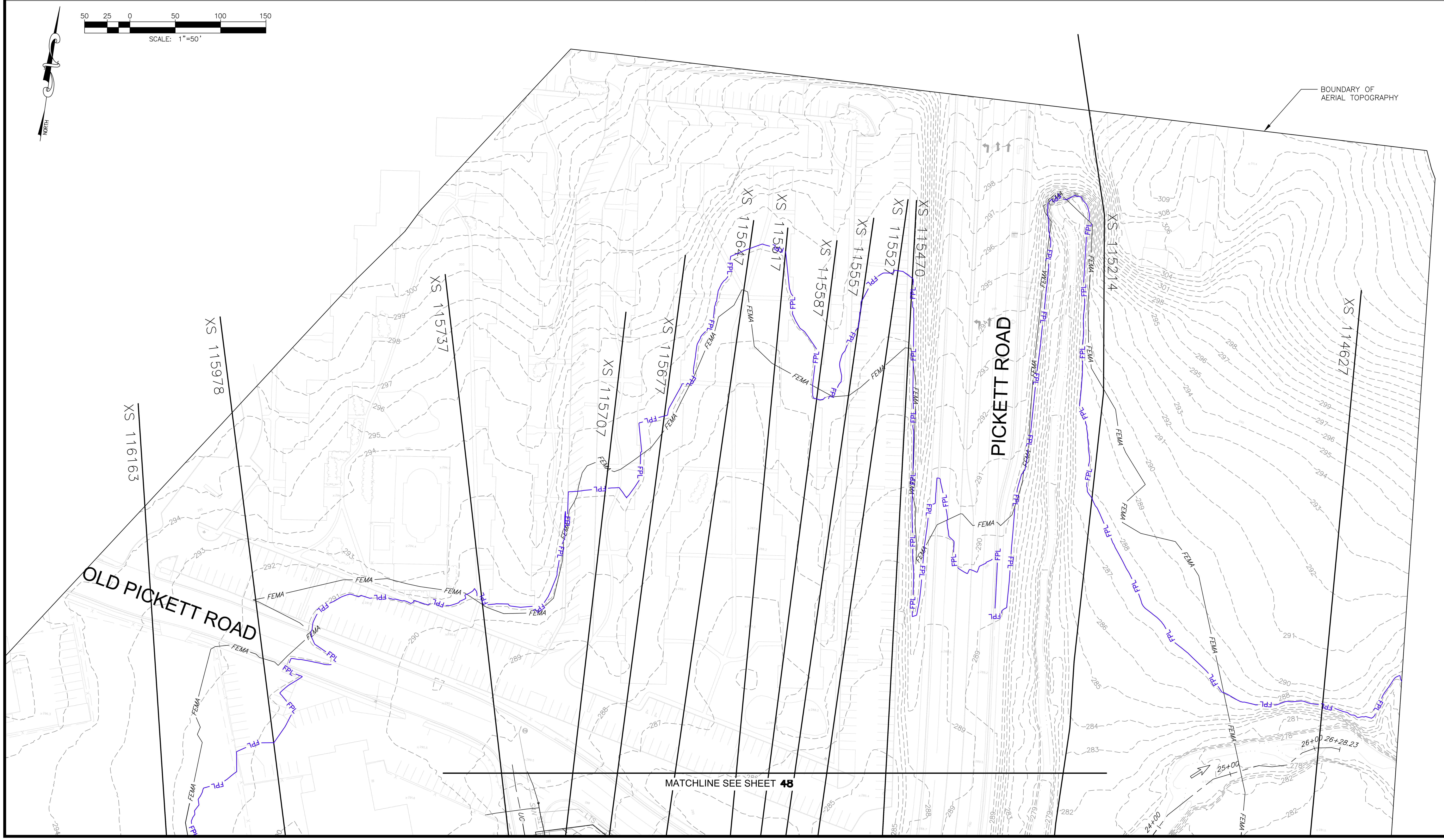
LEGEND

- PARCEL BOUNDARY
- EXISTING CONTOURS (1')
- PROPOSED CONTOURS
- EXISTING BUILDING/PAVEMENT
- CROSS SECTION
- FEMA ZONE A FLOODPLAIN
- EXISTING CONDITIONS FLOODPLAIN

CROSS SECTION	EX. WSE. (FT)	PROP. WSE. (FT)	CHANGE IN WSE.
116163	291.88	291.88	0
115978	290.82	290.82	0
115737	291.17	291.15	-0.02
115707*	291.26	291.23	-0.03
115677*	291.17	291.13	-0.04
115647*	291.1	291.05	-0.05
115617*	291.09	291.04	-0.05
115587*	291.03	291.01	-0.02
115557*	290.99	290.97	-0.02
115527*	291.02	290.99	-0.03
115470	291.03	290.98	-0.05
115214	287.8	287.8	0
114627	286.62	286.62	0

* NEWLY ADDED CROSS SECTIONS



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FLOODPLAIN ANALYSIS EXISTING CONDITIONS (2)

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
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08/08/2025
PROFESSIONAL ENGINEER

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No.	Date	Description	Rev. By	App. By

DATE: August 2025

SCALE: 1" = 20' C.I.: 1'

Horizontal Datum: NAD83

Vertical Datum: NAVD88

Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
RLI	RLI	FRG

Sheet #
49 of 55

Computer File Name:
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FLOODPLAIN PLAN_EXIST.dwg

CROSS SECTION	EX. WSE. (FT)	PROP. WSE. (FT)	CHANGE IN WSE.
116163	291.88	291.88	0
115978	290.82	290.82	0
115737	291.17	291.15	-0.02
115707*	291.26	291.23	-0.03
115677*	291.17	291.13	-0.04
115647*	291.1	291.05	-0.05
115617*	291.09	291.04	-0.05
115587*	291.03	291.01	-0.02
115557*	290.99	290.97	-0.02
115527*	291.02	290.99	-0.03
115470	291.03	290.98	-0.05
115214	287.8	287.8	0
114627	286.62	286.62	0

* NEWLY ADDED CROSS SECTIONS

50 25 0 50 100 150

SCALE: 1"=50'

LEGEND

- PARCEL BOUNDARY
- EXISTING CONTOURS (1')
- PROPOSED CONTOURS
- EXISTING BUILDING/PAVEMENT
- CROSS SECTION
- FEMA ZONE A FLOODPLAIN
- EXISTING CONDITIONS FLOODPLAIN
- PROPOSED CONDITIONS FLOODPLAIN

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FLOODPLAIN ANALYSIS PROPOSED CONDITIONS (1)

Prepared For: NOVA Parks

Gateway Regional Park

City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

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No.	Date	Description	Rev. By	App. By

SCALE: 1" = 20' C.I.: 1'

DATE: August 2025

Horizontal Datum: NAD83

Vertical Datum: NAVD88

Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
RLI	RLI	FRG

Sheet # 50 of 55

Computer File Name: FLOODPLAIN PLAN.dwg

LEGEND

— — —	PARCEL BOUNDARY
- - - -	EXISTING CONTOURS (1')
———	PROPOSED CONTOURS
———	EXISTING BUILDING/PAVEMENT
———	CROSS SECTION
—— FEMA ——	FEMA ZONE A FLOODPLAIN
—— FPL ——	EXISTING CONDITIONS FLOODPLAIN
—— FPL ——	PROPOSED CONDITIONS FLOODPLAIN

CROSS SECTION	EX. WSE. (FT)	PROP. WSE. (FT)	CHANGE IN WSE.
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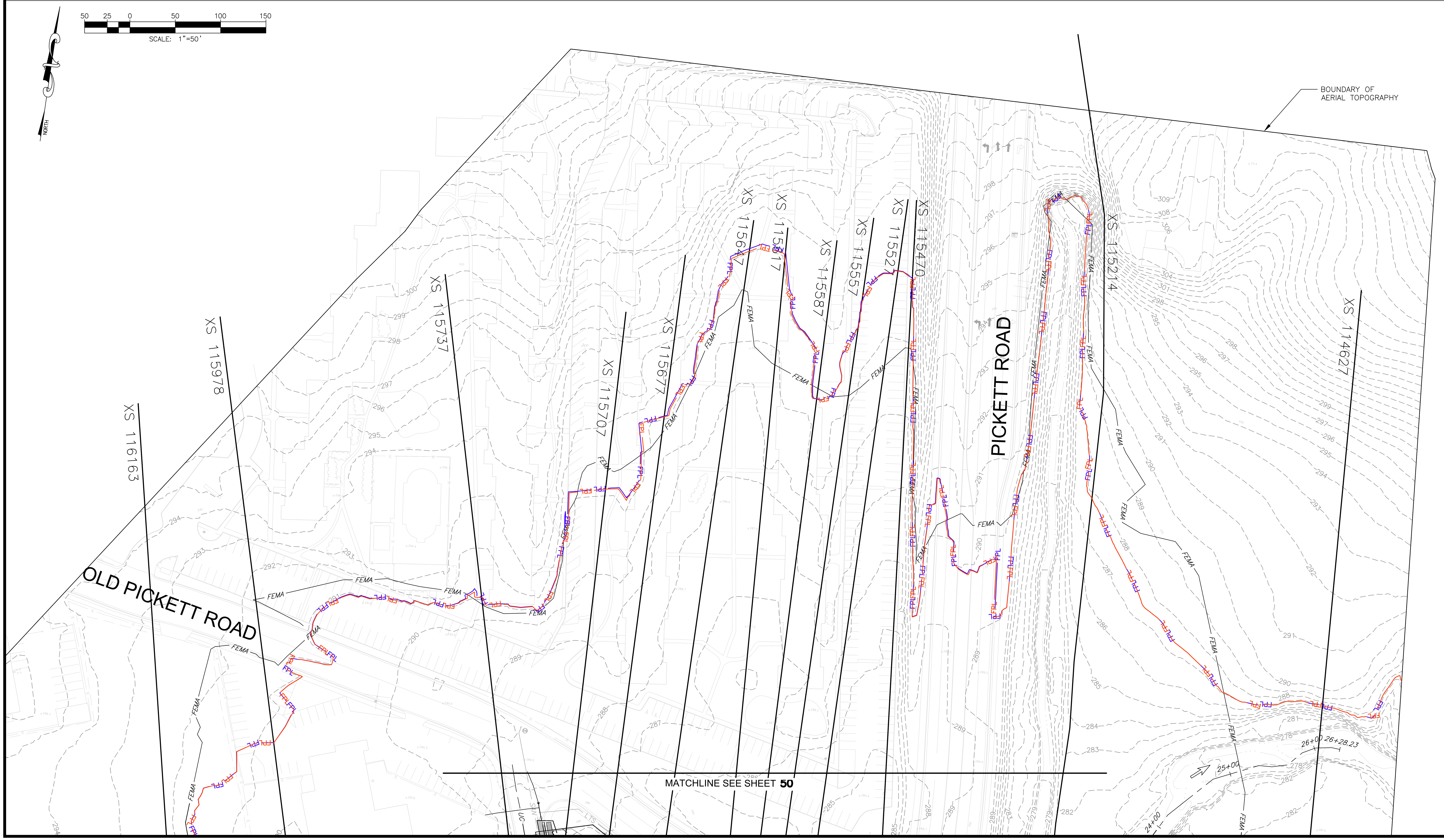
* NEWLY ADDED CROSS SECTIONS



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FLOODPLAIN ANALYSIS PROPOSED CONDITIONS (2)

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
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Lic. No. 032099
08/08/2025
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No.	Date	Description	Rev. By	App. By

DATE: August 2025
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Boundary and Topo Source:
NV5 Geospatial

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RLI	RLI	FRG

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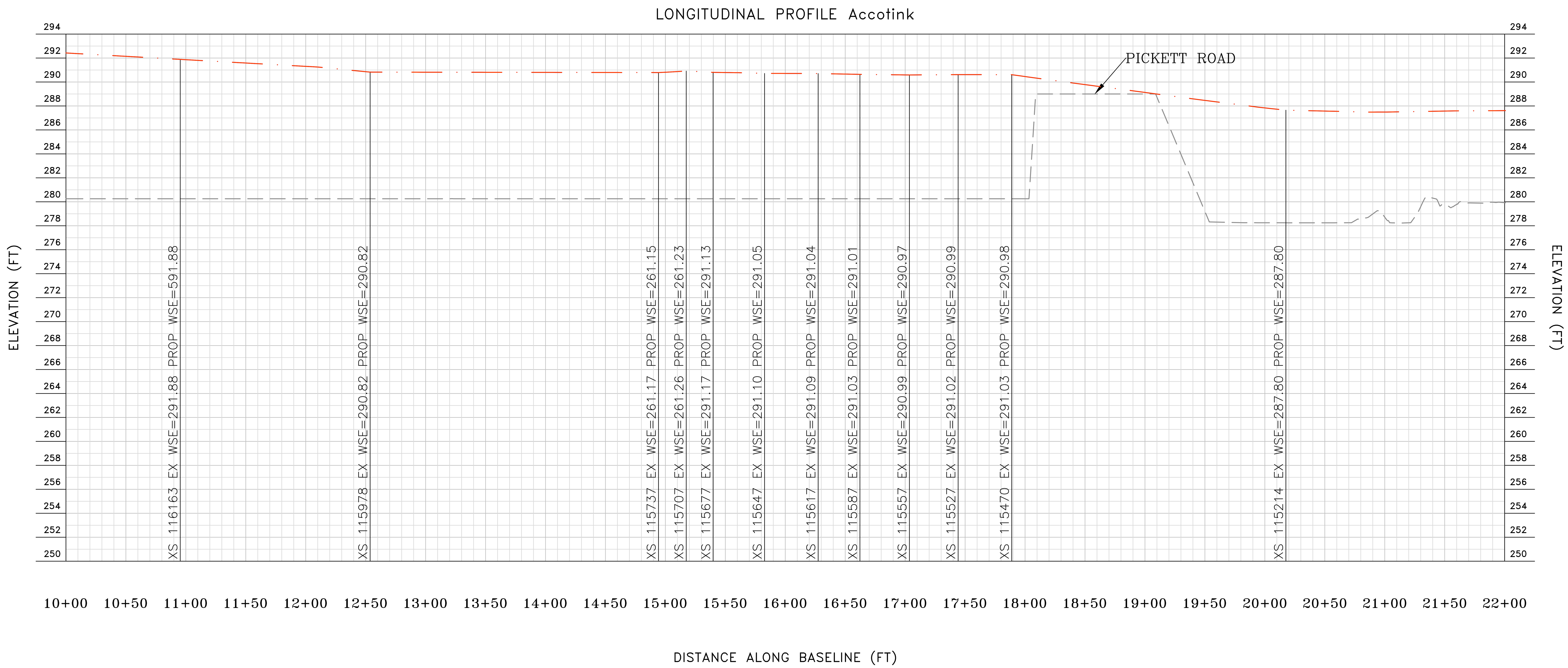

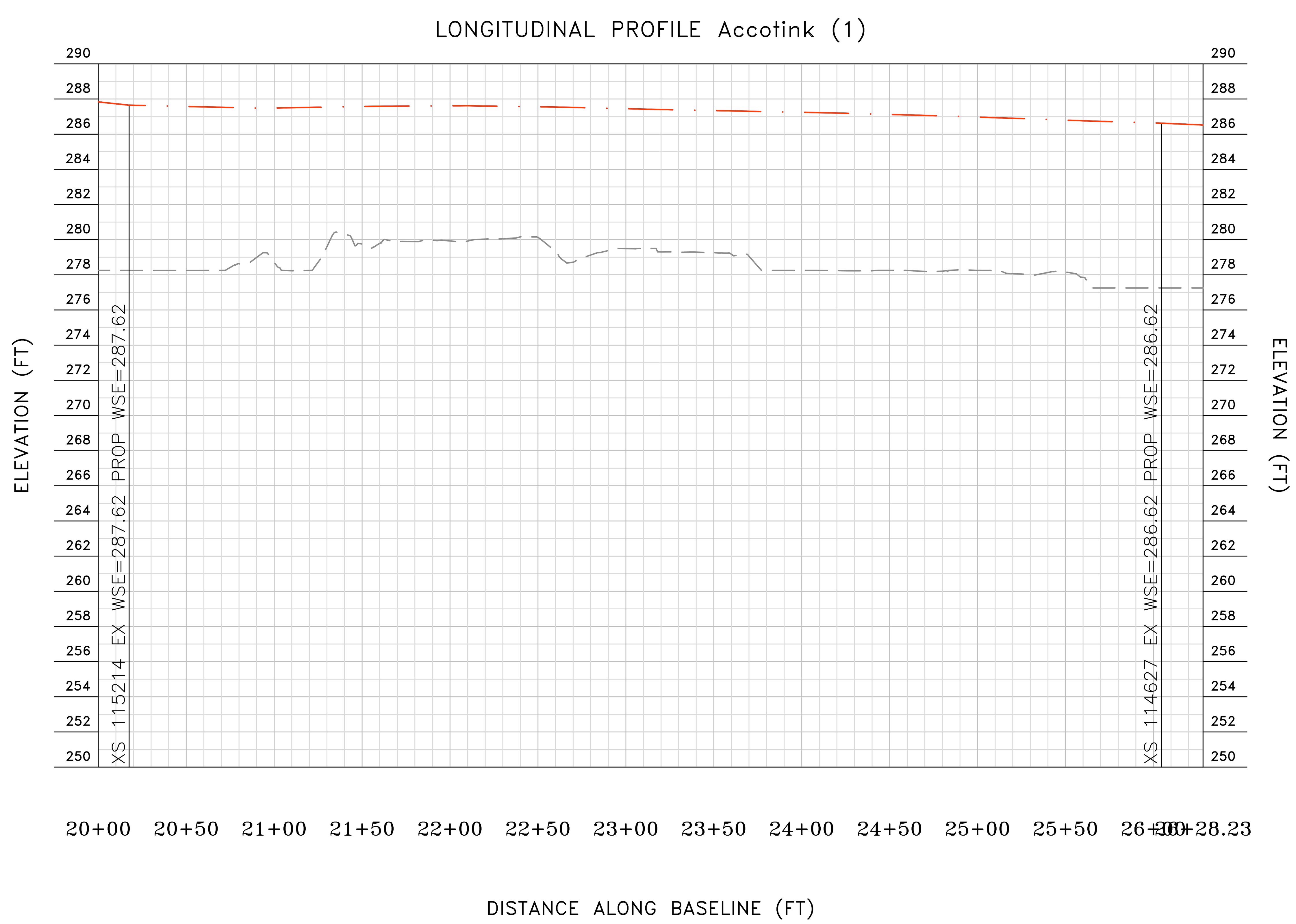

EXISTING GROUND
EXISTING 100-YEAR FLOODPLAIN PROFILE
PROPOSED 100-YEAR FLOODPLAIN PROFILE

LONGITUDINAL PROFILE
SCALE: H: 1"=50' V: 1"=5'

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FLOODPLAIN ANALYSIS
100-YR FLOOD PROFILES

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

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No.	Date	Description	Rev. By	App. By

SCALE: 1" = 20' C.I.: 1'
DATE: August 2025

Horizontal Datum: NAD83
Vertical Datum: NGVD29
Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
RLI	RLI	FRG

Sheet #
52 of 55

Computer File Name:
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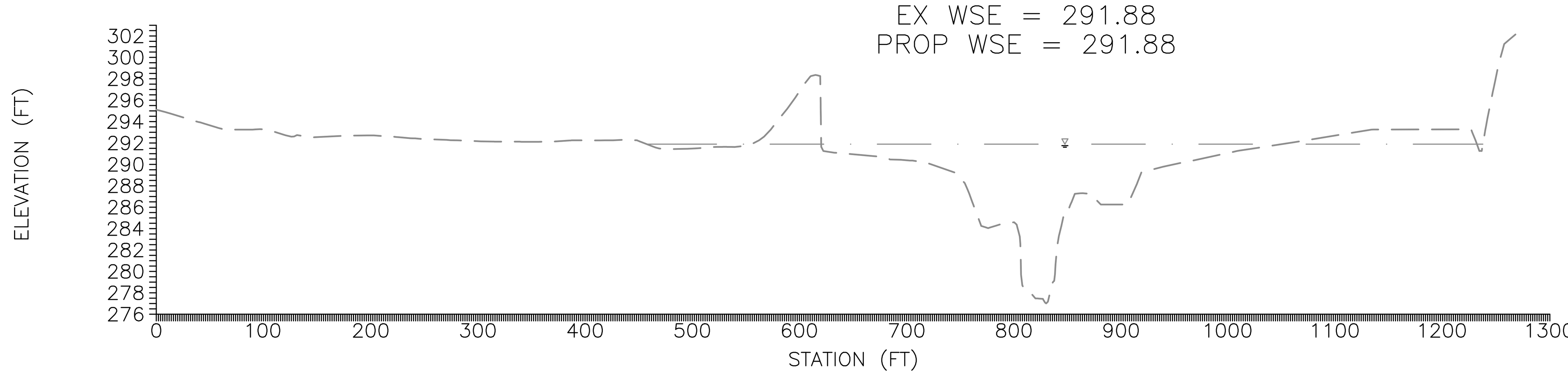
PROP WSE = 291.88



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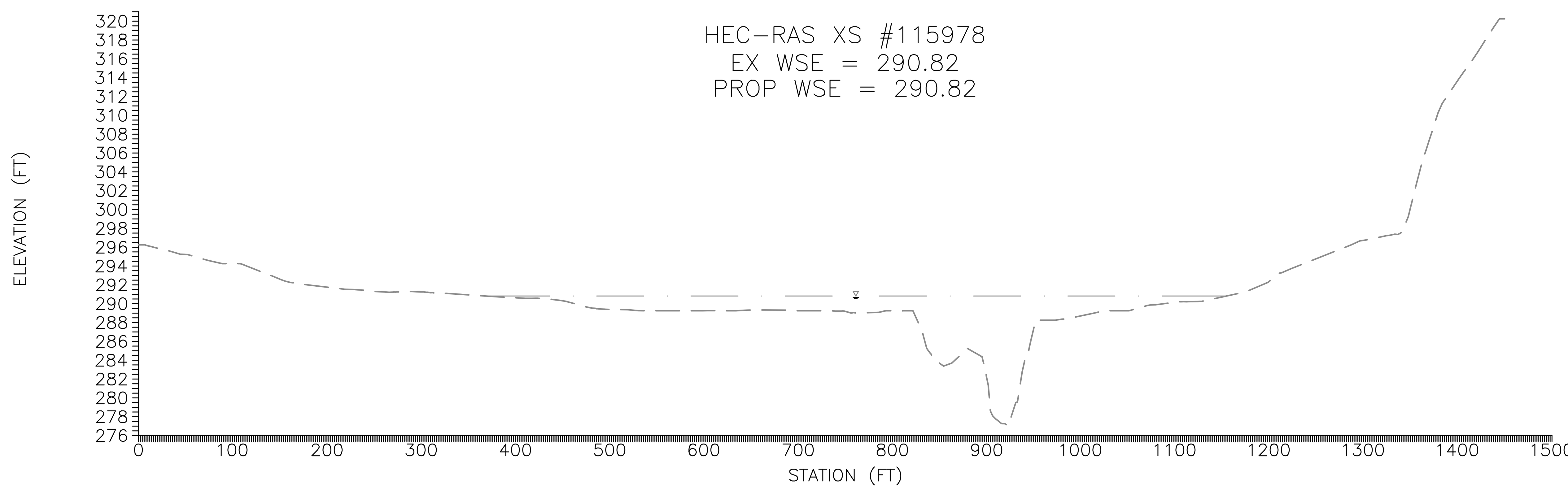

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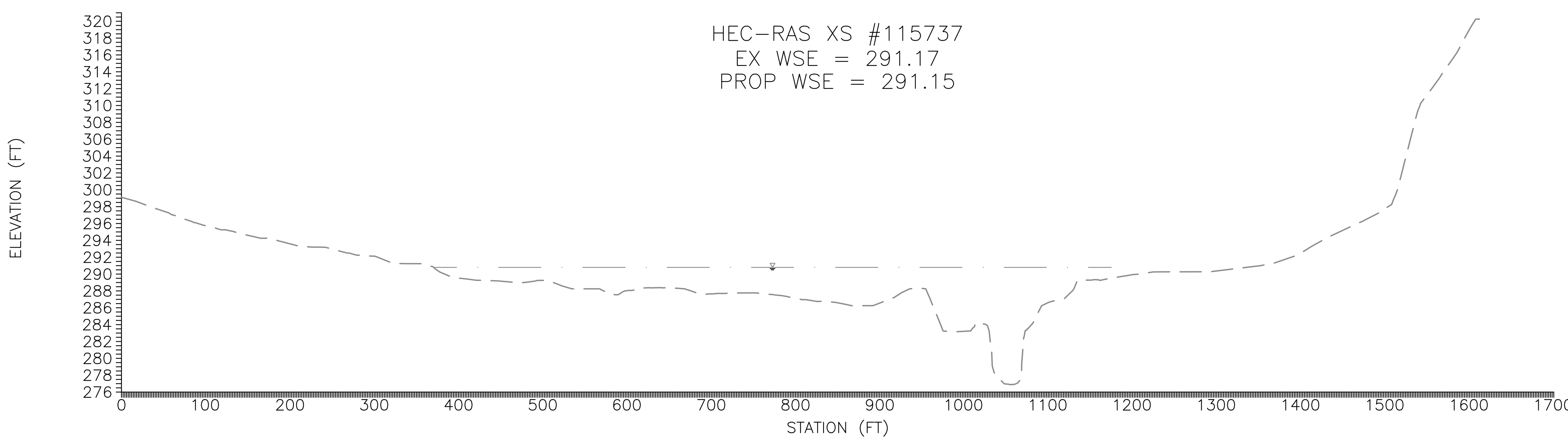
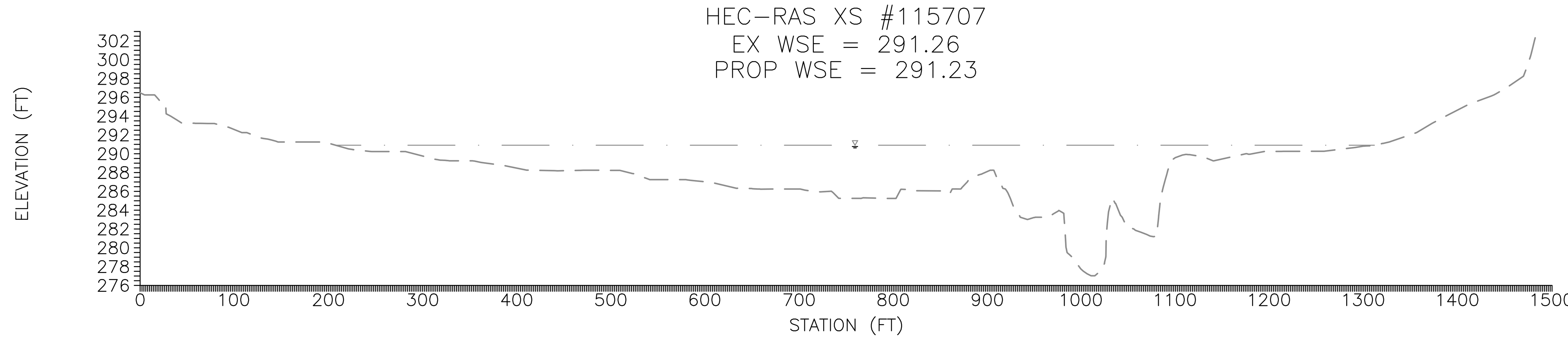
PROP WSE = 291.15



HEC-RAS XS #115707
EX WSE = 291.26
PROP WSE = 291.23



EXISTING GROUND
100-YEAR WSE.

CROSS SECTION
SCALE: H: 1"=100' V: 1"= 10'

Wetland Studies and Solutions, Inc.
a DAVEY company
5300 Wellington Branch Drive • Suite 100
Gainesville, Virginia 20155
Phone: 703-679-5600 • Fax: 703-679-5601
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FLOODPLAIN ANALYSIS CROSS SECTIONS (1)

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025
SCALE: 1" = 20'
C.I.: 1'

Horizontal Datum: NAD83
Vertical Datum: NGVD29
Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
RLI	RLI	FRG

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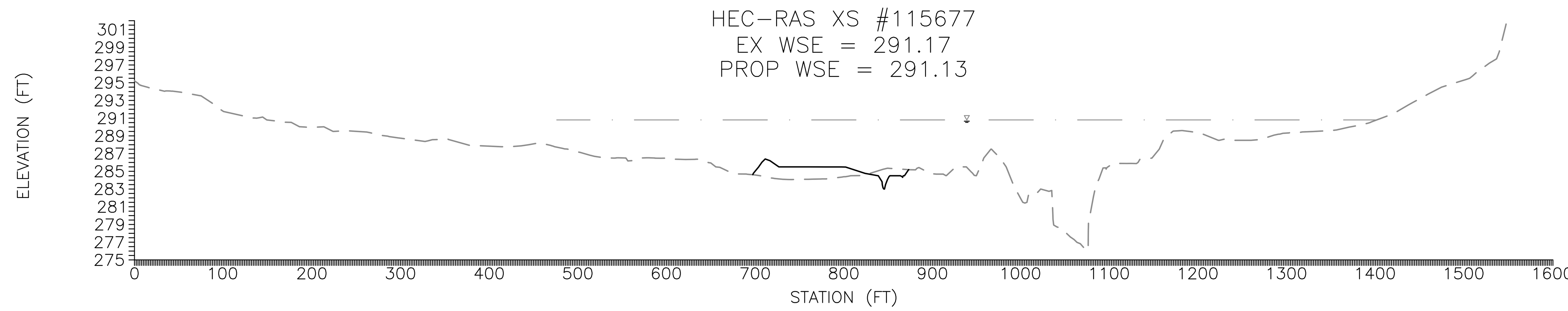
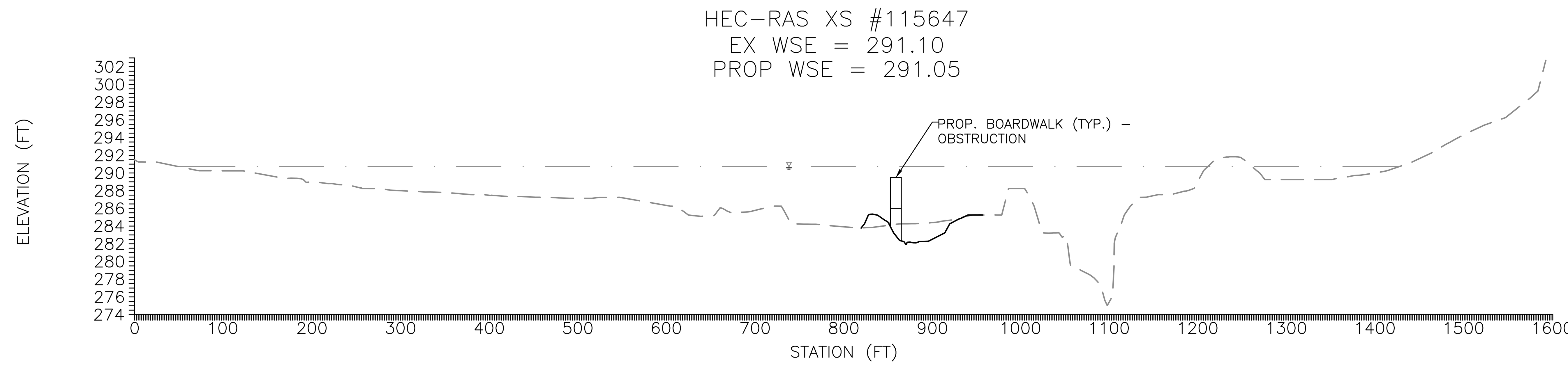
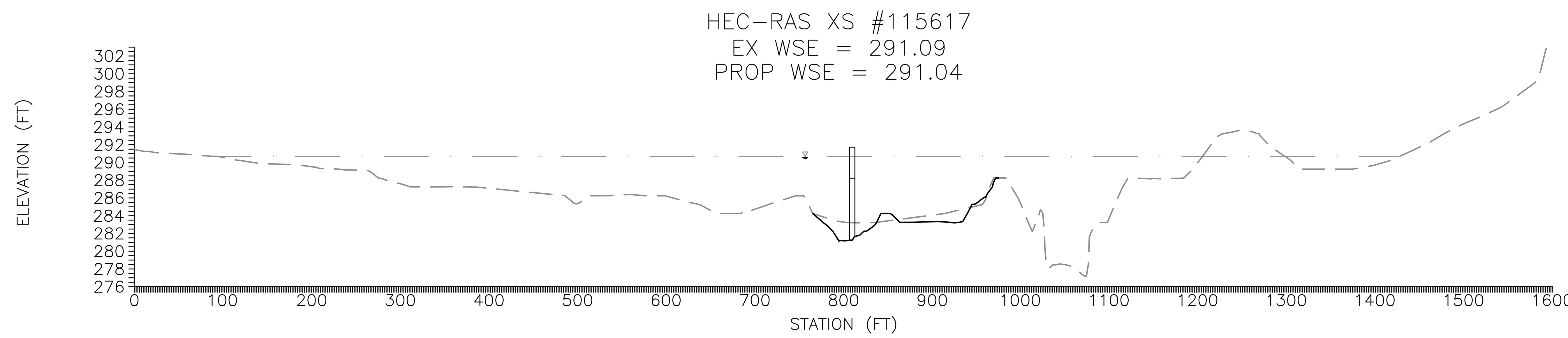
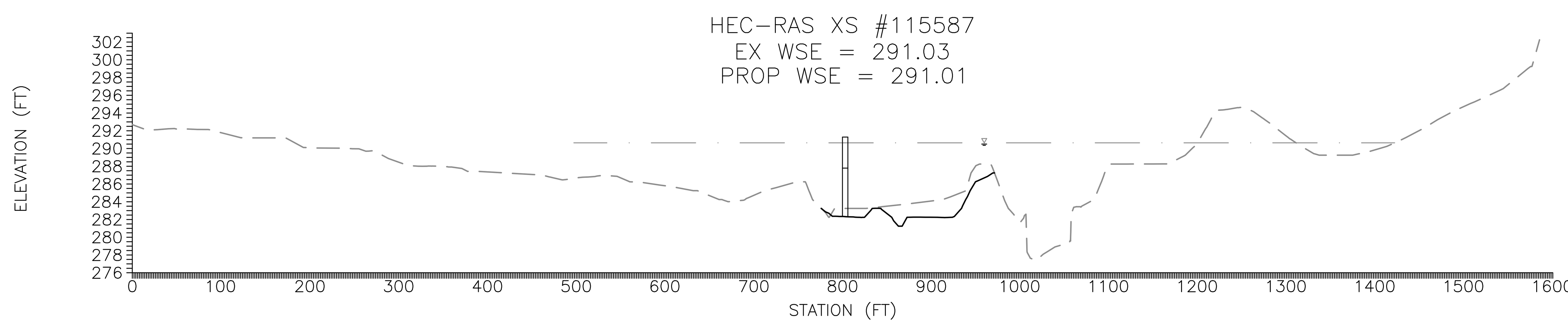
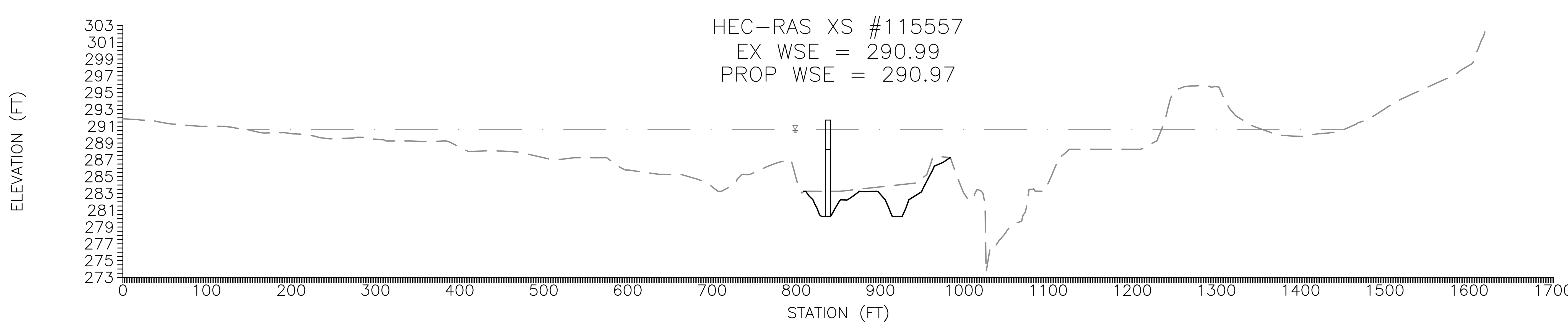
FLOODPLAIN PLAN.dwg











EXISTING GROUND
PROPOSED GROUND
100-YEAR WSE.

CROSS SECTION SCALE: H: 1"=100' V: 1"= 10'

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FLOODPLAIN ANALYSIS CROSS SECTIONS (2)

Prepared For: NOVA Parks

Gateway Regional Park
City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
FRANK R. GRAZIANO
Lic. No. 032099
08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025 SCALE: 1" = 20' C.I.: 1'

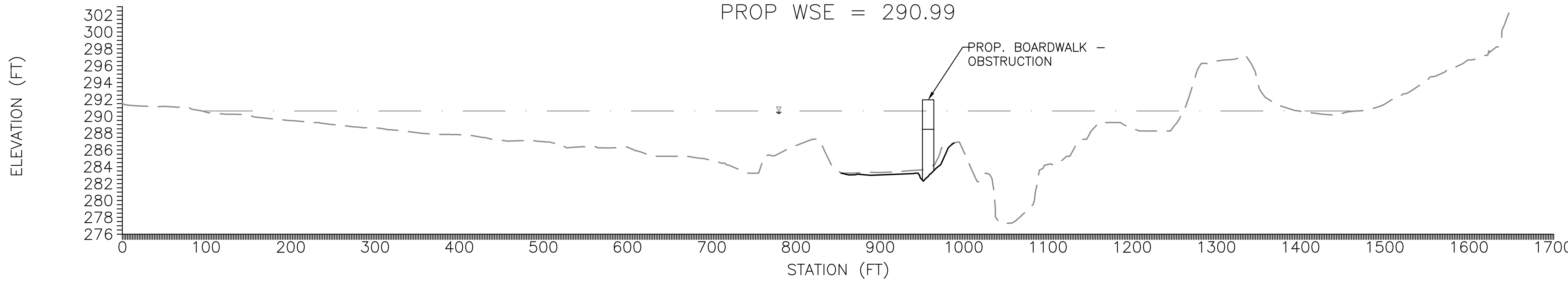
Horizontal Datum: NAD83
Vertical Datum: NGVD29
Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
RLI	RLI	FRG

Sheet #
54 of 55

Computer File Name:
FLOODPLAIN PLAN.dwg

HEC–RAS XS #115527
EX WSE = 291.02
PROP WSE = 290.99



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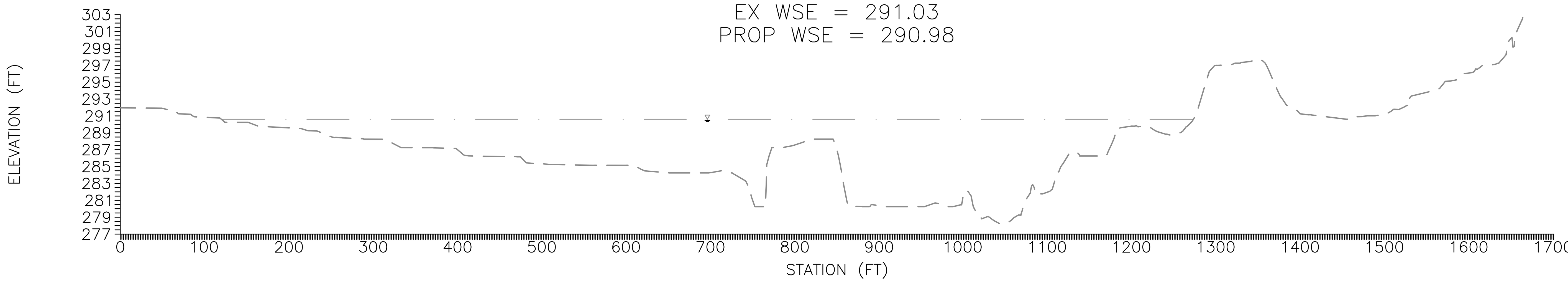
EX WSE = 291.03
PROP WSE = 290.98



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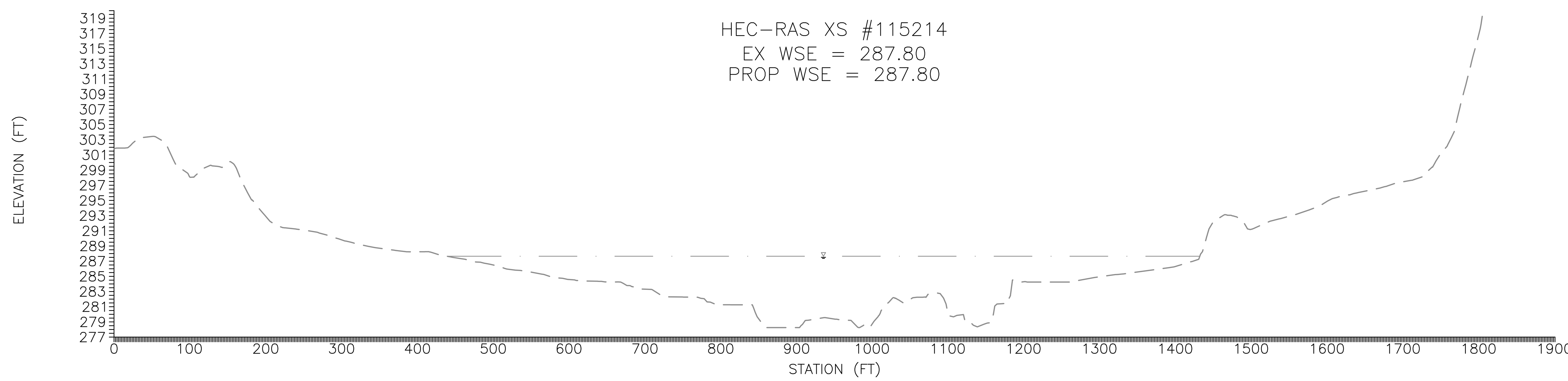
EX WSE = 287.80
PROP WSE = 287.80



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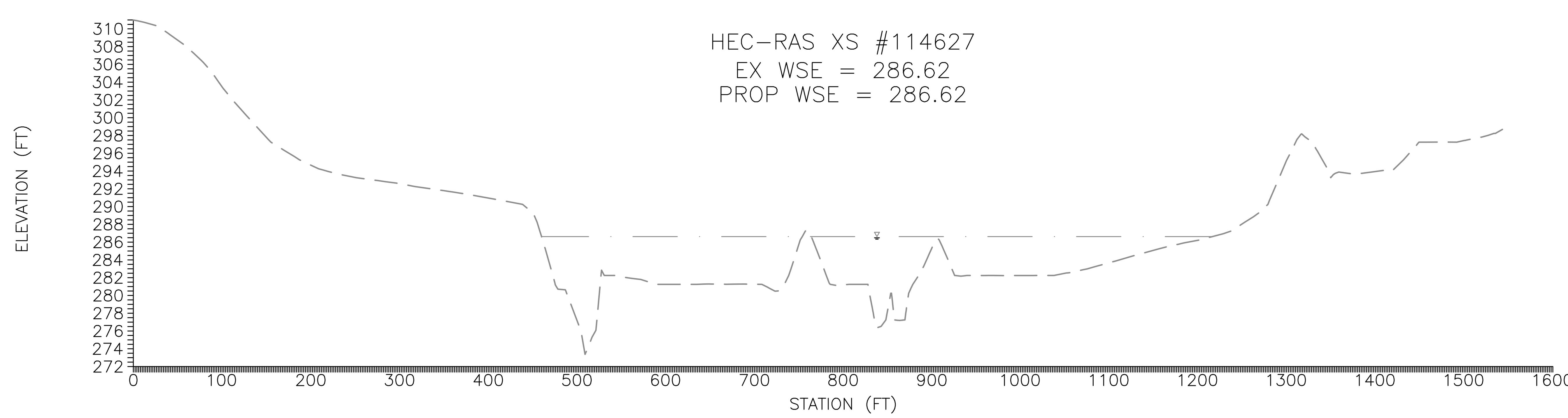
EX WSE = 286.62
PROP WSE = 286.62



EXISTING GROUND
PROPOSED GROUND
100-YEAR WSE.

CROSS SECTION
SCALE: H: 1"=100' V: 1"= 10'

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FLOODPLAIN ANALYSIS CROSS SECTIONS (3)

Prepared For: NOVA Parks

Gateway Regional Park

City of Fairfax, Virginia

COMMONWEALTH OF VIRGINIA
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08/08/2025
PROFESSIONAL ENGINEER

REVISIONS

No.	Date	Description	Rev. By	App. By

DATE: August 2025
SCALE: 1" = 20'
C.I.: 1'

Horizontal Datum: NAD83
Vertical Datum: NGVD29
Boundary and Topo Source: NV5 Geospatial

Design	Draft	Approved
RLI	RLI	FRG

Computer File Name:
FLOODPLAIN PLAN.dwg