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

May 18, 2021

NOTIFICATION OF APPROVED JURISDICTIONAL DETERMINATION

Northern Virginia Regulatory Section
NAO-2021-00347-rdb

Requestor: Prince William County Department of Transportation
C/O Ricardo Canizales, 5 County Complex Court, Virginia, 22192

Agent/Consultant: Dewberry Engineers Inc.
8401 Arlington Blvd., Fairfax, VA 22031
Attn: Kelly Donovan Phone: 703-849-0175 Email: kdonovan@dewberry.com

Property Owner (if different from Requestor): NA

PROPERTY/PROJECT/EVALUATION AREA INFORMATION

Size (acres): 278 Town/County: Prince William County
Nearest Waterway: Latitude: N 38.597301

USGS HUC: 02070011 Longitude: W -77.317977

Location Description: As the parcel is a vacant property, it does not have an address. However, the project area is between the existing Van Buren Road beginning at VA-234 and the existing Van Buren Road south of Cardinal Drive.
Directions from Dumfries, VA: Take VA-234 West and turn right onto Van Buren Road, the current terminus of Van Buren Road is the beginning of the project area
Wetlands (acres): 17.0 Acres

Streams (linear feet): 17,369

A. DETERMINATION

On February 8, 2021, the U.S. Army Corps of Engineers (Corps) received your request for an approved jurisdictional determination for the above-described area. Based upon an office (desktop) evaluation, 33 CFR 329 – Definition of Navigable Waters of the United States, and 33 CFR 328 – Definition of Waters of the United States and federal regulations of navigable waters, the Corps determines:

X There are waters of the U.S. within the above-described area, which are subject to the permit requirements of **Section 404 of the Clean Water Act (33 USC 1344)**. These waters exhibit wetland criteria as defined in the 1987 Corps of Engineers Wetland Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region.

This site also contains waters with an ordinary high water mark (or high tide line) and are part of the tributary system to Navigable Waters of the U.S.

_**X**_ The Corps verifies this delineation of waters of the U.S. depicted on the map, copy attached and on file with the Corps entitled "Van Buren Northern Extension Project Delineated Wetlands and Streams," Plates 1-9, dated January 2021, date stamped by our office April 2, 2021, and conducted by Dewberry Engineers Inc.

___ A recent site visit indicates that there are jurisdictional waters on the above-described area. The Corps strongly suggests you have those waters delineated. Due to the size of the above-described area and/or our present workload, the Corps may not be able to accomplish this delineation in a timely manner. For a timely delineation, you may wish to obtain a consultant. To be considered final, any delineation must be verified by the Corps.

Please be aware that you may be required to obtain a Corps permit for any discharge of dredged and/or fill material, either temporary or permanent, into a water of the U.S. In addition, you may be required to obtain a Corps permit for certain activities occurring within, under, or over a navigable water of the U.S. subject to the Section 10 of the Rivers and Harbors Act. Furthermore, you may be required to obtain state and local authorizations, including a Virginia Water Protection Permit from the Virginia Department of Environmental Quality (DEQ), a permit from the Virginia Marine Resources Commission (VMRC), and/or a permit from your local wetlands board. Any discharge of dredged of fill material into waters not subject to Corps jurisdiction (excluded waters) will not require a Corps permit but may require a DEQ permit.

This determination is not confirming the Cowardin classifications of these waters or the limits/jurisdictional status of any waters mapped outside the above-described area.

___The above-described area is comprised entirely of uplands. The Corps did not identify any waters regulated under Section 404 of the Clean Water Act (33 U.S.C. 1344), or Section 10 of the Rivers and Harbors Act (33 U.S.C. 403).

_X_ The above-described area contains excluded waters, which do not meet the definition of waters of U.S.; thus, they are not subject to the permitting requirements of Section 404 of the CWA nor Section 10 of the RHA. However, you may be required to obtain a permit from the DEQ for activities affecting these excluded waters.

The delineation included herein has been conducted to identify the location and extent of the water boundaries and the jurisdictional status of the waters for purposes of the CWA for the above-described area identified in this request.

This delineation and jurisdictional determination may not be valid for the Wetland Conservation Provisions of the Food Security Act of 1985, as amended. Therefore, if you or your tenant are US Department of Agriculture (USDA) program participants, or anticipate participation in USDA programs, you should discuss the applicability of a

certified wetland determination with the local USDA service center, prior to starting work.

B. ADMINISTRATIVE APPEALS INFORMATION

This notification constitutes an approved jurisdictional determination for the above-described area. If you object to this determination, you may request an administrative appeal under the Corps regulations (33 CFR Part 331). Please find the enclosed Notification of Appeal Options and Process (NAP) and Request for Appeal (RFA). If you request to appeal this determination, you must submit a completed RFA to the following address:

Attn: Ms. Naomi J. Handell, Regulatory Program Manager
United States Army Corps of Engineers
CENAD-PD-OR
Fort Hamilton Military Community
301 General Lee Avenue
Brooklyn, New York 11252-6700

The Corps will determine whether the RFA is complete and meets the criteria for appeal under 33 CFR 331.5. The RFA must be received at the above address within 60 days of the NAP, and by July 17, 2021. The Corps will not accept incomplete or late RFAs. You do not need to submit an RFA if you do not object to the approved jurisdictional determination.

C. EXPIRATION DATE

This approved jurisdictional determination is valid for five years from the date of this notification unless new information warrants revision prior to the expiration date.

If you have any questions regarding this notification, please contact Regena Bronson at (757) 201-7828 or via email at Regena.D.Bronson@usace.army.mil.

Sincerely,

Regena Bronson

Digitally signed by Regena Bronson
Date: 2021.05.18 15:01:18 -04'00'

Regena Bronson
Environmental Scientist
Northern Virginia Regulatory Section

Enclosures

U.S. ARMY CORPS OF ENGINEERS
REGULATORY PROGRAM
APPROVED JURISDICTIONAL DETERMINATION FORM (INTERIM)
NAVIGABLE WATERS PROTECTION RULE

I. ADMINISTRATIVE INFORMATION

Completion Date of Approved Jurisdictional Determination (AJD): May 18, 2021
ORM Number: NAO-2021-00347-RDB
Associated JDs: N/A or ORM numbers and identifiers (e.g. HQS-2020-00001-MSW-MITSITE)
Review Area Location[1]:
State/Territory: VA City: County/Parish/Borough: Prince William County
Center Coordinates of Review Area: Latitude 38.596989 Longitude -77.317456

II. FINDINGS

A. Summary: Check all that apply. At least one box from the following list MUST be selected. Complete the corresponding sections/tables and summarize data sources.

- ☐ The review area is comprised entirely of dry land (i.e., there are no waters or water features, including wetlands, of any kind in the entire review area). Rationale: N/A or describe rationale.
- ☐ There are "navigable waters of the United States" within Rivers and Harbors Act jurisdiction within the review area (complete table in section II.B).
- ☒ There are "waters of the United States" within Clean Water Act jurisdiction within the review area (complete appropriate tables in section II.C).
- ☒ There are waters or water features excluded from Clean Water Act jurisdiction within the review area (complete table in section II.D).

B. Rivers and Harbors Act of 1899 Section 10 (§ 10)[2]

§ 10 Name	§ 10 Size	§ 10 Criteria	Rationale for § 10 Determination
N/A	N/A	N/A	N/A

C. Clean Water Act Section 404

Territorial Seas and Traditional Navigable Waters ((a)(1) waters)[3]

(a)(1) Name	(a)(1) Size	(a)(1) Criteria	Rationale for (a)(1) Determination
N/A	N/A	N/A	N/A

Tributaries ((a)(2) waters):

(a)(2) Name	(a)(2) Size	(a)(2) Criteria	Rationale for (a)(2) Determination
A	2903 feet	(a)(2) Perennial tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System A flows directly into tidal Quantico Creek
AC	152 feet	(a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System AC contributes flow to System A leading to tidal Quantico Creek.
AD	18 feet	(a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System AD contributes flow directly into System A leading to tidal Quantico Creek.

[1] Map(s)/Figure(s) are attached to the AJD provided to the requestor.
[2] If the navigable water is not subject to the ebb and flow of the tide or included on the District's list of Rivers and Harbors Act Section 10 navigable waters list, do NOT use this document to make the determination. The District must continue to follow the procedure outlined in 33 CFR part 329.14 to make a Rivers and Harbors Act Section 10 navigability determination.
[3] A stand-alone TNW determination is completed independently of a request for an AJD. A stand-alone TNW determination is conducted for a specific segment of river or stream or other type of waterbody, such as a lake, where independent upstream or downstream limits or lake borders are established. A stand-alone TNW determination should be completed following applicable guidance and should NOT be documented on the AJD form.
[4] Some excluded waters, such as (b)(2) and (b)(4), may not be specifically identified on the AJD form unless a requestor specifically asks a Corps district to do so. Corps Districts may, in case-by-case instances, choose to identify some or all of these waters within the review area.
[5] Because of the broad nature of the (b)(1) exclusion and in an effort to collect data on specific types of waters that would be covered by the (b)(1) exclusion, four sub-categories of (b)(1) exclusions were administratively created for the purposes of the AJD Form. These four sub-categories are not new exclusions but are simply administrative distinctions and remain (b)(1) exclusions as defined by the NWPR.

D	311 feet	(a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System D contributes flow directly into System A leading to tidal Quantico Creek.
E	1259 feet	(a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System E contributes flow directly into System A leading to tidal Quantico Creek.
EA	79 feet	(a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System EA contributes flow directly into System A leading to tidal Quantico Creek.
EB	798 feet	(a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System EB contributes flow directly into System A leading to tidal Quantico Creek.
H	1117 feet	(a)(2) Perennial tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System H contributes flow directly into System K. System K is known as Powells Creek and begins to have tidal influence approximately 2.5 miles downstream of the project area.
HA	370 feet	(a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System HA contributes flow directly into System K. System K is known as Powells Creek and begins to have tidal influence approximately 2.5 miles downstream of the project area.
I	254 feet	(a)(2) Perennial tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System I contributes flow directly into System K. System K is known as Powells Creek and begins to have tidal influence approximately 2.5 miles downstream of the project area.
K	957 feet	(a)(2) Perennial tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System K is known as Powells Creek and begins to have tidal influence approximately 2.5 miles downstream of the project area.
KA	322 feet	(a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System KA contributes flow directly into System K. System K is known as Powells Creek and begins to have tidal influence approximately 2.5 miles downstream of the project area.
M	326 feet	(a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System M contributes flow to System K. System K is known as Powells Creek and begins to have tidal influence approximately 2.5 miles downstream of the project area.
N	560 feet	(a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System N contributes flow to System K. System K is known as Powells Creek and begins to have tidal influence approximately 2.5 miles downstream of the project area.
P	3877 feet	(a)(2) Perennial tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System P contributes flow to System K. System K is known as Powells Creek and begins to have tidal influence approximately 2.5 miles downstream of the project area.
PA	125 feet	(a)(2) Intermittent tributary contributes surface water flow	System PA contributes flow into System P. System P meets system A and continues downstream directly into

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		directly or indirectly to an (a)(1) water in a typical year	tidal Quantico Creek.
PD	100 feet	(a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System PD contributes flow directly into System PE. System PE receives flow from system P and continues downstream directly into tidal Quantico Creek.
PG	145 feet	(a)(2) Perennial tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System PG contributes flow into System P. System P meets system A and continues downstream directly into tidal Quantico Creek.
PI	63 feet	(a)(2) Perennial tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System PI contributes flow into System P. System P meets system A and continues downstream directly into tidal Quantico Creek.
T	275 feet	(a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System T leaves the study area and flows into a stormwater management system that discharges to System V
V	498 feet	(a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System V contributes flow to System X. System X flows to System A, leading to tidal Quantico Creek.
W	553 feet	(a)(2) Perennial tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System W flows into System X. System X flows to System A, leading to tidal Quantico Creek.
X	1295 feet	(a)(2) Perennial tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System X flows to System A, leading to tidal Quantico Creek.

Lakes and ponds, and impoundments of jurisdictional waters ((a)(3) waters):

(a)(3) Name	(a)(3) Size	(a)(3) Criteria	Rationale for (a)(3) Determination
N/A	N/A	N/A	N/A

Adjacent wetlands ((a)(4) waters):

(a)(4) Name	(a)(4) Size	(a)(4) Criteria	Rationale for (a)(4) Determination
AA	0.04 acres	(a)(4) Wetland separated from an (a)(1)-(a)(3) water only by a natural feature	Wetland System AA is physically separated from an (a)(1) - (a)(3) water only by a natural berm.
AB	0.07 acres	(a)(4) Wetland separated from an (a)(1)-(a)(3) water only by a natural feature	Wetland System AB directly abuts an (a)(1) – (a)(3)
B	0.12 acres	(a)(4) Wetland separated from an (a)(1)-(a)(3) water only by a natural feature	Wetland System B is physically separated from an (a)(1) - (a)(3) water only by a natural berm.
G	14.41 acres	(a)(4) Wetland separated from an (a)(1)-(a)(3) water only by a natural feature	Wetland System G directly abuts an (a)(1) – (a)(3)
J	0.14 acres	(a)(4) Wetland separated from an	Wetland System J is physically separated from an

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		(a)(1)-(a)(3) water only by a natural feature	(a)(1) - (a)(3) water only by a natural berm.
L	0.78 acres	(a)(4) Wetland separated from an (a)(1)-(a)(3) water only by a natural feature	Wetland System L is physically separated from an (a)(1) - (a)(3) water only by a natural berm.
O	0.1 acres	(a)(4) Wetland separated from an (a)(1)-(a)(3) water only by a natural feature	Wetland System O directly abuts an (a)(1) – (a)(3)
PB	0.02 acres	(a)(4) Wetland separated from an (a)(1)-(a)(3) water only by a natural feature	Wetland System PB directly abuts an (a)(1) – (a)(3)
PC	0.2 acres	(a)(4) Wetland separated from an (a)(1)-(a)(3) water only by a natural feature	Wetland System PC directly abuts an (a)(1) – (a)(3)
PE	0.18 acres	(a)(4) Wetland separated from an (a)(1)-(a)(3) water only by a natural feature	Wetland System PE directly abuts an (a)(1) – (a)(3)
PF	0.01 acres	(a)(4) Wetland separated from an (a)(1)-(a)(3) water only by a natural feature	Wetland System PF directly abuts an (a)(1) – (a)(3)
PH	0.02 acres	(a)(4) Wetland separated from an (a)(1)-(a)(3) water only by a natural feature	Wetland System PH directly abuts an (a)(1) – (a)(3)
Q	0.13 acres	(a)(4) Wetland separated from an (a)(1)-(a)(3) water only by a natural feature	Wetland System Q directly abuts an (a)(1) – (a)(3)
R	0.05 acres	(a)(4) Wetland separated from an (a)(1)-(a)(3) water only by a natural feature	Wetland System R is physically separated from an (a)(1) - (a)(3) water only by a natural berm.
U	0.06 acres	(a)(4) Wetland separated from an (a)(1)-(a)(3) water only by a natural feature	Wetland System U is physically separated from an (a)(1) - (a)(3) water only by a natural berm.

D. Excluded Waters or Features

Excluded waters ((b)(1) – (b)(12))[4]:

Exclusion Name	Exclusion Size	Exclusion[5]	Rationale for Exclusion Determination
C	113 feet	(b)(10) Stormwater control feature constructed or excavated in upland or in a non-jurisdictional water to convey, treat, infiltrate, or store stormwater runoff	System C contributes stormwater flow directly into System A leading to tidal Quantico Creek.
DA	123 feet	(a)(2) Intermittent tributary contributes surface water flow directly or indirectly to an (a)(1) water in a typical year	System DA contributes stormwater flow directly into System A leading to tidal Quantico Creek.
F	78 feet	(b)(10) Stormwater control feature constructed or excavated in upland or in a non-jurisdictional water to convey, treat, infiltrate, or store stormwater runoff	System F contributes stormwater flow directly into System A leading to tidal Quantico Creek.
Y	391 feet	(b)(10) Stormwater control feature	System Y contributes stormwater flow directly into

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		constructed or excavated in upland or in a non-jurisdictional water to convey, treat, infiltrate, or store stormwater runoff	System X leading to tidal Quantico Creek.
Z	307 feet	(b)(10) Stormwater control feature constructed or excavated in upland or in a non-jurisdictional water to convey, treat, infiltrate, or store stormwater runoff	System X contributes stormwater flow directly into System A leading to tidal Quantico Creek.

III. SUPPORTING INFORMATION

A. Select/enter all resources that were used to aid in this determination and attach data/maps to this document and/or references/citations in the administrative record, as appropriate.

_**X**_ Information submitted by, or on behalf of, the applicant/consultant: map entitled "Van Buren Northern Extension Project Delineated Wetlands and Streams," Plates 1-9, dated January 2021, date stamped by our office April 2, 2021, and conducted by Dewberry Engineers Inc.
This information *is* sufficient for purposes of this AJD.
Rationale: *N/A*

___ Data sheets prepared by the Corps: *Title(s) and/or date(s).*
___ Photographs: *(NA, aerial, other, aerial and other) Title(s) and/or date(s).*
___ Corps Site visit(s) conducted on: *Date(s).*
___ Previous Jurisdictional Determinations (AJDs or PJDs): *ORM Number(s) and date(s).*
___ Antecedent Precipitation Tool: *provide detailed discussion in Section III.B.*
_**x**_ USDA NRCS Soil Survey: *Figure 4*
_**x**_ USFWS NWI maps: *Figure 3 December 8, 2020*
_**X**_ USGS topographic maps: 7.5 Minute Topographic Quadrangle for Quantico, VA

Other data sources used to aid in this determination:

Data Source (select)	Name and/or date and other relevant information
USGS Sources	N/A.
USDA Sources	N/A.
NOAA Sources	N/A.
USACE Sources	N/A.
State/Local/Tribal Sources	N/A.
Other Sources	N/A.

B. Typical year assessment(s): N/A.

C. Additional comments to support AJD: The majority of the Site consists of maintained pasture lands and earthen roads. The property is located within the Potomac River watershed (HUC 02070008 and

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02070010) and is drained by surface flow and an unnamed tributary flowing north into Howsers Branch

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Van Buren Northern Extension Project
Wetland Delineation Report
Prince William County, Virginia

Prepared for:

Prince William County
Department of Transportation
C/O Ricardo Canizales
5 County Complex Court
Virginia, 22192

Prepared by:

Dewberry®

February 2021

TABLE OF CONTENTS

LIST OF TABLES AND FIGURES

APPENDICES

1.0 INTRODUCTION AND BACKGROUND

Dewberry Engineers Inc. (Dewberry) is pleased to present the results of the wetland delineation conducted for the Van Buren Northern Extension roadway project located in Prince William County, Virginia. The limits of investigation consist of approximately 278 acres of mainly undeveloped land. The purpose of this wetland evaluation was to identify and delineate the extent of potentially jurisdictional wetlands and Waters of the United States (WOUS), as regulated under Section 401 and 404 of the Clean Water Act, within the study area. Methods from the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (Y-87-I) and Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0) were used to identify jurisdictional WOUS and wetlands.

Prior to the field investigation, a review of previous permits, published literature and records was completed to identify potential wetland areas. Several existing maps and sources of land use information were collected to assist with the onsite investigation. Documents collected and reviewed included: U.S. Geological Survey 7.5 Minute Topographic Quadrangle for Quantico, VA (Figure 1), aerial photography of the project location (Figure 2), U.S. Fish and Wildlife Service National Wetland Inventory Map (Figure 3), United States Department of Agriculture, Natural Resources Conservation Services Web Soil Survey Report (Figure 4), and a FEMA National Flood Insurance Program Map (Figure 5).

In Dewberry's opinion, there are potentially jurisdictional wetlands and WOUS within the study area. Findings of the field investigation are summarized in this report.

2.0 FIELD DATA

Based on the results of the investigation, Dewberry identified fifteen palustrine forested (PFO) wetlands, nine perennial (R3) stream channels, fourteen intermittent (R4) stream channels, and five ephemeral (EPH) stream channels within the project area. The WOUS boundaries have been mapped on the enclosed Wetland Delineation Map (Appendix A). Representative photographs of the WOUS and wetlands are included in Appendix B and data forms are included in Appendix C.

3.0 SUMMARY

The delineated areas have been field surveyed and are shown on the Wetland Delineation Map in Appendix A. The following tables summarize the data gathered during our field investigations.

Table 1. Wetlands and Waters of the U.S. System Summary

Delineated Waters of the U.S. & Wetlands					
System Name	**Plate**	**Cowardin Classification**	**WOUS Length (Linear Feet)**	**Area (Sq. Ft.)**	**Area (Acre)**
A	1, 2, 3	R3	2903		
AA	3	PFO		1543	0.04
AB	3	PFO		3090	0.07
AC	3	R4	152		
AD	3	R4	18		
B	3	PFO		5304	0.12
C	2	EPH	113		
D	2	R4	311		
DA	2	EPH	123		
E	2	R4	1259		
EA	2	R4	79		
EB	2	R4	798		
F	2	EPH	78		
G	7, 8	PFO		628,036	14.41
H	8	R3	1117		
HA	8	R4	370		
I	8	R3	254		
J	9	PFO		5998	0.14
K	9	R3	957		
KA	9	R4	322		
L	9	PFO		33914	0.78
M	9	R4	326		
N	8	R4	560		
O	1	PFO		4202	0.10
P	2, 3, 4	R3	3877		
PA	4	R4	125		
PB	4	PFO		970	0.02
PC	4	PFO		8500	0.20
PD	4	R4	100		
PE	4	PFO		7798	0.18

PF	4	PFO		367	0.01
PG	4	R3	145		
PH	2	PFO		955	0.02
PI	3	R3	63		
Q	5	PFO		5845	0.13
R	5	PFO		2389	0.05
T	5	R4	275		
U	6	PFO		2621	0.06
V	7	R4	498		
W	7	R3	553		
X	6, 7	R3	1295		
Y	6	EPH	391		
Z	6	EPH	307		
System Totals		PFO	NA	711,532	17
		PEM	NA	0	0.00
		POW	NA	0	0.00
		WOUS (R3)	11,164	NA	NA
		WOUS (R4)	5,193	NA	NA
		WOUS (EPH)	1,012	NA	NA
		TOTAL WETLAND	***NA***	***711,532***	***17***
		TOTAL WOUS	***17,369***	NA	NA

**Note: Some wetland/streams continue outside the Limits of Investigation*

4.0 REFERENCES

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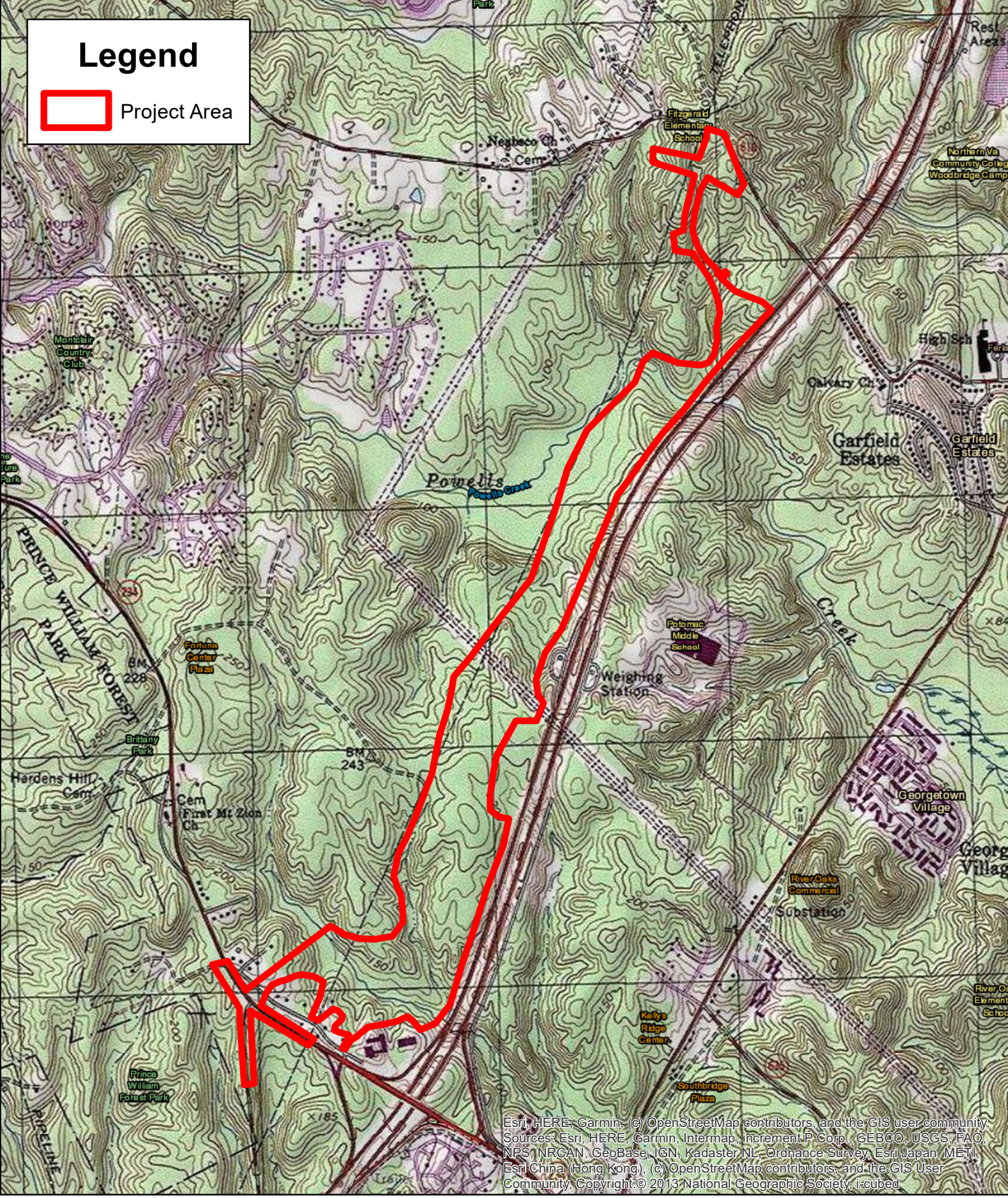
FIGURES



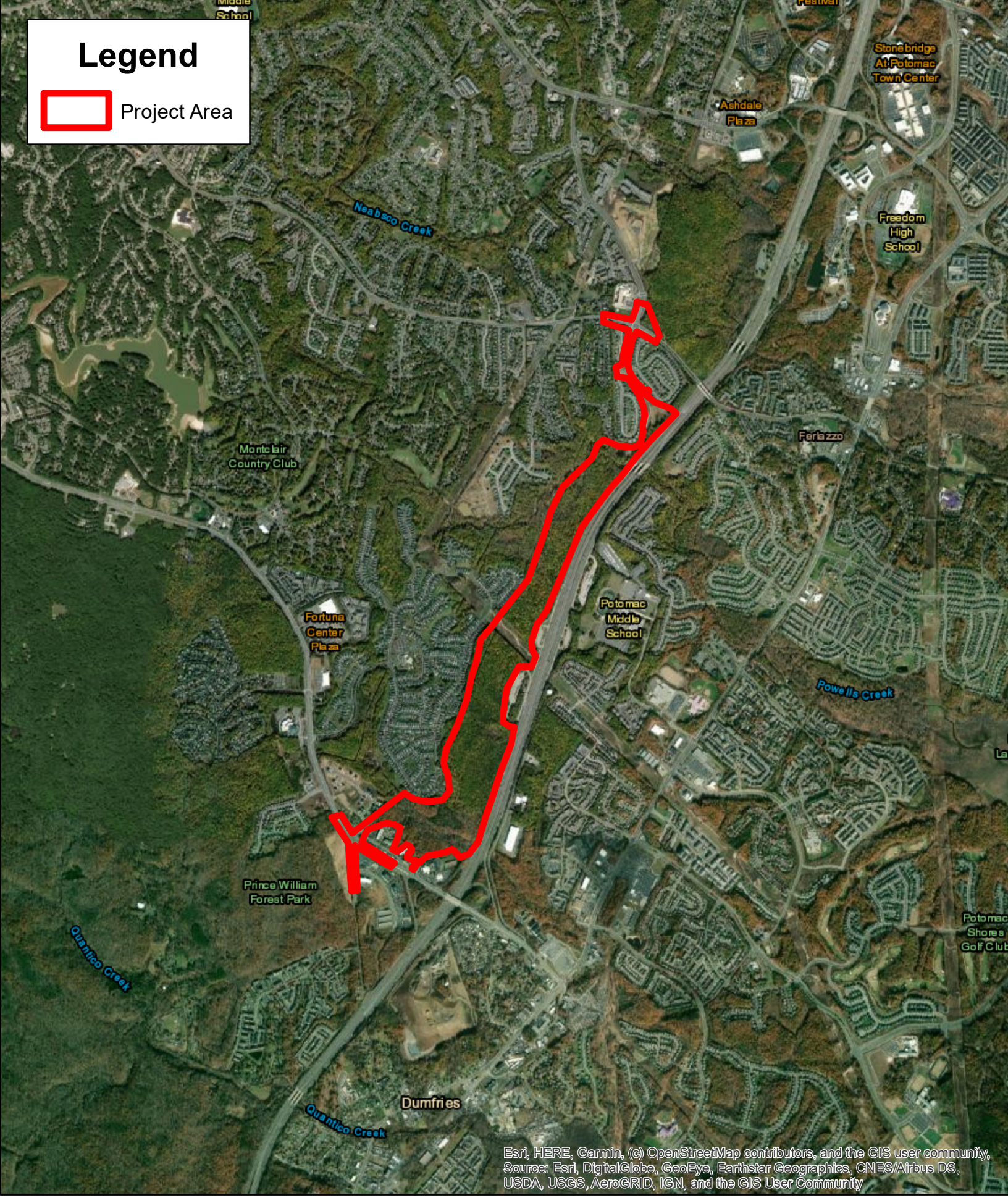
Dewberry

0 375 750 1,500 Feet

N W E S

DATE *January 2021*	TITLE *USGS Topographic Map*
PROJ. NO. *50132497*	PROJECT *Van Buren Project*

Figure 1



Dewberry

0 750 1,500 3,000 Feet

N W E S

DATE *January 2021*	TITLE *Project Location Map*
PROJ. NO. *50132497*	PROJECT *Van Buren Project*

Figure 2

U.S. Fish and Wildlife Service

National Wetlands Inventory

Figure 3

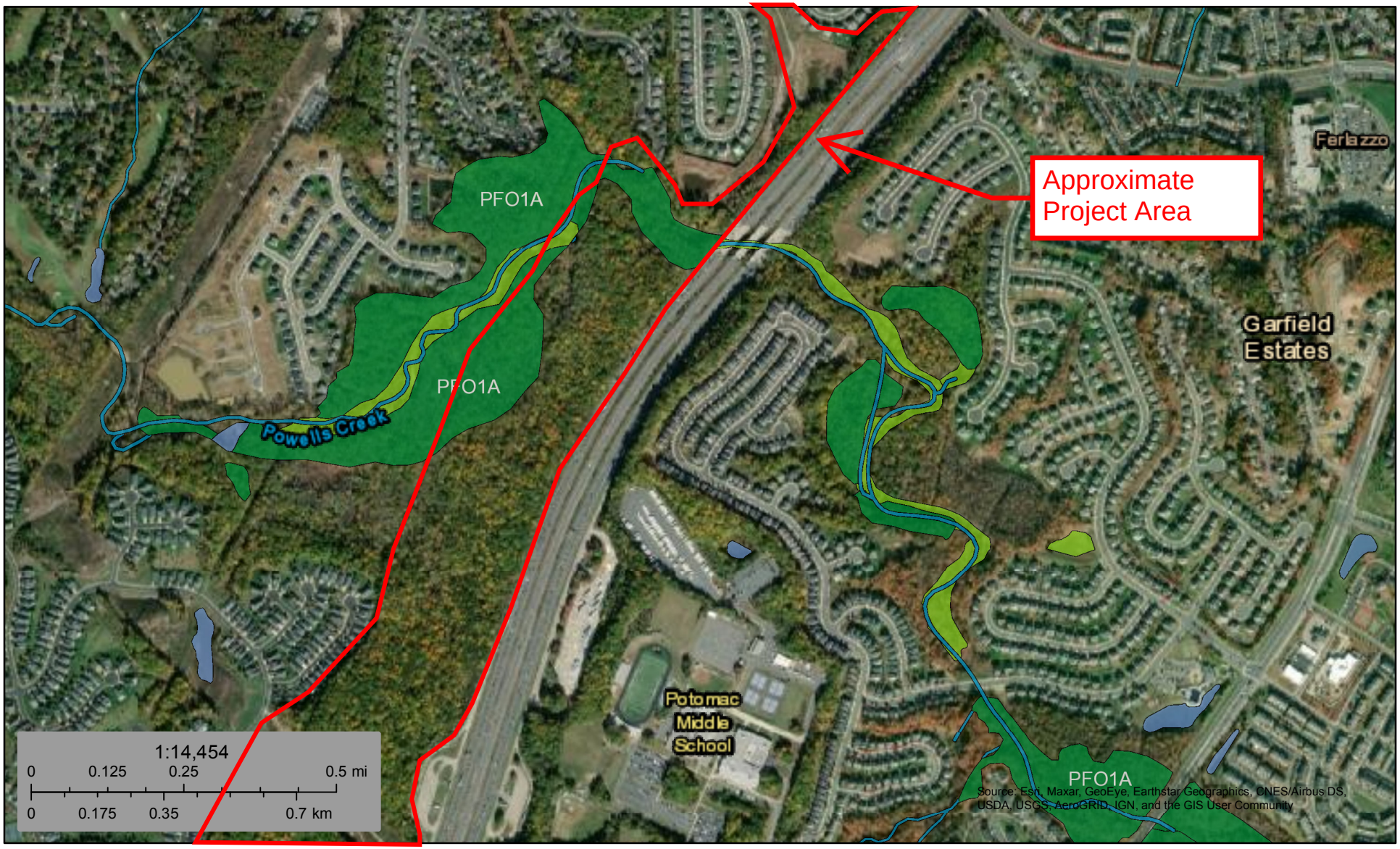
December 8, 2020

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

U.S. Fish and Wildlife Service

National Wetlands Inventory



December 8, 2020

Wetlands

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- Estuarine and Marine Wetland
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National Wetlands Inventory

December 8, 2020

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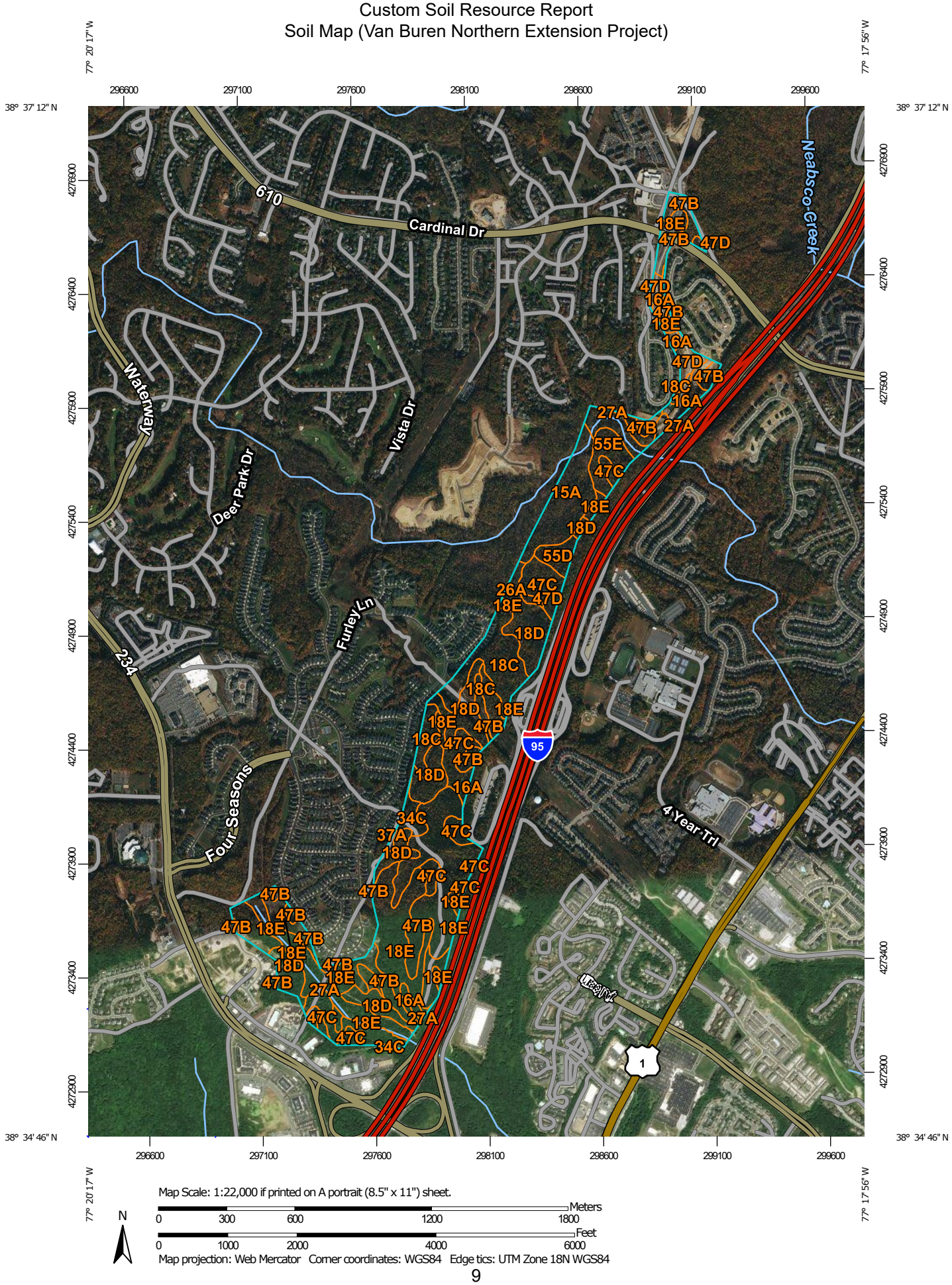
Figure 4


Custom Soil Resource Report
Soil Map (Van Buren Northern Extension Project)
77° 20' 17" W
77° 17' 56" W
38° 37' 12" N
38° 34' 46" N
296600
297100
297600
298100
298600
299100
299600
4276900
4276400
4275900
4275400
4274900
4274400
4273900
4273400
4272900
610
Cardinal Dr
Waterway
Deer Park Dr
Vista Dr
Furley Ln
234
Four Seasons
Neabsco Creek
95
4 Year Trl
1
47B
18E
47D
16A
18C
27A
55E
47C
15A
18D
55D
26A
34C
37A
Map Scale: 1:22,000 if printed on A portrait (8.5" x 11") sheet.
N
Meters
0 300 600 1200 1800
Feet
0 1000 2000 4000 6000
Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

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

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

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

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

Soil Survey Area: Prince William County, Virginia
Survey Area Data: Version 17, Jun 5, 2020

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

Date(s) aerial images were photographed: May 3, 2015—Aug 1, 2019

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

Map Unit Legend (Van Buren Northern Extension Project)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
15A	Comus loam, 0 to 2 percent slopes	18.9	6.7%
16A	Delanco fine sandy loam, 0 to 4 percent slopes	8.6	3.1%
18C	Dumfries sandy loam, 7 to 15 percent slopes	25.0	8.9%
18D	Dumfries sandy loam, 15 to 25 percent slopes	40.7	14.5%
18E	Dumfries sandy loam, 25 to 50 percent slopes	63.4	22.6%
26A	Hatboro silt loam, 0 to 2 percent slopes	2.1	0.8%
27A	Hatboro-Codorus complex, 0 to 2 percent slopes	22.1	7.9%
34C	Lunt loam, 7 to 15 percent slopes	3.5	1.2%
37A	Marumsco loam, 0 to 4 percent slopes	0.4	0.2%
47B	Quantico sandy loam, 2 to 7 percent slopes	50.6	18.1%
47C	Quantico sandy loam, 7 to 15 percent slopes	26.9	9.6%
47D	Quantico sandy loam, 15 to 25 percent slopes	6.0	2.2%
55D	Watt channery silt loam, 15 to 25 percent slopes	4.4	1.6%
55E	Watt channery silt loam, 25 to 50 percent slopes	7.6	2.7%
Totals for Area of Interest		**280.2**	**100.0%**

Figure 5

NOTES TO USERS

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NGS Information Services
NOAA, NVNGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

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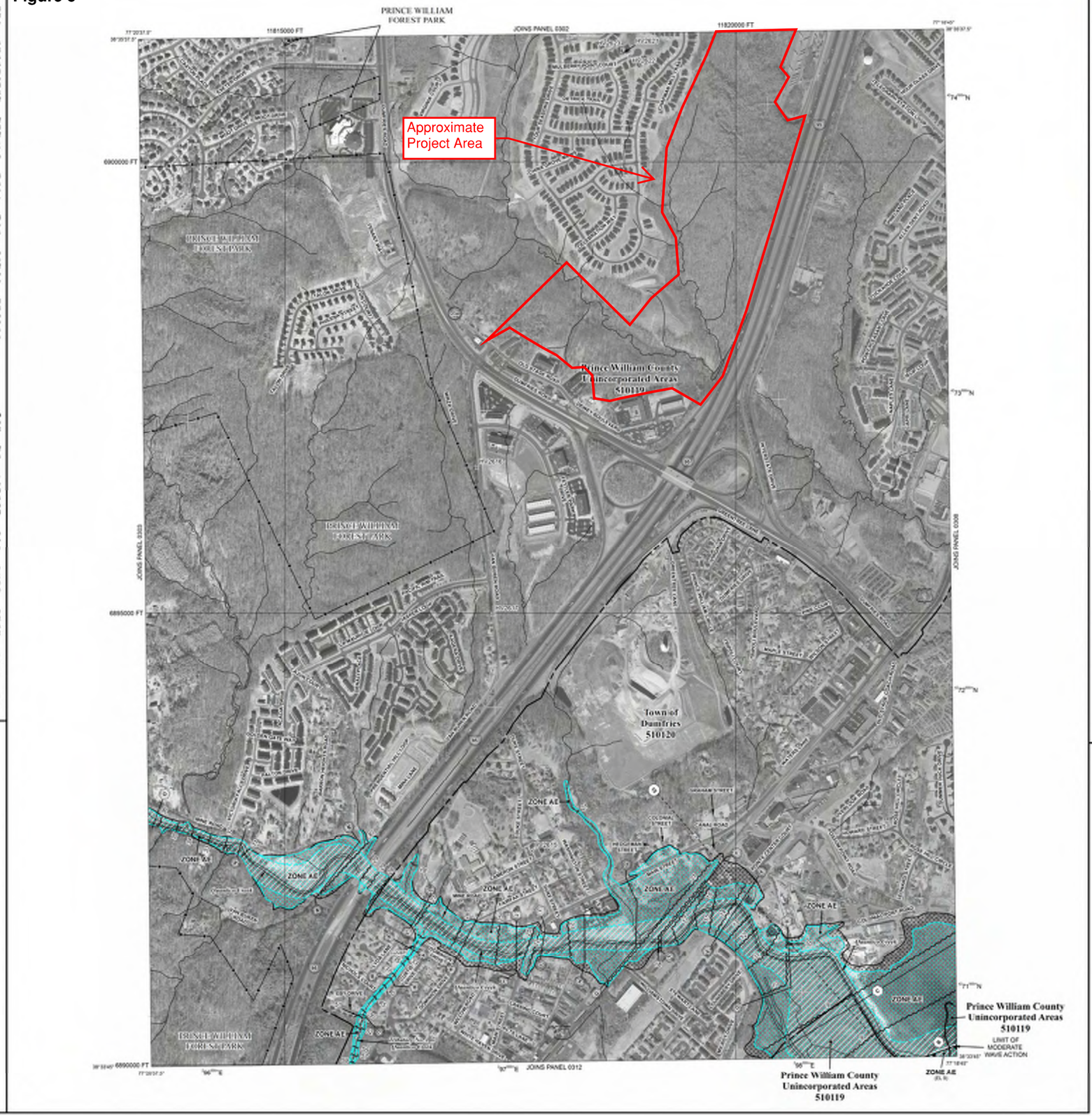


LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- ZONE A — No Base Flood Elevations determined.
- ZONE AE — Base Flood Elevations determined.
- ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- ZONE AR — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- ZONE A99 — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- ZONE V — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- ZONE VE — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.
- ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

- 1% annual chance floodplain boundary
- 0.2% annual chance floodplain boundary
- Floodway boundary
- Zone D boundary
- CBRS and OPA boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Limit of Moderate Wave Action
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the National Geodetic Vertical Datum of 1929

- Cross section line
- Transect line
- Culvert, Flume, Penstock or Aqueduct
- Road or Railroad Bridge
- Pedestrian Bridge
- 87°07'45", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 4278000 mN — 1000-meter Universal Transverse Mercator grid values, zone 18N
- 600000 FT — 5000-foot grid values: Virginia State Plane coordinate system, North zone (FIPSZONE 4501), Lambert Conformal Conic projection
- DX5510 — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- M1.5 — River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
January 5, 1995

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
August 3, 2015 - to change Base Flood Elevations, to change Special Flood Hazard Areas, to update the effects of wave action, to incorporate Primary Frontal Dune analyses, to incorporate previously issued Letters of Map Revision, to reflect revised shoreline, and to reflect the effects of coastal erosion.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET
150 0 150 300 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0304E

FIRM
FLOOD INSURANCE RATE MAP

PRINCE WILLIAM COUNTY, VIRGINIA
AND INCORPORATED AREAS

PANEL 304 OF 328

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
DUMFRIES, TOWN OF	510120	0304	E
PRINCE WILLIAM COUNTY	510119	0304	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

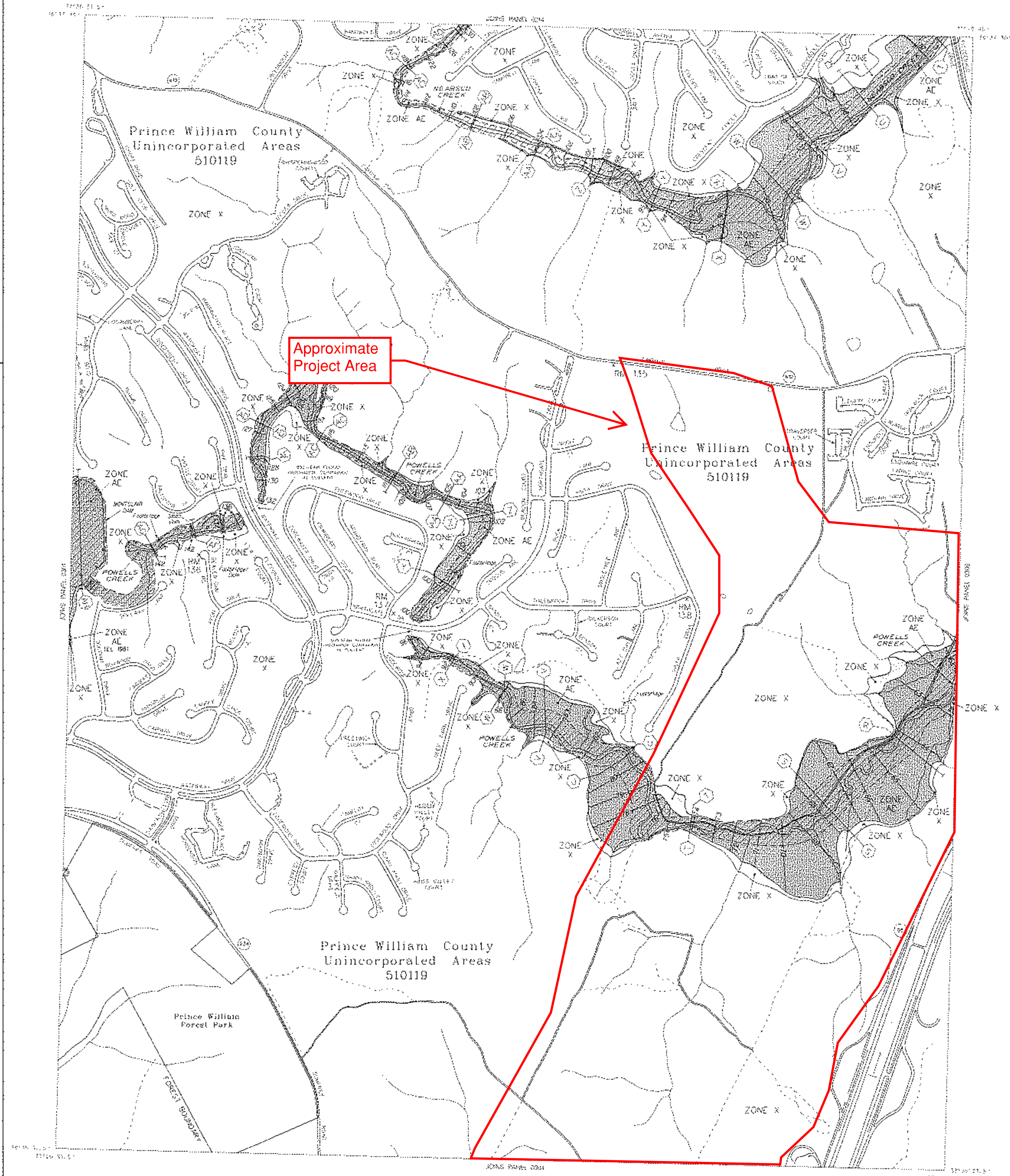
MAP NUMBER
51153C0304E

MAP REVISED
AUGUST 3, 2015

Federal Emergency Management Agency

NOTES TO USERS

ELEVATION REFERENCE MARKS



LEGEND

APPROXIMATE SCALE

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

PRINCE WILLIAM COUNTY, VIRGINIA AND INCORPORATED AREAS

PANEL 302 OF 330

MAP NUMBER 51153C0302 D

EFFECTIVE DATE: JANUARY 5, 1995

Federal Emergency Management Agency

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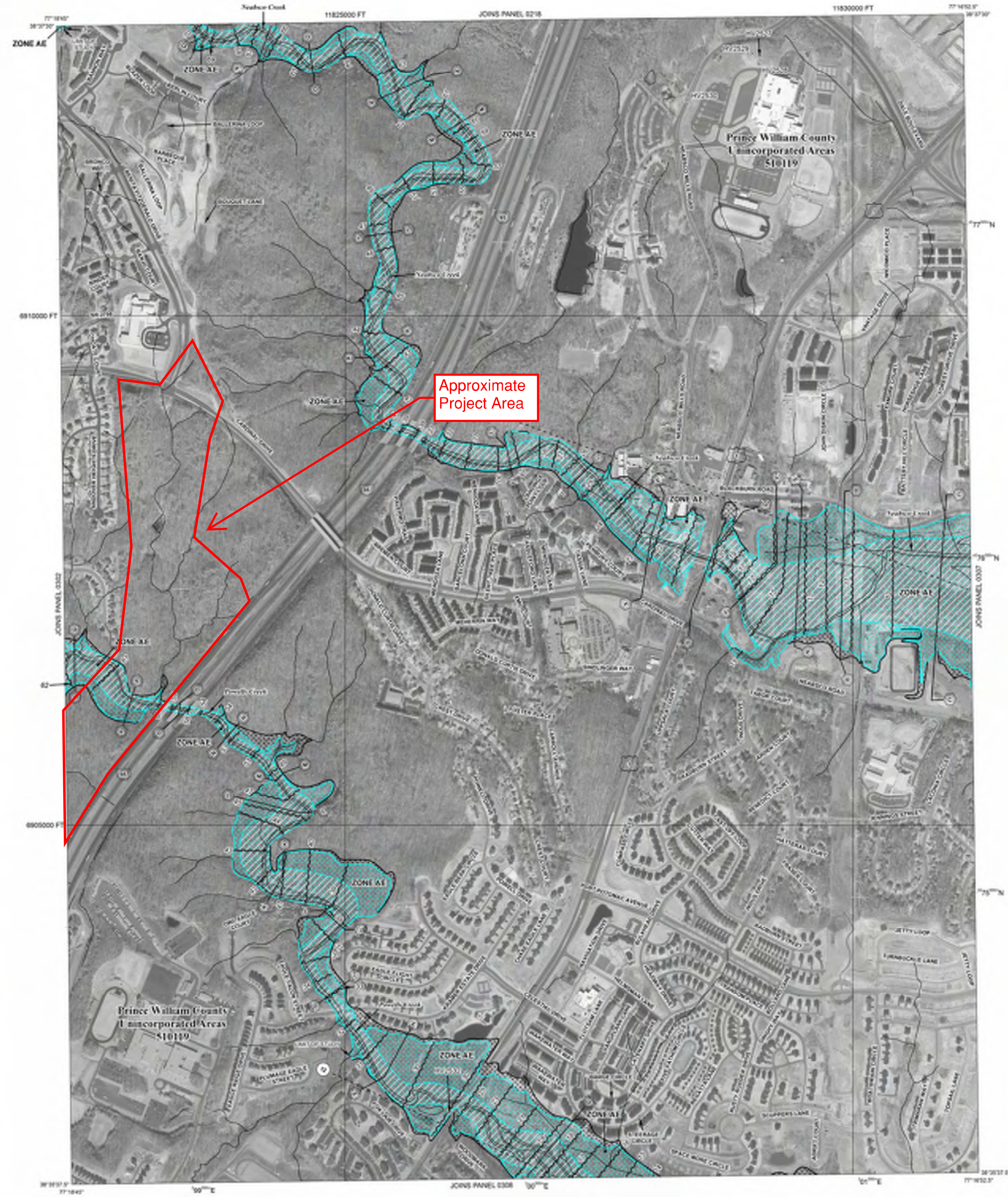

LEGEND

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ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
	Limit of Moderate Wave Action
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the National Geodetic Vertical Datum of 1929

A — A	Cross section line
23 - - - 23	Transect line
	Culvert, Flume, Penstock or Aqueduct
	Road or Railroad Bridge
	Footbridge
87°07'45", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
76⁰⁰⁰N	1000-meter Universal Transverse Mercator grid values, zone 18N
600000 FT	5000-foot grid values: Virginia State Plane coordinate system, North zone (FIPSZONE 4501), Lambert Conformal Conic projection
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• M1.5	River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
January 5, 1995

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
August 3, 2015 - to change Base Flood Elevations, to change Special Flood Hazard Areas, to update the effects of wave action, to incorporate Primary Frontal Dune analysis, to incorporate previously issued Letters of Map Revision, to reflect revised shoreline, and to reflect the effects of coastal erosion.

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NFIP

PANEL 0306E

FIRM
FLOOD INSURANCE RATE MAP

PRINCE WILLIAM COUNTY, VIRGINIA
AND INCORPORATED AREAS

PANEL 306 OF 328

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
PRINCE WILLIAM COUNTY	510119	0306	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
51153C0306E

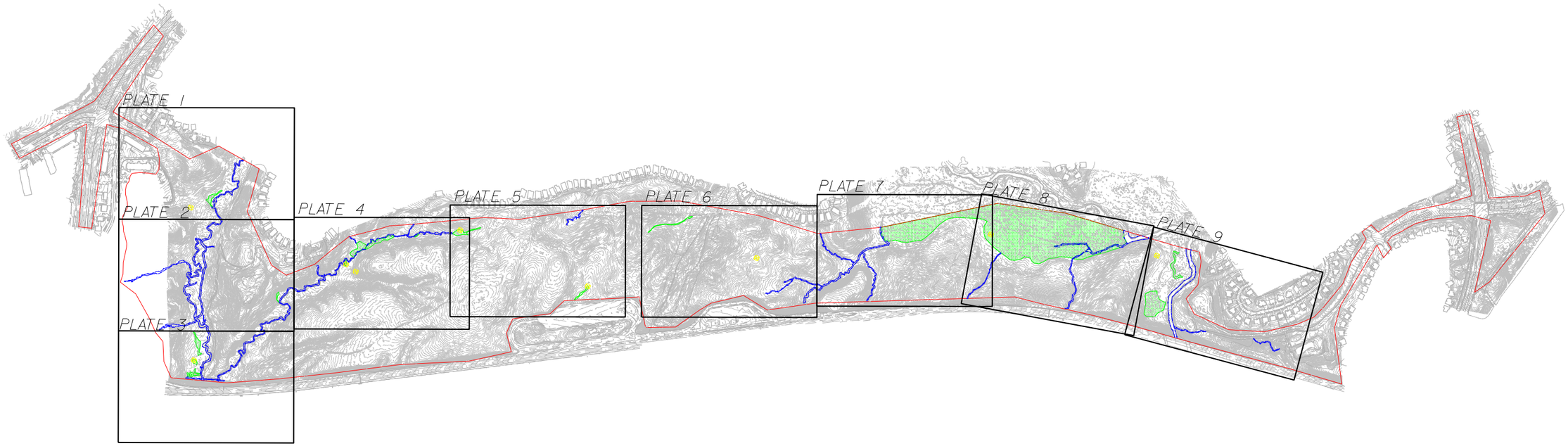
MAP REVISED
AUGUST 3, 2015

Federal Emergency Management Agency

NATIONAL FLOOD INSURANCE PROGRAM

APPENDIX A

WETLAND DELINEATION MAP



NOTES:

1.THE BOUNDARIES OF WATERS OF THE U.S.(WOUS),INCLUDING WETLANDS,WERE DELINEATED AND SURVEYED BY DEWBERRY ENGINEERS INC IN DECEMBER 2020 BASED ON THE REQUIREMENTS OF THE U.S.ARMY COPRS OF ENGINEERS (USACE) WETLAND DELINEATION MANUAL AND THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL: ATLANTIC AND GULF COASTAL PLAIN REGION (VERSION 2.0)

2.EXISTING TOPOGRAPHIC AND PLANIMETRIC INFORMATION PROVIDED BY DEWBERRY

VAN BUREN NORTHERN EXTENSION PROJECT
WETLAND DELINEATION MAP
PRINCE WILLIAM COUNTY,VIRGINIA

Dewberry®

Date : JANUARY 2021
Scale : 1"=1,000'
Sheet : 1 OF 10

SCALE
0 1,000' 2,000'

VAN BUREN NORTHERN EXTENTION PROJECT
DELINEATED WETLANDS & STREAMS

Dewberry®

Plate 1

Date : JAN. 2021

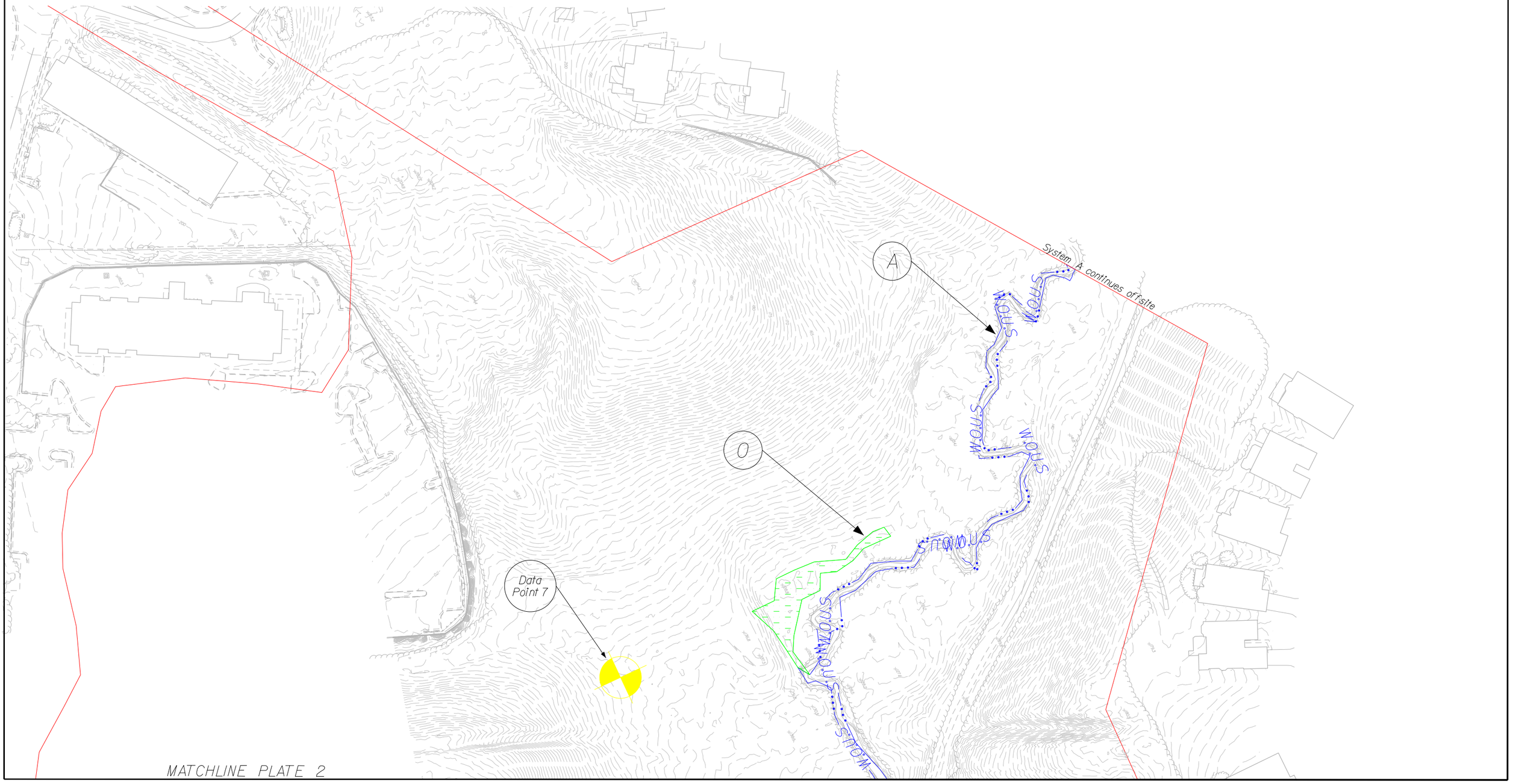
Scale : 1" = 100'

Sheet : 2 of 10

LEGEND:

- Waters of the U.S. (WOUS)
- Palustrine Forested (PFO) Wetland
- Datapoint
- Limits of Investigation
- A — System Label

SCALE 0 100' 200'



VAN BUREN NORTHERN EXTENTION PROJECT
DELINEATED WETLANDS & STREAMS

Dewberry®

Plate 2

Date : JAN. 2021

Scale : 1" = 100'

Sheet : 3 of 10

LEGEND:

- Waters of the U.S. (WOUS)
- Limits of Investigation
- Palustrine Forested (PFO) Wetland
- A — System Label
- Datapoint

SCALE 0 100' 200'

MATCHLINE PLATE 1

MATCHLINE PLATE 4

MATCHLINE PLATE 3

A

E

F

EB

EA

DA

D

C

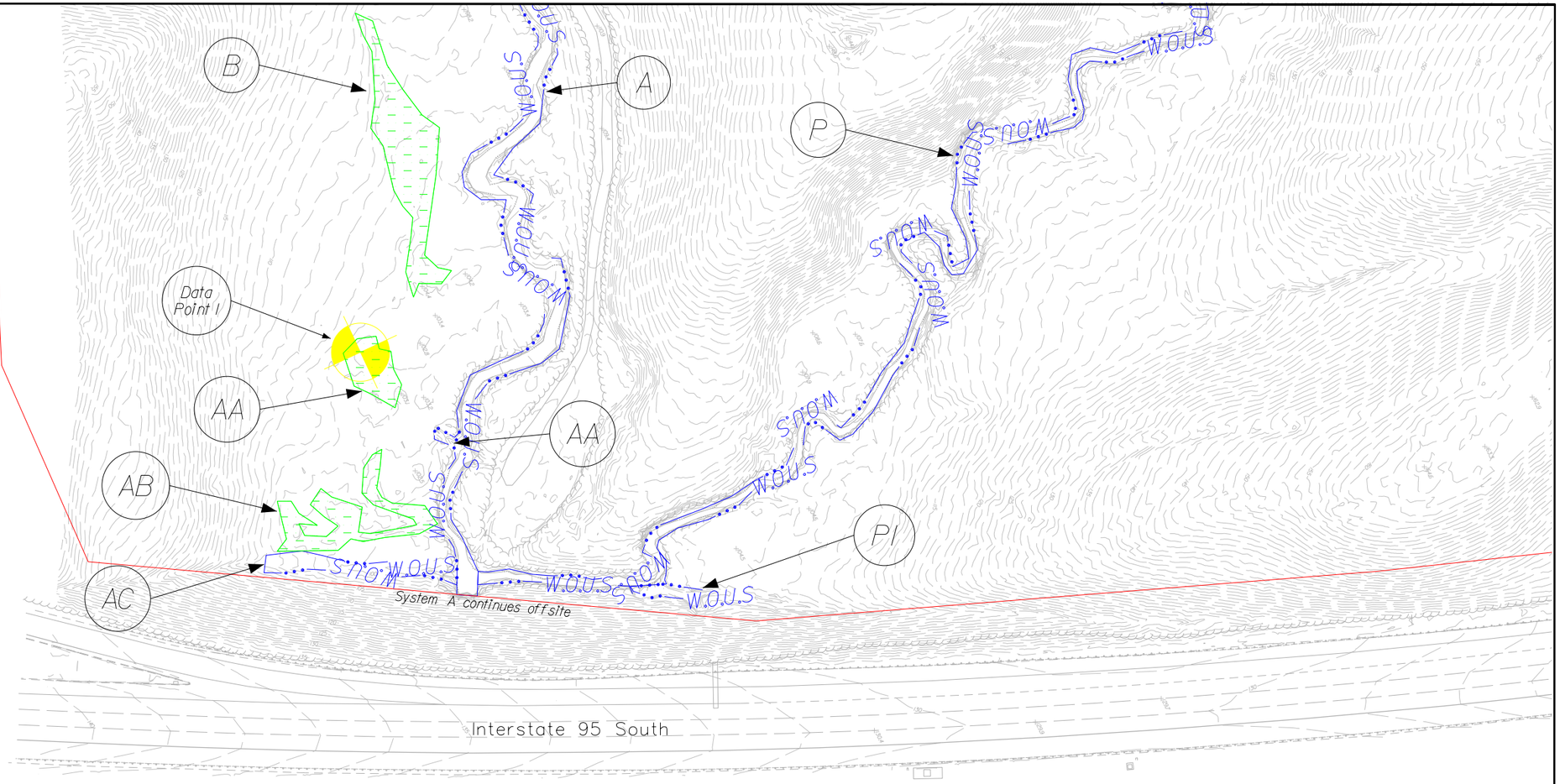
PH

P

W.O.U.S

S.N.O.W

MATCHLINE PLATE 2



VAN BUREN NORTHERN EXTENTION PROJECT
DELINEATED WETLANDS & STREAMS

Dewberry®

Plate 3

Date : JAN. 2021

Scale : 1" = 100'

Sheet : 4 of 10

LEGEND:

- Waters of the U.S. (WOUS)
- Palustrine Forested (PFO) Wetland
- Datapoint
- Limits of Investigation
- (A) System Label

SCALE

0 100' 200'

MATCHLINE PLATE 2

MATCHLINE PLATE 5

System PA continues offsite

System PD continues offsite

PA

PB

PC

PD

PE

PF

PG

P

Data Point 3

Data Point 4

W.O.U.S

VAN BUREN NORTHERN EXTENTION PROJECT
DELINEATED WETLANDS & STREAMS

Dewberry®

Plate 4

Date : JAN. 2021

Scale : 1" = 100'

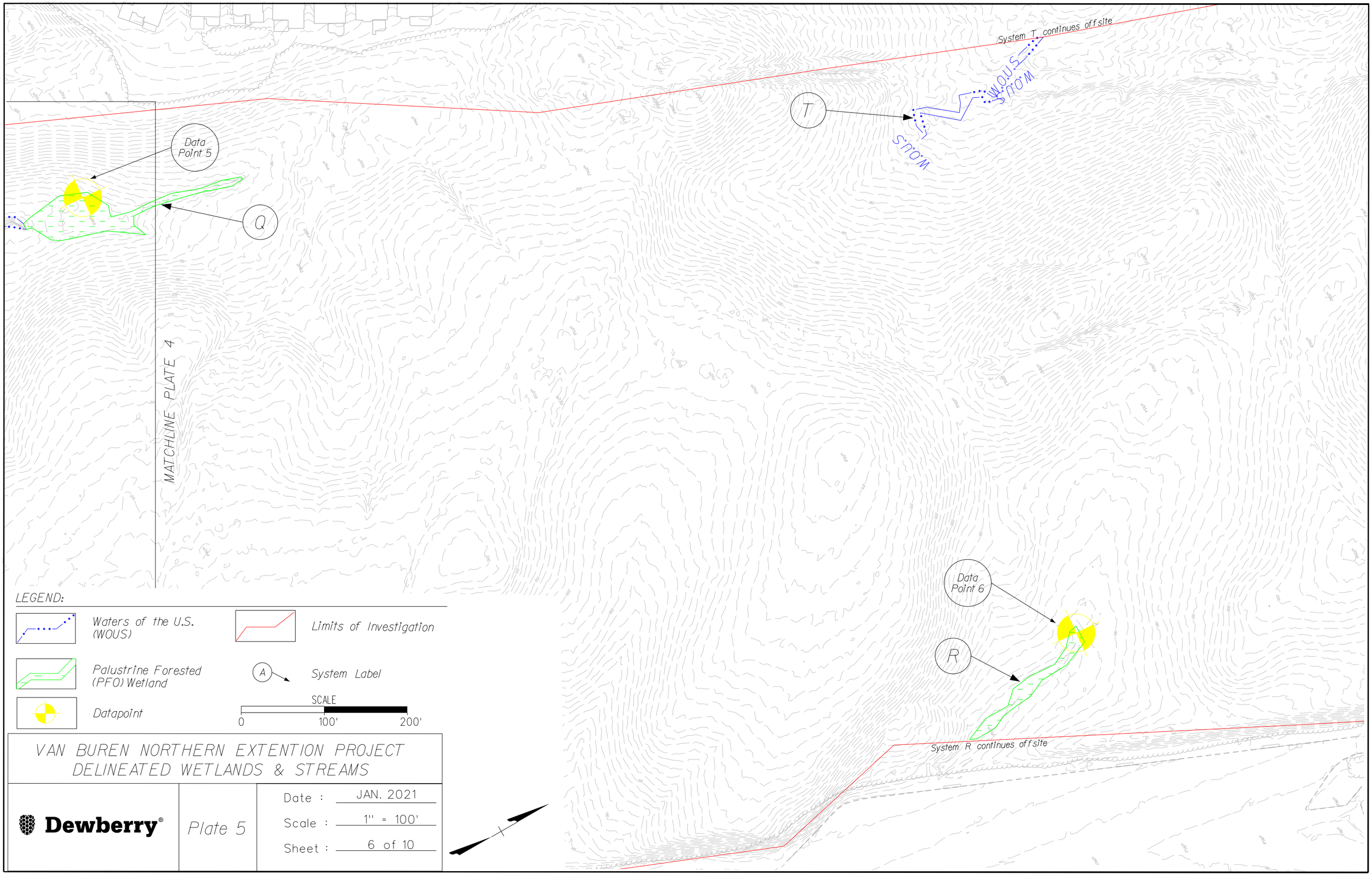
Sheet : 5 of 10

LEGEND:

- Waters of the U.S. (WOUS)
- Palustrine Forested (PFO) Wetland
- Datapoint
- Limits of Investigation
- A — System Label

SCALE

0 100' 200'



LEGEND:

- Waters of the U.S. (WOUS)
- Limits of Investigation
- Palustrine Forested (PFO) Wetland
- A — System Label
- Datapoint

SCALE
0 100' 200'

VAN BUREN NORTHERN EXTENTION PROJECT
DELINEATED WETLANDS & STREAMS

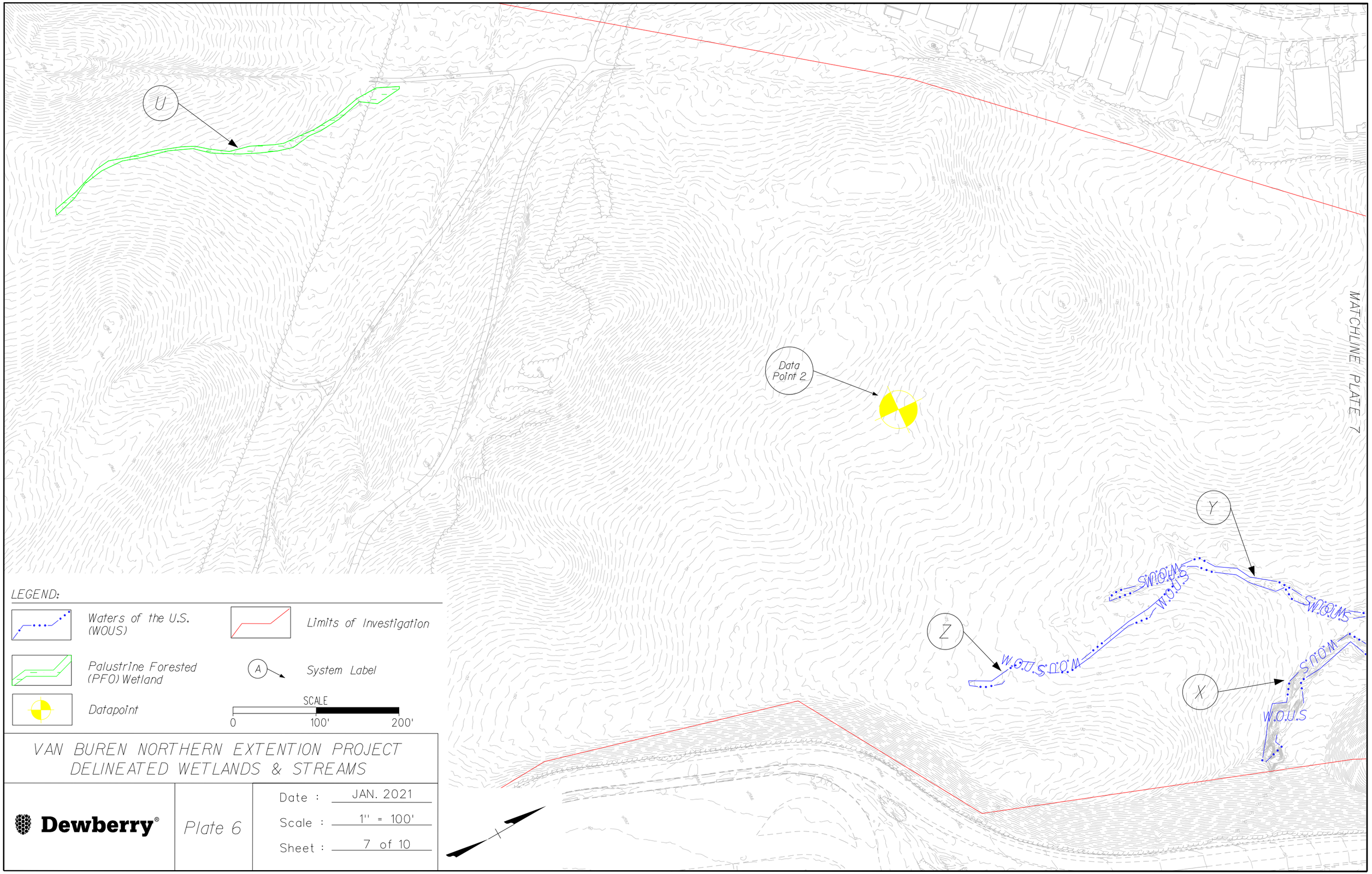
Dewberry®

Plate 5

Date : JAN. 2021

Scale : 1" = 100'

Sheet : 6 of 10



LEGEND:

- Waters of the U.S. (WOUS)
- Limits of Investigation
- Palustrine Forested (PFO) Wetland
- A — System Label
- Datapoint

SCALE
0 100' 200'

VAN BUREN NORTHERN EXTENTION PROJECT
DELINEATED WETLANDS & STREAMS

Dewberry®

Plate 6

Date : JAN. 2021

Scale : 1" = 100'

Sheet : 7 of 10

VAN BUREN NORTHERN EXTENTION PROJECT
DELINEATED WETLANDS & STREAMS

Dewberry®

Plate 7

Date : JAN. 2021

Scale : 1" = 100'

Sheet : 8 of 10

LEGEND:

- Waters of the U.S. (WOUS)
- Palustrine Forested (PFO) Wetland
- Datapoint
- Limits of Investigation
- (A) System Label

SCALE 0 100' 200'

System X continues offsite

System G continues offsite

W.O.U.S

S.T.O.M

V

X

Y

W

G

MATCHLINE PLATE 6

MATCHLINE PLATE 8

System G continues offsite

System I continues offsite

S.FO.M

W.O.U.S

HA

H

G

I

N

Data Point 8

MATCHLINE PLATE 7

MATCHLINE PLATE 9

Interstate 95 South

LEGEND:

- Waters of the U.S. (WOUS)
- Limits of Investigation
- Palustrine Forested (PFO) Wetland
- A — System Label
- Datapoint

SCALE 0 100' 200'

VAN BUREN NORTHERN EXTENTION PROJECT
DELINEATED WETLANDS & STREAMS

Dewberry®

Plate 8

Date : JAN. 2021

Scale : 1" = 100'

Sheet : 9 of 10

VAN BUREN NORTHERN EXTENTION PROJECT
DELINEATED WETLANDS & STREAMS

Dewberry®

Plate 9

Date : JAN. 2021

Scale : 1" = 100'

Sheet : 10 of 10

LEGEND:

- Waters of the U.S. (WOUS)
- Limits of Investigation
- Palustrine Forested (PFO) Wetland
- A — System Label
- Datapoint

SCALE 0 100' 200'

System K continues offsite

Data Point 9

MATCHLINE PLATE 8

J

L

K

KA

M

W.O.U.S

S.N.O.W

System K continues offsite

Interstate 95 South

APPENDIX B

PHOTOGRAPHIC LOG

Photo #1: Representative Photo of system A (R3) looking upstream.
Date: December 9, 2020

Photo #2: Representative Photo of system A (R3) looking downstream.
Date: December 9, 2020

Photo #3: Representative Photo of system AA (PFO).
Date: December 9, 2020

Photo #4: Representative Photo of system AA (PFO).
Date: December 9, 2020

Photo #5: Representative Photo of system AB (PFO).
Date: December 9, 2020

Photo #6: Representative Photo of system AB (PFO).
Date: December 9, 2020

Photo #7: Representative Photo of system AC (R4) looking downstream.
Date: December 9, 2020

Photo #8: Representative Photo of system AC (R4) looking upstream.
Date: December 9, 2020

Photo #9: Representative Photo of system AD (R4).
Date: December 9, 2020

Photo #10: Representative Photo of system AD (R4).
Date: December 9, 2020

Photo #11: Representative Photo of system B (PFO).
Date: December 9, 2020

Photo #12: Representative Photo of system B (PFO).
Date: December 9, 2020

Photo #13: Representative Photo of system C (EPH).
Date: December 9, 2020

Photo #14: Representative Photo of system C (EPH) looking downstream as it connects to system A.
Date: December 9, 2020

Photo #15: Representative Photo of system D (R4) looking upstream.
Date: December 9, 2020

Photo #16: Representative Photo of system D (R4) looking upstream.
Date: December 9, 2020

Photo #17: Representative Photo of system DA (EPH) looking upstream.
Date: December 9, 2020

Photo #18: Representative Photo of system DA (EPH) looking upstream starting at a culvert that goes under Old Stage Road.
Date: December 9, 2020

Photo #19: Representative Photo of system E (R4) looking upstream.
Date: December 9, 2020

Photo #20: Representative Photo of system E (R4) looking downstream.
Date: December 9, 2020

Photo #21: Representative Photo of system EA (R4) looking upstream.
Date: December 9, 2020

Photo #22: Representative Photo of system EA (R4) looking downstream.
Date: December 9, 2020

Photo #23: Representative Photo of system EB (R4) looking downstream.
Date: December 9, 2020

Photo #24: Representative Photo of system EB (R4) looking upstream.
Date: December 9, 2020

Photo #25: Representative Photo of system F (EPH) looking upstream starting at a pipe going under the sewerline easement access road.
Date: December 9, 2020

Photo #26: Representative Photo of system F (EPH) looking downstream.
Date: December 9, 2020

Photo #27: Representative Photo of system G (PFO).
Date: December 22, 2020

Photo #28: Representative Photo of system G (PFO).
Date: December 22, 2020

Photo #29: Representative Photo of system H (R4) looking upstream.
Date: December 22, 2020

Photo #30: Representative Photo of system H (R4) looking downstream.
Date: December 22, 2020

Photo #31: Representative Photo of system H (R4) looking upstream starting a culver that goes under I-95.
Date: December 22, 2020

Photo #32: Representative Photo of system HA (EPH) looking downstream.
Date: December 22, 2020

Photo #33: Representative Photo of system I (R3) looking downstream.
Date: December 22, 2020

Photo #34: Representative Photo of system I (R3) looking upstream.
Date: December 22, 2020

Photo #35: Representative Photo of system J (PFO).
Date: December 22, 2020

Photo #36: Representative Photo of system J (PFO).
Date: December 22, 2020

Photo #37: Representative Photo of system K (R3) looking downstream.
Date: December 22, 2020

Photo #38: Representative Photo of system K (R3) looking downstream with the bridge over the stream being I-95.
Date: December 22, 2020

Photo #39: Representative Photo of system KA (R4) looking upstream.
Date: December 22, 2020

Photo #40: Representative Photo of system KA (R4) looking downstream.
Date: December 22, 2020

Photo #41: Representative Photo of system L (PFO).
Date: December 22, 2020

Photo #42: Representative Photo of system L (PFO).
Date: December 22, 2020

Photo #43: Representative Photo of system M (R4) looking downstream.
Date: December 22, 2020

Photo #44: Representative Photo of system M (R4) looking upstream.
Date: December 22, 2020

Photo #45: Representative Photo of system N (R4) looking downstream.
Date: December 22, 2020

Photo #46: Representative Photo of system N (R4) looking upstream.
Date: December 22, 2020

Photo #47: Representative Photo of system O (PFO).
Date: December 10, 2020

Photo #48: Representative Photo of system O (PFO).
Date: December 10, 2020

Photo #49: Representative Photo of system P (R3) looking upstream.
Date: December 9, 2020

Photo #50: Representative Photo of system P (R3) looking downstream.
Date: December 9, 2020

Photo #51: Representative Photo of system PA (R4) looking downstream.
Date: December 10, 2020

Photo #52: Representative Photo of system PA (R4) looking upstream.
Date: December 10, 2020

Photo #53: Representative Photo of system PB (PFO).
Date: December 10, 2020

Photo #54: Representative Photo of system PB (PFO).
Date: December 10, 2020

Photo #55: Representative Photo of system PC (PFO).
Date: December 10, 2020

Photo #56: Representative Photo of system PC (PFO).
Date: December 10, 2020

Photo #57: Representative Photo of system PC (PFO).
Date: December 10, 2020

Photo #58: Representative Photo of system PD (R4) looking downstream.
Date: December 10, 2020

Photo #59: Representative Photo of system PE (PFO).
Date: December 10, 2020

Photo #60: Representative Photo of system PE (PFO).
Date: December 10, 2020

Photo #61: Representative Photo of system PF (PFO) looking upstream.
Date: December 10, 2020

Photo #62: Representative Photo of system PF (PFO) looking downstream.
Date: December 10, 2020

Photo #63: Representative Photo of system PG (R3) looking downstream.
Date: December 10, 2020

Photo #64: Representative Photo of system PG (R3) looking upstream starting at a culvert under Four Seasons Drive.
Date: December 10, 2020

Photo #65: Representative Photo of system PH (PFO).
Date: December 10, 2020

Photo #66: Representative Photo of system PH (PFO).
Date: December 10, 2020

Photo #67: Representative Photo of system PI (R3) looking downstream.
Date: December 10, 2020

Photo #68: Representative Photo of system PI (R3) looking upstream with the culvert going under I-95.
Date: December 10, 2020

Photo #69: Representative Photo of system Q (PFO).
Date: December 9, 2020

Photo #70: Representative Photo of system Q (PFO).
Date: December 9, 2020

Photo #71: Representative Photo of system R (PFO).
Date: December 9, 2020

Photo #72: Representative Photo of system R (PFO).
Date: December 9, 2020

Photo #73: Representative Photo of system T (R4) looking downstream.
Date: December 9, 2020

Photo #74: Representative Photo of system T (R4) looking upstream.
Date: December 9, 2020

Photo #75: Representative Photo of system U (PFO) looking upstream.
Date: December 9, 2020

Photo #76: Representative Photo of system U (PFO) looking downstream.
Date: December 9, 2020

Photo #77: Representative Photo of system V (R4) looking upstream.
Date: December 9, 2020

Photo #78: Representative Photo of system V (R4) looking downstream where system V connects to system X.
Date: December 9, 2020

Photo #79: Representative Photo of system W (R3) looking upstream with the culvert going under I-95.
Date: December 9, 2020

Photo #80: Representative Photo of system W (R3) looking downstream.
Date: December 9, 2020

Photo #81: Representative Photo of system X (R3) looking upstream.
Date: December 9, 2020

Photo #82: Representative Photo of system X (R3) looking downstream.
Date: December 9, 2020

Photo #83: Representative Photo of system Y (EPH) looking upstream.
Date: December 9, 2020

Photo #84: Representative Photo of system Y (EPH) looking downstream.
Date: December 9, 2020

Photo #85: Representative Photo of system Z (EPH) looking downstream.
Date: December 9, 2020

Photo #86: Representative Photo of system Z (EPH) looking upstream.
Date: December 9, 2020

APPENDIX C

USACE WETLAND DATA FORMS

WETLAND DETERMINATION DATA FORM - Atlantic Gulf Coastal Plain Region

Project/Site:	Van Buren Northern Extension Project	**City/County:**	Prince William County	**Date:**	12/9/2020
Applicant/Owner:	Prince William County	**State:** VA	**Sampling Point:**	**1**	
Investigator(s):	K.Donovan, R.Hayler, E.Prunchak, A.Dietrich	**Section, Township, Range:**			
Landform (hillslope, terrace, etc.):	Plain	**Local relief (concave, convex, none):**	Concave	**Slope (%):**	0-1%
Subregion (LRR or MLRA):	136 - Southern Piedmont	**Lat:**	38.583507 **Long:** -77.322462	**Datum:**	NAD 83
Soil Map Unit Name:	27A - Hatboro-Codorus complex			**NWI Classification:**	PFO

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

Are vegetation ____ , soil ____ , or hydrology ____ significantly disturbed? Are "Normal Circumstances present?) Yes X No ____

Are vegetation ____ , soil ____ , or hydrology ____ naturally problematic? (If needed, explain any answers in **Remarks.**)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc

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

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- X Surface Water (A1)
- ____ High Water Table (A2)
- X Saturation (A3)
- X Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- X Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15) **(LRR U)**
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- X Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C8)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in **Remarks**)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ FAC-Neutral Test (D5)
- ____ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (Inches):	5
Water Table Present?	Yes _____	No X	Depth (Inches):	_____
Saturation Present?	Yes X	No _____	Depth (Inches):	4

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

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

Remarks:

Within system AA

VEGETATION - Use scientific names of plants.

Sampling Point: **1**

Tree Stratum (Plot Size: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Liquidambar styraciflua*	70	Y	FAC
2 *Carpinus caroliniana*	25	Y	FAC
3			
4			
5			
6			
7			
	95	=Total Cover	

Sapling Statum (Plot Size: 15 ft.)			
1 *Carpinus caroliniana*	25	Y	FAC
2			
3			
4			
5			
6			
7			
	25	=Total Cover	

Shrub Stratum (Plot Size: 15 ft.)			
1			
2			
3			
4			
5			
6			
7			
	0	=Total Cover	

Herb Stratum (Plot Size: 5 ft.)			
1 *Carax Sp.*	5	Y	
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	5	=Total Cover	

Woody Vine Stratum (Plot Size: 30 ft.)			
1			
2			
3			
4			
5			
	0	=Total Cover	

Dominance Test Worksheet:

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **75%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:

OBL Species	0	x1=	0
FACW Species	0	x2=	0
FAC Species	120	x3=	360
FACU Species	0	x4=	0
UPL Species	0	x5=	0
Column Totals:	120 (A)		360 (B)

Prevalence Index = B/A = **3.00**

Hydrophytic Vegetation Indicators:

- ___ Rapid Test for Hydrophytic Vegetation
- **X** Dominance Test is > 50%
- **X** Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

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

SOIL

Sampling Point: **1**

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

	Matrix		Redox Features					
Depth (Inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
1-12	7.5YR 8/2	80%	2.5YR 4/8	20%	D	M	Sandy Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Much (A9) **(LRR 0)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in **Remarks**)

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

Restrictive Layer (if observed:)

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic Gulf Coastal Plain Region

Project/Site:	Van Buren Northern Extension Project	**City/County:**	Prince William County	**Date:**	12/9/2020
Applicant/Owner:	Prince William County	**State:** VA	**Sampling Point:**	**2**	
Investigator(s):	K.Donovan, R.Hayler, E.Prunchak, A.Dietrich	**Section, Township, Range:**			
Landform (hillslope, terrace, etc.):	Hillslope	**Local relief (concave, convex, none):**	convex	**Slope (%):**	5-10%
Subregion (LRR or MLRA):	136 - Southern Piedmont	**Lat:**	38.597881 **Long:** -77.317085	**Datum:**	NAD 83
Soil Map Unit Name:	18C - Dumfries sandy loam			**NWI Classification:**	UPL

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

Are vegetation ____ , soil ____ , or hydrology ____ significantly disturbed? Are "Normal Circumstances present?) Yes X No ____

Are vegetation ____ , soil ____ , or hydrology ____ naturally problematic? (If needed, explain any answers in **Remarks.**)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc

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

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15) **(LRR U)**
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C8)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in **Remarks**)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ FAC-Neutral Test (D5)
- ____ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (Inches): ____	
Water Table Present?	Yes ____	No X	Depth (Inches): ____	**Wetland Hydrology Present?**
Saturation Present?	Yes ____	No X	Depth (Inches): ____	**Yes ____ No X**

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

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: **2**

Tree Stratum (Plot Size: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Ilex opaca Aiton*	50	Y	FAC
2 *Fagus grandifolia*	20	Y	FACU
3 *Quercus alba*	10	N	FACU
4			
5			
6			
7			
	80	=Total Cover	

Sapling Statum (Plot Size: 15 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Ilex opaca Aiton*	40	Y	FAC
2 *Fagus grandifolia*	15	Y	FACU
3 *Quercus alba*	10	N	FACU
4			
5			
6			
7			
	65	=Total Cover	

Shrub Stratum (Plot Size: 15 ft.)			
1 *N/A*			
2			
3			
4			
5			
6			
7			
	0	=Total Cover	

Herb Stratum (Plot Size: 5 ft.)			
1 *Polystichum acrostichoides*	10	Y	FACU
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	10	=Total Cover	

Woody Vine Stratum (Plot Size: 30 ft.)			
1 *N/A*			
2			
3			
4			
5			
	0	=Total Cover	

Dominance Test Worksheet:

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **40%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:			
OBL Species	0	x1=	0
FACW Species	0	x2=	0
FAC Species	90	x3=	270
FACU Species	65	x4=	260
UPL Species	0	x5=	0
Column Totals:	155 (A)		530 (B)

Prevalence Index = B/A = **3.42**

Hydrophytic Vegetation Indicators:

___ Rapid Test for Hydrophytic Vegetation

___ Dominance Test is > 50%

___ Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

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

SOIL

Sampling Point: **2**

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

	Matrix		Redox Features					
Depth (Inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/3	100%					Silty Loam	
12-18	10YR 5/3	85%	10YR 5/6	15%	C	PL	Silty Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Much (A9) **(LRR 0)**
- ____ 2 cm Muck (A10) **(LRR S)**
- ____ Reduced Vertic (F18) **(outside MLRA 150A, B)**
- ____ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ____ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ____ Red Parent Material (TF2)
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in **Remarks**)

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

Restrictive Layer (if observed:)

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic Gulf Coastal Plain Region

Project/Site:	Van Buren Northern Extension Project	**City/County:**	Prince William County	**Date:**	12/10/2020
Applicant/Owner:	Prince William County	**State:** VA	**Sampling Point:**	**3**	
Investigator(s):	K.Donovan, R.Hayler, E.Prunchak, A.Dietrich	**Section, Township, Range:**			
Landform (hillslope, terrace, etc.):	Plain	**Local relief (concave, convex, none):**	concave	**Slope (%):**	0-1 %
Subregion (LRR or MLRA):	136 - Southern Piedmont	**Lat:**	38.589595 **Long:** -77.322970	**Datum:**	NAD 83
Soil Map Unit Name:	47B - Quantico sandy loam			**NWI Classification:**	PFO

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

Are vegetation ____ , soil ____ , or hydrology ____ significantly disturbed? Are "Normal Circumstances present?) Yes X No ____

Are vegetation ____ , soil ____ , or hydrology ____ naturally problematic? (If needed, explain any answers in **Remarks.**)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc

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

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

X	Surface Water (A1)		Aquatic Fauna (B13)		Surface Soil Cracks (B6)
X	High Water Table (A2)		Marl Deposits (B15) **(LRR U)**		Sparsely Vegetated Concave Surface (B8)
X	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Drainage Patterns (B10)
X	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Moss Trim Lines (B16)
	Sediment Deposits (B2)	X	Presence of Reduced Iron (C4)		Dry-Season Water Table (C2)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C8)		Crayfish Burrows (C8)
	Algal Mat or Crust (B4)		Thin Muck Surface (C7)		Saturation Visible on Aerial Imagery (C9)
	Iron Deposits (B5)		Other (Explain in **Remarks**)		Stunted or Stressed Plants (D1)
	Inundation Visible on Aerial Imagery (B7)				Geomorphic Position (D2)
X	Water-Stained Leaves (B9)				Shallow Aquitard (D3)
					FAC-Neutral Test (D5)
					Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (Inches):	2	
Water Table Present?	Yes X	No _____	Depth (Inches):	12	**Wetland Hydrology Present?**
Saturation Present?	Yes X	No _____	Depth (Inches):	2	**Yes X** **No** ____

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

Remarks:

Adjacent to system P in system PB

VEGETATION - Use scientific names of plants.

Sampling Point: **3**

Tree Stratum (Plot Size: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Acer rubrum*	50	Y	FAC
2			
3			
4			
5			
6			
7			
	50	=Total Cover	

Sapling Statum (Plot Size: 15 ft.)			
1 *Acer rubrum*	25	Y	FAC
2			
3			
4			
5			
6			
7			
	25	=Total Cover	

Shrub Stratum (Plot Size: 15 ft.)			
1 *N/A*			
2			
3			
4			
5			
6			
7			
	0	=Total Cover	

Herb Stratum (Plot Size: 5 ft.)			
1 *Carex pedunculata*	20	Y	OBL
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	20	=Total Cover	

Woody Vine Stratum (Plot Size: 30 ft.)			
1 *N/A*			
2			
3			
4			
5			
	0	=Total Cover	

Dominance Test Worksheet:

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

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:

OBL Species	20	x1=	20
FACW Species	0	x2=	0
FAC Species	75	x3=	225
FACU Species	0	x4=	0
UPL Species	0	x5=	0
Column Totals:	95 (A)		245 (B)

Prevalence Index = B/A = **2.58**

Hydrophytic Vegetation Indicators:

- ___ Rapid Test for Hydrophytic Vegetation
- **X** Dominance Test is > 50%
- **X** Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

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

SOIL

Sampling Point: **3**

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

	Matrix		Redox Features					
Depth (Inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 4/2	70%	5YR 5/8	30%	C	PL	Sandy Clay Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Much (A9) **(LRR 0)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in **Remarks**)

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

Restrictive Layer (if observed:)

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic Gulf Coastal Plain Region

Project/Site:	Van Buren Northern Extension Project	**City/County:**	Prince William County	**Date:**	12/10/2020
Applicant/Owner:	Prince William County	**State:** VA	**Sampling Point:**	**4**	
Investigator(s):	K.Donovan, R.Hayler, E.Prunchak, A.Dietrich	**Section, Township, Range:**			
Landform (hillslope, terrace, etc.):	hillslop	**Local relief (concave, convex, none):**	convex	**Slope (%):**	5-10%
Subregion (LRR or MLRA):	136 - Southern Piedmont	**Lat:**	38.589080 **Long:** -77.322374	**Datum:**	NAD 83
Soil Map Unit Name:	47B - Quantico sandy loam			**NWI Classification:**	UPL

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

Are vegetation ____ , soil ____ , or hydrology ____ significantly disturbed? Are "Normal Circumstances present?) Yes X No ____

Are vegetation ____ , soil ____ , or hydrology ____ naturally problematic? (If needed, explain any answers in **Remarks.**)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc

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

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15) **(LRR U)**
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C8)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in **Remarks**)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ FAC-Neutral Test (D5)
- ____ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (Inches): ____
Water Table Present?	Yes ____	No X	Depth (Inches): ____
Saturation Present?	Yes ____	No X	Depth (Inches): ____

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

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

Remarks:

Representative upland point

VEGETATION - Use scientific names of plants.

Sampling Point: **4**

Tree Stratum (Plot Size: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Acer rubrum*	40	Y	FAC
2 *Fagus grandifolia*	20	Y	FACU
3 *Quercus alba*	15	N	FACU
4			
5			
6			
7			
	75	=Total Cover	

Sapling Statum (Plot Size: 15 ft.)			
1 *Acer rubrum*	30	Y	FAC
2 *Fagus grandifolia*	15	Y	FACU
3 *Quercus alba*	10	N	FACU
4			
5			
6			
7			
	55	=Total Cover	

Shrub Stratum (Plot Size: 15 ft.)			
1 *Ilex opaca Aiton*	10	Y	FAC
2			
3			
4			
5			
6			
7			
	10	=Total Cover	

Herb Stratum (Plot Size: 5 ft.)			
1 *Smilax sp.*	30	Y	
2 *Pteridium aquilinum*	50	Y	FACU
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	80	=Total Cover	

Woody Vine Stratum (Plot Size: 30 ft.)			
1 *N/A*			
2			
3			
4			
5			
	0	=Total Cover	

Dominance Test Worksheet:

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

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **43%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:			
OBL Species	0	x1=	0
FACW Species	0	x2=	0
FAC Species	80	x3=	240
FACU Species	110	x4=	440
UPL Species	0	x5=	0
Column Totals:	190 (A)		680 (B)

Prevalence Index = B/A = **3.58**

Hydrophytic Vegetation Indicators:

___ Rapid Test for Hydrophytic Vegetation

___ Dominance Test is > 50%

___ Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

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

SOIL

Sampling Point: **4**

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

	Matrix		Redox Features					
Depth (Inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	705YR 4/2	80%	5YR 5/8	20%	D	M	Sandy Clay Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Much (A9) **(LRR 0)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in **Remarks**)

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

Restrictive Layer (if observed:)

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic Gulf Coastal Plain Region

Project/Site:	Van Buren Northern Extension Project	**City/County:**	Prince William County	**Date:**	12/10/2020
Applicant/Owner:	Prince William County	**State:** VA	**Sampling Point:**	**5**	
Investigator(s):	K.Donovan, R.Hayler, E.Prunchak, A.Dietrich	**Section, Township, Range:**			
Landform (hillslope, terrace, etc.):	Plain	**Local relief (concave, convex, none):**	concave	**Slope (%):**	0-1 %
Subregion (LRR or MLRA):	136 - Southern Piedmont	**Lat:**	38.590993 **Long:** -77.32263	**Datum:**	NAD 83
Soil Map Unit Name:	47B - Quantico sandy loam			**NWI Classification:**	PFO

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

Are vegetation ____ , soil ____ , or hydrology ____ significantly disturbed? Are "Normal Circumstances present?) Yes X No ____

Are vegetation ____ , soil ____ , or hydrology ____ naturally problematic? (If needed, explain any answers in **Remarks.**)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc

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

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

X	Surface Water (A1)		Aquatic Fauna (B13)		Surface Soil Cracks (B6)
X	High Water Table (A2)		Marl Deposits (B15) **(LRR U)**	X	Sparsely Vegetated Concave Surface (B8)
X	Saturation (A3)		Hydrogen Sulfide Odor (C1)		Drainage Patterns (B10)
X	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)		Moss Trim Lines (B16)
	Sediment Deposits (B2)	X	Presence of Reduced Iron (C4)		Dry-Season Water Table (C2)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C8)		Crayfish Burrows (C8)
	Algal Mat or Crust (B4)		Thin Muck Surface (C7)		Saturation Visible on Aerial Imagery (C9)
	Iron Deposits (B5)		Other (Explain in **Remarks**)		Stunted or Stressed Plants (D1)
	Inundation Visible on Aerial Imagery (B7)				Geomorphic Position (D2)
X	Water-Stained Leaves (B9)				Shallow Aquitard (D3)
					FAC-Neutral Test (D5)
					Sphagnum moss (D8) **(LRR T, U)**

Secondary Indicators (minimum of two required)

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (Inches):	2
Water Table Present?	Yes X	No _____	Depth (Inches):	6
Saturation Present?	Yes X	No _____	Depth (Inches):	2

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

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

Remarks:

Within system Q

VEGETATION - Use scientific names of plants.

Sampling Point: **5**

Tree Stratum (Plot Size: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Acer rubrum*	40	Y	FAC
2			
3			
4			
5			
6			
7			
	40	=Total Cover	

Sapling Statum (Plot Size: 15 ft.)			
1 *Acer rubrum*	25	Y	FAC
2 *Ilex opaca Aiton*	10	Y	FAC
3			
4			
5			
6			
7			
	35	=Total Cover	

Shrub Stratum (Plot Size: 15 ft.)			
1 *N/A*			
2			
3			
4			
5			
6			
7			
	0	=Total Cover	

Herb Stratum (Plot Size: 5 ft.)			
1 *Carex pedunculata*	30	Y	OBL
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	30	=Total Cover	

Woody Vine Stratum (Plot Size: 30 ft.)			
1 *N/A*			
2			
3			
4			
5			
	0	=Total Cover	

Dominance Test Worksheet:

Number of Dominant Species that Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:			
OBL Species	30	x1=	30
FACW Species	0	x2=	0
FAC Species	75	x3=	225
FACU Species	0	x4=	0
UPL Species	0	x5=	0
Column Totals:	105 (A)		255 (B)

Prevalence Index = B/A = **2.43**

Hydrophytic Vegetation Indicators:

- ___ Rapid Test for Hydrophytic Vegetation
- **X** Dominance Test is > 50%
- **X** Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

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

SOIL

Sampling Point: **5**

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

	Matrix		Redox Features					
Depth (Inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	7.5YR 4/2	80%	5YR 5/8	20%	D	M	Sandy Clay Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Much (A9) **(LRR 0)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in **Remarks**)

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

Restrictive Layer (if observed:)

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic Gulf Coastal Plain Region

Project/Site:	Van Buren Northern Extension Project	**City/County:**	Prince William County	**Date:**	12/9/2020
Applicant/Owner:	Prince William County	**State:** VA	**Sampling Point:**	**6**	
Investigator(s):	K.Donovan, R.Hayler, E.Prunchak, A.Dietrich	**Section, Township, Range:**			
Landform (hillslope, terrace, etc.):	Plain	**Local relief (concave, convex, none):**	concave	**Slope (%):**	0-1
Subregion (LRR or MLRA):	136 - Southern Piedmont	**Lat:**	38.593037 **Long:** -77.318666	**Datum:**	NAD 83
Soil Map Unit Name:	16A - Delanco find sandy loam			**NWI Classification:**	PFO

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

Are vegetation ____ , soil ____ , or hydrology ____ significantly disturbed? Are "Normal Circumstances present?) Yes X No ____

Are vegetation ____ , soil ____ , or hydrology ____ naturally problematic? (If needed, explain any answers in **Remarks.**)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc

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

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

				Secondary Indicators (minimum of two required)
X	Surface Water (A1)		Aquatic Fauna (B13)	Surface Soil Cracks (B6)
X	High Water Table (A2)		Marl Deposits (B15) **(LRR U)**	Sparsely Vegetated Concave Surface (B8)
X	Saturation (A3)		Hydrogen Sulfide Odor (C1)	Drainage Patterns (B10)
	Water Marks (B1)		Oxidized Rhizospheres on Living Roots (C3)	Moss Trim Lines (B16)
	Sediment Deposits (B2)	X	Presence of Reduced Iron (C4)	Dry-Season Water Table (C2)
	Drift Deposits (B3)		Recent Iron Reduction in Tilled Soils (C8)	Crayfish Burrows (C8)
	Algal Mat or Crust (B4)		Thin Muck Surface (C7)	Saturation Visible on Aerial Imagery (C9)
	Iron Deposits (B5)		Other (Explain in **Remarks**)	Stunted or Stressed Plants (D1)
	Inundation Visible on Aerial Imagery (B7)			Geomorphic Position (D2)
X	Water-Stained Leaves (B9)			Shallow Aquitard (D3)
				FAC-Neutral Test (D5)
				Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (Inches): 2		
Water Table Present?	Yes X	No _____	Depth (Inches): 2	**Wetland Hydrology Present?**	
Saturation Present?	Yes X	No _____	Depth (Inches): 2	**Yes X**	**No** ____

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

Remarks:

Within system R

VEGETATION - Use scientific names of plants.

Sampling Point: **6**

Tree Stratum (Plot Size: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Acer rubrum*	65	Y	FAC
2			
3			
4			
5			
6			
7			
	65	=Total Cover	

Sapling Statum (Plot Size: 15 ft.)			
1 *Ilex opaca Aiton*	10	Y	FAC
2 *Acer rubrum*	35	Y	FAC
3			
4			
5			
6			
7			
	45	=Total Cover	

Shrub Stratum (Plot Size: 15 ft.)			
1 *N/A*			
2			
3			
4			
5			
6			
7			
	0	=Total Cover	

Herb Stratum (Plot Size: 5 ft.)			
1 *Smilax sp.*	10	Y	
2 *Carex pedunculata*	20	Y	OBL
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	30	=Total Cover	

Woody Vine Stratum (Plot Size: 30 ft.)			
1 *N/A*			
2			
3			
4			
5			
	0	=Total Cover	

Dominance Test Worksheet:

Number of Dominant Species that Are OBL, FACW, or FAC: 4 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: **80%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:			
OBL Species	20	x1=	20
FACW Species	0	x2=	0
FAC Species	110	x3=	330
FACU Species	0	x4=	0
UPL Species	0	x5=	0
Column Totals:	130 (A)		350 (B)

Prevalence Index = B/A = **2.69**

Hydrophytic Vegetation Indicators:

- ___ Rapid Test for Hydrophytic Vegetation
- **X** Dominance Test is > 50%
- **X** Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

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

SOIL

Sampling Point: **6**

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

	Matrix		Redox Features					
Depth (Inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/2	95%	2.5YR 4/5	5%	C	PL	Sandy Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Much (A9) **(LRR 0)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in **Remarks**)

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

Restrictive Layer (if observed:)

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic Gulf Coastal Plain Region

Project/Site:	Van Buren Northern Extension Project	**City/County:**	Prince William County	**Date:**	12/10/2020
Applicant/Owner:	Prince William County	**State:** VA	**Sampling Point:**	**7**	
Investigator(s):	K.Donovan, R.Hayler, E.Prunchak, A.Dietrich	**Section, Township, Range:**			
Landform (hillslope, terrace, etc.):	hillslop	**Local relief (concave, convex, none):**	convex	**Slope (%):**	5-10%
Subregion (LRR or MLRA):	136 - Southern Piedmont	**Lat:**	38.584410 **Long:** -77.326511	**Datum:**	NAD 83
Soil Map Unit Name:	47B - Quantico sandy loam			**NWI Classification:**	UPL

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

Are vegetation ____ , soil ____ , or hydrology ____ significantly disturbed? Are "Normal Circumstances present?) Yes X No ____

Are vegetation ____ , soil ____ , or hydrology ____ naturally problematic? (If needed, explain any answers in **Remarks.**)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc

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

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15) **(LRR U)**
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C8)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in **Remarks**)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ FAC-Neutral Test (D5)
- ____ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (Inches): ____
Water Table Present?	Yes ____	No X	Depth (Inches): ____
Saturation Present?	Yes ____	No X	Depth (Inches): ____

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

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

Remarks:

Representative upland point

VEGETATION - Use scientific names of plants.

Sampling Point: **7**

Tree Stratum (Plot Size: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Acer rubrum*	40	Y	FAC
2 *Fagus grandifolia*	25	Y	FACU
3 *Quercus alba*	20	Y	FACU
4			
5			
6			
7			
	85	=Total Cover	

Sapling Statum (Plot Size: 15 ft.)			
1 *Acer rubrum*	30	Y	FAC
2 *Fagus grandifolia*	20	Y	FACU
3 *Quercus alba*	10	N	FACU
4			
5			
6			
7			
	60	=Total Cover	

Shrub Stratum (Plot Size: 15 ft.)			
1 *Ilex opaca Aiton*	15	Y	FAC
2			
3			
4			
5			
6			
7			
	15	=Total Cover	

Herb Stratum (Plot Size: 5 ft.)			
1 *Smilax sp.*	10	N	
2 *Pteridium aquilinum*	50	Y	FACU
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	60	=Total Cover	

Woody Vine Stratum (Plot Size: 30 ft.)			
1 *N/A*			
2			
3			
4			
5			
	0	=Total Cover	

Dominance Test Worksheet:

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

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **43%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:			
OBL Species	0	x1=	0
FACW Species	0	x2=	0
FAC Species	85	x3=	255
FACU Species	125	x4=	500
UPL Species	0	x5=	0
Column Totals:	210 (A)		755 (B)

Prevalence Index = B/A = **3.60**

Hydrophytic Vegetation Indicators:

___ Rapid Test for Hydrophytic Vegetation

___ Dominance Test is > 50%

___ Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

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

SOIL

Sampling Point: **7**

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

	Matrix		Redox Features					
Depth (Inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18	705YR 4/2	90%	5YR 5/8	10%	D	M	Sandy Clay Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Much (A9) **(LRR 0)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in **Remarks**)

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

Restrictive Layer (if observed:)

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic Gulf Coastal Plain Region

Project/Site:	Van Buren Northern Extension Project	**City/County:**	Prince William County	**Date:**	12/22/2020
Applicant/Owner:	Prince William County	**State:** VA	**Sampling Point:**	**8**	
Investigator(s):	K.Donovan, R.Hayler, E.Prunchak, A.Dietrich	**Section, Township, Range:**			
Landform (hillslope, terrace, etc.):	Plain	**Local relief (concave, convex, none):**	concave	**Slope (%):**	0-1
Subregion (LRR or MLRA):	136 - Southern Piedmont	**Lat:**	38.603582 **Long:** -77.314725	**Datum:**	NAD 83
Soil Map Unit Name:	15A - Comus loam			**NWI Classification:**	PFO

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

Are vegetation ____ , soil ____ , or hydrology ____ significantly disturbed? Are "Normal Circumstances present?) Yes X No ____

Are vegetation ____ , soil ____ , or hydrology ____ naturally problematic? (If needed, explain any answers in **Remarks.**)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc

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

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

X	Surface Water (A1)	____	Aquatic Fauna (B13)	____	Surface Soil Cracks (B6)
____	High Water Table (A2)	____	Marl Deposits (B15) **(LRR U)**	____	Sparsely Vegetated Concave Surface (B8)
X	Saturation (A3)	____	Hydrogen Sulfide Odor (C1)	X	Drainage Patterns (B10)
____	Water Marks (B1)	____	Oxidized Rhizospheres on Living Roots (C3)	____	Moss Trim Lines (B16)
____	Sediment Deposits (B2)	____	Presence of Reduced Iron (C4)	____	Dry-Season Water Table (C2)
____	Drift Deposits (B3)	____	Recent Iron Reduction in Tilled Soils (C8)	____	Crayfish Burrows (C8)
____	Algal Mat or Crust (B4)	____	Thin Muck Surface (C7)	____	Saturation Visible on Aerial Imagery (C9)
____	Iron Deposits (B5)	____	Other (Explain in **Remarks**)	____	Stunted or Stressed Plants (D1)
____	Inundation Visible on Aerial Imagery (B7)			____	Geomorphic Position (D2)
X	Water-Stained Leaves (B9)			____	Shallow Aquitard (D3)
				____	FAC-Neutral Test (D5)
				____	Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No ____	Depth (Inches): 2		
Water Table Present?	Yes ____	No X	Depth (Inches): ____	**Wetland Hydrology Present?**	
Saturation Present?	Yes X	No ____	Depth (Inches): 2	**Yes X**	**No** ____

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

Remarks:

Within system G

VEGETATION - Use scientific names of plants.

Sampling Point: **8**

Tree Stratum (Plot Size: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Acer rubrum*	60	Y	FAC
2 *Betula nigra*	25	Y	FACW
3 *Platanus occidentalis*	10	N	FACW
4			
5			
6			
7			
	95	=Total Cover	

Sapling Statum (Plot Size: 15 ft.)			
1 *Acer rubrum*	30	Y	FAC
2 *Platanus occidentalis*	15	Y	FACW
3			
4			
5			
6			
7			
	45	=Total Cover	

Shrub Stratum (Plot Size: 15 ft.)			
1 *N/A*			
2			
3			
4			
5			
6			
7			
	0	=Total Cover	

Herb Stratum (Plot Size: 5 ft.)			
1 *Microstegium vimineum*	80	Y	FAC
2 *Lysimachia nummularia*	10	N	FACW
3 *Smilax sp.*	5	N	
4 *Lonicera japonica*	5	N	FACU
5			
6			
7			
8			
9			
10			
11			
12			
	100	=Total Cover	

Woody Vine Stratum (Plot Size: 30 ft.)			
1 *N/A*			
2			
3			
4			
5			
	0	=Total Cover	

Dominance Test Worksheet:

Number of Dominant Species that Are OBL, FACW, or FAC: 5 (A)

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

Percent of Dominant Species that are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:

OBL Species	0	x1=	0
FACW Species	60	x2=	120
FAC Species	170	x3=	510
FACU Species	5	x4=	20
UPL Species	0	x5=	0
Column Totals:	235 (A)		650 (B)

Prevalence Index = B/A = **2.77**

Hydrophytic Vegetation Indicators:

- ___ Rapid Test for Hydrophytic Vegetation
- **X** Dominance Test is > 50%
- **X** Prevalence Index is ≤3.0[1]
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

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

SOIL

Sampling Point: **8**

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

	Matrix		Redox Features					
Depth (Inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	75%	5YR 5/8	25%	D	M	Sandy Loam	
3-12	10YR 6/2	50%	5YR 5/8	50%	D	M	Sandy Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Much (A9) **(LRR 0)**
- ___ 2 cm Muck (A10) **(LRR S)**
- ___ Reduced Vertic (F18) **(outside MLRA 150A, B)**
- ___ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ___ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in **Remarks**)

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

Restrictive Layer (if observed:)

Type: _____

Depth (inches): _____

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

Remarks:

WETLAND DETERMINATION DATA FORM - Atlantic Gulf Coastal Plain Region

Project/Site:	Van Buren Northern Extension Project	**City/County:**	Prince William County	**Date:**	12/22/2020
Applicant/Owner:	Prince William County	**State:** VA	**Sampling Point:**	**9**	
Investigator(s):	K.Donovan, R.Hayler, E.Prunchak, A.Dietrich	**Section, Township, Range:**			
Landform (hillslope, terrace, etc.):	Hillslope	**Local relief (concave, convex, none):**	convex	**Slope (%):**	5-10%
Subregion (LRR or MLRA):	136 - Southern Piedmont	**Lat:**	38.605434 **Long:** -77.312472	**Datum:**	NAD 83
Soil Map Unit Name:	55E - Watt channery silt loam			**NWI Classification:**	UPL

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

Are vegetation ____ , soil ____ , or hydrology ____ significantly disturbed? Are "Normal Circumstances present?) Yes X No ____

Are vegetation ____ , soil ____ , or hydrology ____ naturally problematic? (If needed, explain any answers in **Remarks.**)

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc

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

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ____ Surface Water (A1)
- ____ High Water Table (A2)
- ____ Saturation (A3)
- ____ Water Marks (B1)
- ____ Sediment Deposits (B2)
- ____ Drift Deposits (B3)
- ____ Algal Mat or Crust (B4)
- ____ Iron Deposits (B5)
- ____ Inundation Visible on Aerial Imagery (B7)
- ____ Water-Stained Leaves (B9)
- ____ Aquatic Fauna (B13)
- ____ Marl Deposits (B15) **(LRR U)**
- ____ Hydrogen Sulfide Odor (C1)
- ____ Oxidized Rhizospheres on Living Roots (C3)
- ____ Presence of Reduced Iron (C4)
- ____ Recent Iron Reduction in Tilled Soils (C8)
- ____ Thin Muck Surface (C7)
- ____ Other (Explain in **Remarks**)

Secondary Indicators (minimum of two required)

- ____ Surface Soil Cracks (B6)
- ____ Sparsely Vegetated Concave Surface (B8)
- ____ Drainage Patterns (B10)
- ____ Moss Trim Lines (B16)
- ____ Dry-Season Water Table (C2)
- ____ Crayfish Burrows (C8)
- ____ Saturation Visible on Aerial Imagery (C9)
- ____ Stunted or Stressed Plants (D1)
- ____ Geomorphic Position (D2)
- ____ Shallow Aquitard (D3)
- ____ FAC-Neutral Test (D5)
- ____ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes ____	No X	Depth (Inches): ____	
Water Table Present?	Yes ____	No X	Depth (Inches): ____	**Wetland Hydrology Present?**
Saturation Present?	Yes ____	No X	Depth (Inches): ____	**Yes ____ No X**

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

Remarks:

VEGETATION - Use scientific names of plants.

Sampling Point: **9**

Tree Stratum (Plot Size: 30 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Ilex opaca Aiton*	10	N	FAC
2 *Fagus grandifolia*	50	Y	FACU
3 *Quercus alba*	10	N	FACU
4			
5			
6			
7			
	70	=Total Cover	

Sapling Statum (Plot Size: 15 ft.)	Absolute % Cover	Dominant Species?	Indicator Status
1 *Ilex opaca Aiton*	15	Y	FAC
2 *Fagus grandifolia*	40	Y	FACU
3 *Quercus alba*	10	N	FACU
4			
5			
6			
7			
	65	=Total Cover	

Shrub Stratum (Plot Size: 15 ft.)			
1 *N/A*			
2			
3			
4			
5			
6			
7			
	0	=Total Cover	

Herb Stratum (Plot Size: 5 ft.)			
1 *Polystichum acrostichoides*	10	Y	FACU
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
	10	=Total Cover	

Woody Vine Stratum (Plot Size: 30 ft.)			
1 *N/A*			
2			
3			
4			
5			
	0	=Total Cover	

Dominance Test Worksheet:

Number of Dominant Species that Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species that are OBL, FACW, or FAC: **25%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:			
OBL Species	0	x1=	0
FACW Species	0	x2=	0
FAC Species	25	x3=	75
FACU Species	120	x4=	480
UPL Species	0	x5=	0
Column Totals:	145 (A)		555 (B)

Prevalence Index = B/A = **3.83**

Hydrophytic Vegetation Indicators:

___ Rapid Test for Hydrophytic Vegetation

___ Dominance Test is > 50%

___ Prevalence Index is ≤3.0[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Definitions of Vegetation Strata:

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

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

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

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

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

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

SOIL

Sampling Point: **9**

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

	Matrix		Redox Features					
Depth (Inches)	Color (moist)	%	Color (Moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/3	100%					Silty Loam	
12-18	10YR 5/3	80%	10YR 5/6	20%	C	PL	Silty Loam	
							Silty Loam	

[1] Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

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

Hydric Soil Indicators:

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

Indicators for Problematic Hydric Soils[3]:

- ____ 1 cm Much (A9) **(LRR 0)**
- ____ 2 cm Muck (A10) **(LRR S)**
- ____ Reduced Vertic (F18) **(outside MLRA 150A, B)**
- ____ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ____ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ____ Red Parent Material (TF2)
- ____ Very Shallow Dark Surface (TF12)
- ____ Other (Explain in **Remarks**)

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

Restrictive Layer (if observed:)

Type: _____

Depth (inches): _____

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

Remarks:

APPENDIX D

JURISDICTIONAL DETERMINATION REQUEST FORM

JURISDICTIONAL DETERMINATION INFORMATION SUMMARY

Project Name: Van Buren Northern Extension Project

Locality: Prince William County, VA

USGS Quadrangle: Quantico (2019)

Size/Location: Approximately 278-acres (38.597301, -77.317977)

HUC Code: 02070011 Lower Potomac

Nearest Tributary(ies): Powells Creek

Applicant:

Prince William County Department of Transportation
Attn: Ricardo Canizales
5 County Complex, Suite 290
Prince William, VA 22192

Agent:

Dewberry Engineers Inc.
8401 Arlington Blvd.
Fairfax, VA 22031
Attn: Kelly Donovan
Phone: 703-849-0175
Email: kdonovan@dewberry.com

WOUS/Wetlands within Limits of Investigation:

Based on the results of the investigation, Dewberry identified fifteen palustrine forested (PFO) wetlands, nine perennial (R3) stream channels, fourteen intermittent (R4) stream channels, and five ephemeral (EPH) stream channels within the project area.

NORFOLK DISTRICT REGULATORY OFFICE
PRE-APPLICATION AND/OR JURISDICTIONAL WATERS DETERMINATION REQUEST FORM

This form is used when you want to determine if areas on your property fall under regulatory requirements of the U.S. Army Corps of Engineers (USACE). Please supply the following information and supporting documents described below. This form can be filled out online and/or printed and then mailed, faxed, or e-mailed to the Norfolk District. Submitting this request authorizes the US Army Corps of Engineers to field inspect the property site, if necessary, to help in the determination process. **THIS FORM MUST BE SIGNED BY THE PROPERTY OWNER TO BE CONSIDERED A FORMAL REQUEST.**

The printed form and supporting documents should be mailed to:

U.S. Army Corps of Engineers, Norfolk District
Regulatory Branch
803 Front Street
Norfolk, Virginia 23510-1096

Or faxed to (757) 201-7678

Or sent via e-mail to: CENAO.REG_ROD@usace.army.mil

Additional information on the Regulatory Program is available on our website at:
http://www.nao.usace.army.mil/
Please contact us at 757-201-7652 if you need any assistance with filling out this form.

Location and Information about Property to be subject to a Jurisdictional Determination:

1. Date of Request: 02/05/2021
2. Project Name: Van Buren Project
3. City or County where property located: Prince William County, Virginia
4. Address of property and directions (attach a map of the property location and a copy of the property plat):

   As the parcel is a vacant property, it does not have an address. However, the project area is between the existing Van Buren Road beginning at VA-234 and the existing Van Buren Road south of Cardinal Drive.

   Directions from Dumfries, VA: Take VA-234 West and turn right onto Van Buren Road, the current terminus of Van Buren Road is the beginning of the project area. Directions to the end of the project area are take VA-234 West and travel 1.6 miles and turn right onto Country Club Drive. Travel 0.2 miles and take a right onto Waterway Drive and travel 2 miles. Take a right onto Cardinal Drive and travel 2.3 miles and turn right onto Van Buren Road. Drive to the existing end of Van Buren Road and this is the other end of the project area.

5. Coordinates of property (if known): 38.597301, -77.317977

6. Size of property in acres: approximately 278-acres

7. Tax Parcel Number / GPIN (if available): 8189-88-0942, 8189-88-4318, 8189-87-8293, 8189-98-1630, 8190-90-6518, 8290-01-1415, 8290-03-9812, 8290-24-0784, 8290-15-5458, 8290-26-1394, 8290-26-9009, 8290-39-6431

8. Name of Nearest Waterway: Powells Creek

9. Brief Description of Proposed Activity, Reason for Preapplication Request, and/or Reason for Jurisdictional Waters Determination Request:

The proposed activity is to connect the two termini of Van Buren Road in Prince William County, Virginia.

10. Has a wetland delineation/determination been completed by a consultant or the Corps on the property previously? ☐ YES ☐ NO ☒UNKNOWN

    If yes, please provide the name of the consultant and/or Corps staff and Corps permit number, if available:

Property Owner Contact Information:

Property Owner Name:
Mailing Address:
City: State: Zip:
Daytime Telephone:
E-mail Address:

If the person requesting the Jurisdictional Determination is **NOT** the Property Owner, please also supply the Requestor's contact information here:

Requestor Name: Prince William County Department of Transportation
Mailing Address: 5 County Complex Court, Suite 290
City: State: Zip: Prince William, VA 22192
Daytime Telephone: (703) 792-5985
E-mail Address: rcanizales@pwcgov.org

Additionally, if you have any of the following information, please include it with your request: wetland delineation map, other relevant maps, drain tile survey, topographic survey, and/or site photographs.

CERTIFICATION: I am hereby requesting a preapplication consultation or jurisdictional waters and/or wetlands determination from the U.S. Army Corps of Engineers, for the property(ies) I have described herein. I agree to allow the duly authorized representatives of the Norfolk District Corps of Engineers and other regulatory or advisory agencies to enter upon the premises of the project site at reasonable times to evaluate inspect and photograph site conditions. This consent to enter the property is superior to, takes precedence over, and waives any communication to the contrary. For example, if the property is posted as "no trespassing" this consent specifically supercedes and waives that prohibition and grants permission to enter the property despite such posting. I hereby certify that the information contained in the Request for a Jurisdictional Determination is accurate and complete:

_____ _____

Property Owner's Signature Date