The Nature Conservancy

Protecting nature. Preserving life.

WETLAND MITIGATION DESIGN-BUILD SERVICES
LJ-7 GREAT DISMAL SWAMP (JACOBSON)
VIRGINIA AQUATIC RESOURCES
TRUST FUND SITE

REQUEST FOR PROPOSALS

DECEMBER 14, 2022

Proposals must be received by 5:00 pm on February 10, 2023
(or as specified in any addenda to this RFP)

1. GENERAL ADMINISTRATIVE PROVISIONS

1.1. STATEMENT OF PURPOSE

It is the intention of The Nature Conservancy ("Conservancy" or "TNC"), to solicit Proposals for a Contractor that can provide **wetland mitigation design/build services for the LJ-7 Great Dismal Swamp (Jacobson) mitigation site in City of Chesapeake, Virginia**. Those receiving this Request for Proposal (RFP) are referred to as "Contractor."

THIS IS NOT AN ORDER.

THE NATURE CONSERVANCY is a District of Columbia, USA, non-profit corporation with its principal place of business in Arlington, Virginia, USA. TNC has offices across the U.S. and in over 79 countries around the world.

Since 1951, TNC has been working with communities, businesses and people like you to protect more than 125 million acres of land and 5,000 miles of rivers worldwide. We also operate more than 100 marine conservation projects globally. Our mission is to conserve the lands and waters on which all life depends. Our vision is a world where the diversity of life thrives, and people act to conserve nature for its own sake and its ability to fulfill our needs and enrich our lives. Please see www.nature.org for more details on what TNC does and where we work.

1.2. TNC'S PROCUREMENT PROCESS

Procurement activities will be conducted in a nondiscriminatory manner with fair treatment given to all Contractors. TNC reserves the right to reject any and all offers for any reason whatsoever, to waive technicalities, and to pursue purchasing in a manner that is in the best interest of the organization.

1.3. TNC'S OBLIGATIONS

TNC incurs no obligation or liability whatsoever by reason of issuance of this RFP or action by anyone relative thereto.

1.4. CONTRACTOR'S OBLIGATIONS

Contractor must analyze and respond to all sections of this RFP providing sufficient information to allow TNC to evaluate the Proposal. Contractor, by submitting its Proposal, agrees that any costs incurred by the Contractor in responding to this RFP, are to be borne by Contractor and may not be billed to TNC.

Contractor's proposal must match the order in which the RFP was submitted or clearly state where the information resides. If TNC has any confusion or difficulty in retrieving the required information from a Contractor's proposal, it may result in disqualification of such proposal. **Contractor may not have the ability to resubmit its proposal to TNC.**

TNC requests firm fixed pricing for the proposal. ***If a particular entity is chosen as an award winner and any additional costs are presented at the time of agreement negotiations or implementation, TNC has the right to reject that entity as the award winner.***

Contractor shall not use the names, logos, images or any data or results arising from the anticipated contract for advertising without TNC's prior written consent.

1.5 RESTRICTED COMMUNICIATIONS

It is the policy of TNC to avoid situations which (1) place it in a position where its judgment may be biased; (2) create an appearance of conflict of interest with respect to rendering an impartial, fair, technically sound, and objective decision prior to selection; or (3) give an unfair competitive advantage to competing Contractors. Therefore, to ensure an ethical evaluation process, all inquiries or other communications regarding this RFP shall be exclusively directed to TNC's authorized Agent, to the person and location specified in Article 2.1.3 of this RFP. Contractors are hereby expressly instructed not to otherwise communicate with TNC's officers or employees regarding this RFP. This prohibition is also applicable to Contractor's affiliates, officers, employees, agents, consultants, and subcontractors.

1.6 SUBCONTRACTING

No portion of the work shall be subcontracted without prior written consent of TNC. In the event that Contractor desires to subcontract some part of the work specified in the contract, Contractor shall furnish TNC the names, qualifications and experience of the proposed subcontractor(s). Contractor shall, however, remain fully liable and responsible for the work to be done by subcontractor(s) and shall assure compliance with all the requirements of the contract.

1.7 DISPOSITION OF PROPOSALS

All material submitted in response to this RFP will become the property of TNC and may be returned only at the option of TNC and at the expense of the Contractor. Successful and unsuccessful bidders will be notified in writing or via email. TNC shall not be obligated to detail any of the results of the evaluation.

1.8 CONTRACTUAL COMMITMENT OF PROPOSAL

The contents of submitted Proposals will be considered obligations of the successful Contractor. No information should be submitted that is not intended to be incorporated into the Proposal and any contract that may result from such Proposal. If there is any inconsistency between the terms herein and any of the other contract documents, the terms in the other contract documents shall prevail.

1.9 CONFIDENTIALITY

Any data, documentation or other business information furnished or disclosed to the Contractor shall be deemed the property of TNC and must be returned to TNC upon request.

1.10 DISCLOSURE STATEMENT

It is the policy of TNC to identify actual, potential or perceived conflicts of interest in any situation in which TNC has a significant business interest. To assist TNC in complying with this policy, we request that all individuals and/or organizations that will be involved in a proposed transaction with TNC complete our Conflict of Interest Disclosure Form. This relates to people who will be working, directly or indirectly, to respond to this RFP, as well as may be doing the resultant work if the Contractor receives the contract.

A completed Conflict of Interest Disclosure Form (Attachment F) should be included with the Contractor's RFP response. The information will be kept confidential and given out only on a "need to know" basis.

2. PROPOSAL SUBMISSION AND EVALUATION

2.1 PROPOSAL SUBMISSION REQUIREMENTS

2.1.1 Contractor will send its response to this RFP via Box link below.
Proposal Upload Box Link:
https://tnc.app.box.com/f/d589b1f9a164408ab128f126272f1f3b

2.1.2 Contractor will provide all information required as outlined in Attachment A.

2.1.3 Contractor may contact TNC at the email address below.
Chris DuBois
Restoration Coordinator
Email: cdubois@tnc.org

2.2 PROPOSAL EVALUATION/SELECTION PROCESS

Contractors are to make written proposals, which present Contractor's qualifications and understanding of the work to be performed. Proposals should be as thorough and detailed as needed so that TNC may properly evaluate the Contractor's capabilities to provide the required goods/services. Contractors are asked to address each evaluation criterion listed in Attachment A and to be specific in presenting their qualifications. Selection of the successful contractor will be based upon evaluation of the proposals in relation to the selection criteria. One or more qualified applicants may also be interviewed.

2.3 QUESTIONS REGARDING THE RFP

Contractor may submit written questions regarding this RFP to TNC via email listed in 2.1.3 by **January 13, 2023**. TNC will email all Contractors receiving the RFP a summary of all questions and answers as an addendum to the RFP. TNC will use its best efforts to answer questions by **January 20, 2023**. Contractor understands and agrees that it has a duty to inquire about and clarify any RFP questions that the Contractor does not fully understand or believes may be interpreted in more than one way. TNC, however, is not required to answer all questions that are not pertinent to the RFP or considered to be TNC's Proprietary information. Contractor also understands and agrees that it is responsible for assuring that all addenda have been reviewed and addressed as applicable in Contractor's proposal.

2.4 VISITING THE SITE

Contractors interested in submitting a proposal must conduct a site visit to assess the conditions of the site to inform their responses to this RFP. Proposals will not be considered from Contractors who have not visited the site. Contractors will contact TNC prior to visiting for instructions on parking and access. Contractors must also sign and submit to the contact listed in 2.1.1 the liability waiver included in Attachment G prior to visiting the site.

2.5 PROPOSAL DUE DATE

Proposals shall be delivered to TNC in accordance with Section 2.1 on or before **5:00pm on February 10, 2023**, or as specified in addenda to this RFP.

3. ATTACHMENTS

A Proposal Submission Requirements and Selection Criteria
B General Project Information
  Exhibit 1 Location Map
  Exhibit 2 2020 Aerial Map
  Exhibit 3 2009 Aerial Map and Original Design Plans
  Exhibit 4 Hydric Soils Map
  Exhibit 5 Delineation Map with Acreage Table
  Exhibit 6 Concept Design Map
  Exhibit 7 PALS Figures
  Exhibit 8 Site Photographs
C Scope of Work
D Contractor Questionnaire
E TNC's Standard Contract for Services
F TNC's Disclosure Form
G Site Visit Waiver and Release
H Jacobson Wetland Feasibility Report
I Jacobson Delineation Report

ATTACHMENT A:
PROPOSAL SUBMISSION REQUIREMENTS AND SELECTION CRITERIA

A.1 PROPOSAL SUBMISSION REQUIREMENTS

Contractors are to make written proposals, which present Contractor's qualifications and understanding of the work to be performed. Proposals should be as thorough and detailed as needed so that TNC may properly evaluate the Contractor's capabilities to provide the required goods/services. Proposals will be evaluated in relation to the selection criteria in Section A.2. The Contractor shall address each of the selection criteria and be specific in presenting their qualifications to aid TNC in its analysis and ranking of the proposal.

The Contractor shall provide a minimum of the following information in its proposal. Contractors may provide additional information if desired.

1. Project Technical Approach

A detailed proposal and technical approach for completing all tasks described in the Scope of Work (Attachment C), as listed below.

Task 1. Project Site Zoning Reclassification
Task 2. Preliminary Mitigation Design
  2A. Topographic Survey/Hydrologic Study
  2B. Preliminary Mitigation Design and Estimated Wetland Credit Generation
Task 3. Final Mitigation Design
Task 4. Acquisition of Permits
Task 5. Implementation of Design
  5A. Construction Oversight
  5B. 100% Completion of Construction
  5C. Completion of Planting
Task 6. As-Built Survey and Report

2. Pricing and Payment Schedule

a. The Contractor shall specify expiration date of bid. Submitted bid pricing must be good through **February 2024**.
b. The Contractor will provide all **net pricing** (after discounts) and a delivery schedule associated with the project milestones, based on the Scope of Work in Attachment C, for the following task pricing schedule. Pricing shall include all costs of implementing the Scope of Work.

Task	Deliverable	Delivery Date (# of Days from Contract Execution)	Payment Amount
1	Project Site Zoning Reclassification[1]		$ -
2	Preliminary Mitigation Design[2]		
2A	- Topographic Survey/Hydrologic Study		$ -
2B	- Preliminary Mitigation Design and Estimated Range of Wetland Credit Generation		$ -
3	Final Mitigation Design		$ -
4	Acquisition of Permits		$ -
5	Implementation of Design		

5A	- Construction Oversight		$ -
5B	- 100% Completion of Construction		$ -
5C	- Completion of Planting[3]		$ -
6	As-Built Survey and Report		$ -
TOTAL			**$ -**

[1]The Contractor shall not proceed with tasks beyond this task until TNC provides written notice to proceed, which is contingent on the City of Chesapeake providing approval of zoning reclassification.

[2]The Contractor shall not proceed with tasks beyond this task until TNC provides written notice to proceed, which is contingent on the Corps providing approval to move forward by signing the Site Development Plan (SDP).

[3]Contractor should indicate whether a planting warranty is included in pricing and provide the terms of the warranty if one is included.

3. Contractor Qualifications

- Contractor Questionnaire (Attachment D)
- Contact information for 3 references
- Information on at least 3 mitigation projects that Contractor has worked on that will demonstrate the Contractor's ability to perform the tasks required in the Scope of Work in Attachment C
- Information on Contractor's experience conducting mitigation projects in Virginia
- Names, qualifications, and experience of specific members of the project team
- Previous experience of the Contractor and proposed subcontractors working together on similar projects

4. Subcontractors

- Any subcontractors must be identified along with the defined work they will perform. The names, qualifications and experience of the proposed subcontractor(s) must be provided. TNC will not refuse a proposal based on the use of subcontractors but does retain the right to refuse the subcontractors selected. Contractor shall remain solely responsible for all subcontracted work. Describe your rationale for using subcontractors.
- Provide the following for each proposed subcontractor:
    i. Contact information for 3 references
    ii. Information on at least 3 projects the subcontractor has worked on that will demonstrate the subcontractor's ability to perform the tasks required in the Scope of Work in Attachment C
    iii. Information on subcontractor's experience conducting mitigation projects in Virginia
    iv. Names, qualifications, and experience of specific members of the project team

5. Contracting

- Does Contractor agree to use attached TNC contract (Attachment E)? If not:
    i. Review attached contract and express any concerns you have regarding the terms of the Agreement using the following conventions:
        - Agreed - where the terms are acceptable as stated.
        - Modification Proposed - where Contractor is unable to accept the terms as stated but will accept a modification of the terms. Contractor must provide: (1) the reason for its inability to accept the term as stated and (2) modified language, which would be acceptable to the Contractor.

- Not Agreed - where the term is completely unacceptable and no modification is possible. Please state the reason such term is unacceptable.

ii. Attach a draft copy of your contract for TNC review.

6. Signed Disclosure Form (Attachment F)

7. Signed Site Visit Waiver and Release (Attachment G)

A.2 SELECTION CRITERIA

Proposals will be evaluated in relation to the selection criteria below.

- 30% - Qualification and relevant experience of the Contractor, subcontractors, and project team
- 25% - Demonstrated ability to understand and perform the project competently and expeditiously
- 20% - Costs
- 20% - Technical approach for creating deliverable products
- 5% - Quality of proposal/presentation

ATTACHMENT B:
GENERAL PROJECT INFORMATION

B1. OBJECTIVES

The Nature Conservancy is establishing a wetland mitigation site at the at the LJ-7 Great Dismal Swamp (Jacobson) property in the City of Chesapeake, located just northwest of Interstate 664 (Hampton Roads Beltway) interchange with Route 13 (W. Military Highway) and just north of the Hampton Roads Airport. The project area is located in the Lower James River basin in HUC 02080208. The project will provide wetland restoration, enhancement, and preservation.

B2. PROJECT SPECIFICS

TNC Project Name:	Great Dismal Swamp (Jacobson)
VARTF Tracking Number:	LJ-7
Project Type:	Wetland Restoration, Wetland Enhancement, Wetland Preservation
Locality/County:	City of Chesapeake
Stream Name:	Goose Creek, drains to Western Branch, Elizabeth River, James River
HUC:	02080208
Basin:	Lower James
Geographic Coordinates:	36.79540413264587, -76.44487642088217
Property Owner:	The Nature Conservancy
Total Project Area:	84 acres

B3. SITE BACKGROUND

Site Information

The 84-acre property is located near the Great Dismal Swamp NWR and is within the historic limits of the Dismal Swamp. The site drains to Goose Creek, a tributary to the Western Branch of the Elizabeth River, and then onto the James River (Exhibit 1 – Location Map, Exhibit 2 – 2020 Aerial Map). It is located just south of Jolliff Woods subdivision and borders other conserved lands. The property was purchased by The Nature Conservancy in 2007 with approval from the USACE (dated December 7, 2006) to establish a VARTF mitigation site. Due to unforeseen circumstances and shifting priorities of liabilities within the basin, mitigation efforts have not been pursued to date. It is the intent of VARTF to return to this project and implement restoration strategies. Since much of the site has changed over the previous 15 years, the original mitigation design plans have had to be adapted for the new site conditions. VARTF contracted with an environmental consultant to conduct a wetland feasibility based on current conditions and prior designs. This request incorporates the recommendations from the feasibility report.

Existing Conditions and Proposed Mitigation Activities

The property is best characterized as part of a broad mineral flat that is a headwater area where the primary hydrologic input is precipitation. Prior to hydrologic modifications (ditching) associated with agricultural production, the primary hydrologic outputs were evaporation and transpiration. At the time that TNC purchased the property in 2007, the property contained about 59 acres of prior converted agricultural fields, 22 acres of forested wetlands, 2-3 acres of drained forested wetland, and several acres of upland forest (Exhibit 3 – 2009 Aerial and Original Design Plans). There is a ditch network consisting of several ditches that are spaced between 100 and 200 feet apart and are generally oriented to drain from the north to south; however, there are several ditches that drain across the site. This ditch spacing for the dominant soil types (Tomotley and Deloss soil series) is typically effective at reducing the water table during the growing season sufficiently to promote agricultural productivity (Exhibit 4 – Hydric Soils Map). Since 2008, farming of the fields has ceased, and a young forest has developed on the former agricultural lands. The trees are

relatively young and small (3-8" dbh). The tree and sapling strata are dominated by loblolly pine (*Pinus taeda*) and sweet gum (*Liquidambar styraciflua*). Common non-dominants include persimmon (*Diospyros virginiana*) and water oak (*Quercus nigra*). The dominant herbaceous species in most wetlands and non-wetland plots is Japanese stiltgrass (*Microstegium vimineum*). In the wetland areas dominants in the herb stratum also include trumpet creeper (*Campsis radicans*), soft rush (*Juncus effusus*), Canadian clearweed (*Pilea pumila*), and dotted smartweed (*Persicaria punctata*). A wetland delineation in 2022 aimed to identify the approximate limits of wetlands for each of the old agricultural fields. In total, there are currently 14 acres of wetlands in the old fields. Therefore, there are 7.3 acres more wetlands than were identified in the 2008 wetland delineation of the farm fields (Exhibit 5 – Delineation Map).

The original design plans from 2008 and 2009 called for extensive grading, ditch plugging, and berm construction. If applied today, these designs would impact existing wetlands, in addition to a large amount of forest clearing. Consideration should be given to an alternative mitigation approach that involves less land disturbance than the earlier plans and that takes into account the extent of young, forested wetlands on the former agricultural fields on site. A low-disturbance approach is preferred that would involve limited tree clearing for access and no grading. This includes installation of 5 permanent earthen ditch plugs and another 5 temporary structures known as PALS (Pole-Assisted Log Structures – Shahverdian et al. 2019). The permanent ditch plugs would restore wetland hydrology by permanently blocking the larger drainage ditches (4-6 feet deep and 6-8 feet wide) between several former fields and the wooded areas (Exhibit 6 – Concept Design Map). These ditches are between the woods and former field C and between former fields C and D, B and C, and C and G. The PALS would be installed in 2-3 shallow ditches (1-2 feet deep and 3-5 feet wide) between former fields with some existing wetland areas and between the wooded area and a former farm field. These PALS would be located in the ditches between the woods and former field D, and between former fields D and E, and E and F.

PALS are temporary structures originally developed as beaver dam analogs to mimic conditions found in beaver dominated wetland-stream systems in the western US (Exhibit 7 – PALS figures). These temporary structures are installed in series of 2 or more structures on a drainage and are intended to slow water down and back it up onto the floodplain to help restore wetland hydrology. They may last from 1 to 3 years but while in place will catch leaves and woody debris to create blockages or debris jams that force higher flows out into the floodplain, increasing retention of stormflows and helping to establish or augment wetland hydrologic regimes on portions of the site. PALS can be made by driving piles (4 by 4 untreated wood piles 10-12 ft long) perpendicularly across a shallow drainage ditch and then weaving/piling saplings and small trees cut from along the existing drainages between the poles. They can be installed with hand tools (chain saws, hydraulic pile drivers, etc.) and do not require the expense or disturbance associated with permanent earthen plugs. Although they are not permanent structures, PALS will slow flows in the shallow drainage ditches in the former agricultural lands and continue to impede movement of water through the system even after most of the wooden structures have broken down. Any gaps in the young forest created by cutting saplings or small trees would be replanted using wetland tree species identified in the 2009 Planting Plan such as laurel oak (*Quercus laurifolia),* swamp chestnut oak (*Q. michauxii*), and cherrybark oak (*Q. pagoda*).

This conceptual mitigation proposal is projected to impact a total of 0.85 acres of forest land and waters including 0.07 acres for ditch plugs, 0.74 acres for access clearing to the permanent ditch plug locations, and 0.04 acres for PALS. The total impacts to waters are estimated to be 0.11 acres. There are no estimated impacts to wetlands. Estimated credit yield would total around 19.85 NTW credits. Proposed mitigation strategies include wetland restoration, enhancement, preservation, and upland buffer preservation.

ATTACHMENTS:

Exhibit 1 Location Map
Exhibit 2 2020 Aerial Map
Exhibit 3 2009 Aerial Map and Original Design Plans
Exhibit 4 Hydric Soils Map
Exhibit 5 Delineation Map with Acreage Table
Exhibit 6 Concept Design Map
Exhibit 7 PALS Figures
Exhibit 8 Site Photographs

References:

Shahverdian, S., J. Wheaton, S. Bennett, N. Bouwes, R. Camp, C. Jordan, E. Portugal, and N. Weber. 2019. *Chapter 4 – Mimicking and promoting wood accumulation and beaver dam activity with Post-Assisted Log Structures and Beaver Dam Analogues* in J. Wheaton, S. Bennett, N. Bouwes, J. Maestas, and S. Shahverdian (Editors), Low-Tech Process-Based Restoration of Riverscapes Design Manual. Utah State University Restoration Consortium, Logan, UT. 66 pp.

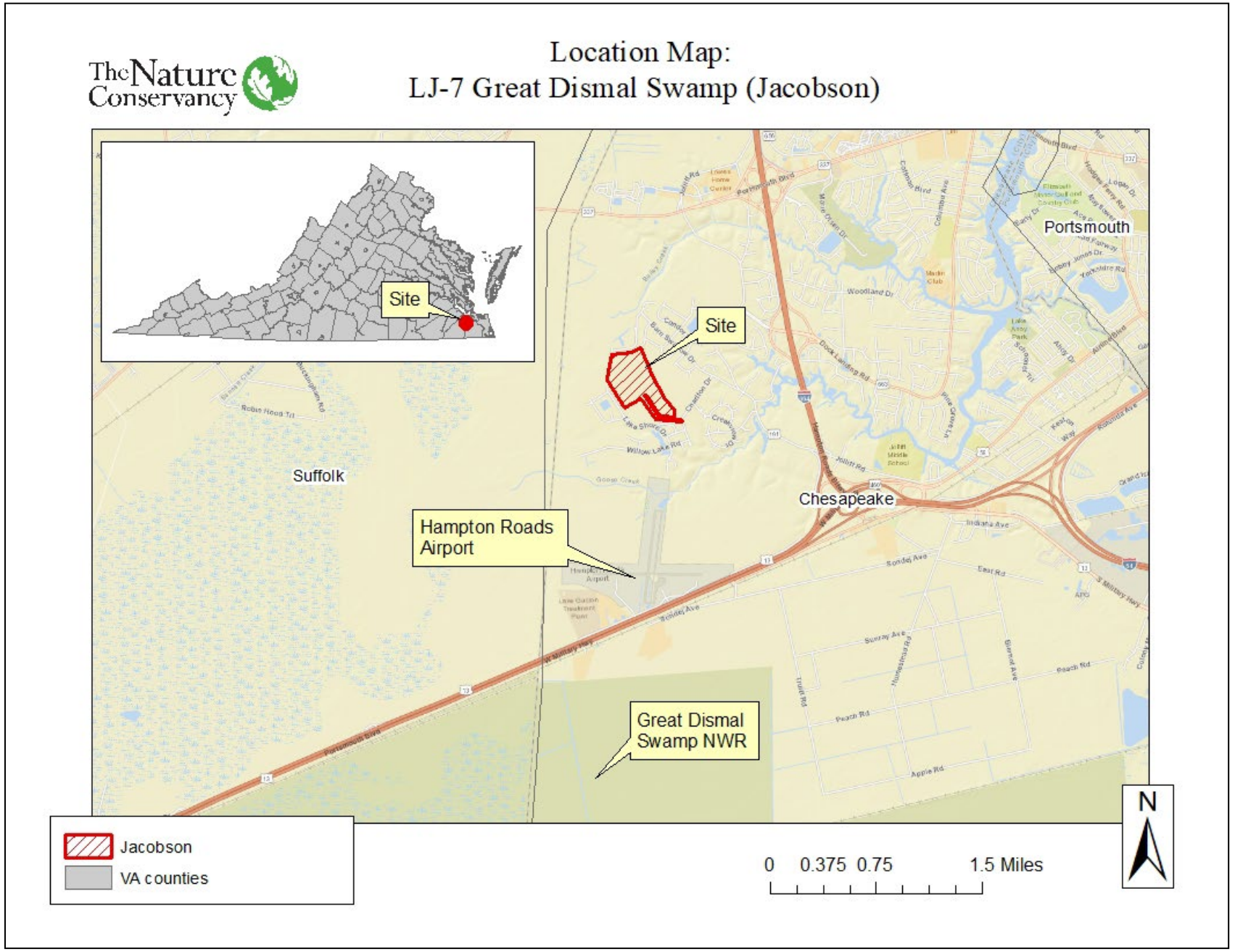

Exhibit 1. Location Map

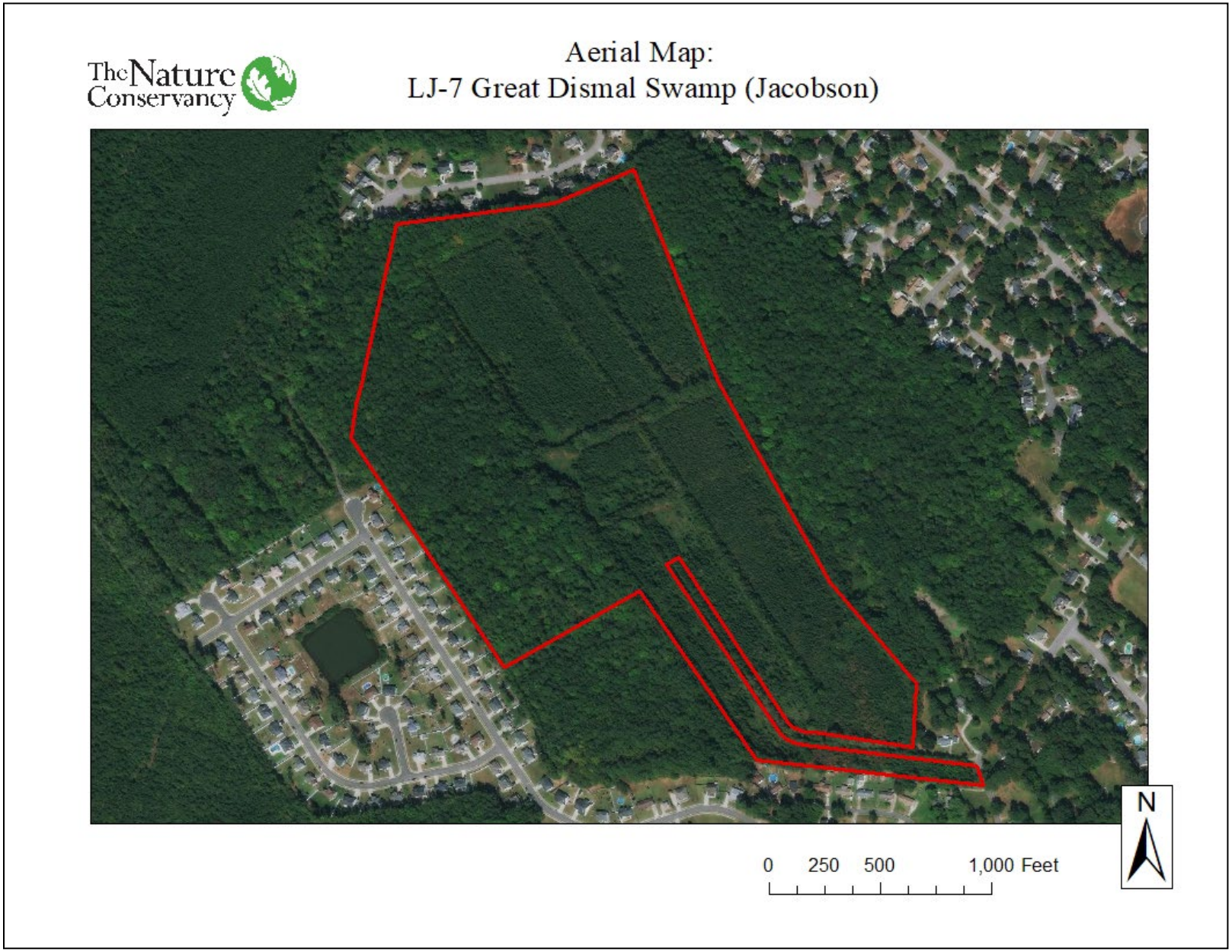

Exhibit 2. 2020 Aerial View

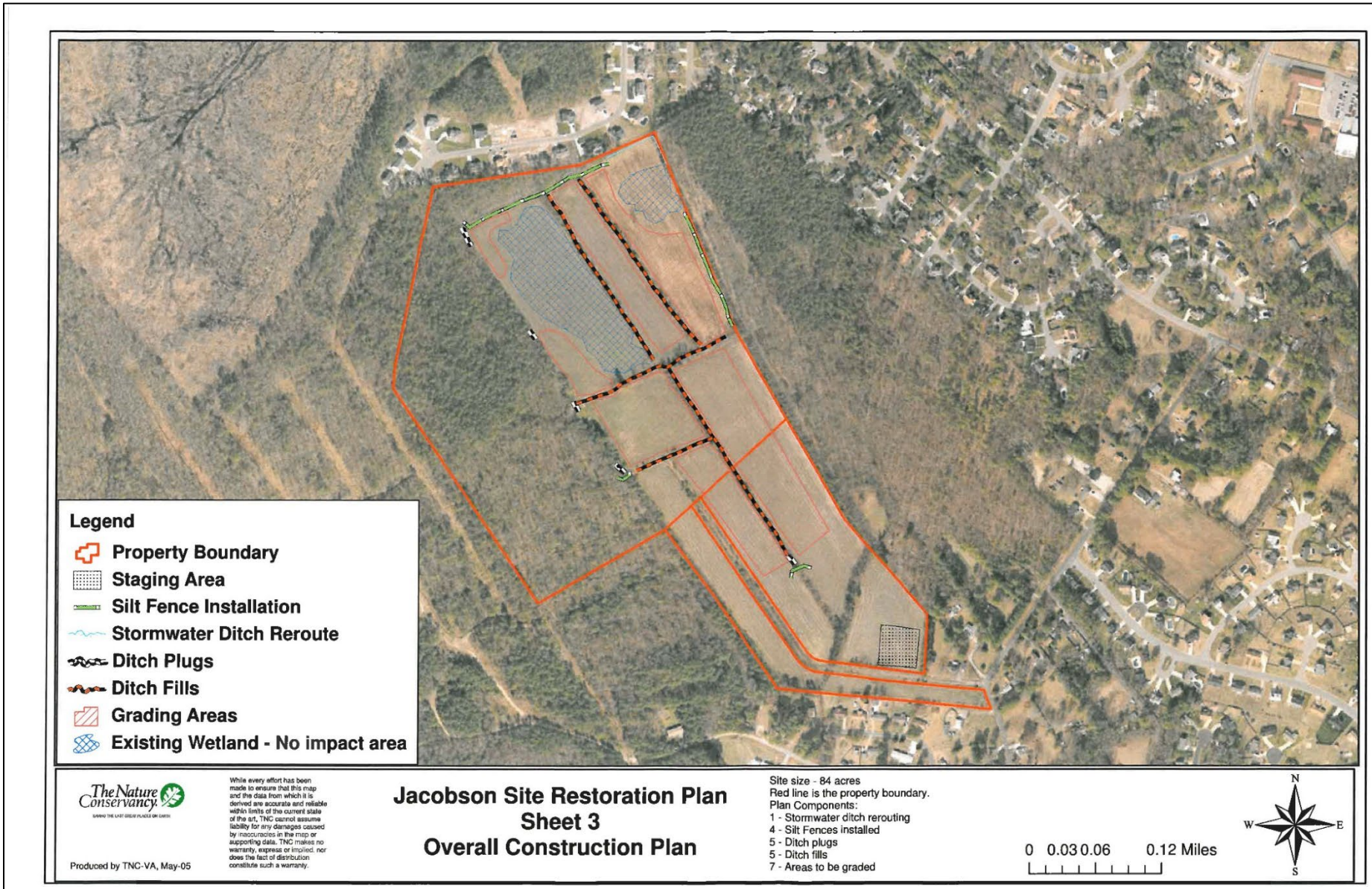

Exhibit 3. 2009 Aerial Map and Design Plans: Notice cleared agricultural fields.

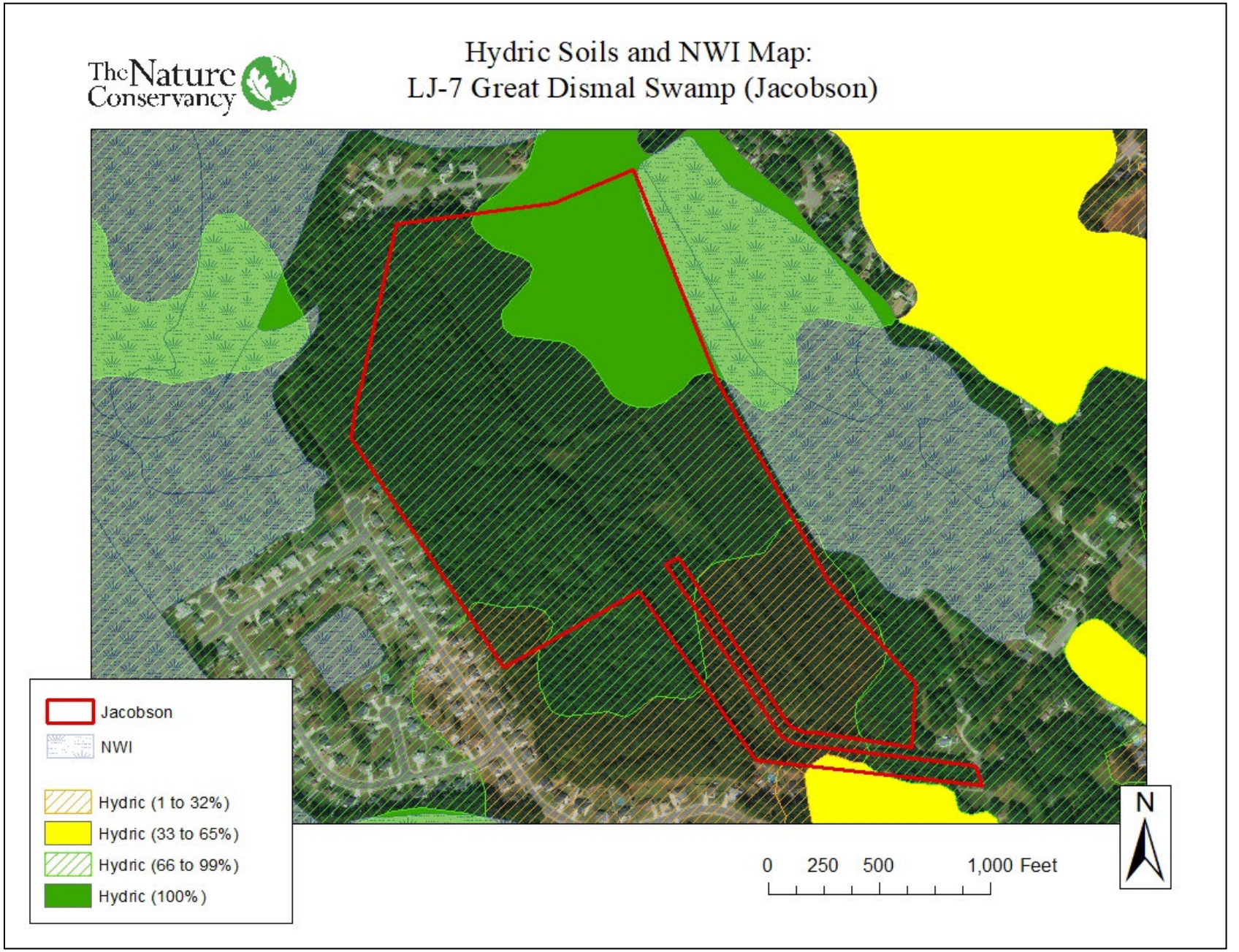

Exhibit 4. Hydric Soils Map (with NWI)

Exhibit 5. 2022 Wetland Delineation Map (with corresponding acreage table, below)

Wetland/Water	Designation	Latitude	Longitude	Cowardin Class	Area (Acres)	Class of aquatic resource
Wetland	1	36.798939	-76.449372	PFO1A/B	0.38	Non-tidal
Wetland	2	36.797947	-76.447711	PFO1A/B	0.5	Non-tidal
Wetland	3	36.79785	- 76.447453	PFO1A/B	0.14	Non-tidal
Wetland	4	36.797508	-76.446625	PFO1A/B	0.32	Non-tidal
Wetland	5	36.798894	-76.44785	PFO1A/B	0.11	Non-tidal
Wetland	6	36.799314	-76.448128	PFO1A/B	0.49	Non-tidal
Wetland	7	36.799686	-76.44835	PFO1A/B	0.12	Non-tidal
Wetland	8	36.799492	-76.449047	PFO1A/B	0.004	Non-tidal
Wetland	9	36.796531	- 76.446769	PFO1B	0.02	Non-tidal
Wetland	10	36.799806	- 76.451992	PFO1/4A/B	27.07	Non-tidal
Wetland	11	36.800097	- 76.449136	PFO1/4A/B	11.92	Non-tidal
					Length (LF)	
Water	1	36.796036	-76.446269	R3UB	719	Non-tidal
Water	2	36.800636	-76.451461	R4UB	1773	Non-tidal
Water	3	36.801725	-76.451425	R4UB	747	Non-tidal
Water	4	36.800889	-76.450083	R4UB	762	Non-tidal
Water	5	36.801775	-76.449792	R4UB	979	Non-tidal
Water	6	36.79795	-76.447817	R4UB	1531	Non-tidal
Water	7	36.799725	-76.44855	R4UB	392	Non-tidal
Water	8	36.798492	-76.4488	R4UB	481	Non-tidal
Water	9	36.796111	-76.447978	R4UB	1147	Non-tidal
Water	10	36.799417	-76.449681	R4UB	524	Non-tidal

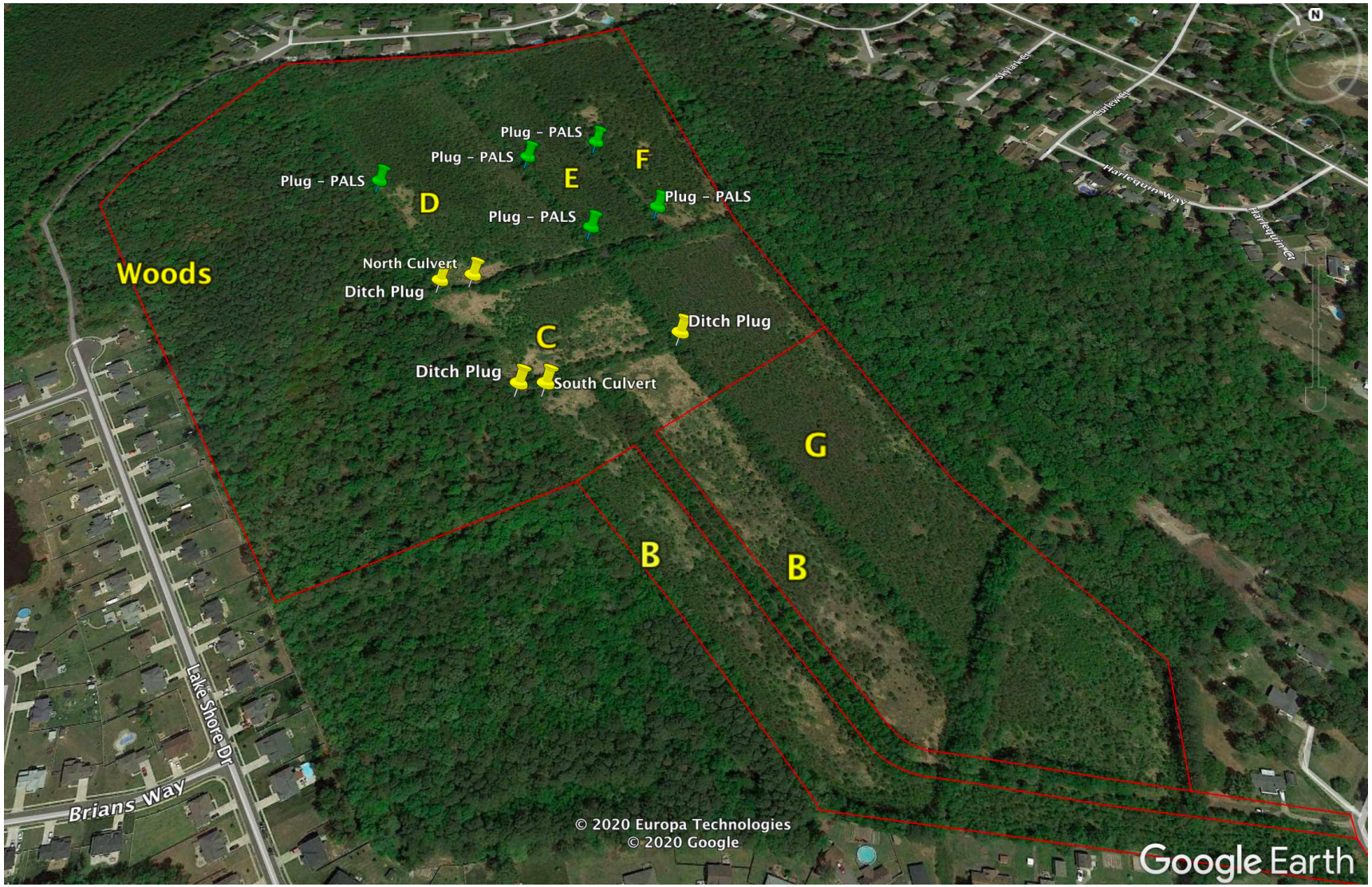

Exhibit 6. Map shows current conceptual plan for installation of PALS and permanent ditch plugs within the existing ditches.

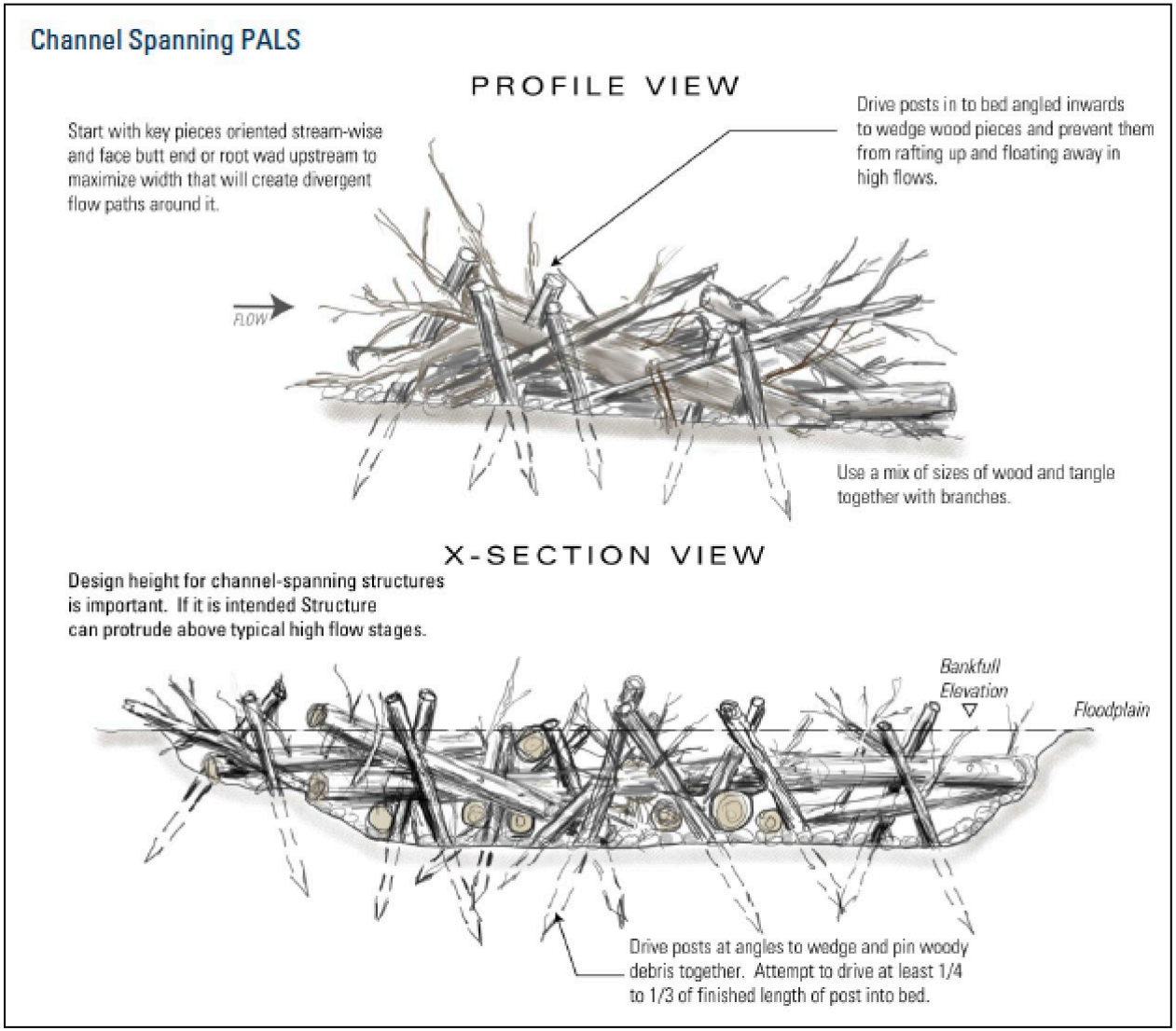

Exhibit 7. Figure shows the construction of a PALS. (Shahverdian et al. 2019)

Exhibit 8. Site Photographs

Photographs from August 2020 (photo credit: Steve Martin)

Wetland areas: On left, regenerated agricultural field. On right, mature forested wetland preservation area.

Upland areas: Both photos showing regenerated agricultural fields.


Right and Left photographs show potential ditch locations for Earthen Plugs.

Photograph shows potential ditch location for PALS.

Photographs from 2006 and 2009 (photo credit: VARTF staff)

Photograph showing August 2006 condition of the agricultural field.

Photograph showing September 2009 condition of the agricultural field.

ATTACHMENT C:
SCOPE OF WORK FOR WETLAND MITIGATION DESIGN-BUILD SERVICES

C.1 PURPOSE

The purpose of this project is to provide wetland mitigation to offset unavoidable impacts in the Lower James River Basin within the Commonwealth of Virginia for which the Virginia Aquatic Resources Trust Fund (VARTF) was utilized as the compensatory mitigation. The primary objective of this RFP is to restore, enhance, and preserve wetlands and buffer areas on the LJ-7 Great Dismal Swamp (Jacobson) VARTF project site. The scope of work requires the Contractor to **provide design-build services including development of wetland mitigation design plans, acquisition of all required permits for implementation of the plans, and implementation of the plans** on the subject property per the specifications herein that will meet or exceed the standards for compensatory mitigation in Virginia.

C.2 CONTRACTOR TASKS AND DUTIES

The specific tasks to be completed by the Contractor are detailed below.

Task 1. Project Site Zoning Reclassification

The Contractor shall be responsible for obtaining approval of a zoning reclassification of the project site through the City of Chesapeake. The project site contains parcels zoned A-1, Agricultural and R-15, Residential, with the majority being Agricultural. The project site shall be reclassified to C-1, Conservation. The Contractor shall acquire all authorizations needed to reclassify the zoning of the project site in order to implement the mitigation design. This includes communication with City of Chesapeake staff, filling out all necessary applications, providing all necessary information (plans, contact info, etc.) to acquire the reclassification, paying all fees required to acquire the necessary authorizations, coordinating and attending any necessary site or other meetings required to secure zoning reclassification or authorizations, and addressing agreed upon comments resulting from the City of Chesapeake review.

The Contractor shall notify TNC of any zoning reclassification conditions and/or restrictions imposed or recommended by the City of Chesapeake. The Contractor shall not proceed with discussions with the City of Chesapeake regarding reclassification conditions and/or restrictions until TNC and the Contractor have agreed on a response to the City.

The Contractor shall submit applications for zoning reclassification to complete the implementation of the design for the project. The Contractor shall submit copies of all zoning reclassification documents to TNC following issuance of authorizations.

The Contractor shall not proceed with tasks beyond Task 1 until TNC provides written notice to proceed, which is contingent on the City providing approval of zoning reclassification.

Task 2. Preliminary Mitigation Design

The Contractor shall develop a preliminary mitigation design based on the conceptual design plans provided by TNC that clearly depicts and describes areas and extents of potential wetland and buffer mitigation activities, contains all information required for submittal with the SDP for IRT approval, and meets or exceeds the standards for compensatory mitigation in Virginia as determined by the United States Army Corps of Engineers, the Virginia Department of Environmental Quality, and the IRT for the project.

2A. Topographic Survey/Hydrologic Study

The Contractor shall establish survey control and datum for the project area and complete a detailed topographic survey and hydrologic study to be used for mitigation design efforts and to ensure surface water trespass does not occur on neighboring properties.

The Contractor will complete the following activities within the project area (as appropriate):

- Topographic Survey (as needed) shall include:
    - Establish survey control network, which will be tied to the Virginia Geodetic Survey grid system using N.A.D.1983 State Plane Coordinates and NAVD 88 elevation datum.
    - Provide detailed topography along any stream corridors, wetlands, fields, and any intersecting ditches, drainageways and berms within the project area.
    - Field locate all trails, structures, fences, roads, utilities and associated rights-of-way that are visible within survey area.
    - Field locate culverts, including inverts and dimensions (pipe size and length), pipe types, cover over pipes and depth pipes are buried (if present).
    - Field locate edges of farm roads within project area.
    - Map edge of vegetation.
- Site hydrology assessments to include but not limited to:
    - Current hydrogeomorphic setting
    - Current drainage/ditching that has occurred on Site
    - Current groundwater levels within proposed wetland restoration or creation areas (for one year, if possible)
    - Historic land-use development/alterations in the immediate drainage area (both upgradient and downgradient of the Site)
    - Watershed assessment analyzing GIS data to properly assess the site hydrology and appropriate design flows.
    - Use of wetland water budget modeling software, such as “Wetbud”

The Contractor shall prepare a digital file (in AutoCAD or ArcGIS format) of the site survey and a sealed copy.

2B. Preliminary Mitigation Design and Estimated Range of Wetland Credit Generation

The Contractor shall utilize existing condition data, delineation, topographic survey data, hydrologic modeling data, reference wetland data, and other available information to evaluate wetland mitigation alternatives and develop a preliminary mitigation design that clearly depicts and describes areas and extents of potential wetland and buffer mitigation activities. The preliminary mitigation design shall contain all information required for submittal with the SDP for IRT approval and shall meet or exceed the standards for compensatory mitigation in Virginia as determined by the United States Army Corps of Engineers, the Virginia Department of Environmental Quality, and the IRT for the project. The project should be designed to ensure it will meet the success criteria for mitigation in Virginia.

Every effort shall be made during the design and construction phases to minimize disturbance to existing forest and wetlands. The Contractor shall be responsible for working with/around all infrastructure in the design of the project. Wetland restoration and enhancement activities will include restoring the available surface hydrology as needed through ditch plugging and restoring habitat by re-vegetating existing wetlands with native species. Buffer enhancement activities shall include removal of non-native and invasive species and enhancement with native plantings. The buffer and wetland restoration/enhancement areas will be planted with woody stems at a density of 680 trees/acre. Planting will occur in the dormant season. The plantings used will be native species common to the area, which

are suitable for growth in local riparian conditions and from areas within the same or adjacent USDA Plant Hardiness Zone or NRCS Land Resource Region as the project site.

The Contractor shall prepare and submit an electronic version (pdf and CADD/GIS files) of the draft preliminary mitigation design, which will include (as appropriate):

- Wetland assessment
    - Soil characterization to determine the soil properties and characteristics and its suitability to support wetland restoration/creation activities, including soil classification and analysis (texture, color, etc.) at representative sample points in the project area. The Contractor shall note depth to hydric soil indicators at each sample point and include which hydric soil indicator(s) is met at each sample point using the NRCS Hydric Soil Field Indicators nomenclature.
    - Assessment of a reference wetland in the project area or vicinity. The Contractor shall conduct fieldwork to evaluate the soils, hydrology, and vegetation conditions within the reference wetland and provide data to support appropriate wetland mitigation measures provided in the design plan.
    - Site hydrology assessments. There are 4 groundwater monitoring wells installed and maintained by TNC within the former agricultural fields of the site. Hydrology data will be provided to the Contractor as needed. These wells have been in place since February 2021. Additionally, the Corps has several groundwater monitoring wells onsite which date back to 2009; this data will be provided to the Contractor as needed. A wetland delineation was confirmed by the Corps in 2022, which is provided in Attachment I.
- Potential issues related to construction access and adverse environmental impacts
- Detailed depiction of results of topographic survey/hydrologic study
- Narrative description of the preliminary mitigation design
- Detailed plan view maps depicting the proposed mitigation activities
- Typical sections to convey design concepts
- Seeding and planting plans (including vegetation community types, species to be planted and quantities by area, application rates, and planting densities by area)
- Wetland credit calculators
- Tables indicating the proposed wetland credits to be generated by the project
- GIS files
- Other supporting concept design information, and any other information required for submittal of the concept plan with the SDP for IRT approval

The Contractor shall attend and facilitate a meeting with TNC to review the draft preliminary design and shall provide TNC with meeting notes following the meeting. Following the meeting, TNC shall review the draft preliminary mitigation design and provide comments to the Contractor. Based upon comments and agreed-to-items resulting from TNC's review, the Contractor shall refine the draft for final submission.

Following completion of the design, TNC will prepare the required Site Development Plan (SDP) for submittal to the VARTF Interagency Review Team (IRT). Based on the current Corps-approved SDP process, following approval by the Corps that the SDP is complete, the Corps will forward the SDP to the IRT for a 35-day comment period. Following the comment period, the Corps will forward comments to TNC. The Contractor shall work with TNC as needed to address comments. Once comments are addressed to the satisfaction of the Corps, the Corps will sign the SDP which authorizes TNC to move forward with project implementation. The SDP process is

anticipated to take 12-18 months from submittal to the Corps. The Contractor shall not proceed with tasks beyond Task 2 until TNC provides written notice to proceed, which is contingent on the Corps providing approval to move forward.

Task 3. Final Mitigation Design
After the SDP is signed, the Contractor shall address IRT and TNC comments and incorporate additional details to advance the preliminary mitigation design to final design plans sufficient to obtain IRT approval of the final design and support all required permitting and implementation of design activities. All construction plans, technical specifications, and/or special construction specifications shall be prepared by or under the supervision of a licensed engineer.

The final mitigation design plans will include the following in addition to preliminary mitigation design information from Task 2:

- Technical specifications
- General notes and construction sequence and schedule
- Narrative description of proposed mitigation activities
- Final credit calculations and tables
- Wetland existing conditions data, reference wetland data, and design criteria
- Grading plans, as needed
- Outlet control details, as needed
- Planting plans, details, and proposed vegetation species lists
- Erosion and sedimentation control measures
- Ingress/egress routes
- GIS files

The Contractor shall submit the final design plans in electronic version (Word, pdf and CADD/GIS files as appropriate) to TNC for review. TNC shall review the final design plans and provide comments to the Contractor. Based upon comments and agreed-to-items resulting from TNC's review, the Contractor shall refine the final design plans for submission to the Corps.

The Corps will forward the final design plans to the IRT for review. Following the comment period, the Corps will forward comments to TNC/the Contractor. The Contractor shall work with TNC as needed to address comments. Once comments are addressed to the satisfaction of the
Corps, the Corps will provide approval of the final design.

Task 4. Acquisition of Permits
The Contractor shall be responsible for acquiring all required permits and authorizations, including the Joint Permit Application (JPA), needed to implement the mitigation design. This includes filling out and signing all necessary permit applications, providing all necessary information (plans, contact info, etc.) to acquire the permits, paying all fees required to acquire the necessary permits (including any survey or other costs associated with historic resources or T&E species review), coordinating and attending any necessary site or other meetings required to secure permits or authorizations, and addressing agreed upon comments resulting from the permitting agencies' review.

The Contractor shall be responsible for complying with all conditions of all federal, state, and local permits and requirements for the duration of the project and the contract. Any ramifications (fines, fees, delay in work, etc.) related to the violation of the requirements of the permits shall be the responsibility

of the Contractor. The Contractor shall inform TNC immediately of any permit issues/violations that occur on the site.

The Contractor shall notify TNC of any permit conditions and/or restrictions imposed or recommended by the permitting agencies during the permitting process. The Contractor shall not proceed with discussions with the permitting agencies regarding permit conditions and/or restrictions until TNC and the Contractor have agreed on a response to the agencies.

The Contractor shall submit applications for all required permits to complete the implementation of the design following execution of the final SDP and IRT approval of the final design plans for the project. The Contractor shall submit copies of all permit documents to TNC following issuance of permits/authorizations.

Task 5. Implementation of Design

5A. Construction Oversight

The Contractor shall be responsible for management of the project and for oversight of all mitigation activities and all contractors hired to implement mitigation activities. The Contractor shall retain the responsibility for the quality and completion of their work and the work of their subcontractors and for adhering to applicable regulations, permits, plans, and specifications.

The Contractor shall notify TNC at least 5 calendar days prior to beginning any mobilization to the site. The Contractor shall provide an estimate schedule for the number of days required to complete each task. The Contractor shall also provide an estimated demobilization date for construction and notify TNC within 5 calendar days prior to the anticipated demobilization date.

The Contractor shall be responsible for ensuring all components of the design (including all grading, seeding, stabilization, erosion and sediment control measures, invasive species management, planting, and construction tasks) are implemented according to the final design plans and specifications. During the field activities, the Contractor shall use best professional judgment to implement necessary changes to the approved design or technical specifications if site conditions warrant such a change. However, the Contractor shall notify TNC as soon as possible to discuss this change.

The Contractor shall be on-site as-needed during the construction phase to ensure that the site is built in accordance with the design plans, specifications and approved permits. The Contractor shall communicate regularly with the construction firm and shall meet with the construction firm on-site as-needed regarding the progression of construction.

The Contractor shall provide weekly written updates to TNC on the implementation of the design during the construction activities. These updates shall include detailed progress reports referencing where activities are in the phasing of the project, what components have been completed, photographs of project progress, description of changes to the approved design or technical specifications, description of site visits conducted by permit-issuing agencies or discussions with permitting agencies regarding project elements, and the status and projection of completion times for components that are currently being implemented. As part of the updates, the Contractor shall summarize the site activities completed during that week and the anticipated activities for the coming week.

In addition to weekly reporting, the Contractor shall submit a report at 100% completion of construction. The reports shall include adequate data to show that all components have been constructed and installed according to the final design plans and construction documents, or are within acceptable tolerances, and

any changes or deviations from these documents have been approved by TNC. At a minimum, the reports shall include data sheets with built elevations of wetland outlets (as needed) and wetland areas. The 100% construction completion report shall be submitted within 10 days of 100% completion of construction and prior to demobilization.

Meetings shall be conducted on the site at pre-construction and 100% completion with TNC and the Contractor to ensure that all activities are satisfactorily planned for and completed. A person qualified in each design phase of the project shall be available when required to support the necessary visits. The 100% construction meeting shall be held prior to demobilization. The Contractor shall prepare punchlists for the meetings as needed. Punchlists will be provided to TNC for review and final approval.

5B. Construction

The Contractor shall implement the construction activities as approved in the final design plan and shall provide all materials and labor to complete such activities.

The Contractor shall provide a payment bond and a performance bond in a penal sum equal to the cost of implementing the design including construction and planting. The bond shall be in a form acceptable to TNC and shall be issued by a corporate surety with an AM Best rating of A- or better. The performance bond shall be payable to TNC and its successors and assigns, shall be conditioned on the Contractor's faithful performance of the project required by this Contract, and shall be executed by a corporate surety acceptable to TNC that is authorized to do business in Virginia. The payment bond shall protect those who have a direct contractual relationship with the Contractor or its subcontractors and who supply labor or materials in connection with the project and shall be executed by a corporate surety acceptable to TNC that is authorized to do business in Virginia. Upon request of any person or entity appearing to be a potential beneficiary of the payment bond, Contractor shall promptly furnish a copy of the bond to such person or entity. The bond can be released upon TNC approval of Task 6 – As-built Survey and Report.

The Contractor shall be responsible for all coordination to locate and protect utilities present within the project corridor. The Contractor shall stakeout the location of the proposed ditch plugs prior to commencing excavation operations. The survey shall identify the ditch plug locations and existing wetlands. The Contractor shall be responsible for conducting construction activities in a manner that does not damage utilities, other structures, roads or trails, and shall repair any damages to utilities, other structures, roads or trails occasioned by such activities.

Finished grades must not deviate by more than +/- 0.3 feet from elevations shown on final design plan. The Contractor, with TNC approval, may determine that elevations need to be adjusted to ensure proper stream and wetland function and/or fit with surrounding field conditions. The Contractor shall then re-grade these areas to meet the appropriate elevations. If finished grades deviate more than +/- 0.3 feet from the plan elevations and the Contractor, with TNC approval, determines that the deviation does not compromise wetland stability or function, additional grading shall not be required.

The Contractor shall apply a mix of temporary stabilizing native seed and permanent native seed to all disturbed areas. Invasive or non-native species shall not be included in any seed mix applied to the site. The Contractor shall restore all disturbed areas (including stockpile and staging areas) prior to demobilization. The Contractor shall be responsible for the off-site transport and disposal of all unused construction materials (e.g., rock, fill, trees, etc.) not properly used or properly disposed of on-site.

5C. Planting

The Contractor shall implement the planting activities as approved in the final design plan and shall provide all materials and labor to complete such activities. The Contractor shall order the species and quantities indicated in the approved planting plan and these materials shall be installed in accordance with the approved plan. In the case that adequate planting stock is not available, or other stock may be more suitable, suggestions for additional or alternate species shall be coordinated with TNC. All planting materials must be handled and installed in accordance with best management practices.

Task 6. As-Built Survey and Report

The Contractor will be responsible for the delivery of an as-built report for mitigation activities. The as-built survey shall be certified by a licensed land surveyor or a licensed professional engineer. The as-built report will include adequate data to show that all components have been constructed, installed, managed, and/or planted according to final design plans. The as-built report shall also be used for comparison during future success monitoring.

The Contractor shall install all monitoring equipment needed to complete the as-built survey. Permanent monitoring stations shall be installed for photographic monitoring. The Contractor shall conduct pre-construction, construction, and post-construction photo monitoring to document the existing conditions, the progress of the construction, and the final site conditions. The directional orientation of the photos shall remain constant during all photo monitoring events.

Pre-Construction Photo Monitoring – Photographs shall be taken prior to commencing activities at the site to document existing site conditions.

Construction Photo Monitoring – The frequency of photographs taken during construction activities shall be at the discretion of the Contractor. However, the frequency should be sufficient to capture the milestones of the restoration activities (weekly, at a minimum).

Post-Construction Photo Monitoring – Following all site activities, photographs shall be taken to document the final stream channel and banks, in-stream structures, restored/created/enhanced wetland areas, buffer/floodplain, and overall site conditions.

The as-built report shall include the following:

1. A title page indicating the Mitigation Site name, watershed, Mitigation Site phase (if applicable), monitoring year, Sponsor identification (name, address, phone number and email address), and preparer identification (name, address, phone number and email address).
2. A detailed narrative summarizing the condition of all areas of the Mitigation Site and results of the as-built survey.
3. Plan view of the stream, adjacent floodplain, wetlands, and buffer areas. Plan view shall show:
    a. Location of all permanent monitoring stations (photographic, hydrology wells, vegetation, cross sections, longitudinal profile termini, stream gage).
    b. All stream restoration features including channel pattern and all in-stream and streambank structures. Design and as-built elevations should be shown.
    c. Identification of limits of mitigation activities, including a breakdown of the acreages of each activity (e.g., wetland restoration, creation, enhancement, and preservation). Wetland type should be indicated for each wetland area.
    d. All wetland restoration/creation features and adjacent floodplains. Design and as-built elevations should be shown.

e. Topographic survey elevations, including spot elevations within stream mitigation areas and on any water control structures or diversions. Vertical survey information shall be accurate to within 0.2'.
f. Mitigation Site boundary.
g. Crossings, utilities, trails, roads, etc. if applicable.

4. Photographs (dated and labeled, including directional orientation) taken from permanent photo stations.
5. Planting area details including dates planted, species planted, total planting density, and quantity planted by species within each planting area. Show comparison of planting details to design planting plan and discuss comparison.
6. Detailed information regarding seed mixtures, including dates seeded, species seeded, areas seeded, amount of seed used per acre and method of spreading.
7. Detailed information regarding final status of road/access areas.
8. Detailed topographic survey on all constructed wetland areas sufficient to capture the microtopography of slopes and morphology of wetland areas.
9. Mitigation activity tables containing the as-built acreage of each mitigation activity and associated credits generated.
10. As-built wetland credit calculator
11. A narrative/discussion of the comparison and/or discrepancies from the design or from unstable conditions, in general.
12. Any additional information required to adequately characterize Mitigation Site conditions (as needed).

The Contractor shall submit the as-built report to TNC within 30 calendar days of 100% completion of construction activities. Depending on the schedule, if a delay is proposed between completion of construction and completion of planting, the Contractor shall submit an as-built report documenting as-built conditions of construction following completion of construction and a second report documenting as-built conditions of planting following completion of planting. TNC shall review the as-built report and provide comments to the Contractor. Based upon comments and agreed-to-items resulting from TNC's review, the Contractor shall refine the as-built report for final submission. The Contractor shall deliver the as-built report in electronic version and also provide TNC with the CADD or GIS data for the as-built.

ATTACHMENT D:
CONTRACTOR QUESTIONNAIRE

Please answer each of the following questions in the space provided. If additional space is required, please continue on a separate sheet and attach it to this form.

General Information:

Company Name: _____

Company Address: _____
Contact Name: _____
Phone & Email: _____
Years in Business: _____

Contractor Information:

Please indicate if you have done business with TNC in the past and provide contact information below.

_____

Statement of Qualifications:

Please provide a statement of qualifications below. This statement of qualifications must include information pertaining to the attached scope of work.

_____

Employee Information

Number of Employees: _____

Service Information

Are there any geographical areas that your company is not able to serve?
_____ YES _____ NO

If yes, please list.

_____

_____

Minority and Women - Owned Business Enterprise

Please indicate below if your firm is at least 51% minority or women owned, controlled and operated. Identify the % of minority or women ownership.

Legal

If your firm is bonded, please indicate type:

Performance Bond _____ YES _____ NO
Labor & Material Payment Bond _____ YES _____ NO

Are there any judgments, suits or claims pending against your firm?
_____ YES _____ NO

If yes, please explain:

_____

_____

Has your firm operated under a different name? (Please provide)

ATTACHMENT E:
TNC'S STANDARD CONTRACT FOR SERVICES

Contract Number:	
Accounting Information –	
Project Name:	
Project-Award-Activity #:	
Source of funds:	☐ Public Funds ☐ Private funds as MATCH ☐ Private funds (restricted) ☐ Private funds (unrestricted)

CONTRACT FOR SERVICES

This Contract for Services (the "Contract") is entered into by and between **The Nature Conservancy**, a District of Columbia non-profit corporation ("TNC"), through the following U.S. office:

TNC Business Unit:	
Contact:	
Address:	
Telephone:	
Email Address:	

and the following person or entity ("**Contractor**"):

Name of Contractor:	
Contact:	
Address:	
Telephone:	
Email Address:	

1. **Services**. TNC engages Contractor to provide the services, goods and/or deliverables (collectively, the "Services") described in **Exhibit A** ("Description of Services") in accordance with the terms and conditions of this Contract. The parties acknowledge that none of the Services are to be performed or delivered outside of the United States or its territories.

2. **Payments**. TNC will compensate Contractor for the Services as follows:
   (a) Contract Fee. For all of the Services, TNC will pay Contractor a fee of **$xxxx.00 (xxxx and 00/100 dollars)** (the "Contract Fee"), which is inclusive of all taxes, in accordance with the following schedule and conditions:

Task	Deliverable	Est. Days from Contract Execution	Target Date	Cost
	TOTAL			**$ xxxx.00**

Time is of the essence with this Contract. For each calendar week beyond the task due date that TNC has not received the completed deliverable, the weekly charge of $1,500.00 will be charged against the Contractor. However, Contractor shall not be responsible for failure to perform or for delays in the performance of services which arise out of causes beyond the control and/or without the fault or negligence of Contractor.

(b) Invoices and Payments. Requests for payment of the Contract Fee must be submitted to TNC in the form of an invoice itemizing the work performed incurred during the invoice period. Invoices will not be submitted until TNC has verified successful completion of tasks involved in each invoice in accordance with the terms of this Contract. Contractor shall notify TNC upon completion of each milestone described in the pricing schedule, and TNC shall verify completion of such milestone within ten (10) business days after such notification or within the timeframe otherwise indicated in this Contract. Any tasks that exceed or are outside the Services as described on **Exhibit A** must be submitted in writing to TNC for TNC's written approval before the task is performed if an increase in the Contract Fee is associated with such task. No claim for an adjustment from the payment amount specified in this Contract will be valid without such written authorization. TNC shall have the right at all times to inspect the work, all materials and workmanship; to reject any defects in any of the above; and/or to require that any such defects be corrected. The order in which tasks are to be completed shall not be changed without the prior written consent of TNC. TNC may deny payment of requests received more than sixty (60) days after the final deadline for completion of the Services. TNC will make all payments either (i) by check, subject to TNC's receipt from Contractor of a properly completed IRS Form W-9, or (ii) via Vendor ACH, if requested by Contractor and subject to Contractor's completion of TNC's Vendor ACH Enrollment Form.

(c) No Expense Reimbursement. Contractor will not be reimbursed for any expenses Contractor incurs in performing the Services.

(d) Withholding by TNC. Contractor shall provide TNC with a list of all subcontractors and laborers working on the Project and shall update such list promptly in the event of any changes, no later than one business day after the change. TNC, on the basis of reasonable and verifiable evidence, may withhold from any payment otherwise due to Contractor under this Contract such amounts as may be necessary for protection against loss caused by defective work not remedied, reasonable evidence that the work cannot be completed for the then remaining unpaid portion of the amount payable hereunder, damages and/or delays caused by Contractor, and for any legitimate set-off TNC may have (including, but not limited to, any which may result from any notice of mechanic's lien that TNC or the current landowner may receive with respect to the Project). If any claim of lien or other demand for payment or security therefor is made or filed with TNC or as to the Project by any person claiming that Contractor or any subcontractor or supplier, or any other person claiming under any of them, has failed to perform its contractual obligations or to make payment for any labor, materials, equipment or other item furnished or obligation incurred in connection with the Project, or if at any time there shall be evidence of such nonperformance or nonpayment of any claim of lien or other demand for which, if established, TNC, the landowner and/or the property on which the Project is located might become liable, then TNC shall have the right to retain from any payment then due or thereafter to become due under this Contract or to be reimbursed to Contractor an amount sufficient to: (1) satisfy, discharge and defend against any such claim of lien or other demand, or any action or proceeding thereon which may be brought to judgment or award; (2) make good any such nonpayment, nonperformance, damage, failure or default; and/or (3) compensate TNC and/or the current landowner for and indemnify both of them against any and all loss, liability, damage, cost and expense (including attorneys' and consultant's fees and costs) which may be sustained or incurred in connection therewith. If appropriate, TNC may also elect to make any given payment due under this Contract jointly to Contractor and any person or entity which may make any such claim of lien or other demand.

(e) Release Bonds. Should any subcontractor, supplier or other person make, record or file, or maintain any action on or respecting a claim of mechanic's lien, equitable lien, payment of performance bond, or another lien, relating to the Project, Contractor shall immediately and at its own expense procure, furnish and record appropriate statutory release bonds which will extinguish or expunge such claim or lien.

(f) Effect of Payment. TNC's acceptance of and/or payment for the completed work performed by the Contractor, and payment therefor by TNC, shall not relieve the Contractor of its obligation to TNC and the current landowner, which obligation is hereby acknowledged, to complete the work in accordance with the highest standards of the Contractor's profession or craft and to the satisfaction of TNC, and to discharge any and all liens for the benefit of subcontractors for the work covered by this Contract, which have attached or may subsequently attach to the property on which the work has been performed or to any interest of TNC therein.

3. **Term.** This Contract will become effective upon the last signature date below and will expire automatically once all the Services have been completed and final payment by TNC has been made (the "Contract Term"). Contractor must comply with all deadlines in Exhibit A and finalize all Services on or before **INSERT DATE**. Any deadlines set forth herein may be extended only with TNC's prior written consent, which may be provided by email. Time is of the essence in the performance of this Contract.

4. **Termination**.

(a) Without Cause. TNC may terminate this Contract without cause at any time upon two weeks' written notice to Contractor. TNC will pay Contractor for the Services that have been satisfactorily performed, as determined by TNC, as of the termination date. Contractor shall submit a final invoice within fourteen days following termination of services.

(b) For Cause. TNC may immediately terminate this Contract for cause by written notice to Contractor if Contractor fails to perform any duty, obligation, or covenant under this Contract, whether for circumstances within or beyond Contractor's control, or if TNC determines at any time that the Services cannot be performed in accordance with Applicable Laws (defined below) or TNC's policies or operating procedures. Should termination occur as a result of Contractor's default, TNC may, without limiting any other remedies available to it under Applicable Laws, recover damages from Contractor resulting from Contractor's default and may offset any amounts payable to Contractor against such damages.

(c) Refund of Advanced Payments. Regardless of the reason for termination, to the extent the balance of any advance payments made by TNC exceeds the total payments due to Contractor for Services satisfactorily completed, Contractor must promptly return the excess advance payments.

5. **Conflict of Interest Determination**. Contractor represents and warrants that, to the best of Contractor's knowledge, the information Contractor has provided on TNC's Conflict of Interest Disclosure Form (attached as Exhibit B) is true and correct. If any of the information Contractor has provided changes during the term of this Contract, Contractor agrees to promptly notify TNC in writing of such change. The parties acknowledge that publicly traded companies engaging in the normal course of business, government agencies, and universities are exempt from this requirement.

6. **Independent Contractor; Taxes**. The parties intend this Contract to create an independent contractor-client relationship and not an employee-employer relationship. Contractor is solely responsible for the conduct and control of the Services and fulfilling Contractor's duties and obligations under this Contract. Contractor is not an agent or employee of TNC, and no partnership, joint venture, or principal-agent relationship exists. Neither party will have any right, power, or authority by virtue of this Contract to create any obligation, express or implied, on behalf of the other party. Contractor is responsible for filing and paying its own taxes and for complying with the requirements of any applicable tax laws. TNC will not

withhold or pay on behalf of Contractor or any of Contractor's employees any U.S. Federal, state, or local income tax, payroll tax, or any excise, sales, or use tax of any kind. TNC will report to the IRS on Form 1099 all fees paid to Contractor, as and to the extent required by Applicable Laws.

7. **Performance of Work**. Contractor represents and warrants that Contractor is qualified and will perform the Services in accordance with the highest standards of Contractor's profession or craft. Contractor is responsible for the complete performance of the Services notwithstanding the use of any subcontractors or work performed by anyone else under Contractor's direction or control. Contractor will not be paid for any Services found by TNC to be unsatisfactory.

8. **Liability; Indemnification**. Contractor agrees that it is entering into this Contract and performing the Services entirely at Contractor's own risk. Contractor, on behalf of Contractor and Contractor's employees, subcontractors, and agents, agrees to indemnify, defend, and hold harmless TNC and its directors, officers, employees, agents, and assigns (collectively, the "Indemnified Parties") from and against any and all liabilities, demands, damages, claims, losses, costs, settlements, judgments, fines, penalties, or expenses, including reasonable attorneys' fees and costs, (collectively, "Claims") that directly or indirectly arise out of, relate to, or result in any way from the performance of this Contract, whether or not the Claims have merit, involve third parties, or are caused or alleged to be caused by Contractor or any of the Indemnified Parties; provided, however, that Contractor will not be responsible for Claims arising from the sole negligence, gross negligence, or willful misconduct of any of the Indemnified Parties.

9. **Insurance.** Prior to commencing the Services and during the Contract Term, Contractor must have and maintain the following insurance policies: (a) workers' compensation insurance coverage as required by Applicable Laws; (b) commercial general liability insurance (including contractual liability if the Contract Fee is $100,000 or more or if requested by TNC) of at least $1,000,000 per incident, written on an occurrence basis, and covering the Services that are the subject of this Contract, including any related claims; (c) automobile liability insurance, covering all owned and non-owned vehicles used in performing the Services, with a liability limit of at least $1,000,000 per occurrence; (d) professional liability insurance in the amount of at least $1,000,000 if Contractor is providing professional services (such as consulting, engineering, design, appraisal, or surveying services); and (e) umbrella coverage of at least $4,000,000 if the Contract Fee is $100,000 or more, or if requested by TNC. Contractor's insurance policies must be primary to TNC's insurance policies. Before any of the Services commence, the foregoing requirements must be evidenced by one or more Certificates of Insurance, showing TNC as an additional named insured and requiring at least 30 days advance written notice to TNC of any cancellation, renewal, reduction in limits, or coverage or other material change of the policies. TNC reserves the right to request additional documentation, such as one or more policy endorsements, deemed reasonably necessary to ensure such requirements have been met.

10. **Compliance with Laws; Authorizations**. Contractor represents, warrants, and agrees that Contractor; (a) can lawfully work in the United States; (b) has or will obtain at Contractor's expense (except to the extent otherwise explicitly stated in this Contract) any permits, licenses, or authorizations, including without limitation, a property owner's prior permission before entering upon any private property, that are required to perform the Services, and; (c) will comply with all statutes, laws, ordinances, executive orders, rules, regulations, court orders, and other governmental requirements for the jurisdiction(s) in which the Services are performed, the state in which TNC's Business Unit set forth on the first page of this Contract is located, and any other jurisdiction(s) in which Contractor is organized or authorized to do business (collectively, "Applicable Laws"). Contractor must not take any actions that might cause TNC to be in violation of any Applicable Laws. This provision must be included in all permitted subcontracts.

11. **Counterterrorism, Anti-Money Laundering and Economic Sanctions Laws**. Contractor represents and warrants that, to the best of Contractor's knowledge, Contractor and Contractor's subsidiaries, principals, and beneficial owners, if any (collectively, the "Contractor Parties"):

A. are not presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any government agency;

B. (i) are not included on the Specially Designated Nationals and Blocked Persons lists maintained by the U.S. Treasury's Office of Foreign Assets Control, the United Nations Security Council Consolidated List, or similar lists of proscribed entities identified as associated with terrorism; and (ii) will not engage in transactions with, or provide resources or support to, any such individuals or organizations or anyone else associated with terrorism;

C. are not a person or entity with whom transacting is prohibited by any trade embargo, economic sanction, or other prohibition of law or regulation; and

D. have not conducted, and will not conduct, their operations in violation of applicable money laundering laws, including but not limited to, the U.S. Bank Secrecy Act and the money laundering statutes of any and all jurisdictions to which the Contractor Parties, or any one of them, is subject, and no action or inquiry concerning money laundering by or before any authority involving any of the Contractor Parties is pending.

Should Contractor become aware that Contractor or any other of the Contractor Parties is subject to any of the above conditions of this Section during the term of this Contract, Contractor must immediately notify TNC in writing. If TNC determines that Contractor or any of the Contractor Parties is subject to any of the above conditions of this Section, TNC may terminate this Contract effective immediately upon written notice to Contractor, with no further obligation by TNC under this Contract, including payment, and TNC may pursue all available remedies under Applicable Laws. The terms of this Section must be included in all permitted subcontracts.

12. **Use of TNC Name and Logo**. Unless expressly authorized in writing in this Contract or in a separate written agreement, Contractor may not use TNC's name, logo, or other intellectual property in any manner, whether in conjunction with the Services or otherwise, except (a) to deliver invoices or other notices to TNC and (b) within acknowledgements of TNC funding, as authorized in writing by TNC.

13. **Confidential Information**. In performing the Services, Contractor might have access to information, whether verbal, in writing, in electronic format, or in any other tangible form, disclosed by TNC, directly or indirectly, to Contractor that is (a) identified as confidential, or (b) disclosed in a manner in which TNC reasonably communicates, or that Contractor should reasonably have understood, should be treated as confidential, whether or not designated as "confidential" (collectively, "Confidential Information"). Confidential Information includes, without limitation, data sets, donor data, marketing plans, research, products, technologies, software source code, software object code, data collection functionalities, trade secrets, pre-publication patent applications, research and development, know-how, and other information relating to TNC and its operations, programs, or systems. Contractor may not, without TNC's prior written consent, use, publish, or divulge any Confidential Information, and agrees to use Confidential Information solely in furtherance of the Services and for no other reason. Contractor must use appropriate security procedures to safeguard Confidential Information. Contractor acknowledges and agrees that in the event Contractor receives any personal identifying information (i.e., information that identifies or can be used to identify an individual or that relates to an identified individual), Contractor (i) will be subject to a TNC IT Security review prior to such transfer or exchange and (ii) Contractor will comply with all Applicable Laws relating to the protection of personal identifying information. In addition, Contractor must comply with any additional requirements relating to protection of data as set forth in this Contract and/or as specified in the Additional Service Terms and Conditions – Data and Information Security, if attached to this Contract.

14. **Work Product; Intellectual Property**. Contractor retains all right, title, and interest in works, inventions, and other intellectual property original to or owned by Contractor prior to the execution of this Contract or created outside the scope of this Contract. If the Services involve the creation of intellectual property including, but not limited to, inventions, concepts, processes, reports, derivative works, studies, photographs, software (including in both object code and source code form), drawings, designs, writings, related drafts, supporting materials, or data (collectively, the "Works"), TNC will own all right, title, and interest, including copyrights, and, if applicable, patent rights, in and to the Works. Contractor agrees that all copyrightable Works are "works made for hire" as defined under the copyright laws of the United States. To the extent that any of the Works are not works made for hire, Contractor unconditionally assigns to TNC and TNC's successors and assigns all right, title, and interest, including copyright, and other intellectual property rights, in and to the Works in all media (whether now known or later developed) worldwide and in perpetuity. Contractor grants to TNC a worldwide, non-exclusive, royalty-free, perpetual license to use, reproduce, distribute, modify, exercise, practice, perform, and exploit any assets subject to Contractor's patents, copyrights, or other intellectual property rights, to the extent that such license is necessary for TNC to enjoy all rights associated with ownership of the Works. Upon request of TNC, Contractor will deliver to TNC all tangible copies (including digital copies) of the Works and will execute and complete all documentation necessary to establish TNC's ownership of the Works. Contractor warrants and covenants that the Works will not infringe on the patent rights, copyrights, or other intellectual property rights of Contractor or third parties.

15. **Miscellaneous Terms and Conditions**.

(a) **Notices**. Any notice, request, or demand made by either party to this Contract must be in writing and must be delivered: (i) in person; (ii) by mail, postage prepaid, certified (return receipt requested); (iii) by a nationally recognized, next-day delivery service with tracking information and requesting next-business day delivery; or (iv) email. Notices must be addressed to the other party at that party's address first stated above and will be deemed delivered: (i) immediately if delivered in person; (ii) three business days after deposit in the mail if sent as described above; (iii) the next business day if sent by an overnight service and sent as required above; or (iv) on the first business day after sending by email.

(b) **Governing Law; Forum.** This Contract and claims relating to this Contract will be interpreted, construed and governed by the laws of the state in which the TNC Business Unit set forth on the first page this Contract is located (excluding such state's choice of law principles, if any). In the event of any litigation over the interpretation or application of any of the terms of this Contract, litigation will be conducted in the state in which the TNC Business Unit set forth on the first page of this Contract is located.

(c) **Assignment; Subcontracting.** Contractor may not assign this Contract or subcontract any portion of the Services without TNC's prior written consent, which may be granted via email. TNC's consent may be granted or withheld in TNC's sole discretion.

(d) **Code of Conduct; Helpline.** TNC expects itself and everyone with whom it does business to conduct themselves in ways that are consistent with its TNC's Code of Conduct found at www.nature.org/codeofconduct. Anyone (whether an employee of TNC or not) may contact the TNC Helpline (anonymously, if desired) with questions, concerns, or suspected violations at www.nature.org/tnchelpline.

(e) **Entire Agreement; Amendments; Order of Precedence.** This Contract will become binding when signed by both parties and, together with its exhibits, which are incorporated into this Contract by this reference and made a part of this Contract, constitutes the entire agreement between the parties and supersedes all prior or contemporaneous communications, both oral and written, between the parties relating to the Services described in this Contract. Unless explicitly stated otherwise in this Contract, no

amendment to this Contract, including a change in the Description of Services or any change order, will be effective unless in a writing signed by both parties. Unless otherwise agreed in writing by the parties, when provisions in the main body of this Contract are inconsistent or in conflict with any exhibit or attachment to this Contract, first priority will be given to the provisions in the main body of this Contract; second priority will be given to the provisions of any exhibit pursuant to Section 16 below, if applicable; third priority will be given to the Description of Services set forth in Exhibit A; and fourth priority will be given to any additional exhibits or attachments to this Contract.

(f) **Severability; No Waiver.** If any provision of this Contract is found to be invalid by a court of competent jurisdiction, the other provisions will not be affected by that finding. No delay in exercising any right or remedy under this Contract by either party will constitute a waiver of that right or remedy or of any other right or remedy under this Contract or under Applicable Laws.

(g) **Joint and Several Liability.** If two or more persons or entities are identified as Contractor in this Contract, their obligations under this Contract are and will be joint and several.

(h) **Counterparts.** This Contract may be executed in one or more counterparts, each of which will be deemed an original and all of which will constitute the complete Contract.

(i) **Consent to electronic signatures.** Facsimile or scanned signatures on this Contract and any related documents, and digital or electronic signatures where authorized under Applicable Laws, will be fully binding for all purposes under this Contract.

(j) **Authorization to Sign.** Contractor represents and warrants that the person signing this Contract on behalf of Contractor is duly authorized to sign this Contract on Contractor's behalf.

(k) **Survival.** The "Liability; Indemnification," "Confidential Information," and "Intellectual Property" Sections of this Contract will survive the expiration or earlier termination of the Contract.

16. **Additional Terms and Conditions**. This Contract is further subject to the additional terms and conditions set forth in the following Exhibit C (and subsequent exhibits, in the event more than one option is selected):

☐ Additional Service Terms and Conditions Attachment
☐ U.S. Government Laws and Regulations Attachment
☐ State/Local Government Terms and Conditions Attachment
☐ Private Funder Terms and Conditions
☒ None

In consideration of the above, TNC and Contractor execute this Contract effective as of the later date of signature below.

The Nature Conservancy		**[Contractor]**	
By:	_____ (signature)	By:	_____ (signature)
Print Name:	_____	Print Name:	_____
Title:	_____	Title:	_____
Date:	_____	Date:	_____

Exhibits:
Exhibit A: Description of Services
Exhibit B: Conflict of Interest Disclosure Form

Exhibit A
Description of the Services

See Scope of Work for this RFP

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ATTACHMENT F

CONFLICT INQUIRY FORM

STEP 1: DESCRIPTION OF PARTIES & TRANSACTION	
Name of individual or organization entering into transaction with TNC:	
Legal identity of individual or organization* entering into transaction with TNC (select one):	☐ Individual ☐ For-Profit Organization ☐ Non-Profit Organization
Type of Transaction (select one):	☐ Contract for Services ☐ Grant Agreement ☐ Purchase Order ☐ Licensing Agreement ☐ Real Estate Transaction ☐ Other
If you selected "Other" or "Real Estate," include description here (for real estate, describe property, size, and type of deal (sale, gift, lease, etc.)):	

**"Organization" includes a for profit corporation, partnership, trust, estate, joint venture, limited liability corporation, professional corporation, an unincorporated entity, a foundation, public board, commission, 501(c)(3) or other charitable organization.*

STEP 2: DEFINITIONS & QUESTIONS (Complete *only* the section relevant to your organization)

(1) TNC Key Employees and Board of Directors: Please refer to the **attached list** of Key Employees and members of Board of Directors (includes individuals who have left relevant TNC positions within the past five (5) years).

(2) TNC Trustee: Individuals serving as a Trustee or Advisor to TNC.

(3) Substantial Contributors: Individuals or organizations who have made total aggregate contributions to TNC of (i) ≥ US $5 million during the current fiscal year or (ii) ≥ US $25 million within the last five (5) fiscal years. Fiscal years run from July 1st through June 30th.

(4) Family Members and Close Relatives: Family members of any individual listed above, such as spouse, domestic partner, parent, sibling, child, dependent, other progeny and ancestors.

SECTION 1. INDIVIDUALS (explain any "yes" answers in Step 3):	Yes	No
a. Are you now, or have you been in the last five (5) fiscal years, (i) a TNC "Key Employee" or (ii) a member of the TNC Board of Directors?		
b. Are you now, or have you been in the last twelve (12) months, (i) a TNC Employee, (ii) a Chapter Trustee, or (iii) a member of a Country Program Advisory Council or a similar advisory group?		
c. Are you a Substantial Contributor to TNC?		
d. To your knowledge, are you a family member or close relative of any individual identified in paragraphs a, b, or c above?		

SECTION 2. FOR-PROFIT ORGANIZATIONS (explain any "yes" answers in Step 3):	Yes	No
a. Is your organization a Substantial Contributor to TNC?		
b. Now, or at the time of the proposed transaction, to the best of your knowledge, do any of the following (individually or collectively with other such persons) (i) own more than 35% of the stock or value of your organization (directly or indirectly) and/or (ii) have a controlling influence over the organization's management or policies (ex. key management or board member): • TNC employee (or former employee who left within the last twelve (12) months); • TNC Key Employee; • TNC Board Member; • Substantial Contributor to TNC; • TNC Chapter Trustee or Advisory Council Member for TNC or TNC's related entities (or former trustees/members who left within the last twelve (12) months); and/or • Family members or close relatives of the above individuals.		
c. Now, or at the time of the proposed transaction, have or will any TNC Key Employees or members of the Board of Directors serve in the following positions of your organization? • Officer, director, trustee, key employee, or partner; • Member (if your organization is a limited liability corporation); and/or • Shareholder (if your organization is a professional corporation).		
SECTION 3. NON-PROFIT ORGANIZATIONS (explain any "yes" answers in Step 3):	**Yes**	**No**
a. Now, or at the time of the proposed transaction, do any of the following (individually or collectively with other such persons) have the ability to influence management of the entity: • TNC employee (or former employee who left within the last twelve (12) months); • TNC Key Employee; • TNC Board Member; • Substantial Contributor to TNC; • TNC Chapter Trustee or Advisory Council Member for TNC or TNC's related entities (or former trustees/members who left within the last twelve (12) months; and/or • Family members or close relatives of the above individuals.		

STEP 3: COMMENTS (Explain any "yes" answers checked above. Attach additional pages as necessary.)

STEP 4: NOTICE OF TNC CODE OF CONDUCT & SIGNATURES

TNC expects itself and everyone with whom it does business to conduct themselves in ways that are consistent with TNC's Code of Conduct found at www.nature.org/codeofconduct. Anyone (whether a part of TNC or not) may contact the TNC Helpline (anonymously, if desired) with questions, concerns, or suspected violations at www.nature.org/tnchelpline.

The undersigned certifies the information in the inquiry form is true and correct to the best of their knowledge.

Signature:	
Printed Name:	
Title *(if for an organization)*:	
Address:	
Date of Signature:	

TNC COVERED PERSONS **The following are individuals who are currently or have been, during the preceding five (5) fiscal years, a TNC "Key Employee" or a member of the Board of Directors.**			
List Current as of August 18, 2022			
Current Key Employees	**Former Key Employees**	**Current Board of Directors**	**Prior Board Members**
Nathalie Augustin David Banks Matt Brown Jan Glendening Katharine Hayhoe Tom Neises Michael Sweeney Leonard Williams	James Asp Mark Burget William Ginn Wisla Heneghan Steve Howell Brian McPeek Hugh Possingham Mark Tercek	James Attwood, Jr. Amy Batchelor John Bernstein Michelle DePass William Frist Joseph H. Gleberman Harry Hagey Margaret Hamburg Fred Hu Shirley Ann Jackson Sally Jewell Nancy Knowlton Edwin Macharia Claudia Madrazo Jennifer Morris Ana M. Parma Douglas Petno Sergio Rial Vincent Ryan Brenda Shapiro Kent J. Thiry (on leave) Frances A. Ulmer Kevin Weil Ying Wu	David Blood Shona L. Brown Gretchen C. Daily Steven A. Denning Laurence Fink Andrew Liveris Jane Lubchenco Jack Ma Craig McCaw Thomas J. Meredith Thomas Middleton Stephen Polasky Rajiv Shah Mark Tercek Thomas J. Tierney Moses Tsang P. Roy Vagelos Margaret C. Whitman

TNC's Related Entities **(If applicable)**	
Key Employees (members of Related Entity leadership team):	**Current Fiduciary Board Members, if applicable:**

ATTACHMENT G:
SITE VISIT WAIVER AND RELEASE

SITE VISIT WAIVER AND RELEASE

I have requested to be permitted access to conduct a site visit to certain property, located in Virginia and owned by The Nature Conservancy (TNC) or upon which TNC holds a conservation easement or interest. I acknowledge that my presence at the site is for the sole purpose of assessing the site to develop a proposal in response to a request for proposals released by TNC, and that I will take no action other than that which is required to conduct said assessments. I agree to act with the utmost care and caution while conducting such assessments. I acknowledge that during this visit I may encounter certain conditions that could cause injury, illness, death, and/or property damage.

I recognize and agree that I am taking part in this visit at my own risk. I acknowledge that I have sole responsibility to evaluate carefully the risks inherent in accessing the site and that I have fully considered those risks, including, without limitation, dangers posed by willful or negligent conduct of myself and/or by others. I acknowledge that neither Landowner nor TNC makes any warranty or representation, express or implied, regarding the conditions that may be encountered or activities undertaken during this visit, and that neither Landowner nor TNC will have any liability for any defect or dangerous condition pertaining thereto. Acting for myself and my heirs, personal representatives, assigns, and guardians ad litem, and in consideration of the opportunities provided me to participate in this visit by Landowner and TNC, I hereby agree to indemnify and hold harmless Landowner and TNC, their principals, members, agents, representatives, employees, officers, directors, and managers, their respective successors, heirs, personal representatives and assigns (Indemnified Parties), against any and all liabilities for any damages, expenses, illness, injury, death, damage to or destruction of property, or other losses, including any costs, expenses or attorney fees incurred in enforcing this Agreement, whether known or unknown, foreseen or unforeseen, direct or indirect, which may arise from negligence, including gross negligence, of any person including myself, relating to my participation in or travel to or from this site visit; and

This Agreement shall be interpreted, construed and governed by the laws of the Commonwealth of Virginia and such laws of the United States as may be applicable. Any litigation over the interpretation or application of any of the terms or provisions of this agreement shall be conducted in the United States District Court for the Eastern District of Virginia, Alexandria Division, which venue shall be proper and I agree to make myself subject to personal jurisdiction in that court.

Visitor's Signature: _____

Visitor's Name: _____

Visitor's Company Name: _____

Visitor's Company Address: _____

Site Name(s): _____

Date(s) of Trip: _____

ATTACHMENT H: Feasibility Report

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LJ-7 Jacobson Property Feasibility Study

Executive Summary

The 84+/- acre Jacobson property (36.79540413264587, -76.44487642088217) was examined to:

- Evaluate its current condition
- The applicability of previous mitigation plans developed for the property
- Identify any authorizations required for the mitigation project
- Identify crediting options for different mitigation approaches

The 2008 wetland delineation (2008) has expired. The former farm fields are no longer in agricultural production and have grown up into a young forest dominated by sweet gum and loblolly pine with an understory dominated by Japanese stiltgrass (*Microstegium vimineum).* There are at least 10 more acres of wetlands in the former farm fields than in 2008.

Authorizations required include:

- Rezoning the property from A-1 Agriculture to C-1 Conservation
- City-approved Erosion and Sediment Control Plan
- City-issued Land Disturbance Permit
- Confirmed wetland delineation
- NWP 27 or VWPP for proposed mitigation
- DEQ Stormwater Permit (or waiver) for land disturbance > 1 acre

Three potential mitigation plans were evaluated in terms of impacts and credit yields: the 2005 and 2008 design proposals and a 2020 conceptual proposal with markedly reduced impacts.

The 2005 plan would result in impacts of 22.18 acres of forest land, including an estimated 3.4-5.5 acres of wetlands. Taking into account potential compensatory mitigation requirements and management of stiltgrass the 2005 plan would net an estimated 15.6-21.5 credits

The 2008 plan would impact 9.23 acres of forest land, including 1.8-3.0 acres of wetlands. It would net an estimated 20.32-23.62 credits.

The 2020 concept plan would impact 0.85 acres of land including 0.11 acres of waters (ditches). It would yield an estimated 19.85 credits

The 84-acre property referred to as LJ-7 or the Jacobson property was purchased in 2007 by The Nature Conservancy's Virginia Aquatic Resource Trust Fund (VARTF) as a compensatory mitigation project. TNC purchased the property using VARTF funds following approval by the Norfolk District Army Corps of Engineers and the Virginia Department of Environmental Quality.

In 2020, TNC contracted completion of the following tasks for this property:

- Examine the property to summarize its current conditions,
- Evaluate the applicability of the 2005/2008 restoration and 2009 planting plans in light of current site conditions
- Identify any authorizations that may be necessary for restoration/mitigation activities on the property
- Identify the range of potential management and crediting options.

This report contains the findings of this evaluation.

I Property description and current condition

LJ-7 is located in the historic Dismal Swamp in the City of Chesapeake's Western Branch area. It is made up of 3 parcels (parcels 0150000000010, 0220000002300, and 0220000002290) and consists of 31+/- acres of mature forested land and 53+/- acres of former agricultural lands (**Figure 1**). These lands are underlain primarily by hydric soils (Deloss-Tomotley-Nimmo complex) although the southern and south eastern portions of the former agricultural lands are underlain by a mapped non-hydric soil (Dragston series).

Figure 1 Jacobson parcels

From a landscape perspective, this property is best characterized as part of a broad mineral flat, that is a headwater area where the primary hydrologic input is precipitation and prior to hydrologic modifications (ditching) associated with agricultural production, the primary hydrologic outputs were evaporation and transpiration (see Harms et. al.1998). This property drains to Goose Creek, a tributary of the Western Branch of the Elizabeth River.

Forested land

The mature forest on this property is at least 60-80 years old and located in the western and northwestern portions of the property. The dominant vegetation in this wooded area includes loblolly pine (*Pinus taeda*), sweet gum (*Liquidambar styraciflua)*, red maple (*Acer rubru*m), swamp chestnut oak (*Quercus michauxii*), water oak (*Quercus nigra*), willow oak (*Quercus phellos*), sweetbay magnolia (*Magnolia virginiana*), horse sugar (*Symplocos tinctoria*), pepper-bush (*Clethra alnifolia*), highbush blueberry (*Vaccinium corymbosum*), giant cane (*Arundinaria gigantea*), cinnamon fern (*Osmunda cinnamomea*), netted chain fern (*Woodwardia areolata*), spangle grass (*Chasmanthium laxum*), and common greenbrier (*Smilax rotundifolia*). Soils profiles observed in these areas resemble NRCS' mapped Deloss-Tomotley-Nimmo complex. Samples is the wooded area exhibited one or more hydric soil field indicators.

With TNC's permission, Norfolk District Army Corps of Engineers Regulatory Branch has collected hydrologic data from shallow groundwater wells in the wooded portion of this property since at least 2010 as part of its ongoing monitoring of mineral flat forested wetlands in the Virginia coastal plain. The district's hydrologic data from 2019 suggests that wooded areas on site within 40 feet of the primary drainage ditch on this property did not meet the technical standard for wetland hydrology (water at or within 12" of the surface for more than 14 consecutive days during the growing season in years with typical precipitation). The 2020 field review confirmed that wooded areas within at least 40-50 feet of the ditch did not have sufficient field indicators to conclude that wetland hydrology was present. Areas 60 feet or more from the ditch typically had 1 or more indicators of wetland hydrology including primary indicators of wetland hydrology like blackened leaves or a positive FAC Neutral test (a secondary indicator of wetland hydrology).

A confirmed wetland delineation in 2008 found that 25.5 acres of the mature forested stand was palustrine forested wetland. The 2020 field review which included preparation of routine Atlantic and Gulf Coast Regional Supplement wetland delineation forms (**Appendix 1**) and consideration of Norfolk District hydrology data did not contradict that determination. As much as 5.5 acres of the wooded area would not be considered wetland and is likely effectively drained by the adjoining drainage ditch. **Appendix 2** provides current images of the property.

Former Agricultural Land

Review of aerial images suggests that the former agricultural lands on this property were cropped as recently as 2007-2008. In 2008 a confirmed wetland delineation reported approximately 5.5 acres of farmed wetlands in the northwestern corner and 1.2 acres of farmed wetlands in the northeastern corners of the agricultural lands. The remaining 46+/- acres of agricultural fields were considered non-wetlands. The northern two thirds of the agricultural lands were underlain by hydric soils mapped as the Deloss-Tomotley-Nimmo complex. The southern third was mapped by NRCS as underlain by the non-hydric Dragston series soil.

Since 2008 farming of the fields has ceased and a young forest has developed on the former agricultural lands. The trees are relatively young and small (3-8” dbh). The tree and sapling strata are dominated by loblolly pine and sweet gum. Common non-dominants include persimmon (*Diospyros virginiana*) and water oak (*Quercus nigra*) The dominant herbaceous species in most wetlands and non-wetland plots is Japanese stiltgrass (*Microstegium vimineum*). In the wetland areas dominants in the herb stratum also include trumpet creeper (*Campsis radicans*), soft rush (*Juncus effusus*), Canadian clearweed (*Pilea pumila*), and dotted smartweed (*Persicaria punctata*).

Each of the former agricultural fields were examined and at least 1 routine Atlantic and Gulf Coast Regional Supplement wetland delineation form was completed for each field. **Figure 2** depicts the former fields labeled from “A” to “H”. **Appendix 1** provides the routine data forms for these fields (data points 1-12) and the associated figure identifies the location of wetland and non-wetland datapoints. Appendix 3 provides representative images of the site. “Soft” wetland determinations were made for each of the fields. Taken together, 4 of the former fields (fields D, E, F, and G) include approximately 16 acres of wetlands. This is approximately 9 acres more wetlands than were identified in the 2008 wetland delineation of the farm fields.

Figure 2 – Jacobson Farm Field designations

Table 1 - Estimated Field Acreage including Wetlands

Field Label	Estimated Acreage	Wetland Ac 2008	Estimated Wetland Ac 2020
A	1.5	0	0
B	10.1	0	0
C	4.2	0	0
D	9.7	5.5	9.0
E	5.0	0	0.8
F	6.8	1.2	3.2
G	11.0	0	3.0
H	3.7	0	0
Other (ditches, access road)	2.1	0	0
Total	**54.1 ac**	**6.7 ac**	**16 ac**

The southern fields (A, B, H, and part of G) were underlain primarily by non-hydric soils which were mapped by NRCS as the Dragston soil series.

The former farm road that accesses the property from Charlton Drive at the southern end of the property is still relatively intact and dominated by herbaceous vegetation (primarily Japanese stiltgrass) with few saplings established in the former road bed.

Conservation Corridor

This property is bordered by residential development to the north and west but also abuts conserved lands to the northwest. This property may help establish a conservation corridor of nearly 800 acres of preserved lands and park properties in the Western Branch area of Chesapeake extending west and south to the Hampton Roads Airport Mitigation Bank (see **Figure**

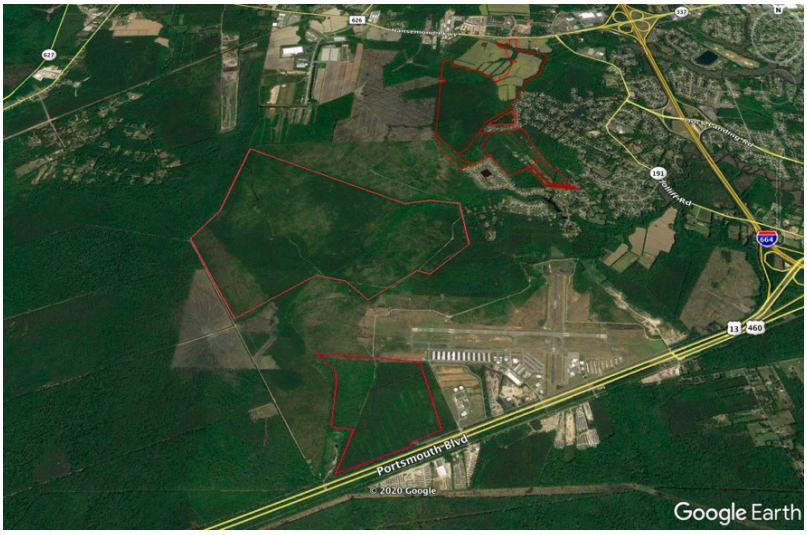

Figure 3 – All or Partially Conserved Properties in the Southern Western Branch Area

3). This corridor would include land associated with the Joliff Lakes residential development (parcels 0220000002040 and 0221004000002) and the recently approved Grove at Western Branch PUD (part of parcel 0150000002400)
and would connect ecologically to the Mortarino tract (parcel 302551045) which is part of the Lewis Farms Mitigation Bank, conserved land around the Hampton Roads Executive Airport (parcel 304358300) and the Hampton Roads Airport Mitigation Bank (parcels 300008175, 300008150, and 300124100).

II Applicability of 2005/2008 Design and 2009 Planting Plans

The 2005 and 2008 design plans are similar although the 2008 plan entails less land grading and ditch fills. The 2005 design plan was especially useful in evaluating the proposed work because of the greater level of detail provided in it, including the extensive notes.

Both the 2005 and 2008 design plans entailed wetland creation (grading), ditch fills, construction of ditch plugs, and stormwater outfall (ditch)regrading. Given the extensive forest regeneration on the former agricultural lands implementing either design plan would entail considerable clearing of young forest in order to conduct the proposed work on the property. Table 2 summarizes the areas of land disturbance estimated for each design. Where the design plans did not provide data on length or areas of clearing, measurements were made using Google Earth Pro © version 7.3.3.7786.

Grading

The proposed wetland creation in the 2005 design plan (plan sheets 12-15) would impact 18.3 acres of young forest including approximately 3-5 acres of forested wetland impacts. The 2009 design would involve grading 5 acres young forest including 1-2 acres of young forested wetlands.

Ditch Fills

Using a 25 ft clearing width for access and operation associated with the proposed ditch fills (plan sheets 20-21) the 2005 design plan would result in clearing 2.36 acres of forest land including approximately 0.4-0.5 acres of wetlands. Using a similar clearing width, the 2009 design would result in clearing of approximately 2.25 acres of forest including approximately 0.4-0.5 acres of wetlands.

Ditch Plugs

The ditch plugs in the 2005 design (plan sheets 15-19) would have a relatively minor fill impact at approximately 0.06 acres. However, access to the proposed ditch plug locations would entail clearing paths estimated at 20 feet wide through young forest. The total land disturbance is estimated at 0.8 acres.

The 2008 design would involve several additional ditch plugs with a total estimated fill of 0.08 acres. The total clearing for construction and access to the ditch plug locations is estimated at 0.88 acres.

Additional work

The 2005 design includes rerouting stormwater along the northeastern portion of the property (plan sheets 9-11). With a 25-foot width for construction of the stormwater improvements this work would result in 0.22 acres of impacts to young forest.

The 2005 design plan also includes a staging area which would be located in field H. The staging area would appear to impact approximately 0.5 acres of young non-wetland forested area.

The 2008 design plan shows a low-profile berm along the northern and eastern portions of the property (along portions of fields F and G). No details have been provided but estimating a 1-foot high berm with 3:1 side slopes and a 25 foot width corridor for construction would result in approximately 1.1 acres of impact including wetlands.

Supplemental plantings like those identified in the 2009 planting plan would only be necessary in those areas that are cleared for the proposed restoration/mitigation work. If the 2005 design was implemented, planting would be appropriate for approximately 21 acres (excluding areas disturbed by ditch plugs and stormwater routing). Most of that would be wetland establishment. If the 2008 design plan was implemented approximately 7 acres of wetland planting would be needed for the wetland establishment and ditch fill areas.

Table 2 Estimated Land Disturbance for 2005 and 2008 Design Plans

Activity	**Area of Disturbance (clearing) (ac)**		**Wetland impacts (clearing & filling)**	
	2005 Design	**2008 Design**	**2005 Design**	**2008 Design**
Grading	18.3	5	3-5	1-2
Ditch fills	2.36	2.25	0.4-0.5	0.4-0.5
Ditch plugs (incl. access clearing)	0.8	0.88	0	0
Stormwater rerouting	0.22	0	0	0
Staging	0.5	0	0	0
Low Profile Berm (incl. clearing)	0	1.1	0	0.4-0.5
Totals	**22.18 ac**	**9.23 ac**	**3.4 – 5.5 ac.**	**1.8 – 3 ac**

III Permit/Authorizations for Mitigation Activities on the Property

Federal and state authorizations may be required for any mitigation project on the property. Authorizations from the City of Chesapeake will also be required.

Federal and State Authorizations and Guidelines

Federal and state authorizations include approval of the proposed mitigation plan by the Corps and DEQ IRT Chairs as well as authorization for the proposed work in waters/wetlands on the property. The proposed work described in the 2005 and 2008 design plans could be authorized under the Corps' Nationwide Permit 27 provided the work resulted in a net ecological benefit. Notification for that permit would require submittal of an approved wetland delineation of the property. The 2008 delineation of the property has expired and wetlands are more extensive since the 2008 delineation when much of the property was still in agricultural production.

Review of the 2009 Norfolk District and Virginia DEQ Mitigation Do's and Don'ts indicates that:

- Mitigation providers should not propose compensation projects that entail extensive clearing/conversion of upland forest areas;
- In general, 80% of wetland credits should be generated by restoration, enhancement, or creation.

These guidelines help define what may be considered acceptable by Norfolk District and Virginia DEQ.

Depending upon the extent of land disturbance, a DEQ stormwater permit may also be needed.

Local Government Authorizations

Rezoning

Local government authorizations include rezoning of the property and then depending upon the extent of land disturbance an Erosion and Sediment Control Plan and a Land Disturbance permit.

The Jacobson property is currently zoned A-1 (Agricultural district). The A-1 zoning allows for agricultural operations and low-density residential development. The City of Chesapeake does not allow mitigation projects (banks, mitigation projects, ILF projects) to be located on lands zoned A-1. Mitigation projects are only allowed in Conservation Districts, that is properties zoned C-1, C-2, or C-3 (John King, Chesapeake Zoning Administrator, pers. Comm.).

The property would have to be rezoned before Site Plan Review and any associated land disturbance permit or Erosion and Sediment Control Plans could be processed by the City. Rezoning is typically a 4-month process involving:

- Submittal of a rezoning application to the City Planning Department. The application materials can be found at https://www.cityofchesapeake.net/government/city-departments/departments/Planning-Department/applications-forms/rezoning.htm
- Attending a mandatory Applicant conference (the month after a complete application is filed) to discuss the proposed rezoning with City Planning, Zoning, and Development and Permits staff
- Public hearing by the City Planning Commission
- Public hearing including review and a decision by City Council

Both the Planner handling mitigation projects (Aaron Bell, pers. Comm.) and the Zoning Administrator thought downzoning the property from A-1 to C-1 should be a relatively smooth process, given the amount of other conserved properties in the vicinity (Joliff Lakes and The Grove at Western Branch PUD).

The cost of rezoning would include preparation and submittal of the rezoning application, a rezoning application fee ($375 + $20/acre of land rezoned), advertising fees for the Planning Commission Public Hearing (typically $200-400), and for the City Council hearing, as well as an orange rezoning sign posted on site ($50).

Site Plan Approval

City Code Section 26.56 indicates that land disturbance activity requires submittal of an Erosion & Sediment Control Plan. City Code Section 26.1 indicates that it is unlawful to obstruct any ditch, watercourse, or drain age until the City approval has been secured.

The City (Mark Curry, Development Engineer) indicated that the requirements for Site Plan Approval depends upon the extent of land disturbance (land clearing). Rezoning would be required before the Site Plan Approval process could be initiated. Site Plan Approval consists of approval of an Erosion and Sediment Control plan and a Land Disturbance Permit.

More than 1 acre of land disturbance would require the following:

- Submittal of a survey, topographic data, and project plans (including the construction entrance) sealed by a Professional Engineer,
- Submittal must be done through the eBuild website at https://www.cityofchesapeake.net/Business-in-Chesapeake/ebuild-chesapeake.htm
- A City approved Erosion and Sediment Control Plan, City Approved Land Disturbance Permit, and a DEQ Stormwater permit (or waiver)

10,000 sq. ft to 1 acre of land disturbance would require:

- Submittal of project drawing (that include the construction entrance), topographic survey (use a local surveyor)
- Submittal must be done through the City's eBuild site
- A City approved Erosion and Sediment Control Plan and Land Disturbance permit

Less than 10,000 sq ft. of land disturbance would require:

- Submittal of drawings similar to the 2005 design plan but including the construction entrance (as well as narrative and locations of any ditch fills or plugs)
- E mail Mark Curry at the City (mcurry@cityofchesapeake.net) with the plan drawings (including narrative and construction entrance) and request confirmation that an Erosion and Sediment Control Plan and Land Disturbance Permit are not required.
- Note: it would facilitate review if topographic data for the project was also provided. City of Chesapeake topographic data may be adequate for a project of this scope. Check with Mark Curry about availability of City Topo data for the property.

More detailed information on site plan requirements and the approval process can be found at:
https://www.cityofchesapeake.net/government/city-departments/departments/Department-of-Development-and-Permits/Development-Engineering-and-Construction/Plan-Review-and-Approval-Process/final_development_site_plans.htm

IV Options for Permitting, Mitigation, and Crediting

Permitting

Any work associated with compensatory mitigation on this property would require rezoning the land from Agricultural (A-1) to Conservation (C-1). Additionally, any work in wetlands/waters associated with the project would likely require authorization under Section 404 CWA or a Virginia Water Protection Permit (VWPP) if Section 404 authorization is not needed. Section 404 authorization would likely take the form of a Nationwide Permit 27.

The proposed land disturbance associated with implementing either the 2005 or 2008 design plans would also require securing City-approved Erosion and Sediment Control Plan and Land Disturbance permits. Separate state stormwater authorization or a waiver may also be required for that work. As noted above, considerable information would be required in order to secure the necessary authorizations from the City of Chesapeake.

The 2005 and 2008 design plans are estimated to result in the fill and clearing of between 1.8 to 5.5 acres of young forested wetlands. Compensatory mitigation may be

required by Norfolk District and/or Virginia DEQ to offset these young forested wetland losses. Compensatory mitigation ratios of as much as 1.5:1 or 2:1 might be required to offset the loss of these young forested wetlands. A portion of the credits generated from the project might be used to offset these permitted losses which would affect the net credit yield from the project.

2020 Conceptual Proposal (Alternative Mitigation Approach)

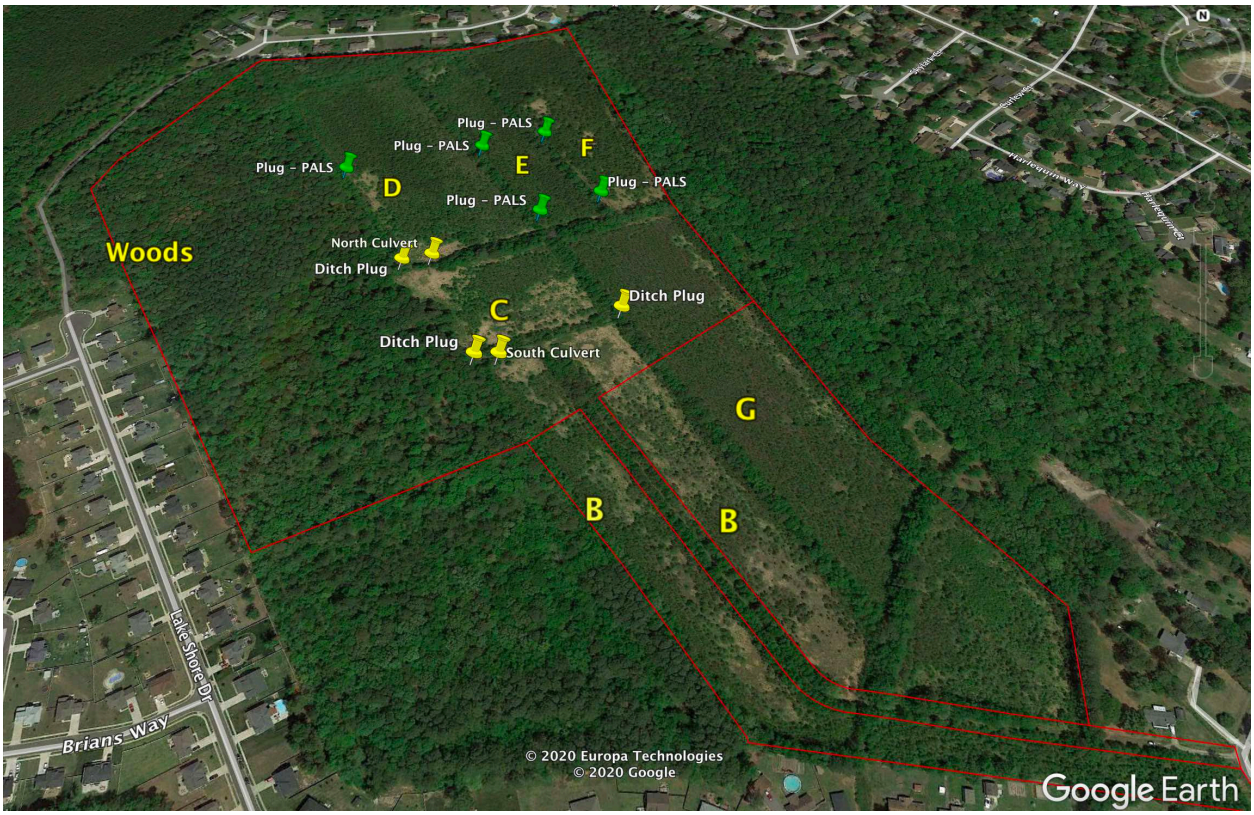

Figure 4 – 2020 Conceptual Proposal

PALS are temporary structures originally developed as beaver dam analogs to mimic conditions found in beaver dominated wetland-stream systems in the western US. These temporary structures are installed in series of 2 or more structures on a drainage and are intended to slow water down and back it up onto the floodplain to help restore wetland hydrology. They may last from 1 to 3 years but while in place will catch leaves and woody debris to create blockages or debris jams that force higher flows out into the floodplain, increasing retention of stormflows and helping to establish or augment wetland hydrologic regimes on portions of the site.

PALS can be made by driving piles (4 by 4 untreated wood piles 10-12 ft long) perpendicularly across a shallow drainage ditch and then weaving/piling saplings and small trees cut from along the existing drainages between the poles. They can be installed with hand tools (chain saws, hydraulic pile drivers, etc.) and do not require the expense or disturbance associated with permanent earthen plugs (**Figure 5**).

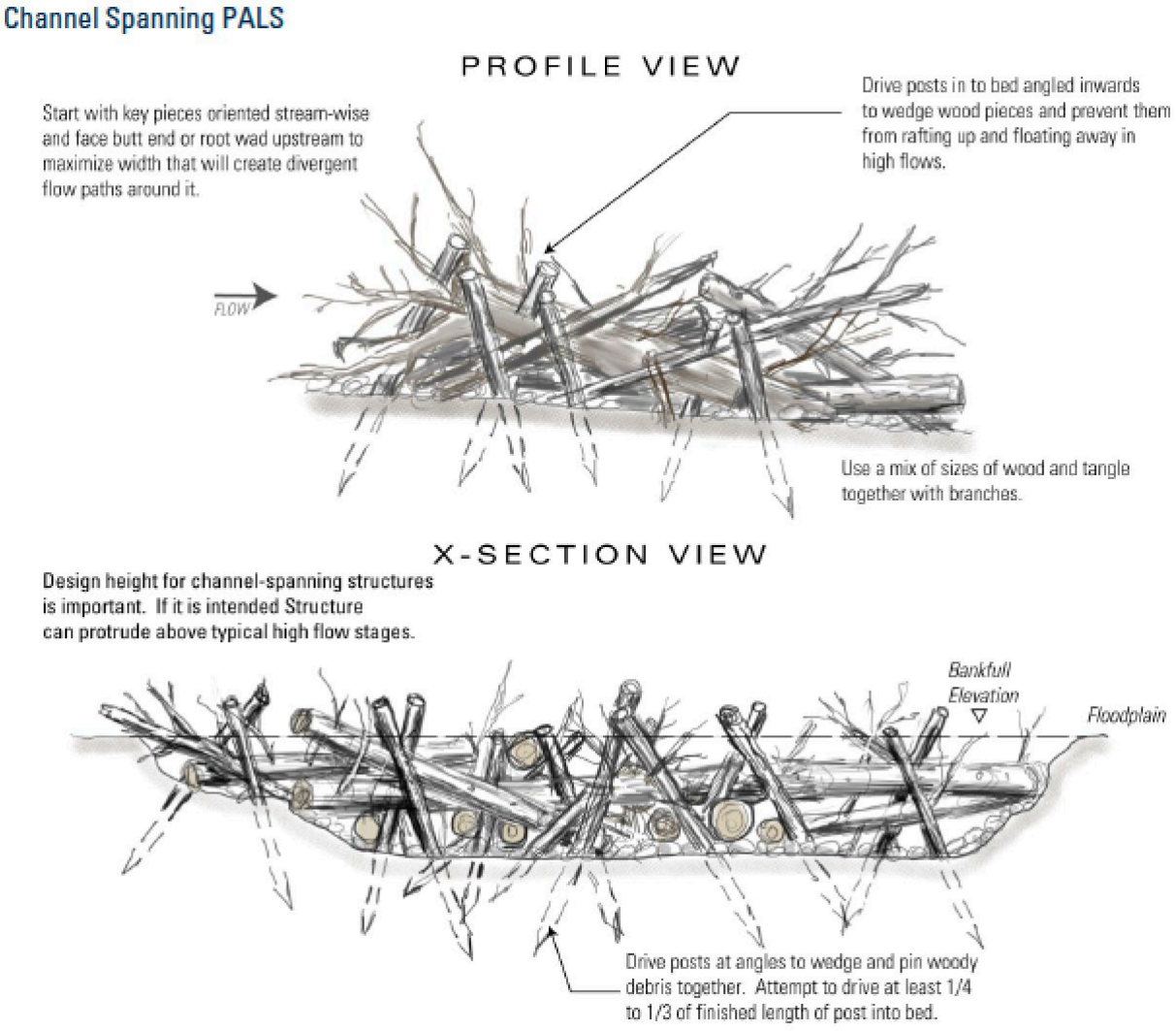

Figure 5 – PALS -from Shahverdian et al. 2019

Although they are not permanent structures, PALS will slow flows in the shallow drainage ditches in the former agricultural lands and continue to impede movement of water through the system even after most of the wooden structures have broken down.

Any gaps in the young forest created by cutting saplings or small trees could be replanted using wetland tree species identified in the 2009 Planting Plan such as laurel oak (*Quercus laurifolia),* swamp chestnut oak, and cherrybark oak.

This conceptual mitigation proposal is projected to impact a total of 0.85 acres of forest land and waters including 0.07 acres for ditch plugs, 0.74 acres for access clearing to the permanent ditch plug locations, and 0.04 acres for PALS. The total impacts to waters are estimated to be 0.11 acres. There are no estimated impacts to wetlands.

This conceptual project would require authorization for work in waters, whether NWP 27 or a VWP Permit, as well as City approved Erosion and Sediment Control Plan and Land Disturbance permit. However, this lighter approach to mitigation construction on the property would not require as much information to be submitted to the City of Chesapeake. A DEQ stormwater plan would likely not be required. Compensatory mitigation is much less likely to be required by the Corps or DEQ to offset impacts to waters on the site.

Table 3 Authorization Requirements for Mitigation Options

Actions	**Design Plans/Proposals**		
	2005	**2008**	**2020**
Rezoning	**Y**	**Y**	**Y**
Erosion & Sediment Control Plan	**Y**	**Y**	**Y**
Land Disturbance Permit	**Y**	**Y**	**Y**
Wetland Delineation	**Y**	**Y**	**Y**
NWP 27 or VWPP	**Y**	**Y**	**Y**
DEQ Stormwater Permit or Waiver	**Y**	**Y**	**N**

Crediting

The mitigation ratios in Exhibit G (Crediting and Debiting Procedures) from the Virginia 2018 Mitigation Bank Instrument Template were used to estimate credit yields for the different mitigation proposals for this project (2005 and 2008 Design Plans and 2020 Conceptual Proposal). Credit generation from wetland enhancement (management of stiltgrass) was estimated at a 5:1 ratio. A 10:1 ratio was used for wetland buffer preservation and a 12:1 ratio was used for upland buffer enhancement.

Implementation of the 2005 design plan could yield up to 32.5+/- wetland credits. Nearly 28 of those credits are from wetland restoration and establishment. A second, more refined credit yield estimate was prepared taking into account the more extensive wetlands and management of Japanese stiltgrass (*Microstegium vimineum*) in the former farm fields that have developed in the former farm fields since 2008. This refined

estimate is a credit yield of 26.6 credits with 19.5+/- credits based on wetland restoration and establishment (**Table 4**).

Implementation of the 2008 design plan could yield up to 33.57 +/- credits with more than 29 credits based on restoration and establishment of wetlands. A more accurate estimate that considers more extensive wetlands currently present as well as management of Japanese stiltgrass is a yield is 26.32+/- credits with 19.23 +/- based on restoration and establishment (**Table 4)**

The 2020 conceptual proposal which considers current wetlands and management of stiltgrass could yield 19.85+/- credits with 12.19+/- credits based on restoration and establishment and 3.2+/- credits based on wetland enhancement (5:1 ratio).

Table 4 compares impacts and crediting yields for each mitigation alternative that entails management of Japanese stiltgrass. **Appendix 3** provides more detailed credit calculations.

Table 4 Impact and Crediting Summary for Mitigation Alternatives

	2005	**2008**	**2020**
Land disturbance	22.18 ac.	9.23 ac.	0.85 ac
Wetland/waters impacts	3.4-5.5 ac.	1.8-3.0 ac.	0.11 ac.*
Total Credit Yield (est.)	26.6	26.32	19.85
- **Wetland restore/establish**	19.4	19.23	12.19
- **Other****	7.2	7.09	7.66
Potential Mitigation needed	5.1 - 11.0	2.7 - 6.0	0.0
Net Credit Yield (Total – Mitigation)	15.6 - 21.5	20.32 - 23.62	19.85

*Impacts to waters (ditch) not wetlands
**Credits from preservation and enhancement of buffers, wetlands, and uplands.

Additional Considerations

Consider discussing with Department of Conservation and Recreation staff responsible for managing state Natural Areas the feasibility of managing/controlling Japanese stiltgrass and attainable levels of control. These attainable levels might be used to establish realistic performance standards for the project site.

Consider discussing with the Corps and DEQ the potential of securing a higher credit ratio (1.25:1 or 1.5:1) for the wetland restoration areas on the project site because of the

advanced state of forest regeneration on the project site. The wetland areas are now young forest stands with well-developed shrub strata. The case could be made that these areas would more readily offset permitted losses to forested wetlands than recently restored/created wetlands on farmland and as such higher credit generation ratios may be appropriate. Higher credit generation ratios have been approved for restoration of hydrology to forested wetlands on a number of mitigation banks most recently for the Chesapeake Mitigation Bank. A higher credit generation ratio might yield an additional 3.6 - 7.2 credits under the 2020 Conceptual approach.

IV Some References

Harms, W. R., W. M. Aust, and J. A. Burger. 1998. Wet Flatwoods. Pp. 421-444 in Southern Forested Wetlands, M. G. Messina and W. H. Conner (eds). CRC Press.

Norfolk District Corps of Engineers and VA Department of Environmental Quality. 2009. Mitigation Do's and Don'ts. https://ribits.ops.usace.army.mil/ords/f?p=107:27:6270929601030::NO::P27_BUTTON_KEY:0

Norfolk District Corps of Engineers and VA Department of Environmental Quality. 2018. MBI Template and Exhibits. https://ribits.ops.usace.army.mil/ords/f?p=107:27:6270929601030::NO::P27_BUTTON_KEY:10

Shahverdian, S., J. Wheaton, S. Bennett, N. Bouwes, R. Camp, C. Jordan, E. Portugal, and N. Weber. 2019. *Chapter 4 – Mimicking and promoting wood accumulation and beaver dam activity with Post-Assisted Log Structures and Beaver Dam Analogues* in J. Wheaton, S. Bennett, N. Bouwes, J. Maestas, and S. Shahverdian (Editors), Low-Tech Process-Based Restoration of Riverscapes Design Manual. Utah State University Restoration Consortium, Logan, UT. 66 pp.

ATTACHMENT I: Delineation Report

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Wetland Delineation Report Site Information Summary

LJ-7 Jacobson,
5000 Charlton Road
Tax Parcels 0150000000010, 0220000002300, 0220000002290
(84.497 Acres),
City of Chesapeake, Virginia

Date
July 5, 2022

Latitude/ Longitude in Decimal Degrees using coordinate plane (NAD 1983)
36.799517 N, -76.449628 W

Has a previous delineation or JD been performed? If so please provide USACE Project Number:

NAO-2006-9005 – VARTF Project site approved
NAO-2008-2794 – Delineation confirmed

Hydrologic Unit Code (HUC)
8-Digit HUC - 02080208

USGS Topographic Sheet
Bowers Hill Quadrangle

Nearest Waterbody (example given)
A non-tidal tributary of Goose Creek lies approximately 550 feet south of the subject property.

The entire property drains through a number of drainage ditches to an intermittent tributary which then discharges into an unnamed tributary of Goose Creek. Goose Creek is a tidal tributary of the Western Branch of the Elizabeth River

Delineation Methods
The U.S. Army Corps of Engineers 1987 Wetland Delineation Manual in conjunction with Atlantic and Gulf Coastal Plain Regional Supplement (Version 2.0, dated November 2010) and the 2020 Atlantic and Gulf Coastal Plain Regional Plant List (accessed through the NWPL web site version 3.5)

On-Site Investigation Date

- Preliminary site investigations were conducted August-September 2020
- Wetland boundary delineation and site data collection was conducted in March and April 2022.

Wetland Delineation Plan
The proposed wetland boundaries and Data Sampling Point locations are depicted on the plan entitled "LJ-7 Jacobson Wetland Delineation" prepared by Alex Fisher, TNC in 2022.

Wetland Investigation Results (Examples given, this is a summary of totals, please also provide a table with each individual water, Cowardin classification, and area shown. See table at end of questionnaire.)

Wetlands: A total of approximately 41.074 acres of non-tidal wetlands were identified within the 84.497 acre parcel during this investigation. Of the total wetland area, approximately 27.07 acres are mature seasonally saturated mixed pine-hardwood palustrine forested (PFO) wetlands, (PFO1/4B) and 14.004 acres are 12-16 year old seasonally saturated/temporarily inundated mixed pine-hardwood palustrine forested wetlands (PFO1/4A/B). Most of those wetlands (39.612 acres) have surface water connections via man-made ditches draining south to an unnamed tributary of Goose Creek approximately 550 feet south of the property. Goose Creek is a tidal tributary of the Western Branch of the Elizabeth River, a tributary of the Lower James River.

The remaining 1.462 acres of wetlands (wetlands numbered 1, 3, 4, 5, and 6) on the plan entitled "LJ-7 Jacobson Wetland Delineation" do not have any visible surficial connection to tributary waters.

Stream Channels: Approximately 719 linear feet of the subject parcel is classified as a stream channel with a bed and bank and the presence of an ordinary high water mark. This stream channel is identified as water # 1 on the drawing entitled "LJ-7 Jacobson Wetland Delineation". This stream would be classified as riverine perennial with an unconsolidated bottom (R3UB) under the Cowardin Classification

Other Waters: There are approximately 7,189 linear feet of intermittently flowing drainage ditches on the property associated with former agricultural activities on the property. Additionally, there is another 1,147 linear feet of intermittently flowing ditch on the property boundaries. All of these ditches would be classified under the Cowardin classification as R4UB. https://square.link/u/HfgLdneU

Water bodies onsite identified as Section 10: There are no Section 10 waters onsite.

Uplands: Approximately 43.423 acres of the subject parcel would currently be classified as non-wetlands or uplands. Most of these non-wetland areas are underlain by hydric soils but lack evidence of wetland hydrology and/or hydrophytic vegetation. These areas are characterized by nine of the data forms (DP B-2, DP 11, DP C-2, DP D-2, DP E-2, DP-7, DP G-1, DP-12, and DP-1 Woods) in Appendix B. Representative site photos are provided in Appendix D.

100-Year Floodplains
As depicted on the Federal Emergency Management Agency's (FEMA) on-line Flood Insurance Rate Map # FRM 510034-20151009, effective date October 9, 2015, the subject property is located well outside the100-year floodplain and flood risk is characterized as very low.

National Wetlands Inventory
The on-line National Wetland Inventory (Figure 3, Appendix C) incorrectly identifies no wetlands within the subject property.

USDA Soil Survey
The on-line USDA Natural Resource Conservation Service Soil Survey (Figure 2, Appendix C) identifies poorly drained hydric soils (Tomotley-Deloss and Deloss-Tomotley-Nimmo sandy loams on most of the project site. The southern portion of the subject property (approximately 20% of the site) is mapped as underlain by Dragston fine sandy loa, a non-hydric soil series.

Notes:
Approximately 60 acres of the site was formerly farmed. Review of aerial imagery suggests that cultivation had ceased by 2007-2008. The entirety of the project site is under normal circumstances.

It should be noted that the site has been extensively ditches but that a number of the field ditches are not completely effective at draining the former farm fields.

Most of the former farm fields are young (12-16 year old) forests dominated by sweet gum (*Liquidambar styraciflua)* and/or loblolly pine (*Pinus* taeda).

Norfolk District Regulatory has monitored hydrology on the mature wooded portion of the property for more than 10 years.

Most of the delineation work on this property was conducted during March and April 2022.

The wetlands and waters referenced in the following table are identified on the attached drawing entitled “LJ-7 Jacobson Wetland Delineation”.

Wetland/Water	Designation	Latitude	Longitude	Cowardin Class	Area (Acres)	Class of aquatic resource
Wetland	1	36.798939	-76.449372	PFO1A/B	0.38	Non-tidal
Wetland	2	36.797947	-76.447711	PFO1A/B	0.5	Non-tidal
Wetland	3	36.79785	- 76.447453	PFO1A/B	0.14	Non-tidal
Wetland	4	36.797508	-76.446625	PFO1A/B	0.32	Non-tidal
Wetland	5	36.798894	-76.44785	PFO1A/B	0.11	Non-tidal
Wetland	6	36.799314	-76.448128	PFO1A/B	0.49	Non-tidal
Wetland	7	36.799686	-76.44835	PFO1A/B	0.12	Non-tidal
Wetland	8	36.799492	-76.449047	PFO1A/B	0.004	Non-tidal
Wetland	9	36.796531	- 76.446769	PFO1B	0.02	Non-tidal
Wetland	10	36.799806	- 76.451992	PFO1/4A/B	27.07	Non-tidal
Wetland	11	36.800097	- 76.449136	PFO1/4A/B	11.92	Non-tidal
					Length (LF)	
Water	1	36.796036	-76.446269	R3UB	719	Non-tidal
Water	2	36.800636	-76.451461	R4UB	1773	Non-tidal
Water	3	36.801725	-76.451425	R4UB	747	Non-tidal
Water	4	36.800889	-76.450083	R4UB	762	Non-tidal
Water	5	36.801775	-76.449792	R4UB	979	Non-tidal
Water	6	36.79795	-76.447817	R4UB	1531	Non-tidal
Water	7	36.799725	-76.44855	R4UB	392	Non-tidal
Water	8	36.798492	-76.4488	R4UB	481	Non-tidal
Water	9	36.796111	-76.447978	R4UB	1147	Non-tidal
Water	10	36.799417	-76.449681	R4UB	524	Non-tidal

Executive Summary

A wetland delineation of the 84.497 acre property identified as the LJ-7 Jacobson Tract was conducted in the spring of 2022 utilizing currently accepted procedures. To summarize the findings:

- Approximately 27.07 acres of palustrine forested wetlands were identified in the undeveloped woodlands located in the northwestern portion of the project area.

- Approximately 3.93 acres of non-wetland areas were located along the drainage ditch on the east side of the undeveloped forested land. The material associated with ditch excavation was sidecast to the west, alongside the mature wooded area.

- Approximately 14.04 acres of young, forested wetlands were identified in the former agricultural fields (fields B, C, D, E, F, and G) on this property.

- While there are more wetlands onsite than when the property was delineated in 2008, wetland restoration and enhancement on the property remains feasible.

- A drainage feature 719 linear feet in length (drainage #1) located within the southeastern portion of the project area and a drainage feature 1147 linear feet in length (drainage #9) located in the western portion of the project area may be determined to be WOUS. These drainage features appear to have a hydrologic connection to an open water and palustrine forested wetland system located off site to the south.

- There are several former agricultural ditches transecting the former farm fields within the project area. These ditches are often continuous with adjoining wetland areas and often serve as tributaries to other drainages.

- GIS calculations estimated approximately 41.074 acres of palustrine forested wetlands and approximately 9,055 linear feet of waters (719 lf of perennial stream and 8,336 lf of drainage ditches) on site.

Introduction

This wetland delineation report prepared for The Nature Conservancy covers the approximately 84.5 acre property identified as LJ-7 Jacobson. This Virginia Aquatic Resource Trust Fund compensatory mitigation site is located at 5000 Charlton Drive in Chesapeake, Virginia (Tax Parcels 0150000000010, 0220000002300, 0220000002290). This project site is bounded to the north by residential development (Joliff Woods, Phase IV) and woodland; to the east by woodland; to the south by residential development, and to the west by residential development (Willow Lakes) and woodland**. Figure 1** depicts the 3 parcels that make up the property and its location.

Figure 1 – Location of LJ-7 Jacobson Parcels in Western Branch, Chesapeake, Virginia

Methods

Off-site Assessment

Prior to conducting a delineation on the property, the contractor (Steve Martin) performed an off-site assessment of the project area. This assessment entailed review of available digital data including 15 years of aerial imagery (1990 to 2021 from the City of Chesapeake GIS Department and Google Earth), City of Chesapeake Real Estate data, USGS topographic mapping, NRCS online soil survey, USFWS National Wetland Inventory Mapping (NWI 2022). The 2008 wetland delineation prepared by Kerr Environmental Services and confirmed by the Corps on 9/28/2008 (NAO-2008-2794) and the 2020 preliminary mitigation assessment prepared for TNC by Mr. Martin were also reviewed.

Wetland Delineation

Steve Martin (contractor) conducted a delineation of wetlands and other waters on the property during March and April 2022. The delineation was completed according to the procedures laid out in the Atlantic and Gulf Coastal Plain Regional Supplement (ERDC 2010) to the Corps of Engineers 1987 Wetland Delineation Manual and using the 2020 Wetland Plant List for the Atlantic and Gulf Coastal Plain Region (ERDC 2020). The delineation consisted of the following: 1) flagging and numbering the flags used to identify the limits of wetlands and other waters (primarily ditches) on the project site; 2) collecting sufficient data (field indicators of hydric soil, wetland hydrology, and hydrophytic vegetation data) to complete Atlantic and Gulf Coastal Plain Routine Data forms for each of the former farm fields on the property as well as the mature forested wetlands (located on the western portion of the property); 3) working with Alex Fisher (TNC Wetland Restoration Specialist) to prepare a delineation exhibit (Appendix **A**).

Data forms were prepared for both wetlands and non-wetlands in each of the former farm fields and the mature woodlands (Appendix B). Several data forms (DP-7, DP-8, DP-11, and DP-12) were prepared in 2020 as part of the evaluation of the feasibility of this site as compensatory mitigation.

Findings

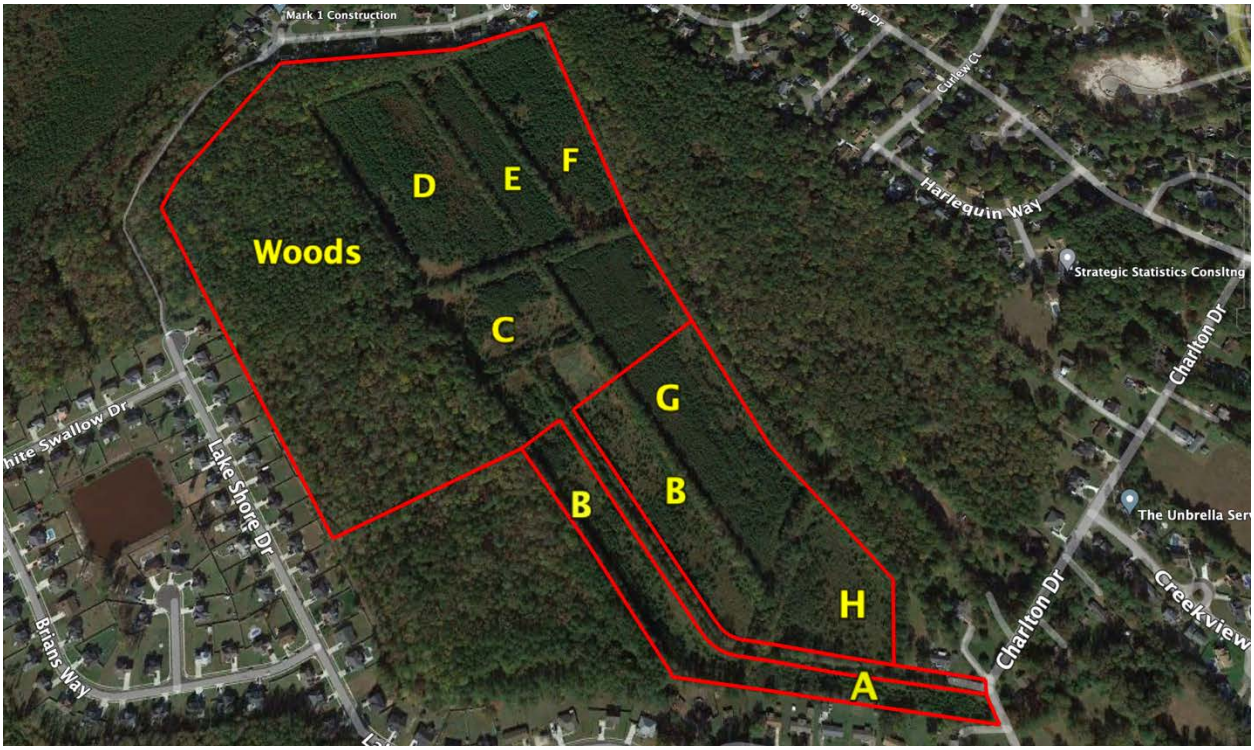
Off-site Assessment

Review of aerial photography indicated that agricultural operations had ceased on site by 2007 and that by 2021 the former farm fields (identified as fields A-H in Figure 2) had grown into young, forested stands. The western and northwestern portions of the property were intact undeveloped woodlands in each of the aerial photographs examined.

Review of USGS topographic quadrangle mapping (Appendix C - Figure 1) for the project area depicts a perennial feature that crosses the southeastern portion of the project area and

empties into a tributary of Goose Creek located the south of the project area. The general elevation of the project area is approximately 18-20 feet above mean sea level.

Figure 2 – Field Unit Designations LJ-7 Jacobson Property



The NRCS soils mapping (Appendix C- Figure 2) for the project area depicts the Deloss-Tomotley-Nimmo complex with 0-1% slopes, a hydric soil complex located throughout the western, northwestern, central and southeastern portions of the project area. The hydric soil mapping unit identified as Tomotley-Deloss complex with 0-1% slopes was observed throughout the northeastern portion of the site. Dragston fine sandy loam with 0-2% slopes, a non-hydric soil series was depicted in the southern portion of the project area.

USFWS NWI mapping (Appendix C - Figure 3) for the project area shows no mapped wetland areas on the property. NWI mapping does depict palustrine forested wetlands on adjoining properties including:

- Palustrine forested, needle-leaved evergreen, saturated (PFO4B) and palustrine forested, broad-leaved deciduous, saturated (PFO1B) wetland systems located adjacent to the eastern boundary of the project area.

- Palustrine forested, broad-leaved deciduous, seasonally flooded/saturated, partially drained/ditched (PFO1Ed), palustrine forested, broad-leaved deciduous, saturated, partially drained/ditched (PFO1Bd) and palustrine forested, needle-leaved evergreen,

saturated, partially drained/ditched (PFO4Bd) wetland systems adjacent to the northwestern boundary of the project area.

Property Description and Current Condition

From a landscape perspective, this property is best characterized as part of a broad mineral flat, that is a headwater area where the primary hydrologic input is precipitation and prior to hydrologic modifications (ditching) associated with agricultural production the primary hydrologic outputs were evaporation and transpiration (see Harms et. al. 1998). This property drains to Goose Creek, a tributary of the Western Branch of the Elizabeth River. The properties immediately north of this property drain north and east toward Bailey Creek, another tributary of the Western Branch of the Elizabeth River.

Forested land

The mature forest on this property is at least 60-80 years old and located in the western and northwestern portions of the property. The dominant vegetation in this wooded area includes loblolly pine (*Pinus taeda*), sweet gum (*Liquidambar styraciflua)*, red maple (*Acer rubru*m), swamp chestnut oak (*Quercus michauxii*), water oak (*Quercus nigra*), willow oak (*Quercus phellos*), sweetbay magnolia (*Magnolia virginiana*), horse sugar (*Symplocos tinctoria*), pepper-bush (*Clethra alnifolia*), highbush blueberry (*Vaccinium corymbosum*), giant cane (*Arundinaria gigantea*), cinnamon fern (*Osmunda cinnamomea*), netted chain fern (*Woodwardia areolata*), spangle grass (*Chasmanthium laxum*), and common greenbrier (*Smilax rotundifolia*). Soil profiles observed in the mature forest resembles NRCS' mapped Deloss-Tomotley-Nimmo complex. Samples in the wooded area exhibited one or more hydric soil field indicators.

With TNC's permission, Norfolk District Army Corps of Engineers Regulatory Branch has collected hydrologic data from shallow groundwater wells in the wooded portion of this property since 2010 as part of its ongoing monitoring of mineral flat forested wetlands in the Virginia coastal plain. The district's hydrologic data from 2020 suggested that wooded areas on site within 40 feet of the primary drainage ditch on this property did not meet the technical standard for wetland hydrology (water at or within 12" of the surface for more than 14 consecutive days during the growing season in years with typical precipitation). The 2022 field review confirmed that much of the wooded area within approximately 40 feet of the ditch did not have sufficient field indicators to conclude that wetland hydrology was present. Areas 50 feet or more from the ditch typically had 1 or more indicators of wetland hydrology including primary indicators of wetland hydrology like soil saturation within 12" of the surface or blackened leaves and secondary indicators such as a positive FAC Neutral test.

Former Agricultural Land

Aerial images suggests that the former agricultural lands on this property were cropped as recently as 2007-2008. In 2008 a confirmed wetland delineation (NAO-2008-2794) reported approximately 5.5 acres of farmed wetlands in the northwestern corner and 1.2 acres of farmed

wetlands in the northeastern corners of the agricultural lands. The remaining 46+/- acres of agricultural fields were considered non-wetlands. The northern two thirds of the agricultural lands were underlain by hydric soils mapped as the Deloss-Tomotley-Nimmo complex. The southern third was mapped by NRCS as underlain by the non-hydric Dragston series soil.

Since cessation of farming on the property a young forest has developed on the former agricultural lands. The trees are relatively young and small (3-8" dbh). The tree and sapling strata are dominated by loblolly pine and sweet gum. Common non-dominants include persimmon (*Diospyros virginiana*) and water oak (*Quercus nigra*) The dominant herbaceous species in most wetlands and non-wetland plots is Japanese stiltgrass (*Microstegium vimineum*). In the wetland areas dominants in the herb stratum also include trumpet creeper (*Campsis radicans*), soft rush (*Juncus effusus*), Canadian clearweed (*Pilea pumila*), and dotted smartweed (*Persicaria punctata*).

The former farm road that accesses the property from Charlton Drive at the southern end of the property is relatively passible and dominated by herbaceous vegetation (primarily Japanese stiltgrass) with a few saplings established in the former roadbed.

Wetland Delineation Summary

It is not surprising that the delineation conducted in the spring of 2022 revealed that wetlands were somewhat more extensive than noted during the feasibility evaluation conducted in the summer of 2020. As previously noted, the wetlands on this property are located in a headwater landscape position on mineral flats. The primary hydrologic input for these wetlands is precipitation and the primary hydrologic outputs are evapotranspiration (ET). Because of the driving influence of precipitation and especially ET on the hydrologic regime of mineral flat wetlands, they are often characterized as problematic wetlands to delineate. Chapter 5 of the Atlantic and Gulf Coastal Plain Regional Supplement (ERDC 2010) is often used to identify and delineate these wetlands in the summer and fall when ET losses are at a maximum. Spring field work means examining the site before evapotranspiration losses are at their peak due to leaf out and warm air temperatures. Re-examination of the site over the course of 2 months helped identify those areas that continued to show wetland hydrology indicators between precipitation events. Thus, spring field work helped ensure the most accurate identification of areas meeting wetland criteria.

Mature Forest

A confirmed wetland delineation (NAO-2008-2794) in 2008 found that 25.5 acres of the mature forested stand was palustrine forested wetland. The 2022 field review which included preparation of routine Atlantic and Gulf Coast Regional Supplement wetland delineation forms (Appendix B) and consideration of Norfolk District hydrology data found slightly more palustrine forested wetlands (27.07 acres) in this area. Soils profiles observed in these areas most resembled the Deloss-Tomotley-Nimmo complex with 0-1% slopes and exhibited one or more USACE hydric soil indicators. USACE wetland hydrology indicators including saturation in the

upper 12 inches and the FAC Neutral test were observed in these areas during wetland delineation site visits.

Approximately 3.93 acres of the wooded area would not be considered wetland and are likely effectively drained by the adjoining drainage ditch. Appendix D provides current images of the property.

Former Agricultural Land

Each of the former agricultural fields were examined and at least 1 routine Atlantic and Gulf Coast Regional Supplement wetland delineation form was completed for each field. Appendix A identifies the location of wetland and non-wetland datapoints. Appendix B depicts the former fields labeled from "A" to "H" and includes the routine data forms for these fields. Appendix D provides representative images of the site. Taken together, the former farm fields include 14.04 acres of wetlands. Soils profiles observed in these areas most resembled the Deloss-Tomotley-Nimmo complex with 0-1% slopes and exhibited one or more hydric soil indicators. Wetland hydrology indicators observed included saturation in the upper 12 inches, surface ponding, and frequently, the FAC Neutral test. This is 7.3 acres more wetlands than were identified in the 2008 wetland delineation of the farm fields.

Wetlands were somewhat more extensive in fields E, F, and G than when examined during the summer of 2020. Previously undocumented wetlands were also identified in fields B and C.

The southern fields (A, H, and parts of B and G) were non-wetland areas underlain primarily by non-hydric soils which were mapped by NRCS as the Dragston soil series.

Other Waters

Approximately 719 linear feet of perennial drainage was identified as the drainage feature located in the southeastern portion of the project area (Drainage #1 in Appendix A). This feature drains northeast to southwest, exhibits an ordinary highwater mark and a hydrologic connection to an open water feature and palustrine forested wetland system located southwest of the project area.

Approximately 1147 linear feet of waters were identified in the western portion of the project area. This feature (Drainage #2 in Appendix A) drains from west to east, exhibits an ordinary highwater mark and a hydrologic connection to the palustrine forested wetlands located in the western portion of the project area.

Former agricultural drainage ditches are located adjacent to former farm fields throughout the project area (Drainages #3-9) and were used for the purpose of drainage for the adjacent agricultural fields. In the northern fields (Fields D, E, and F) these ditches (Drainages #4 and #5) end before emptying into other waters and clearly have hydrologic connection to existing wetland in these fields.

Most of the wetlands in the other former farm fields (Fields B, C, and G) are not connected by surface waters to these former agricultural ditches.

Suggested Approach to Wetland Restoration and Enhancement

This delineation should influence the design of wetland restoration and enhancement measures on this property. The presence of a number of small wetlands in fields B, C, and G speaks to the likelihood of restoring wetlands in these fields. These wetlands may wind up acting as shallow depressional areas that may support spawning of amphibians.

Some aspects of the conceptual plan could remain unchanged. The following measures still seem warranted:

- Installation of an earthen ditch plug at the intersections of Drainages #2 and #8 (between fields B, C, and the mature woods)
- Installation of an earthen ditch plug at the intersections of Drainages #2 and #10 (between fields C, D and the mature woods)
- Installation of 3 Pole-Assisted Log Structures (Shahverdian et al 2019) on Drainages #4 and #5 (between fields D and E and fields E and F)
- Installation of 2 Pole-Assisted Log Structures (PALS) on Drainage #2 between Drainages #3 and #10 (between field D and the mature woods)

The soil associated with excavation of Drainage #2 was sidecast to the west and along the edge of the mature wooded area. Because of that, the ditch bank of Drainage #2 along the wooded area is usually much higher than along field D. Because of the higher elevation of the ditch bank on the west side of the ditch it may be difficult to restore wetland hydrology to the effectively drained mature wooded area.

Some additional measures could facilitate additional wetland restoration and enhancement in fields B, C, and G:

- Installation of an earthen ditch plug at the intersections of Drainages #6 and #8. This would help restore and enhance wetland hydrology in fields B, C, and G.
- 2 PALS could be installed on Drainage #7 (between fields G and E/F). This would facilitate restoration and enhancement of wetland hydrology to the northern end of field G.
- 2 PALS could be installed on Drainage #6 between the junctions with Drainages #8 and #10. This would facilitate restoring wetland hydrology to portions of fields C and G
- 2 PALS could be installed on Drainage #6 between the junctions with Drainages #1 and #8. This would help restore wetland hydrology to portions of fields B and G

The small openings created by harvesting saplings to construct PALS could be planted in hard and soft mast tree and shrub species such as cherrybark oak (*Quercus pagoda)*, swamp

chestnut oak (*Q. michauxii)*, willow oak (*Q. phellos)*, black gum (*Nyssa sylvatica),* chokecherry (*Aronia arbutifolia),* serviceberry (*Amelanchier arborea),* and winterberry (*Ilex verticilatta)*.

References

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Appendix A – Delineation Map

LJ-7 Jacobson Wetland Delineation

N

LJ-7 Jacobson Wetland Design/Build RFP

0 250 500 1,000 Feet

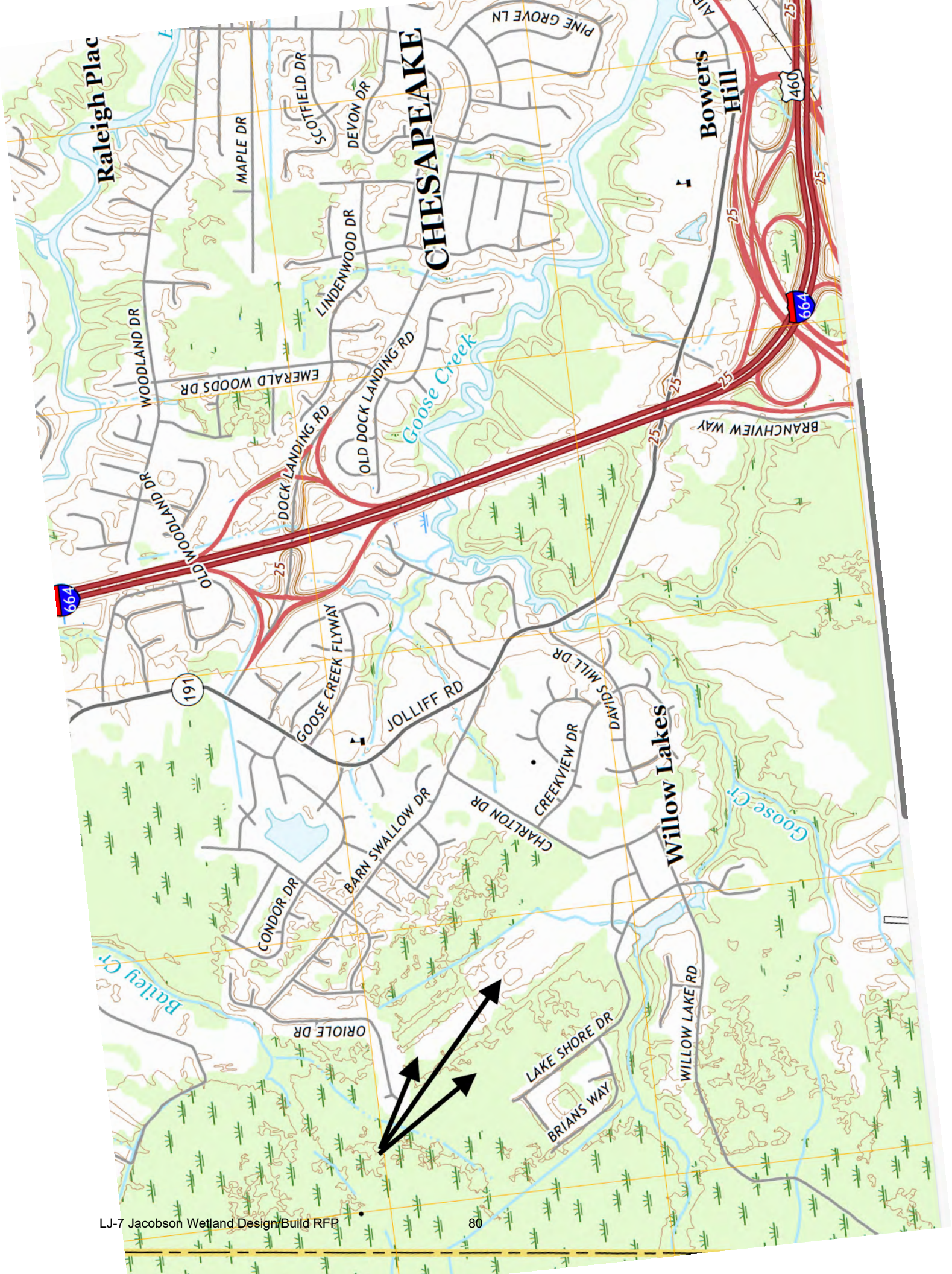
77

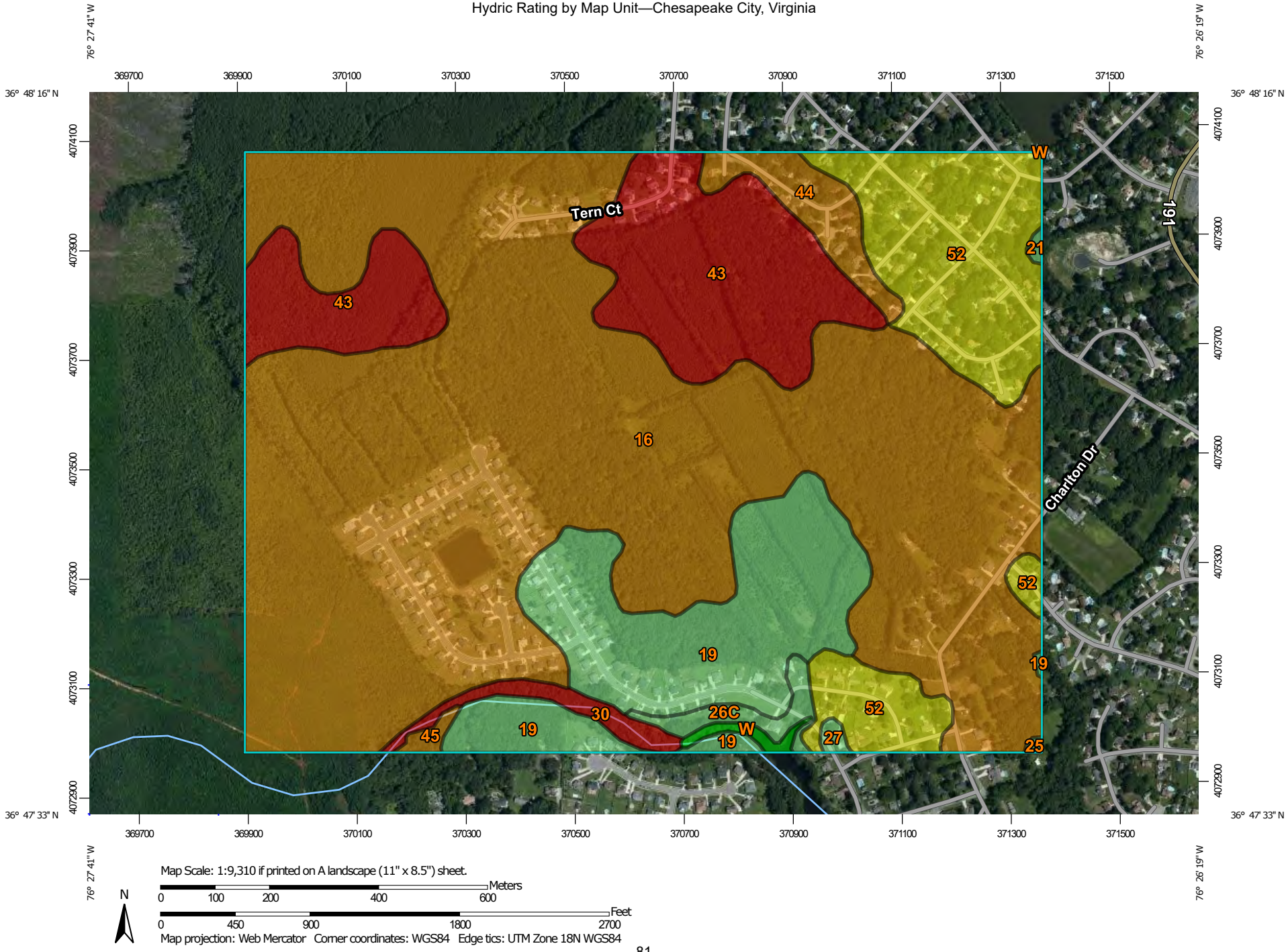
Produced by TNC-VA (A. Fisher) 2022

Data Sources: TNC, VGIN

Wetland/Water	Designation	Latitude	Longitude	Cowardin Class	Area (Acres)	Class of aquatic resource
Wetland	1	36.798939	-76.449372	PFO1A/B	0.38	Non-tidal
Wetland	2	36.797947	-76.447711	PFO1A/B	0.5	Non-tidal
Wetland	3	36.79785	- 76.447453	PFO1A/B	0.14	Non-tidal
Wetland	4	36.797508	-76.446625	PFO1A/B	0.32	Non-tidal
Wetland	5	36.798894	-76.44785	PFO1A/B	0.11	Non-tidal
Wetland	6	36.799314	-76.448128	PFO1A/B	0.49	Non-tidal
Wetland	7	36.799686	-76.44835	PFO1A/B	0.12	Non-tidal
Wetland	8	36.799492	-76.449047	PFO1A/B	0.004	Non-tidal
Wetland	9	36.796531	- 76.446769	PFO1B	0.02	Non-tidal
Wetland	10	36.799806	- 76.451992	PFO1/4A/B	27.07	Non-tidal
Wetland	11	36.800097	- 76.449136	PFO1/4A/B	11.92	Non-tidal
					Length (LF)	
Water	1	36.796036	-76.446269	R3UB	719	Non-tidal
Water	2	36.800636	-76.451461	R4UB	1773	Non-tidal
Water	3	36.801725	-76.451425	R4UB	747	Non-tidal
Water	4	36.800889	-76.450083	R4UB	762	Non-tidal
Water	5	36.801775	-76.449792	R4UB	979	Non-tidal
Water	6	36.79795	-76.447817	R4UB	1531	Non-tidal
Water	7	36.799725	-76.44855	R4UB	392	Non-tidal
Water	8	36.798492	-76.4488	R4UB	481	Non-tidal
Water	9	36.796111	-76.447978	R4UB	1147	Non-tidal
Water	10	36.799417	-76.449681	R4UB	524	Non-tidal

Appendix C – Off-Site Information


CHESAPEAKE
Raleigh Plac
Bowers Hill
Willow Lakes
Goose Creek
Bailey Cr
Goose Cr
PINE GROVE LN
MAPLE DR
SCOTFIELD DR
DEVON DR
LINDENWOOD DR
WOODLAND DR
EMERALD WOODS DR
DOCK LANDING RD
OLD DOCK LANDING RD
OLD WOODLAND DR
BRANCHVIEW WAY
GOOSE CREEK FLYWAY
JOLLIFF RD
MILL DR
DAVIDS
CREEKVIEW DR
CHARLTON DR
BARN SWALLOW DR
CONDOR DR
ORIOLE DR
LAKE SHORE DR
BRIANS WAY
WILLOW LAKE RD
664
460
25
191


76° 27' 41" W
76° 26' 19" W
36° 48' 16" N
36° 47' 33" N
369700
369900
370100
370300
370500
370700
370900
371100
371300
371500
4074100
4073900
4073700
4073500
4073300
4073100
4072900
Tern Ct
Charlton Dr
191
W
44
43
43
52
21
16
52
19
19
30
26C
W
19
45
19
52
27
25
Map Scale: 1:9,310 if printed on A landscape (11" x 8.5") sheet.
N
Meters
0 100 200 400 600
Feet
0 450 900 1800 2700
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 Rating Polygons

Hydric (100%)
Hydric (66 to 99%)
Hydric (33 to 65%)
Hydric (1 to 32%)
Not Hydric (0%)
Not rated or not available

Soil Rating Lines

Hydric (100%)
Hydric (66 to 99%)
Hydric (33 to 65%)
Hydric (1 to 32%)
Not Hydric (0%)
Not rated or not available

Soil Rating Points

Hydric (100%)
Hydric (66 to 99%)
Hydric (33 to 65%)
Hydric (1 to 32%)
Not Hydric (0%)
Not rated or not available

Water Features

Streams and Canals

Transportation

Rails
Interstate Highways
US Routes
Major Roads
Local Roads

Background

Aerial Photography

MAP INFORMATION

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

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: Chesapeake City, Virginia
Survey Area Data: Version 16, Sep 17, 2021

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

Date(s) aerial images were photographed: Jul 1, 2018—Aug 1, 2018

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.

Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
16	Deloss-Tomotley-Nimmo complex, 0 to 1 percent slopes	91	239.4	60.1%
19	Dragston fine sandy loam, 0 to 2 percent slopes	8	47.1	11.8%
21	Dragston-Urban land complex, 0 to 2 percent slopes	5	0.3	0.1%
25	Munden fine sandy loam, 0 to 2 percent slopes	2	0.2	0.0%
26C	Munden loamy fine sand, 2 to 8 percent slopes	2	3.8	0.9%
27	Munden-Urban land complex, 0 to 2 percent slopes	2	0.6	0.2%
30	Nawney silt loam, 0 to 1 percent slopes, frequently flooded	100	4.3	1.1%
43	Tomotley-Deloss complex, 0 to 1 percent slopes	100	50.6	12.7%
44	Tomotley-Deloss-Urban land complex, 0 to 1 percent slopes	77	8.4	2.1%
45	Tomotley-Nimmo complex, 0 to 1 percent slopes	98	1.0	0.3%
52	Urban land-Deloss-Tomotley-Nimmo complex, 0 to 1 percent slopes	65	41.2	10.3%
W	Water	0	1.2	0.3%
Totals for Area of Interest			**398.2**	**100.0%**

Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

References:

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Rating Options

Aggregation Method: Percent Present

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Percent Present" returns the cumulative percent composition of all components of a map unit for which a certain condition is true. For example, attribute "Hydric Rating by Map Unit" returns the cumulative percent composition of all components of a map unit where the corresponding hydric rating is "Yes". Conditions may be simple or complex. At runtime, the user may be able to specify all, some or none of the conditions in question.

Component Percent Cutoff: None Specified

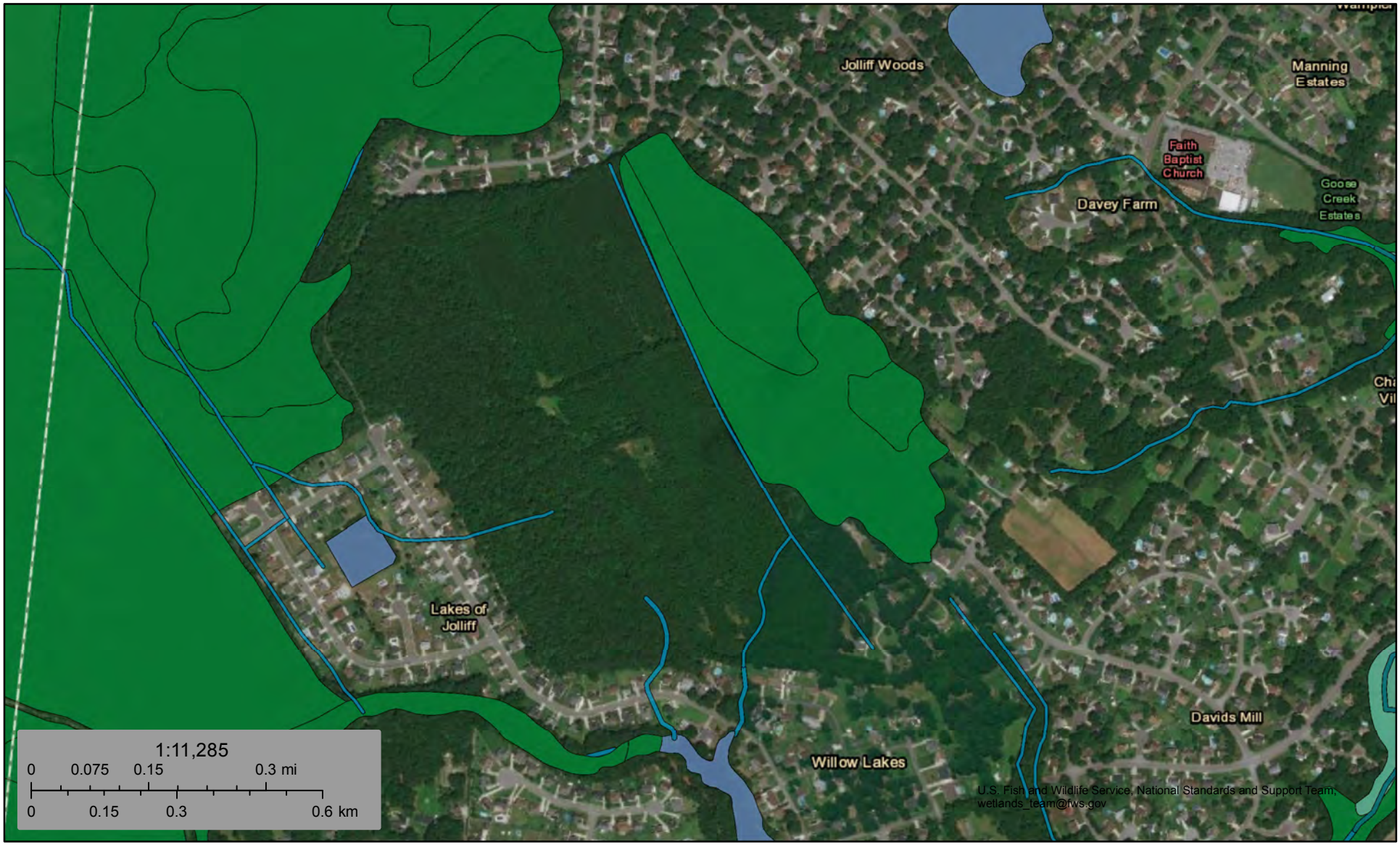
Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

Tie-break Rule: Lower

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

U.S. Fish and Wildlife Service
National Wetlands Inventory

Jacobson NWI



May 11, 2022

Wetlands

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

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

Appendix D - Images

PFO1A Wetland,
Field B
Data Point B-1
4/8/22

Non- Wetland, Field B

Data Point B-2
4/8/22

PFO1 A/B Wetland, Field C
Data Point C-1
3/14/22

Non-wetland, Field C
Data point C-2
3/14/22

PF01 A/B Wetland, Field D
Data point D-1
3/14/22

Non-wetland, Field D
Data point D-2
3/14/22

PFO1/4B Wetlands, Field D
Data point D-3
3/14/22

Non-wetland, Field E
Datapoint E-2
3/22/22

PFO4B wetlands, Field E
Southwest end
3/22/22

PFO1/4 A/B wetlands, Field F
Data point F-1
3/18/22

Non-Wetlands, Field G
Data point G-1
3/22/22

PFO1A/B wetlands, Field G
Data point G-2
3/22/22

PFO1 A/B Wetland #3, Field G
3/28/22

Non-Wetland, Woods
Data point 1
4/13/22

PFO1/4B wetland, Woods
Data point 2
4/13/22

PFO1/4B Wetland, Woods
Data point 3
4/13/22

Appendix E – Boundary Survey

BOUNDARY SURVEY

OF PROPERTY STANDING IN THE NAME OF

THE NATURE CONSERVANCY

BEING

84.457 ACRES ON STATE ROUTE 685

LOCATED: WESTERN BRANCH BOROUGH,
CITY OF CHESAPEAKE, VIRGINIA

DATE: SEPTEMBER 8, 2008 SCALE: 1" = 200'

KEVIN C. JENNINGS & ASSOCIATES
SURVEYING & MAPPING
P.O. BOX 212
MATTAPONI, VIRGINIA 23110
(804) 785-9411

JOLLIFF WOODS
SEC. 3-D

48 DEBRA D. KERZEL
DEED BOOK 3211, PARCEL 208
TAX PARCEL 0153002000480

SEC. 4-B

73 HAROLD E. & LAURA A. DELP
DEED BOOK 4059, PARCEL 344
TAX PARCEL 0153003000730

74 JAMES R. & DEBORAH P. THIBEAULT
DEED BOOK 3937, PARCEL 222
TAX PARCEL 0153003000740

75 ELEGEAR & SHARON PRIMUS
DEED BOOK 4592, PARCEL 314
TAX PARCEL 0153003000750

"B" CITY OF CHESAPEAKE
TAX PARCEL 0153003000001

76 JEFFREY T. & MARIE T. WHITEMAN
DEED BOOK 4501, PARCEL 231
TAX PARCEL 0153003000760

77 GREGORY F. & LAURA MERRITT
DEED BOOK 3996, PARCEL 470
TAX PARCEL 0153003000770

78 DAVID J. & ELIZABETH H. GARDNER
DEED BOOK 4130, PARCEL 842
TAX PARCEL 0153003000780

79 DENNIS S. & LORI-ANN D. ENCKE
DEED BOOK 4023, PARCEL 677
TAX PARCEL 0153003000790

MAP BOOK 43, PG. 69

JOLLIFF WOODS
SEC. 4-B

73 SEC. 4-B | 74 SEC. 4-B | 75 SEC. 4-B | PAR. "B" | 76 SEC. 4-B | 77 SEC. 4-B | 78 SEC. 4-B | 79 SEC. 4-B

JOLLIFF WOODS
SEC. 3-D
48 SEC. 3-D

S88°36'59"E 725.99'

N76°17'40"E 373.45'

312.70'

16.75'

IRON STOB FD @ END DITCH

OLD IRON PIPE FOUND

7.7'

SHED (WOOD)

IRON ROD FD 1+45.3, 1.18' LT

IRON ROD FD 2+80.40, 0.80 LT

IRON ROD FD 4+21.09', 0.56 LT

IRON ROD FD 5+55.37, 0.40' LT

IRON ROD FD 7+10.15, 0.15' LT

OLD IRON PIPE FOUND 7+25.99

GALBERRY CORPORATION
DEED BOOK 5474, PAGE 628
TAX PARCEL 0220000002040

N38°37'39"E
241.95'

IRON ROD FOUND

N37°25'14"E
256.92'

IRON ROD FOUND

N39°41'04"E
140.12

IRON ROD FOUND

N24°15'47"E
150.99

IRON ROD FOUND

N22°40'11"W 393.92'

TAX PARCEL 0150000000010

JOLLIFF WOODS
FUTURE PHASE

BENT IRON ROD FOUND

78 SEC. 5

79 SEC. 5

DARBY WAY 50' R/W

80 SEC. 5

GALBERRY CORPORATION
DEED BOOK 5474, PAGE 628
TAX PARCEL 0220000002040

N23°29'30"

S14°12'06"E 965.49'

ROGER D. & GERALDINE D. SCHIEFER
DEED BOOK 1618, PAGE 608
TAX PARCEL 0150000000020

IRON PIPE FD

DITCH GENERALLY ALONG LINE

S19°14'27"E 482.28'

IRON PIPE FD

S20°02'

84.497 ACRES
(COMBINED)

TAX PARCEL 0150000000010
TAX PARCEL 0220000002290
TAX PARCEL 0220000002300

GENERAL NOTES:

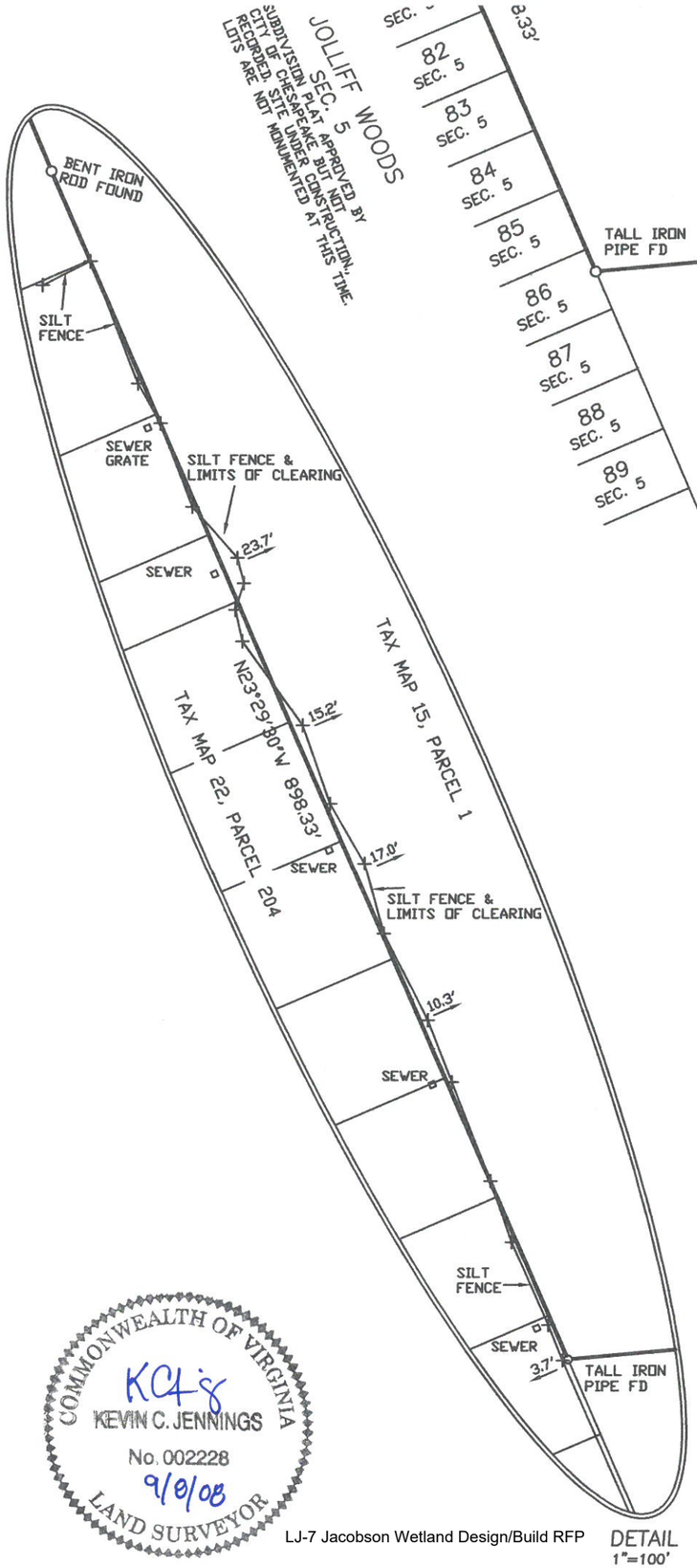
1. THE LAND SHOWN HEREON IS NOW IN THE NAME OF THE NATURE CONSERVANCY AS RECORDED IN DEED BOOK 7202, AT PAGE 45, AMONG THE LAND RECORDS OF THE CITY OF CHESAPEAKE, VIRGINIA.

2. THE PROPERTY DELINEATED HEREON IS LOCATED ON TAX PARCELS 0150000000010, 0220000002290, AND 0220000002300.

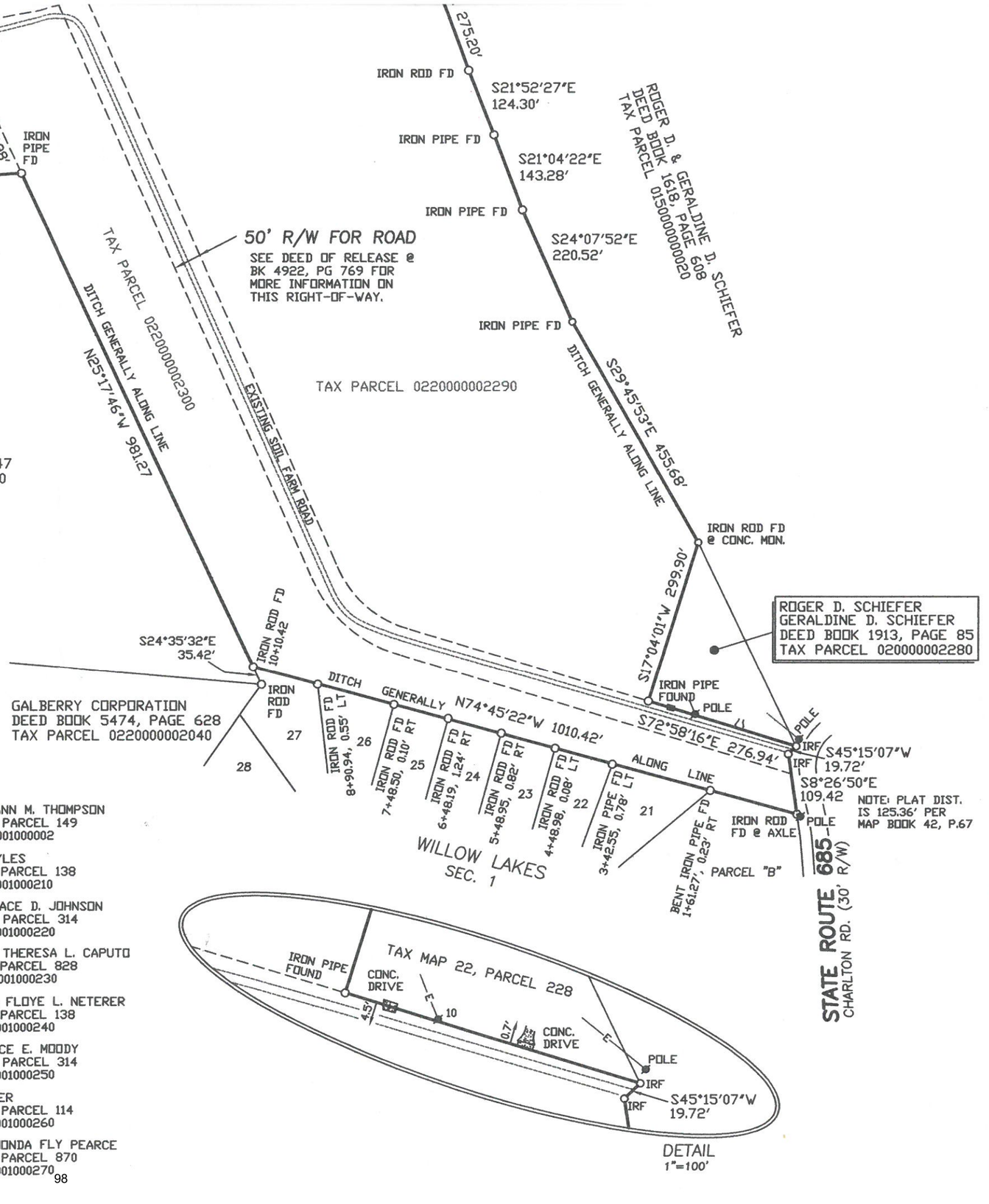
3. THE INFORMATION SHOWN ON THIS PLAT WAS BASED ON A CURRENT FIELD SURVEY.

4. THIS SURVEY HAS BEEN PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND DOES NOT NECESSARILY INDICATE ALL ENCUMBRANCES ON THE PROPERTY.

IRF = IRON ROD FOUND



COMMONWEALTH OF VIRGINIA
KEVIN C. JENNINGS
No. 002228
9/9/08
LAND SURVEYOR



WILLOW LAKES
SEC. 1

"B"	KENNETH, JR. & ANN M. THOMPSON DEED BOOK 4098, PARCEL 149 TAX PARCEL 0221001000002
21	GERALDINE W. STYLES DEED BOOK 1492, PARCEL 138 TAX PARCEL 0221001000210
22	VERNARD J. & GRACE D. JOHNSON DEED BOOK 4592, PARCEL 314 TAX PARCEL 0221001000220
23	ROBERT L., JR. & THERESA L. CAPUTO DEED BOOK 2115, PARCEL 828 TAX PARCEL 0221001000230
24	LOWELL O., JR. & FLOYE L. NETERER DEED BOOK 1492, PARCEL 138 TAX PARCEL 0221001000240
25	WILLIAM B. & ALICE E. MOODY DEED BOOK 4592, PARCEL 314 TAX PARCEL 0221001000250
26	SYLVIA J. WINTHER DEED BOOK 5709, PARCEL 114 TAX PARCEL 0221001000260
27	NORMAN LEE & RHONDA FLY PEARCE DEED BOOK 6055, PARCEL 870 TAX PARCEL 0221001000270

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 Office
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/technical%20services/Regulatory%20branch/homepage.asp

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: 5 July 2022
2. City or County where property located: City of Chesapeake
3. Address of property and directions (attach a map of the property location and a copy of the property plat):
   5000 Charlton Road and south of Jolliff Woods Subdivision in the Western Branch section of Chesapeake
4. Coordinates of property (if known): 36°47'55.76"N, 76°26'56.14"W
5. Size of property in acres: 84.497 acres
6. Tax Parcel Number / GPIN (if available): 0150000000010, 0220000002300, 0220000002290

7. Name of Nearest Waterway: Goose Creek, which is a tributary of the Western Branch of the Elizabeth River. The Elizabeth River is a tributary of the Lower James Rive

8. Brief Description of Proposed Activity, Reason for Preapplication Request, and/or Reason for Jurisdictional Waters Determination Request: VARTF is requesting confirmation of a wetland delineation and a preliminary jurisdictional determination (PJD) as part of the effort to develop and implement a mitigation plan on this property. The delineation confirmation would be used to support all federal, state, and local authorizations required for this mitigation project. Additional information is attached.

9. 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:

   9/25/2008 confirmed by Nicholas Konchuba for Kerr Environmental and TNC staff Greg Olson (project NAO-2008-2794)

   8/3/2006 VARTF project site approved by Corps and DEQ (project NAO-2006-9005)

Property Owner Contact Information:

Property Owner Name:	The Nature Conservancy
Mailing Address:	652 PETER JEFFERSON PKWY STE 190
City: State: Zip:	Charlottesville, VA 22911-8849
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:	Karen Johnson, The Nature Conservancy
Mailing Address:	530 East Main Street, Suite 800
City: State: Zip:	Richmond, VA 23219
Daytime Telephone:	(804) 249-3416 (Office)
E-mail Address:	karen_johnson@tnc.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:

Karen K Johnson

Property Owner's Signature

July 5, 2022

Date

PRELIMINARY JURISDICTIONAL DETERMINATION

Western Virginia Regulatory Section
NAO-1995-08595 (LJ-7 Jacobson)

The Nature Conservancy (TNC)
Virginia Aquatic Resources Trust Fund (VARTF)
Ms. Karen Johnson
530 East Main Street
Suite 800
Richmond, Virginia 23219

Dear Ms. Johnson:

This letter is regarding your request for a preliminary jurisdictional determination of the aquatic resources (e.g., wetlands, streams, and ponds), on an approximately 84.50-acre (property), known as LJ-7 Jacobson, in Chesapeake, Virginia.

The map entitled “LJ-7 Jacobson Wetland Delineation”, by TNC and received by the U.S. Army Corps of Engineers (Corps) on 05JUL2022 (copy enclosed) provides the locations of the aquatic resources within the “Jacobson Boundary” identified on the map referenced above. This letter is not confirming the Cowardin classifications of these aquatic resources.

These aquatic resources exhibit wetland criteria as defined in the 1987 Corps of Engineers Wetland Delineation Manual, and the Atlantic and Gulf Coastal Plain Regional Supplement. This site also contains aquatic resources with an ordinary high-water mark.

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.

This delineation and preliminary 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.

The Norfolk District has relied on the information and data provided by TNC to make this preliminary determination. If it is determined such information and data are materially false or materially incomplete, a new preliminary determination would be necessary.

This is a preliminary jurisdictional determination and is not a legally binding determination regarding whether Corps jurisdiction applies to the aquatic resources in question. To determine Corps' jurisdiction, you may request and obtain an approved jurisdictional determination.

This delineation of aquatic resources can be relied upon for no more than five years from the date of this letter. New information may warrant revision. Enclosed is a copy of the "Preliminary Jurisdictional Determination Form". Please review the document, sign, and return one copy to the Corps, by email, to jeanne.c.ricahrdson@usace.army.mil.

If you have any questions, please contact me either by telephone at (434) 384-0182 or at the email address identified above.

Sincerely,

Jeanne C. Richardson

Jeanne C. Richardson
VARTF Program Manager
Western Virginia Regulatory Section

Enclosure(s):

cc: Agent