

APPENDIX A
AVIATION PLANNING



Federal Aviation
Administration

Manassas Regional Airport Manassas, Virginia

Airport Traffic Control Tower Siting Report

**Engineering Service
Terminal Engineering Center**

**Developed by:
Nayear Fam**

Effective Date: December 10, 2024

EXECUTIVE SUMMARY

The Manassas Regional Airport (HEF) Airport Traffic Control Tower (ATCT) is a sponsor-owned facility. The existing HEF tower is a Hunt/AVCO tower commissioned in 1992. The existing cab size is approximately 189 square feet with a cab floor height of 82 feet above ground level (AGL). The HEF ATCT is a level 3 facility. This siting report provides a discussion of the siting process, evaluation criteria for the new tower, an overview of all potential sites considered, a detailed evaluation of the primary site options, and the conclusions and recommendations.

The cost estimates and building sizes presented in this report are for planning and site selection purposes only.

The proposed action is to identify and reserve a location on the airport for a potential replacement of the ATCT. Representatives from the Federal Aviation Administration (FAA) and the Manassas Regional Airport Commission met virtually via the Virtual Immersive Siting Tower Assessment (VISTA) process on February 20–21, 2024, and February 23, 2024, to participate in ATCT siting activities. The team followed VISTA Memo Version 1.1, dated October 16, 2023, to determine viable/preferred ATCT sites for a potential new ATCT.

Recommended Action/Location

The recommended site is Site 3. The tower center coordinates are longitude 38° 43' 2.41" N and latitude 77° 31' 6.22" W, and the cab floor height is 120 feet AGL [301 feet above mean sea level (AMSL)]. The proposed top of tower height is 155 feet AGL, with a ground elevation of 181 feet AMSL for a total height of 336 feet AMSL. This is the shortest possible ATCT that meets all siting criteria and is deemed safe under the Air Traffic Organization (ATO) Safety Management System (SMS). The proposed tower provides unobstructed views of all controlled airport surface areas and maximum visibility of all airborne traffic.

The tower will have an eight (8)-sided, 550 square-foot (sf) cab with mullions and slat-wall consoles. The proposed tower will facilitate a safe operating environment for aeronautical activity at HEF well into the future and will be built to resist seismic events. The recommended site provides the best available location for visibility of airport traffic control.

Impacts

The Safety Risk Management (SRM) Panel conducted on Site 3 identified one low-risk hazard as trees are blocking the view of the Taxiway (TWY) Kilo extension from Site 3 to the end of the west side of Runway (RWY) 34R. The Obstruction Evaluation/Airport Airspace Analysis (OE/AAA) identified that the structure must be lighted in accordance with Advisory Circular 70/7460-1M, Obstruction Marking and Lighting and that the HEFZ and HEF Remote Transmitter/Receivers (RTRs) must be relocated. Refer to [Paragraph 1.4.3, Siting Criteria Evaluation](#), for impacts from the proposed construction of this ATCT at Site 3. There are no other known impacts in terms of Line of Sight (LOS); Terminal Instrument Procedures (TERPS); future airport development; or local weather phenomena with the potential to impair visibility.

APPROVAL AUTHORITIES

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1.0 PREFERRED SITES

All pre-sites were evaluated against the required siting criteria. Visibility and impacts were assessed and documented to determine which sites were viable sites. The following preferred sites were selected based on team discussion and inputs on the advantages and disadvantages of each site: Site 1 and Site 3.

Though a particular site may be preferable in terms of safety, operations, cost, constructability, or other criteria, it is understood that any of the preferred sites would be acceptable as the recommended site should the identified recommended site be eliminated for any reason.

1.1 Preferred Sites Aerial View



Figure 1. Preferred Sites Aerial View

1.2 Site Comparison Chart

Item Description	Site 1			Site 3		
Recommended Site:				Recommended		
Latitude	38° 43' 14.20" N			38° 43' 2.41" N		
Longitude	77° 31' 14.63" W			77° 31' 6.22" W		
Estimated Ground Level (AMSL)	179'			181'		
Cab Floor Level (AGL)	111'			120'		
Cab Floor Level (AMSL)	290'			301'		
Eye-Level (AGL)	116'			125'		
Eye-Level (AMSL)	295'			306'		
Top of Tower (AGL)	146'			155'		
Top of Tower (AMSL)	325'			336'		
Maximum Distance (to farthest point on all runways and taxiways)	4,556' (RWY 34R)			3,746' (RWY 16L)		
2-Point Lateral Discrimination (Deg) (Pass/Fail)	Pass			Pass		
Object Discrimination (Pass/Fail) Front View (Minivan)	Pass			Pass		
Line of Sight Angle of Incidence	Pass – 1.48			Pass – 1.74		
ATCT Orientation Direction	Southeast			South		
Cab Size	550 sf			550 sf		
Columns/Mullions	Mullions			Mullions		
Console Type (Traditional, Slat-Wall)	Slat-Wall			Slat-Wall		
Land Area	~2 acres			~2 acres		
Access to ATCT Site (Yes or No)	Yes			Yes		
Tech Ops Preliminary Review Issues	Yes			Yes		
TERPS Impacts	No			No		
14 CFR Part 77 Impacts	Yes			Yes		
ATCT Potential Impacts to Future & Existing Nav aids	Yes			Yes		
Comparative Cost Estimate* (\$150K per vertical foot)	\$16,650,000			\$18,000,000		
Safety Assessment Initial Risk Ranking	L	M	H	L	M	H
	1	0	0	1	0	0
Safety Assessment Predicted Residual Risk Ranking	L	M	H	L	M	H
	1	0	0	1	0	0

* The comparative cost estimate is not for budgetary purposes; it is for site comparison purposes only.

1.3 Site 1

1.3.1 Description

Site 1 is located behind the existing tower and is oriented to the Local Control (LC1) at the Panel B position facing southeast. Site 1 has improved visibility over the existing tower, has established access and utilities, and has nearby parking. However, Site 1 is not centrally located on airport property. In addition, trees located just off airport property obscure the controller view of the RWY 34R runup area, TWY Kilo extension, and portions of the west side of RWY 34R when below 111 feet AGL cab floor height.

1.3.2 Site Reference Data

Site 1 is located at latitude 38° 43' 14.20" N and longitude 77° 31' 14.63" W with cab floor height of 111 feet AGL (290 feet AMSL) and a top of tower height of 146 feet AGL (325 feet AMSL). Refer to [Paragraph 1.2](#), Site Comparison Chart, for additional site reference data.

1.3.3 Siting Criteria Evaluation

A. TERPS

There are no known TERPS impacts for Site 1. Refer to [Appendix F](#) for additional information.

B. 14 CFR Part 77, OE/AAA Requirements

The structure at Site 1 must be lighted in accordance with Advisory Circular 70/7460-1M, Obstruction Marking and Lighting. Refer to [Appendix F](#) for additional information.

C. Impacts to Communications, Navigation and Surveillance Equipment

The FAA's HEFZ and HEF Remote Transmitter/Receivers (RTRs) must be relocated with a limited facility height of 100 feet AGL. Refer to [Appendix F](#) for additional information.

D. Visibility Performance Requirements

A visibility siting requirements analysis was conducted using the FAA's human factors tool to address the unobstructed view, object discrimination, and LOS angle of incidence requirements. Site 1 passed these analyses and does not require any additional mitigation strategies. Refer to [Appendix H](#) for additional information.

E. Safety Assessment

The SRM Panel conducted on Site 1 identified one (1) low-risk hazard from trees blocking the view of the planned extension of TWY Kilo to the end of the west side of RWY 34R; however, the Airport Manager advised during the siting assessment and SRM Panel that, if the trees cannot be removed, the future taxiway extension would not be constructed; therefore, there are no risk level hazards associated with this issue. Refer to [Appendix K](#) for information on this hazard.

F. Operational Requirements

1. ATCT Orientation: Southeast
2. Weather: No issues were identified.
3. Look-Down Angle: The look-down angle is adequate to see all movement areas of the airport.
4. Look-Up Angle: The look-up LOS in the cab is adequate to see all necessary areas. It is noted that, at 1,500 feet, there is a 19–20 second loss of aircraft over the cab; however, the airport has Standard Terminal Automation Replacement System (STARS) to maintain visibility of aircraft. HEF ATC stated that visibility of the aircraft is maintained the entire time.
5. Look Across LOS: The look across LOS in the cab is adequate to see all necessary areas.
6. Cab Mullion Orientation: HEF ATC selected a mullion configuration with a rotation of 0 degrees.
7. Cab Column Orientation: The selected column configuration is CS1 with a cab rotation of 345 degrees. However, HEF ATC selected the mullion configuration over the column configuration.
8. Construction: Construction of Site 1 would not obstruct any movement areas.
9. Access: The airport will provide secure access.
10. Non-Movement Areas: No issues were identified with non-movement areas.
11. Cab Size Evaluation: A space planning exercise was conducted in a virtual 550 sf cab to identify any space constraints on the proposed control cab. No issues were identified.
12. Rotating Beacon: The rotating beacon is located across the airfield close to TWY Zulu. The airport would like to place the beacon on top of the new tower. If the rotating beacon is not relocated, it can be shielded if needed.

G. Economic Considerations

As this tower will be constructed by the airport, the airport will identify economic consideration and associated costs. A comparative cost estimate based on \$150,000 per vertical foot is provided in [Paragraph 1.2, Site Comparison Chart](#). This estimate is to be used for comparative purposes only between the preferred sites.

H. Environmental

A Phase I Environmental Site Assessment (ESA) is not required for sponsor owned ATCTs.

I. Servicing Security Element

Physical security protective measures shall be implemented based on a Facility Security Level (FSL)-1 Critical Infrastructure (CI) site, per FAA Order 1600.69C.

1.4 Site 3

1.4.1 Description

Site 3 is located adjacent to the approach end of RWY 34L and is oriented to the LC1 position facing south. It is centrally located in the middle of the airport and the middle of the long runways (RWY 34R and RWY 16L). This site has an improved LOS to runway extension, TWY Charlie, TWY Zulu on the north side, terminal, and ramp. It is located far away from buildings and hangars; its remote location adds extra security. Site 3 is located at the threshold of RWY 34L at the north third of the airport and ATC stated that they can clearly see the lineup of aircraft at the correct runway. This site also provides enough space in the cab for another LC if needed. At Site 3, fewer trees would have to be removed. In addition, there is no future development or construction planned at Site 3. It is noted that utilities will need to be brought in from 200 yards away.

1.4.2 Site Reference Data

Site 3 is located at latitude 38° 43' 2.41" N and longitude 77° 31' 6.22" W with cab floor height of 120 feet AGL (301 feet AMSL) and a top of tower height of 155 feet AGL (336 feet AMSL). Refer to [Paragraph 1.2](#), Site Comparison Chart, for additional site reference data.

1.4.3 Siting Criteria Evaluation

A. TERPS

There are no known TERPS impacts for Site 3. Refer to [Appendix F](#) for additional information.

B. 14 CFR Part 77, OE/AAA Requirements

The structure at Site 3 must be lighted in accordance with Advisory Circular 70/7460-1M, Obstruction Marking and Lighting. Refer to [Appendix F](#) for additional information.

C. Impacts to Communications, Navigation and Surveillance Equipment

The FAA's HEFZ and HEF RTRs must be relocated with a limited facility height of 100 feet AGL. Refer to [Appendix F](#) for additional information.

D. Visibility Performance Requirements

A visibility siting requirements analysis was conducted using the FAA's human factors tool to address the unobstructed view, object discrimination, and LOS angle of incidence requirements. Site 3 passed all analyses and does not require any additional mitigation strategies. Refer to [Appendix H](#) for additional information.

E. Safety Assessment

The SRM Panel conducted on Site 3 identified one (1) low-risk hazard from trees blocking the view of the planned extension of TWY Kilo to the end of the west side of RWY 34R; however, the Airport Manager advised during the siting assessment and SRM Panel that, if the trees cannot be removed, the future taxiway extension would not be constructed;

therefore, there are no risk level hazards associated with this issue. Refer to [Appendix K](#) for information on this hazard.

F. Operational Requirements

1. ATCT Orientation: South
2. Weather: No issues were identified.
3. Look-Down Angle: The look-down angle is adequate to see all movement areas of the airport.
4. Look-Up Angle: Aircraft overflying the ATCT at 1,500 feet for pattern entry were not in sight for approximately 20 seconds. However, ATC stated that STARS equipment is available to maintain situational awareness of traffic. The look-up LOS in the cab is adequate to see all necessary areas.
5. Look Across LOS: The look across LOS in the cab is adequate to see all necessary areas.
6. Cab Mullion Orientation: HEF ATC selected a mullion configuration with a rotation of 2 degrees.
7. Cab Column Orientation: HEF ATC identified a column configuration of CS2 with a cab rotation of 357 degrees. However, HEF ATC selected the mullion configuration over the column configuration.
8. Construction: Construction of Site 3 would not obstruct any movement areas.
9. Access: The airport will provide secure access.
10. Non-Movement Areas: No issues were identified with non-movement areas.
11. Cab Size Evaluation: A space planning exercise was conducted in a virtual 550 sf cab to identify any space constraints on the proposed control cab. No issues were identified.
12. Rotating Beacon: The rotating beacon is located across the airfield. The airport would like to place the beacon on top of the new tower. If the rotating beacon is not relocated, it can be shielded if needed.

G. Economic Considerations

As this tower will be constructed by the airport, the airport will identify economic consideration and associated costs. A comparative cost estimate based on \$150,000 per vertical foot is provided in [Paragraph 1.2, Site Comparison Chart](#). This estimate is to be used for comparative purposes only between the preferred sites.

H. Environmental

A Phase I ESA is not required for sponsor owned ATCTs.

I. Servicing Security Element

Physical security protective measures shall be implemented based on a FSL-1 CI site, per FAA Order 1600.69C.

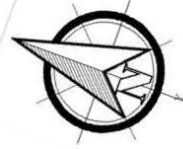
2.0 FINAL SITE RECOMMENDATION

The final recommended site selection for HEF based on the siting criteria is Site 3. HEF ATC explained that Site 3 has a better LOS, is more centrally located on the airport, and is closer to the RWY 34 thresholds than Site 1. The siting assessment and the SRM Panel conducted identified an initial risk from trees blocking the view of the planned extension of TWY Kilo to the end of the west side of RWY 34R; however, the HEF Airport Manager advised during the siting assessment and SRM Panel that, if the trees cannot be removed, the future taxiway extension would not be constructed; therefore, there are no risk level hazards associated with this issue. The airport sponsor has agreed to approximately 2 acres for the tower.

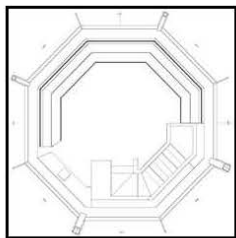
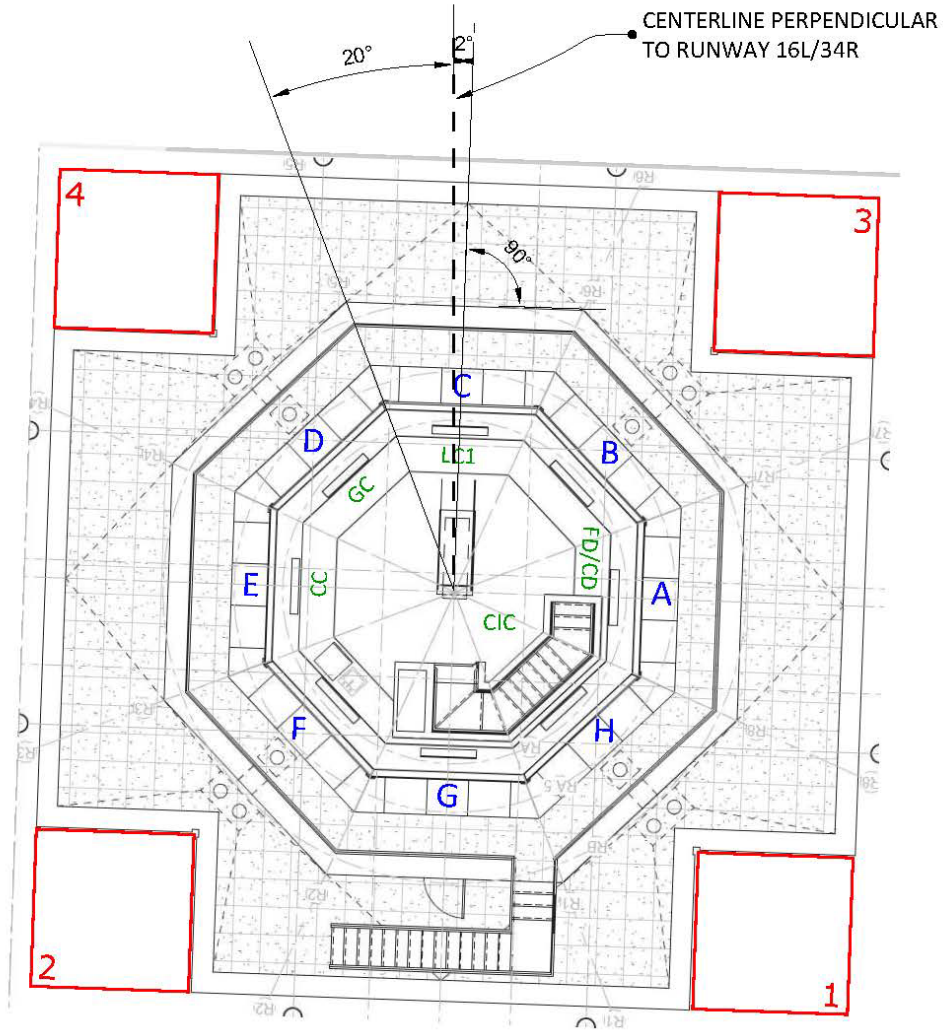
3.0 CAB SIZE AND ORIENTATION

The cab will be an eight (8)-sided 550 sf cab facing south. The tower has five (5) authorized positions in the cab: LC1, Ground Control (GC), Flight Data/Clearance Delivery (FD/CD), and Controller-in-Charge (CIC). See [Figure 2](#) for cab orientation.

**(HEF) MANASSAS RGNL.
MANASSAS, VA.**



LINE PARALLEL WITH RUNWAY 16L/34R



MULLIONS(12x8)

SITE 3

02/27/2024

Figure 2. Site 3 Cab Orientation

4.0 SUPPLEMENTAL INFORMATION

[Appendix A – Airport Concurrence Letter](#)

[Appendix B – Cost Estimate](#)

[Appendix C – All Sites Evaluated](#)

[Appendix D – Panoramic Views](#)

[Appendix E – Drawings \(Cab Layout, Airport Layout Plan, Cab Structures, Airport Cable Drawings\)](#)

[Appendix F – Obstruction Evaluation/Airport Airspace Analysis \(OE/AAA\)](#)

[Appendix G – Environmental Documentation](#)

[Appendix H – Human Factors Analysis](#)

[Appendix I – Servicing Security Element](#)

[Appendix J – Other Pertinent Information](#)

[Appendix K – Safety Risk Management Document](#)

Appendix A – Airport Concurrence Letter

Refer to the [Knowledge Sharing Network \(KSN\)](#) for the airport concurrence letter.

Appendix B – Cost Estimate

Not applicable to sponsor-owned towers.

Appendix C – All Sites Evaluated

In addition to preferred Site 1 and Site 3, Site 2 was evaluated and subsequently deemed non-viable due to LOS issues and obstructions. All movement areas were not visible. The HEF Air Traffic Manager (ATM) could not see the end of the primary runway and RWY 34R runup area is too far away. The ATM had no LOS of TWY Whiskey and could not see the north side of the extension of the threshold, RWY 34R and RWY 34L. The ATM moved up the tower up to 91 feet AGL cab floor and still could not see the far south side of the runway. RWY 16R at TWY Whiskey was blocked. The ATM moved the tower up to 101 feet AGL cab floor. The trees were blocking at RWY 34R. The north side view was better, but the hold short was not clear. The ATM could see the east side of RWY 34R. The ATM stated that the growth of the trees will obstruct the west edge of RWY 34R. The ATM moved the tower up to 120 feet AGL cab floor. A portion of the RWY 34R runup was still blocked and could not see TWY Whiskey and the west side of TWY Kilo. The runway extension will be obstructed if the trees grow anymore. Tree growth is not under airport control for private property. The ATM stated that the LOS is unacceptable, RWY 34L runup block is not visible, and when the trees grow, the runway extension will not be visible.

- A. Reference Location: Behind the west ramp
- B. Airport Quadrant: West
- C. Acreage: ~2 acres
- D. ATCT Orientation: South at LC1 at Panel B
- E. ATCT Position Locations:
 - FD/CD – Panel A
 - LC1 – Panel B
 - GC – Panel C
 - LC2 – Panel D
 - Cab Coordinator – Panel E
 - CIC – Desk in the back by the stairs

Appendix D – Panoramic Views

Refer to the [KSN](#) for panoramic views of Site 1 and Site 3.

Appendix E – Drawings
(Cab Layout, Airport Layout Plan, Cab Structures, Airport Cable Drawings)

Refer to the [KSN](#) for relevant drawings.

Appendix F – Obstruction Evaluation/Airport Airspace Analysis (OE/AAA)

Refer to the [KSN](#) for the final determination letters for Site 1 and Site 3.

Appendix G – Environmental Documentation

A Phase I ESA is not required for sponsor owned ATCTs.

Appendix H – Human Factors Analysis

Refer to the [KSN](#) for the human factors analyses.

Appendix I – Servicing Security Element

Physical security protective measures shall be implemented based on a FSL-1 CI site, per FAA Order 1600.69C.

Appendix J – Other Pertinent Information

Refer to the [KSN](#) for the meeting minutes and other pertinent information.

Appendix K – Safety Risk Management Document

Refer to the [KSN](#) for the complete safety analysis.

APPENDIX B
CONSTRUCTION EMISSIONS INVENTORY

The U.S. Environmental Protection Agency (USEPA) sets National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. The USEPA identifies the following seven criteria air pollutants for which NAAQS are applicable: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM₁₀ and PM_{2.5}), and sulfur dioxide (SO₂). The USEPA¹ describes these pollutants as "criteria" air pollutants because the agency regulates them by developing human health-based and/or environmentally based criteria (science-based guidelines) for setting permissible levels (see **Table C-1**).

TABLE C-1 2024 National Ambient Air Quality Standards

Pollutant		Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)		Primary	8 hours	9 ppm	Not to be exceeded more than once per year
			1 hour	35 ppm	
Lead (Pb)		Primary and Secondary	Rolling 3 month average	0.15 µg/m ³ ⁽¹⁾	Not to be exceeded
Nitrogen Dioxide (NO ₂)		Primary	1 hour	100 ppb	98th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Primary and Secondary	1 year	53 ppb ⁽²⁾	Annual Mean
Ozone (O ₃)		Primary and Secondary	8 hours	0.070 ppm ⁽³⁾	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years
Particle Pollution (PM)	PM _{2.5}	Primary	1 year	9.0 µg/m ³	annual mean, averaged over 3 years
		Secondary	1 year	15.0 µg/m ³	annual mean, averaged over 3 years
		Primary and Secondary	24 hours	35 µg/m ³	98th percentile, averaged over 3 years
	PM ₁₀	Primary and Secondary	24 hours	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide (SO ₂)		Primary	1 hour	75 ppb ⁽⁴⁾	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
		Secondary	1 year	10 ppb	annual mean, averaged over 3 years

Source: EPA 2024. Note Units of measure for the standards are parts per million (ppm) by volume, parts per billion (ppb) by volume, and micrograms per cubic meter of air (µg/m³).

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m³ as a calendar quarter average) also remain in effect.

(2) The level of the annual NO₂ standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O₃ standards are not revoked and remain in effect for designated areas. Additionally, some areas may have certain continuing implementation obligations under the prior revoked 1-hour (1979) and 8-hour (1997) O₃ standards.

¹ U.S. Environmental Protection Agency. Criteria Air Pollutants. Retrieved March 2024 from <https://www.epa.gov/criteria-air-pollutants>

(4) The previous SO₂ standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which an implementation plan providing for attainment of the current (2010) standard has not been submitted and approved and which is designated nonattainment under the previous SO₂ standards or is not meeting the requirements of a SIP call under the previous SO₂ standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the required NAAQS.

According to the USEPA, Prince William County and the City of Manassas is classified as in “attainment” for all criteria pollutants excluding 8-Hour Ozone (2015) and (2008).² Prince William County and the City of Manassas is in “Moderate – Nonattainment” for 8-Hour Ozone (2015) and in “Marginal – Maintenance” for 8-Hour Ozone (2008), which is comprised of nitrogen oxide (NO_x) and volatile organic compounds (VOCs). Prince William County and the City of Manassas resides in the Ozone Transportation Region (OTR)³. All construction activity would occur in the EA’s Project Study Area which is also an “attainment” area for all NAAQS excluding 8-Hour Ozone (2015) and (2008) standards.

This construction emission inventory (CEI) assessment was prepared to disclose the Proposed Project’s potential construction-related air emissions. Construction of the Proposed Project is anticipated to occur in 2026 through 2027.

C.1 Construction Emissions Inventory Approach

Construction of the Proposed Project would include earthwork, grading, leveling, construction equipment storage, and movement activities that are sources of off-road, on-road, and fugitive dust emissions.

Non-road Emission Sources

Non-road sources associated with the Proposed Project's construction include exhaust from heavy construction equipment (e.g., cranes, dozers, and pavers) and fugitive dust emissions.

On-road Emission Sources

On-road emission sources associated with the Proposed Project's construction include material delivery vehicles (e.g., trucks carrying concrete or asphalt) and passenger vehicles transporting construction personnel to and from the job site.

Fugitive Emissions

Paving or dust emission sources associated with the Proposed Project's construction include asphalt storage, material movement on paved and unpaved roads, soil handling, un-stabilized land, and wind erosion. Paving or dust emissions were based on the number of months for construction.

² U.S. Environmental Protection Agency. Green Book: Virginia Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants. Retrieved April 2024 from https://www3.epa.gov/airquality/greenbook/anayo_va.html

³ U.S. Environmental Protection Agency. Nonattainment and Ozone Transport Region (OTR) SIP Requirements. Retrieved April 2024 from <https://www.epa.gov/air-quality-implementation-plans/nonattainment-and-ozone-transport-region-otr-sip-requirements>

Construction emissions are estimated based on these factors: construction schedule; the number of construction vehicles and/or equipment; the types of construction vehicles and/or equipment; types of fuel used to power the equipment and vehicles; vehicle and equipment hourly activity/vehicle miles traveled; construction materials used and their quantities; and the duration of construction.

C.2 MOVES3

The CEI used the EPA MOtor Vehicle Emissions Simulator 3 (MOVES3.1) to analyze the Proposed Project’s potential on-road and non-road construction emissions.

C.2.1 Construction Emissions Inventory Inputs

The Proposed Project’s construction components are shown in **Table C-2**. The Proposed Project’s cost estimates and typical construction practices were used to develop the CEI inputs displayed in **Table C-3**, and

TABLE C-4. Inputs were coordinated with construction management engineers and are based on engineering judgment and past experience with airport construction projects. MOVES3.1 emission factors and load factors were developed to determine the on-road and non-road emissions from the construction of the Proposed Project.

TABLE C-2: HEF ATC REPLACEMENT CONSTRUCTION COMPONENTS

Component Name	Project Type	Year	Months
D-1	Parking Lot	2026	3
D-2	ATC Support Building	2026	12
D-3	Replacement ATC	2026	24
D-4	Tree Removal	2026	3
D-5	Floodplain Compensation	2026	3
D-6	Demolition of Existing ATC Tower	2026	1
D-7	Demolition of Existing ATC Support Building	2026	1

TABLE C-3: 2026 NON-ROAD CONSTRUCTION EMISSIONS INVENTORY INPUTS

Equipment Type	Fuel Type	Horsepower	Operating Hours
40 Ton Crane	Diesel	300	776.00
40 Ton Rough Terrain Crane	Diesel	300	16.00
Auger Drill	Diesel	175	24.00

Equipment Type	Fuel Type	Horsepower	Operating Hours
Backhoe	Diesel	100	432.00
Bob Cat	Diesel	75	191.84
Boom Manlift	Diesel	75	96.00
Bulldozer	Diesel	175	927.20
Chain Saw	Diesel	11	895.20
Compacting Equipment	Diesel	6	120.54
Concrete Pump	Diesel	11	3.60
Concrete Ready Mix Trucks	Diesel	600	242.54
Dump Truck	Diesel	600	63.30
Excavator with Bucket	Diesel	175	31.60
Flat Bed or Dump Trucks	Diesel	600	1,782.40
Fork Truck	Diesel	100	800.00
Forktruck (Hoist)	Diesel	100	348.48
Front Loader	Diesel	150	911.20
Generator Sets	Diesel	40	31.60
Grub the site down 2'-0	Diesel	300	871.20
High Lift	Diesel	100	112.00
Line Painting Truck and Sprayer	Diesel	600	8.00
Log Chipper	Diesel	100	895.20
Man Lift	Diesel	75	90.00
Man Lift (Fascia Construction)	Diesel	75	48.00
Material Deliveries	Diesel	600	24.00
Mulcher	Diesel	100	895.20
Paving Machine	Diesel	175	32.00
Pickup Truck	Diesel	600	36.90
Roller	Diesel	100	190.24
Seed Truck Spreader	Diesel	600	69.70
Dozer	Diesel	175	120.54
Survey Crew Trucks	Diesel	600	63.56
Ten Wheelers	Diesel	600	887.20
Ten Wheelers- Material Delivery	Diesel	600	32.00
Tool Truck	Diesel	600	374.00
Tractor	Diesel	100	1,782.40
Tractor Trailer- Material Delivery	Diesel	600	641.28
Tractor Trailer- Steel Deliveries	Diesel	600	16.00
Tractor Trailer with Boom Hoist- Delivery	Diesel	600	128.54
Tractor Trailers Temp Fac.	Diesel	600	27.82
Trowel Machines (2) machines	Diesel	600	2.40
Total			15,041.70

Source: RS&H 2024.

TABLE C-4: 2027 NON-ROAD CONSTRUCTION EMISSIONS INVENTORY INPUTS

Equipment Type	Fuel Type	Horsepower	Operating Hours
Fork Truck	Diesel	100	1,200.0
High Lift	Diesel	100	440.0
Man Lift	Diesel	75	1,200.0
Man Lift (Fascia Construction)	Diesel	75	120.0
Material Deliveries	Diesel	600	8.0
Tool Truck	Diesel	600	180.0
Tractor Trailer- Material Delivery	Diesel	600	156.0
Total			3,304.0

Source: RS&H 2024.

The development of Vehicle Miles Traveled (VMT) is based on engineering judgment and past experience with airport construction projects. The calculation of VMT is developed by using the number of construction employees and the number of expected equipment types during the construction of the Proposed Project. The distance traveled by employees and material deliveries for the Proposed Project are based on a 30-mile round trip per passenger car and a 40-mile round trip per material delivery that would originate from the greater Manassas area. The round-trip distance is applied to each passenger and material delivery vehicle and multiplied by each day of construction to develop the total VMT used for MOVES3.1. On-road construction emissions for 2026 to 2027 are shown in

Table C-5 and **Table C-6**.

TABLE C-5: 2026 ON-ROAD CONSTRUCTION EMISSIONS INVENTORY INPUTS

Equipment	Fuel Type	VMT*
Single Unit Short-haul Truck	Diesel	42,082.23
Combination Short-haul Truck	Diesel	4,693.60
Passenger Car	Gasoline	364,126.24

Note – VMT = vehicle miles traveled.

Source: MOVES3.1, RS&H 2024.

TABLE C-6: 2027 ON-ROAD CONSTRUCTION EMISSIONS INVENTORY INPUTS

Equipment	Fuel Type	VMT*
Single Unit Short-haul Truck	Diesel	3,546.00
Combination Short-haul Truck	Diesel	240.00
Passenger Car	Gasoline	158,871.00

Note – VMT = vehicle miles traveled.

Source: MOVES3.1, RS&H 2024

C.2.2 Construction Emissions Inventory Results

For informational purposes, **Table C-7** and **Table C-8** shows the criteria pollutants, as well as the, greenhouse gas GHG emissions in tons per year during the Proposed Project's construction. The primary greenhouse gas emissions are Carbon Dioxide (CO₂), Methane (CH₄), and Nitrous Oxide (N₂O). These resulting GHG emissions in tons per year during the Proposed Project's construction.

TABLE C-7: PROPOSED PROJECT MOVES3 RESULTS FOR 2026 (TONS PER YEAR)

2026	CO	VOC	NOx	PM ₁₀	PM _{2.5}	SOx	GHGs		
							CO ₂	CH ₄	N ₂ O
NONROAD	0.36	0.08	0.87	0.06	0.06	0.00	1,340.84	N/A	N/A
ONROAD	1.13	0.02	0.16	0.01	0.01	0.00	150.41	0.00	0.00
FUGITIVE	0.00	0.37	0.00	0.13	N/A	0.00	N/A	N/A	N/A
TOTAL	1.49	0.47	1.02	0.20	0.07	0.00	1,491.24	0.00	0.00
De Minimis Levels¹	100	50	100	100	100	100	N/A	N/A	N/A

Note – N/A = not applicable. Totals may not sum due to rounding.

1: De Minimis Levels shown represent an area that would be in non-attainment for NAAQS pollutants, see 40 CFR 93.153

<https://www.ecfr.gov/current/title-40/section-93.153>. However, Prince William County and the City of Manassas is in "attainment" for all NAAQS excluding "Moderate – Nonattainment" classification for 8-Hour Ozone (2015) and in "Marginal – Maintenance" for 8-Hour Ozone (2008).

Source: MOVES3.1, RS&H 2024. EPA, 2024.

TABLE C-8: PROPOSED PROJECT MOVES3 RESULTS FOR 2027 (TONS PER YEAR)

2027	CO	VOC	NOx	PM ₁₀	PM _{2.5}	SOx	GHGs		
							CO ₂	CH ₄	N ₂ O
NONROAD	0.05	0.01	0.29	0.01	0.01	0.00	174.01	N/A	N/A
ONROAD	0.44	0.00	0.02	0.00	0.00	0.00	47.14	0.00	0.00
FUGITIVE	0.00	0.00	0.00	0.05	N/A	0.00	N/A	N/A	N/A
TOTAL	0.49	0.01	0.31	0.05	0.01	0.00	221.15	0.00	0.00
De Minimis Levels¹	100	50	100	100	100	100	N/A	N/A	N/A

Note – N/A = not applicable. Totals may not sum due to rounding.

1: De Minimis Levels shown represent an area that would be in non-attainment for NAAQS pollutants, see 40 CFR 93.153

<https://www.ecfr.gov/current/title-40/section-93.153>. However, Prince William County and the City of Manassas is in "attainment" for all NAAQS excluding "Moderate – Nonattainment" classification for 8-Hour Ozone (2015) and in "Marginal – Maintenance" for 8-Hour Ozone (2008).

Source: MOVES3.1, RS&H 2024. EPA, 2024.

Table C-9 shows the CO_{2e} values for construction years 2026 through 2027 using the CEI results from **Table C-7**, and **Table C-8**. The GHG emissions for the U.S. in 2022 was 6,378 million metric tons of Carbon Dioxide equivalent (MMT CO_{2e}) and 117 MMT CO_{2e} was produced from the State of Virginia in 2022 (EPA, 2024). In the context of global and U.S. Greenhouse Gas emissions, the construction of the Proposed Project’s emissions of 0.0015 MMT CO_{2e} for 2026 and 0.00022 MMT CO_{2e} for 2027 would not be significant.

TABLE C-9: PROPOSED PROJECT CO_{2E}

Year	Pollutant	Emissions Quantity (Tons) Construction Emissions	AR6 GWP	CO _{2e}
2026	CO ₂	1491.2431	1	1,491.24
	CH ₄	0.0039	28	0.11
	N ₂ O	0.0005	265	0.13
			<i>Total</i>	1,491.49
2027	CO ₂	221.15	1	221.15
	CH ₄	0.00143	28	0.04
	N ₂ O	0.00019	265	0.05
			<i>Total</i>	221.24

Note: Totals may not sum due to rounding.

Sources: MOVES 3.1; Interagency Working Group, 2021, IPCC Sixth Assessment 2023.

APPENDIX C
WETLAND DELINEATION AND
THREATENED AND ENDANGERED
SPECIES REPORT



October 2024

Manassas Regional Airport Wetlands and Waters Delineation, Threatened and Endangered Species Report





**Manassas Regional Airport
Wetlands and Waters
Delineation, Threatened and
Endangered Species Report**

October 2024

Manassas/Prince William County, VA

Prepared by RS&H, Inc. at the
direction of Manassas Regional Airport
(HEF)

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1 Introduction

RS&H conducted a waters of the U.S. (WOTUS) delineation for a proposed replacement air traffic control tower (ATCT) at the Manassas Regional Airport (HEF, Airport) on April 23 and April 24, 2024. In 2016, Biologists conducted a wetland delineation and wildlife species survey for ± 48 acres of Airport land, including the Direct Study Area described in this report; however, it was determined that the length of time between the present and the previous study exceeded the acceptable interval, rendering the previous findings unreliable. Therefore, a new survey was deemed necessary.

This delineation was performed to evaluate the presence of jurisdictional WOTUS and identify their boundaries within the project area. It is anticipated that this delineation report will be used in support of the jurisdictional determination process for on-site aquatic resources. If it is determined that jurisdictional resources will be impacted, this delineation report will also support applications for regulatory permits that may be required from the United States Army Corps of Engineers (USACE) for proposed construction activities.

As required under Section 404 of the Clean Water Act (CWA), wetlands were delineated using the routine method described in the USACE 1987 Wetlands Delineation Manual (1987 Manual) and the USACE Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0) (April 2012). Wetland types and boundaries were determined through initial map review, followed by fieldwork involving the examination of three (3) parameters: hydrology, vegetation, and soils. Delineation criteria and indicators for each of these parameters are outlined in the 1987 Manual and the 2012 Regional Supplement. The 2012 Regional Supplement presents wetland indicators, delineation guidance, and other information that is specific to the Eastern Mountain and Piedmont region. Wetlands are classified according to the Cowardin Classification System used for the United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI).

This document contains the following four (4) attachments:

- **Attachment 1 – Figures:** contains maps and aerial photographs of the project area
- **Attachment 2 – Wetland Determination Data Forms:** documents the three (3) criteria for wetlands at all sample points
- **Attachment 3 – Site Photographs** contains photographs taken during the site visit
- **Attachment 4 – Regulatory Correspondence** contains documentation regarding threatened and endangered species from USFWS and VaFWIS.
- **Attachment 5 – 2016 Preliminary Jurisdictional Determination Letter** contains the preliminary jurisdictional determination letter from USACE from the previous study in 2016.
- **Attachment 6 – 2024 USACE Coordination** contains an email from October 2024 to USACE for a path forward when wetlands are not identified, which did not receive a response.

1.1 Previous Study

In 2016, the Airport authorized a preliminary wetland delineation which included 25 acres of land adjacent to the hangar, apron, and parking areas on the west side of the Air Operations Area (AOA), located between the fence line and Broad Run, a tributary of the Occoquan River.

The current Study Area encompasses 3.9 acres within the southeastern portion of the previously delineated area. As part of the 2016 delineation, 0.36 acre of wetlands were identified within the current Study Area boundary. The location of the proposed Project relative to the previously identified wetlands can be seen in **Figure 7** of **Attachment 1**. The USACE preliminary jurisdictional determination letter related to the 2016 study is included in **Attachment 5**.

2 Project Overview

The City of Manassas proposes infrastructure developments at 10600 Harry J Parrish Blvd, Manassas, VA 20110. These developments constitute a replacement ATCT, support facility, and ATCT employee parking located southwest of the airfield from Observation Road.

Attachment 1 – Figures contains numbered maps of the project area. **Figure 1** provides a vicinity map that depicts the location of the project area relative to the surrounding landscape. An aerial overview of the survey area including locations of the data points (DPs) is in **Figure 2**, and **Figure 3** contains a 7.5-minute series United States Geological Survey (USGS) topographic overview map. **Figure 4** depicts the National Wetlands Inventory (NWI) features within and around the survey area, **Figure 5** shows the mapped soil units within and around the survey area. **Figure 6a** through **6e** area historical aerial photographs of the site, from years 1994, 2002, 2011, and 2023. **Figure 7** shows the study area relative to the previous area that was delineated in 2016.

3 Methods

3.1 Map and Database Review

The following resources were considered and, if applicable, consulted before and during the field delineation to assist in the identification of potential WOTUS within the project area.

3.1.1 Topography, Geology, & Climate

USGS topographic maps illustrate elevation contours, drainage patterns, and hydrography. 7.5-minute USGS Quad maps assisted in determining the likelihood of the project area containing jurisdictional waterbodies and verified which direction water flows within the study area. In addition, the "Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin" is a resource published by the U.S. Government Printing Office.

It delineates various land resource regions and major land resource areas and provides detailed descriptions and classifications of different land types based on soil, climate, geology, and other factors. RS&H reviewed these resources as a reference for understanding the broader landscape characteristics expected in the study area.

3.1.2 USFWS NWI Data

NWI maps are a comprehensive dataset created by the U.S. Fish and Wildlife Service (USFWS) that delineate wetland areas across the United States. These maps provide detailed information on the location, extent, and classification of wetlands, including their type, size, and associated habitat characteristics. Surveyors reviewed NWI data as a contributing resource to help identify potential wetland features located within the project area.

3.1.3 NRCS Soil Survey Data

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) maintains an online Web Soil Survey database. The data provided in the Web Soil Survey provides a basis for the soil textures and types one can expect to find at a particular delineation area. NRCS-mapped soils help determine which of the soils exhibit hydric characteristics and are assigned a hydric indicator status of "hydric" or "non-hydric" by the National Technical Committee for Hydric Soils.

3.1.4 Historical Aerial Photography

Aerial photography provides insight into the state and function of natural resources. Signs of inundation and vegetative signatures on aerial images indicate whether land might be functioning as a wetland or supporting a stream system. Information in this report considers historic and current aerial photography utilizing Google Earth, before and during the field delineation, to further understand local hydrology within the project area.

3.1.5 Precipitation Data

The Automated Geographic Adaptive Climatology Information System (AgACIS) offers a comprehensive repository of historical climate data, including temperature, precipitation, and other meteorological variables. This tool, developed by the National Climatic Data Center (NCDC), enables users to access climate information for specific locations and time periods. Precipitation data from the Airport weather station between April 9, 2024 to April 24, 2024 assists in the understanding of hydrological conditions and climate patterns influencing wetland formation and maintenance at the study area.

3.2 Waters of the U.S. Delineation

The wetland delineation was conducted based on the 1987 Manual and the 2012 Regional Supplement. The three-parameter approach requires an investigation of hydrological characteristics, hydrophytic vegetation, and hydric soils at selected sample points within a

project area. Sample points are located to determine upland/wetland boundaries and to record significant spatial changes in wetland plant communities. All three (3) indicator parameters must be met for the area to be classified as a wetland. Data collected for any waterbodies include average water depth, average width of waterbody, length of linear segments within the project boundary, and water flow classification (i.e., tidal, non-tidal, ephemeral, intermittent, and/or perennial.). See subsections on Hydrology, Vegetation, and Soils below, for indicator-specific information.

3.2.1 Hydrology

Wetland hydrology is characterized when, under normal conditions, the surface is either inundated or the upper horizon(s) of the soil are saturated at a sufficient frequency and duration to support anaerobic conditions. Seasonal and long-term rainfall patterns, local geology and topography, soil type, local water table conditions, and drainage are factors that influence hydrology.

Wetland hydrology indicators include oxidized rhizospheres among living roots, saturated soils, standing surface water, algal mat, aquatic fauna, high water table, iron deposits, sparsely vegetated concave surface, geomorphic position, moss trim lines, water-stained leaves, crawfish burrows, watermarks on trees and other standing features, drainage patterns, and surface soil cracks. These indicators help determine if an area exhibited wetland hydrology during the field survey.

3.2.2 Vegetation

In accordance with the procedure set forth in the 1987 Manual and 2012 Regional Supplement, the hydrophytic status of vegetation communities was determined by identifying dominant species and, if necessary, calculating a "Prevalence Index," as defined in the 1987 Manual.

Individual plant species were compared to the National Wetland Plant List (NWPL), and their regional wetland indicator status was determined. Species are classified as follows:

- Obligate Wetland (OBL) if they almost always occur in wetlands (>99 percent of the time)
- Facultative Wetland (FACW) if they usually occur in wetlands (67 to 99 percent of the time)
- Facultative (FAC) if they are equally likely to occur in wetlands and non-wetlands (34 to 66 percent of the time)
- Facultative Upland (FACU) if they usually occur in non-wetlands (67 to 99 percent of the time)
- Obligate Upland (UPL) if they almost always occur in non-wetlands (>99 percent of the time)

A no indicator (NI) status is recorded for species for which there is insufficient information available to determine an indicator status.

Hydrophytic (wetland) vegetation is considered prevalent where more than 50 percent of the dominant species in a plant community have an indicator status of OBL, FACW, or FAC. However, in cases where the vegetation community does not meet this hydrophytic threshold, but indicators of hydric soils and wetlands hydrology are present, the prevalent index can be applied. Calculation of this index is based on consideration of both dominant and non-dominant plants in the vegetation community, whereby each indicator status category is given a numeric code and weighted by absolute percent cover. The prevalent index ranges from 1 to 5 and an index of 3.0 or less indicates that hydrophytic vegetation is present. In the current delineation, and as shown on the wetland determination data forms in **Attachment 2**, the prevalent index was calculated for each sample point's vegetative community.

3.2.3 Soils

Hydric soils are defined as soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper horizons. Anaerobic conditions developed by repeated or prolonged saturation or flooding result in permanent changes in soil color and chemistry. The changes in soil color are used to differentiate hydric from non-hydric soils.

At each data point, in areas where the absence of inundation or heavy saturation allowed, a pit was excavated to a depth from 16 to 24 inches to reveal soil profiles and to determine whether positive indicators of hydric soils were present. Hydric soil indicators are related to color, structure, organic content, and the presence of reducing conditions. Color characteristics (Hue, Value, and Chroma) were recorded using Munsell Charts.

3.3 Wildlife & Critical Habitat

The USFWS Information, Planning, and Consultation (IPaC) system is a digital platform designed to facilitate streamlined access to information on threatened and endangered (T&E) species. It serves as a comprehensive database containing spatially referenced species information, habitat data, and consultation records. The system aids in project planning and decision-making by providing a means to assess whether T&E species are present within a specific project area. The Virginia Fish and Wildlife Information Service (VaFWIS) is an online tool that delivers data on wildlife species, habitats, and natural resources in Virginia to support environmental assessments and conservation planning. RS&H queried these systems to identify potential T&E species occurrences and review critical habitat designations, enabling a more informed understanding of potential impacts on T&E species and supporting compliance with regulatory requirements.

4 Results

4.1 Topography, Geology, & Climate

The USGS Quadrangle map for Manassas, VA (2024) depicts the study area as generally flat and sloping toward the northeast. Elevations within the study area range from approximately 170 feet above mean sea level (amsl) in the southeast to 150 feet amsl. The study area occurs in the Eastern Mountains and Piedmont Region (USACE, 2012); more specifically, the USDA NRCS Major Land Resource Area (MLRA) Northern Piedmont region (148) subregion of Land Resource Region (LRR) N (East and Central Farming and Forest Region). The topography of the Eastern Mountains and Piedmont region ranges from moderately steep to steep rolling hills that are covered with mixed hardwoods and small farms. The climate is characterized by four distinct seasons, with cold, moist winters, cool and wet springs and falls, and hot and humid summers with short periods of drought. Maximum precipitation occurs during high-intensity convective thunderstorms in early spring and summer (USDA NRCS, 2022).

4.2 USFWS NWI Data

Online research revealed one (1) NWI feature was identified within the project area. NWI data classifies approximately 1.79 acres of the study area as Freshwater Forested/Shrub Wetland habitat (PFO1C), located primarily on the northwestern portion of the site. This designation includes all nontidal wetlands which are dominated by trees, shrubs, and emergent species and is characterized by woody angiosperms (shrubs or trees) with leaves that are shed during the cold or dry season. Surface water in PFO1C systems is present for extended periods, especially early in the growing season, but is absent by the end of the growing season in most years. The water table after flooding ceases is variable, extending from saturated to the surface to a water table well below the ground surface (NWI, 2024). The location of NWI features found in the study area can be seen in **Figure 4** in **Attachment 1**.

4.3 NRCS Soil Survey Data

The study area consists of three (3) different soil types: Elsinboro sandy loam, 2 to 7 percent slopes, Alden silt loam, 0 to 2 percent slopes, and Rowland silt loam, 0 to 2 percent slopes. The Elsinboro soil series is a well-draining non-hydric soil classified as prime farmland that rarely floods. Aldin silt loam soils are poorly draining, hydric, non-prime farmland that occasionally flood. Rowland silt loam, also classified as non-prime farmland, is a moderately well-drained non-hydric soil that frequently floods. **Table 1** below provides detailed information on the soil units represented within the project area based on information collected from the Web Soil Survey database. Refer to **Figure 5** in **Attachment 1** for an illustration of the mapped soil units in and surrounding the survey area.

Table 1: NRCS Soil Types

Soil Unit Name	Acres in study area	Hydric/Non-Hydric
Elsinboro sandy loam, 2 to 7 percent slopes	2.0	Non-Hydric
Alden silt loam, 0 to 2 percent slopes	1.8	Hydric
Rowland silt loam, 0 to 2 percent slopes	0.2	Non-Hydric

4.4 Historical Aerial Photography

Historical aerial imagery for the project and surrounding areas was evaluated using photographs collected from Google Earth for the years 1994, 2011, 2015, and 2023. As shown in **Figure 6a** through **6e** in **Attachment 1**, the site has remained forested. A potential drainage pathway can be seen in the southeast portion of the site, however, no standing water is visible, except in Broad Run which is outside of the study area.

4.5 Precipitation Data

Table 2 provides precipitation at the Airport from April 9, 2024 to April 24, 2024, collected from the weather station at the Airport.

Table 2: AgACIS Precipitation at HEF – 4/9/24 through 4/24/24

Date	Average Temperature (°F)	Precipitation (in)
4/9/2024	55	0
4/10/2024	69	<0.01
4/11/2024	66	0.08
4/12/2024	61.5	0.06
4/13/2024	55.5	<0.01
4/14/2024	59	0
4/15/2024	69.5	<0.01
4/16/2024	63.5	0
4/17/2024	64.5	<0.01
4/18/2024	65.5	0
4/19/2024	55	<0.01
4/20/2024	64.5	<0.01
4/21/2024	48	0
4/22/2024	49.5	0
4/23/2024	52	0
4/24/2024	66	0

4.6 Ecological Site Condition

The study area is forested, and site conditions are consistent with aerial imagery and topographic information. Vegetation is diverse, with a mixture of hardwood species in the

canopy including American elm (*Ulmus Americana*), red maple (*Acer rubrum*), pignut hickory (*Carya glabra*), and white oak (*Quercus alba*). Typical shrub/sapling species are common pawpaw (*Asimina triloba*) and blackhaw (*Viburnum prunifolium*) with tree saplings scattered throughout. Groundcover vegetation is varied and includes Japanese honeysuckle (*Lonicera japonica*), mayapple (*Podophyllum peltatum*), star chickweed (*Stellaria pubera*), common wood sedge (*Carex blanda*), wild geranium (*Geranium maculatum*), and Virginia springbeauty (*Claytonia virginica*). Hydrologic indicators identified within the study area include high water table, drift deposits, water-stained leaves, sparsely vegetated concave surfaces, drainage patterns, and FAC-neutral vegetation. Surveyors identified limited obligate wetland vegetation but no wetland soils within the study area. Individual species list and wetland hydrologic indicators per DP can be found in the USACE wetland data sheets located in **Attachment 2**. Representative photos of the survey area and soils can be seen in **Attachment 3**.

4.7 Wildlife & Critical Habitat

The survey area underwent a review through the USFWS IPaC system and the VaFWIS tool. Within these frameworks, three (3) species were considered for impacts by USFWS within the project area. The VaFWIS review identified eleven (11) listed species as potentially occurring within a 2-mile radius of the study area. RS&H Biologist actively documented observations of wildlife and wildlife signs, while also evaluating the survey area for suitable habitat to support threatened, endangered, and other wildlife species. The survey documented sightings or signs of various wildlife species including the pileated woodpecker (*Dryocopus pileatus*), blue jay (*Cyanocitta cristata*), gray squirrel (*Sciurus carolinensis*), cardinal (*Cardinalis cardinalis*), white tailed deer (*Odocoileus virginianus*), racoon (*Procyon lotor*), and zebra swallowtail butterfly (*Eurytides marcellus*). Protected species identified through IPaC and VaFWIS review are provided in Tables 3a and 3b below.

Table 3a: Federally listed T&E Species that may occur within the study area (USFWS 2024)

Wildlife Species	Scientific Name	Federal Listing	State Listing	Category	IPaC Effect Determination	Likelihood to Encounter
Tricolored Bat	<i>Perimyotis subflavus</i>	Proposed Endangered	Endangered	Mammal	NLAA	Low
Dwarf Wedgemussel	<i>Alasmidonta heterodon</i>	Endangered	Endangered	Clam	No effect	None
Monarch Butterfly	<i>Danaus plexippus</i>	Candidate	Candidate	Insect	No effect	None

Table 3b: State listed species that could occur within a 2-mile radius of the study area (VaFWIS, 2024)

Common Name	Scientific Name	Taxa	State Listing
Northern long-eared bat	<i>Myotis septentrionalis</i>	Mammal	Threatened
Tricolored bat	<i>Perimyotis subflavus</i>	Mammal	Endangered
Little brown bat	<i>Myotis lucifugus</i>	Mammal	Endangered
Dwarf wedgemussel	<i>Alasmidonta heterodon</i>	Clam	Endangered
Yellow lance	<i>Elliptio lanceolata</i>	Clam	Threatened
Brook floater	<i>Alasmidonta varicose</i>	Clam	Threatened
Atlantic sturgeon	<i>Acipenser oxyrinchus</i>	Fish	Endangered
Peregrine falcon	<i>Falco peregrinus</i>	Bird	Threatened
Henslow’s sparrow	<i>Centronyx henslowii</i>	Bird	Threatened
Loggerhead shrike	<i>Lanius ludovicianus</i>	Bird	Threatened
Monarch butterfly	<i>Danaus plexippus</i>	Insect	Candidate

5 Conclusion

The 2016 preliminary wetland delineation included the proposed Project Area and found that there were 0.36 acre of wetlands within the current survey boundary. RS&H analyzed fifteen (15) data points throughout the study area and determined that there are no WOTUS waterbodies/wetlands identified using the three-parameter approach outlined in the 1987 Manual and 2012 Regional Supplement. An extremely shallow, weakly formed ephemeral channel with discontinuous banks was identified in the northwestern portion of the survey area. This channel lacks features such as a defined bed and banks found in relatively permanent waters. In addition, soil characteristics were not indicative of wetland soils, and it is likely that precipitation does not remain long enough for wetland conditions to form. In 2023, the Supreme Court decided *Sackett v. EPA*, and defined WOTUS as “only those relatively permanent, standing, or continuously flowing bodies of water” (EPA, 2023). In addition, *Sackett v. EPA* holds that a wetland is a WOTUS when the wetland has a “continuous surface connection” with WOTUS, “making it difficult to determine where the ‘water’ ends and the ‘wetland’ begins” (U.S. Supreme Court, 2023).

The NWI wetland mapping tool reviewed for this report and field analysis did not identify navigable waters, interstate waters, part of a tributary system, adjacent wetlands, or impoundments. Although there are some hydrologic indicators present in the study area such as drift debris, water-stained leaves, and sparsely vegetated concave surfaces that could be the

result of past flooding events, there are no areas in which wetland soils or conditions exist under the definition of WOTUS under the CWA.

See **Attachment 4** for additional wildlife information, including the USFWS Official Species List and Section 7 Determination Table, and the VaFWIS Search Report for listed species within 2-miles of the study area.

6 References

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Attachment 1 – Figures

Figure 1: Site Location

Figure 2: Survey Area

Figure 3: USGS 7.5-Minute Quadrangle Topography

Figure 4: NWI Data

Figure 5: NRCS Soil Survey

Figure 6a – 6e: Historical Aerials

6a – 1994

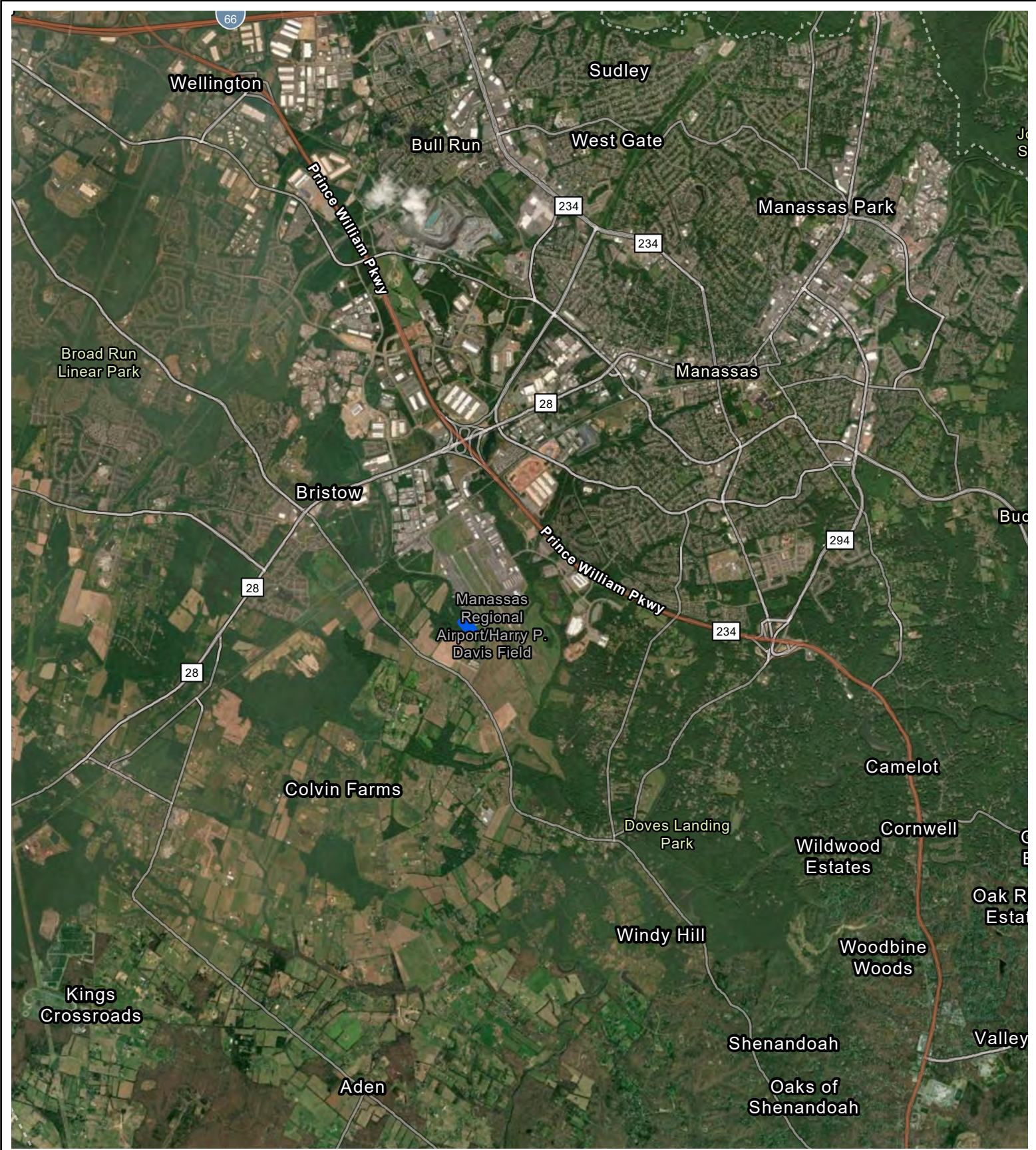
6b – 2002

6c – 2011

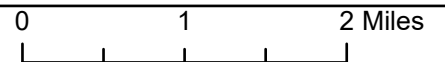
6d – 2015

6e – 2023

Figure 7: Direct Study Area Relative to 2016 Survey



Sources: ESRI 2023; RS&H 2024



Legend

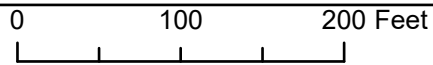
 Direct Study Area

Figure 1: Site Location





Sources: ESRI 2023; RS&H 2024

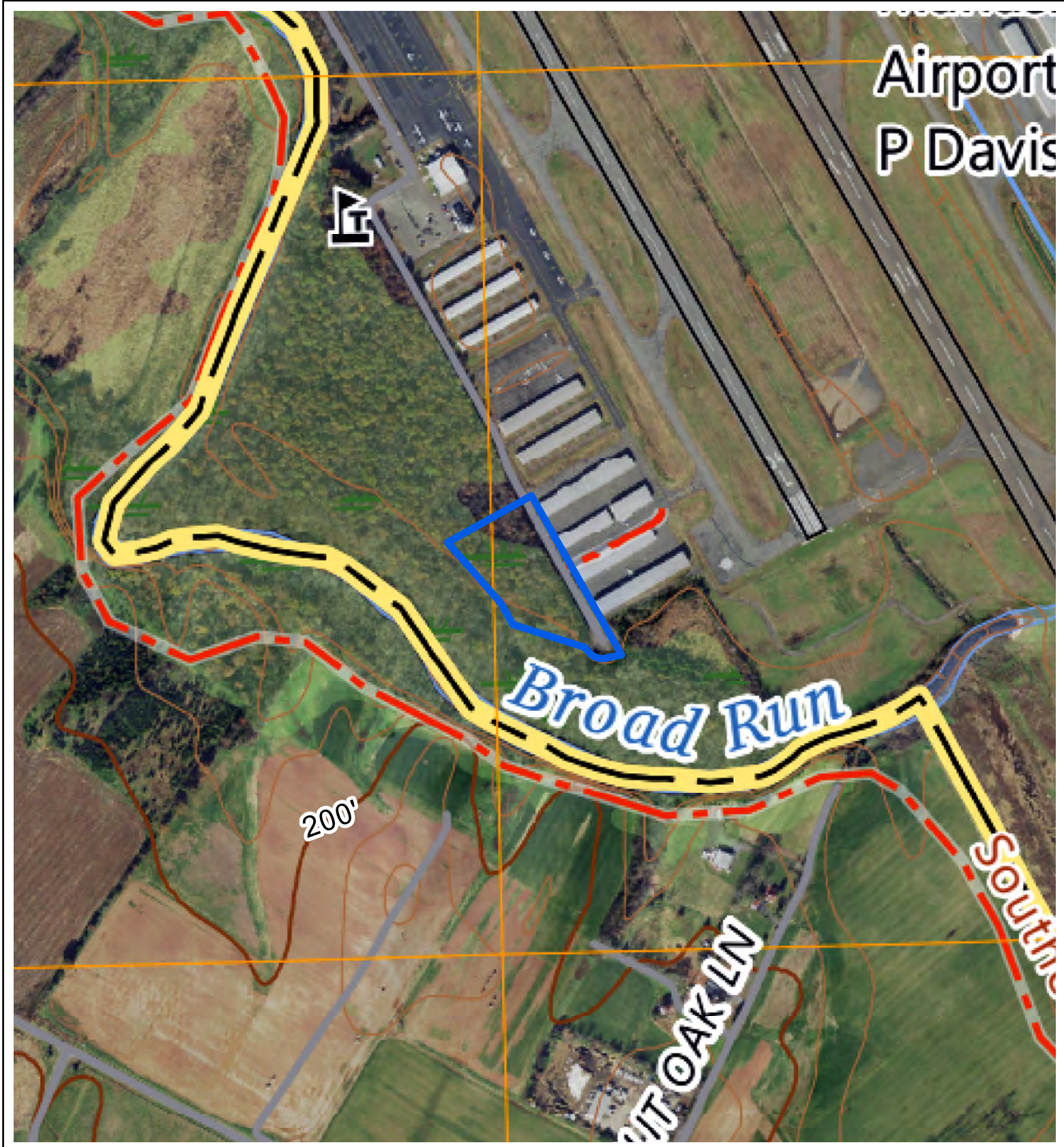


Legend

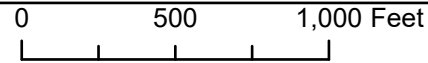
- Survey Data Points (DP)
- Direct Study Area

Figure 2: Survey Area





Sources: ESRI 2023; RS&H 2024



Note: Contours are 10 foot intervals

Legend

 Direct Study Area

Figure 3: USGS 7.5-Minute Quadrangle Topography





Sources: ESRI 2023; RS&H 2024

Legend

- Survey Data Points (DP)
- Freshwater Forested/Shrub Wetland
- Riverine
- Direct Study Area

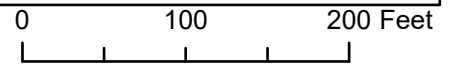
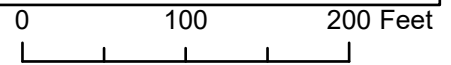


Figure 4: NWI Data





Sources: ESRI 2023; RS&H 2024

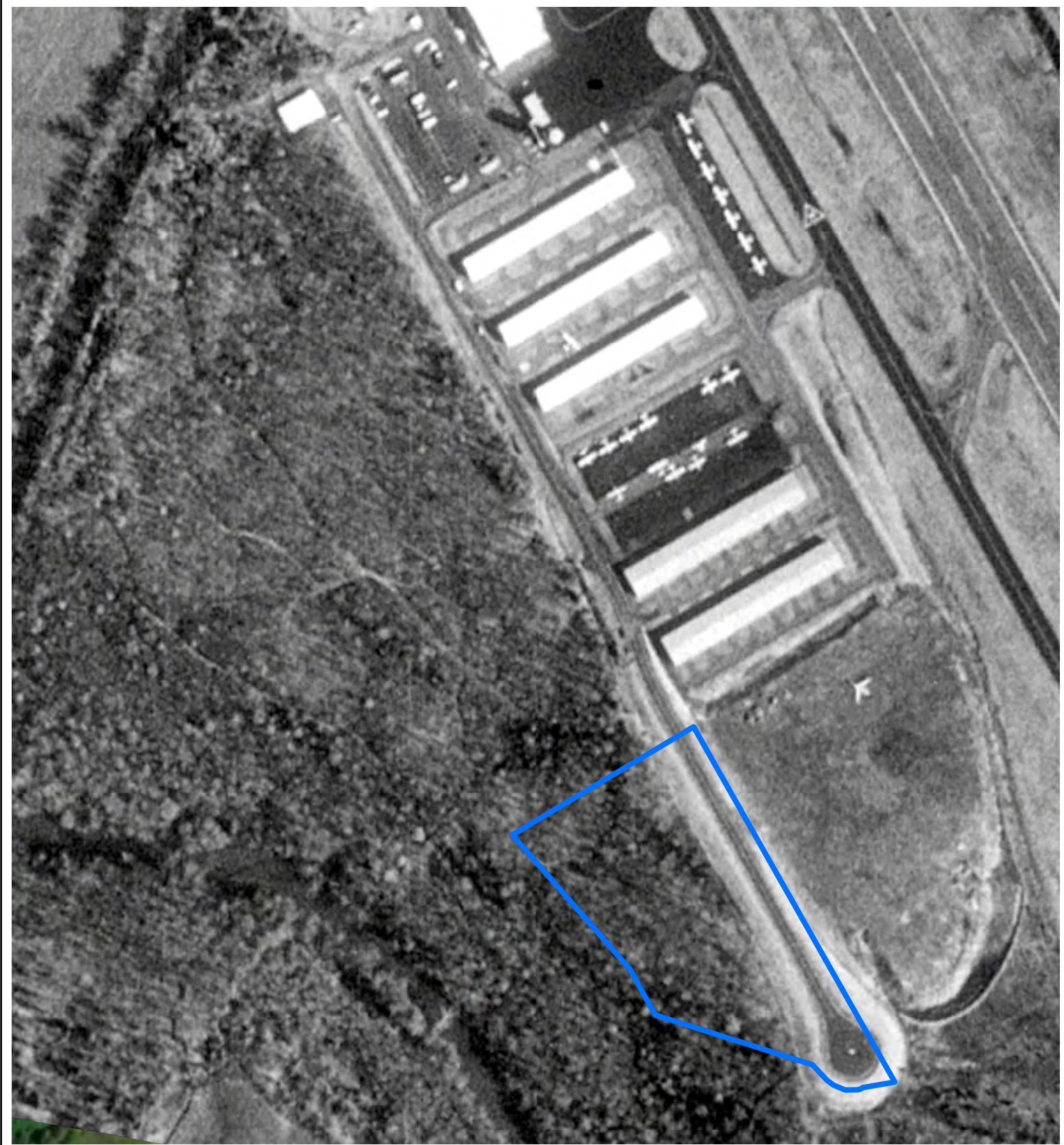


Legend

- Survey Data Points (DP)
- Rowland Silt Loam
- Aden Silt Loam
- Elsinboro Sandy Loam
- Direct Study Area

Figure 5: NRCS Soil Survey







Sources: ESRI 2023; RS&H 2023

Figure 6a
1994 Imagery

Legend

 Direct Study Area

0 250 500 Feet






Sources: ESRI 2023; RS&H 2023

Figure 6b
2002 Imagery

Legend

 Direct Study Area


0 250 500 Feet

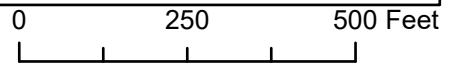


Sources: ESRI 2023; RS&H 2023

Figure 6c
2011 Imagery

Legend

 Direct Study Area






Sources: ESRI 2023; RS&H 2023

Figure 6d
2015 Imagery

Legend

 Direct Study Area


0 250 500 Feet



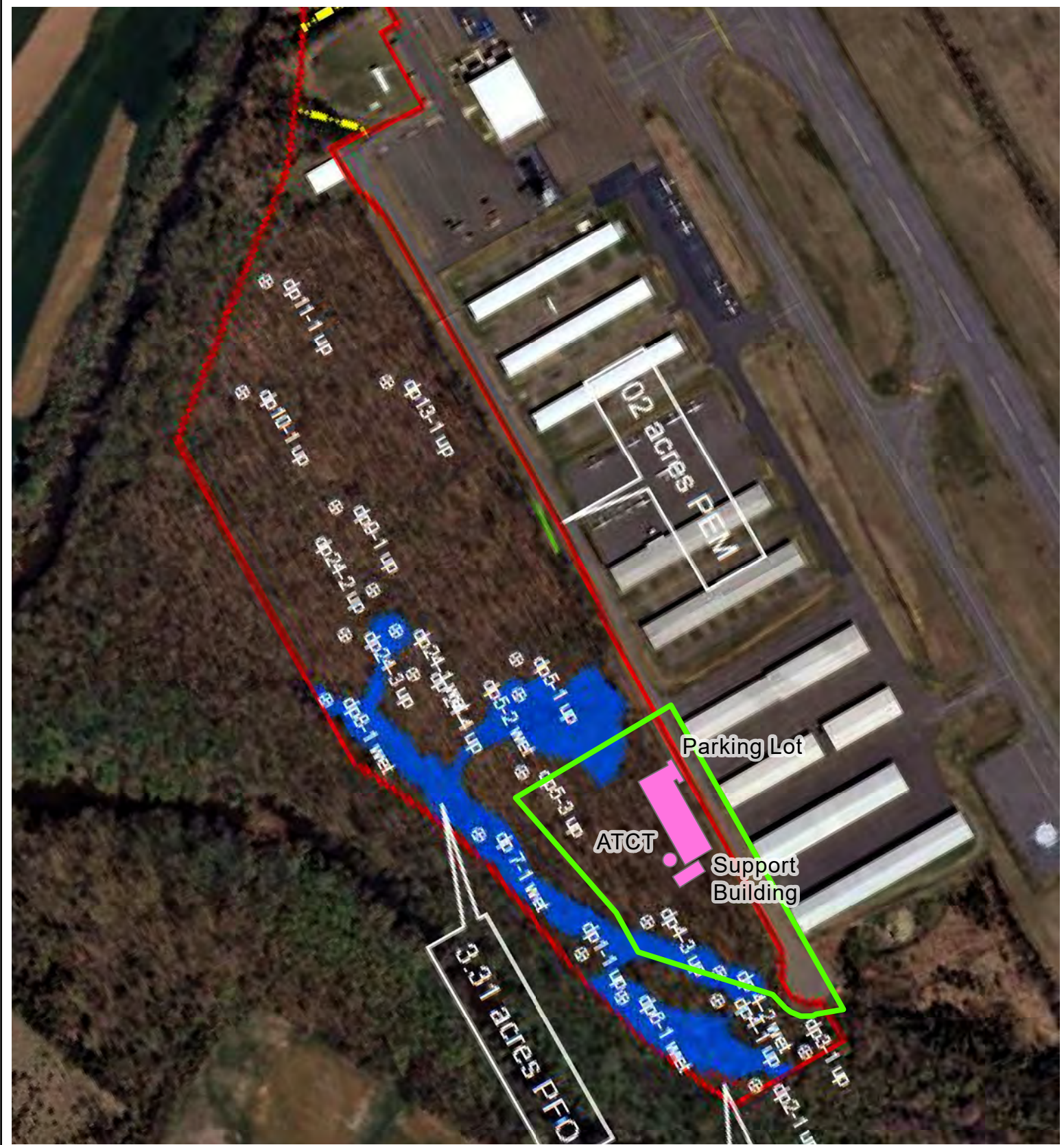
Sources: ESRI 2023; RS&H 2023

Figure 6e
2023 Imagery

Legend

 Direct Study Area

0 250 500 Feet



Sources: ESRI 2023; RS&H 2023

2016 Wetland Report Imagery

Legend

- Direct Study Area
- Proposed Action

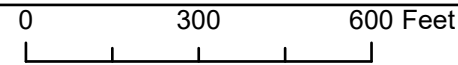


Figure 7



Attachment 2 – Wetland Determination Data Forms

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/23/2024
 Applicant/Owner: HEF State: VA Sampling Point: DP1
 Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): LRR N Lat: 38.717736 Long: -77.519406 Datum: WGS84
 Soil Map Unit Name: Alden silt loam NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: Forested area located in the NW of the survey area near the boundary. Lots of fallen debris that do not appear to be influenced by flooding events (do not appear to be drift lines). Area slopes generally towards the SE. Soils were dry and no water was present nearby.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators</u> (minimum of one is required; check all that apply)	<u>Secondary Indicators</u> (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations: Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>x</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>x</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
--	---

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

Remarks:

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

Sampling Point: DP1

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. <u>Ulmus americana</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Acer rubrum</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>
4. <u>Quercus lyrata</u>	<u>2</u>	<u>No</u>	<u>OBL</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: <u>24</u> 20% of total cover: <u>10</u>			

Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Asimina triloba</u>	<u>25</u>	<u>Yes</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: <u>13</u> 20% of total cover: <u>5</u>			

Herb Stratum (Plot size: <u>5 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Podophyllum peltatum</u>	<u>5</u>	<u>No</u>	<u>FACU</u>
2. <u>Ulmus americana</u>	<u>5</u>	<u>No</u>	<u>FACW</u>
3. <u>Trifolium repens</u>	<u>2</u>	<u>No</u>	<u>FACU</u>
4. <u>Rubus pensilvanicus</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
5. <u>Acer rubrum</u>	<u>3</u>	<u>No</u>	<u>FAC</u>
6. <u>Lonicera japonica</u>	<u>3</u>	<u>No</u>	<u>FACU</u>
7. <u>Stellaria pubera</u>	<u>3</u>	<u>No</u>	<u>UPL</u>
8. <u>Carex blanda</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: <u>23</u> 20% of total cover: <u>10</u>			

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>2</u>	x 1 = <u>2</u>
FACW species <u>20</u>	x 2 = <u>40</u>
FAC species <u>83</u>	x 3 = <u>249</u>
FACU species <u>10</u>	x 4 = <u>40</u>
UPL species <u>3</u>	x 5 = <u>15</u>
Column Totals: <u>118</u> (A)	<u>346</u> (B)
Prevalence Index = B/A = <u>2.93</u>	

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤3.0¹

 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

 Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹		
0-7.5	10YR 3/4	100					Sandy Sandy silt (Texture not available). Many fine roots
7.5-16	7.5R 4/6	100					Sandy Sandy silt (texture not available)

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (**LRR N**)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) (**MLRA 147, 148**)
- Thin Dark Surface (S9) (**MLRA 147, 148**)
- Loamy Mucky Mineral (F1) (**MLRA 136**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) (**LRR N, MLRA 136**)
- Umbric Surface (F13) (**MLRA 122, 136**)
- Piedmont Floodplain Soils (F19) (**MLRA 148**)
- Red Parent Material (F21) (**MLRA 127, 147, 148**)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (**MLRA 147**)
- Coast Prairie Redox (A16) (**MLRA 147, 148**)
- Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- Red Parent Material (F21) (**outside MLRA 127, 147, 148**)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/23/2024
 Applicant/Owner: HEF State: VA Sampling Point: DP2
 Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): LRR N Lat: 38.717783 Long: -77.519228 Datum: WGS84
 Soil Map Unit Name: Alden silt loam NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>		
Wetland Hydrology Present?	Yes <u>X</u> No _____		

Remarks:
 Forested area located in the NE portion of the survey area. Lots of dead leaves with little bare ground or herbaceous species. Lots of fallen branches. Drift deposits are present, likely from previous flooding events and the nearby intermittent stream. No water flowed into hole following soil plug excavation.

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) <u>x</u> _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) <u>x</u> _____ Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) <u>X</u> _____ FAC-Neutral Test (D5)
---	---

Field Observations: Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>x</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>x</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
--	---

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

Remarks:

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

Sampling Point: DP2

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. <u>Ulmus americana</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Acer rubrum</u>	<u>35</u>	<u>Yes</u>	<u>FAC</u>
4. <u>Carya glabra</u>	<u>5</u>	<u>No</u>	<u>FACU</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
55 = Total Cover			
50% of total cover: <u>28</u>		20% of total cover: <u>11</u>	

Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Asimina triloba</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Carya glabra</u>	<u>1</u>	<u>No</u>	<u>FACU</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
6 = Total Cover			
50% of total cover: <u>3</u>		20% of total cover: <u>2</u>	

Herb Stratum (Plot size: <u>5 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Dioscorea villosa</u>	<u>1</u>	<u>No</u>	<u>FAC</u>
2. <u>Lonicera japonica</u>	<u>2</u>	<u>No</u>	<u>FACU</u>
3. <u>Carex blanda</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>
4. <u>Stellaria pubera</u>	<u>2</u>	<u>No</u>	<u>UPL</u>
5. <u>Podophyllum peltatum</u>	<u>3</u>	<u>No</u>	<u>FACU</u>
6. <u>Campsis radicans</u>	<u>1</u>	<u>No</u>	<u>FAC</u>
7. <u>Asimina triloba</u>	<u>3</u>	<u>No</u>	<u>FAC</u>
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
27 = Total Cover			
50% of total cover: <u>14</u>		20% of total cover: <u>6</u>	

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: _____		20% of total cover: _____	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>15</u>	x 2 = <u>30</u>
FAC species <u>60</u>	x 3 = <u>180</u>
FACU species <u>11</u>	x 4 = <u>44</u>
UPL species <u>2</u>	x 5 = <u>10</u>
Column Totals: <u>88</u> (A)	<u>264</u> (B)
Prevalence Index = B/A = <u>3.00</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

 Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹		
0-6.5	7.5R 3/3	100					Sandy Sandy silt; many roots throughout
6.5-16	7.5R 4/4	100					Loamy/Clayey Silt

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) **(LRR N)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- Thin Dark Surface (S9) **(MLRA 147, 148)**
- Loamy Mucky Mineral (F1) **(MLRA 136)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- Umbric Surface (F13) **(MLRA 122, 136)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/23/2024
 Applicant/Owner: HEF State: VA Sampling Point: DP3
 Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): LRR N Lat: 38.717661 Long: -77.519144 Datum: WGS84
 Soil Map Unit Name: Alden silt loam NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
--	---

Remarks:
 DP collected within what appears to be an ephemeral channel with discontinuous banks, no water present, no defined stream bed or bank. Lots of leaf litter. Drift debris nearby. Although the area is likely impacted by precipitation, the water likely doesn't remain long enough for wetland soils/ conditions to form.

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) <input checked="" type="checkbox"/> Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: DP3

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. <u>Ulmus americana</u>	<u>30</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Acer rubrum</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
40 =Total Cover			
50% of total cover: <u>20</u>		20% of total cover: <u>8</u>	

Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Asimina triloba</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Ilex opaca</u>	<u>2</u>	<u>No</u>	<u>FACU</u>
3. <u>Ulmus americana</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
17 =Total Cover			
50% of total cover: <u>9</u>		20% of total cover: <u>4</u>	

Herb Stratum (Plot size: <u>5 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Arisaema dracontium</u>	<u>1</u>	<u>No</u>	<u>FACW</u>
2. <u>Lonicera japonica</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>
3. <u>Carex blanda</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>
4. <u>Stellaria pubera</u>	<u>2</u>	<u>No</u>	<u>UPL</u>
5. <u>Podophyllum peltatum</u>	<u>3</u>	<u>No</u>	<u>FACU</u>
6. <u>Campsis radicans</u>	<u>1</u>	<u>No</u>	<u>FAC</u>
7. <u>Claytonia virginica</u>	<u>3</u>	<u>No</u>	<u>FAC</u>
8. <u>Geranium maculatum</u>	<u>1</u>	<u>No</u>	<u>FACU</u>
9. <u>Rubus pensilvanicus</u>	<u>2</u>	<u>No</u>	<u>FAC</u>
10. <u>Ulmus americana</u>	<u>3</u>	<u>No</u>	<u>FACW</u>
11. _____	_____	_____	_____
36 =Total Cover			
50% of total cover: <u>18</u>		20% of total cover: <u>8</u>	

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ =Total Cover			
50% of total cover: _____		20% of total cover: _____	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)
 Total Number of Dominant Species Across All Strata: 6 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 83.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>39</u>	x 2 = <u>78</u>
FAC species <u>41</u>	x 3 = <u>123</u>
FACU species <u>11</u>	x 4 = <u>44</u>
UPL species <u>2</u>	x 5 = <u>10</u>
Column Totals: <u>93</u> (A)	<u>255</u> (B)
Prevalence Index = B/A = <u>2.74</u>	

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0¹
- 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present?

Yes No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6.5	10YR 3/3	100					Loamy/Clayey	Loamy silt; many roots
6.5-18	10YR 3/3	75	7.5R 5/8	25		M	Loamy/Clayey	Loamy silt

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

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136)	<input type="checkbox"/> (MLRA 147, 148)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> (MLRA 136, 147)	
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> (outside MLRA 127, 147, 148)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N,	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> MLRA 136)		
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136)		
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)		
<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)		

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <u>X</u>
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Remarks:

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/23/2024
 Applicant/Owner: HEF State: VA Sampling Point: DP4
 Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): LRR N Lat: 38.717781 Long: -77.518572 Datum: WGS84
 Soil Map Unit Name: Alden silt loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>		
Wetland Hydrology Present?	Yes <u>X</u> No _____		

Remarks:
 DP in what appears to be a shallow concave surface with little groundcover. Area likely influenced by flooding, however, the water doesn't stay around long enough for wetland soils/conditions to form.

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) <u>x</u> Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) <u>x</u> Sparsely Vegetated Concave Surface (B8) <u>x</u> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) <u>X</u> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>x</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>x</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: DP4

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. <u>Ulmus americana</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Acer rubrum</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>
4. <u>Quercus alba</u>	<u>5</u>	<u>No</u>	<u>FACU</u>
5. _____			
6. _____			
7. _____			
<u>55</u> =Total Cover			
50% of total cover: <u>28</u> 20% of total cover: <u>11</u>			

Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
_____ =Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Herb Stratum (Plot size: <u>5 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Carex intumescens</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>
2. <u>Claytonia virginica</u>	<u>1</u>	<u>No</u>	<u>FAC</u>
3. <u>Lonicera japonica</u>	<u>2</u>	<u>No</u>	<u>FACU</u>
4. <u>Ulmus americana</u>	<u>3</u>	<u>No</u>	<u>FACW</u>
5. _____			
6. _____			
7. _____			
8. _____			
9. _____			
10. _____			
11. _____			
<u>16</u> =Total Cover			
50% of total cover: <u>8</u> 20% of total cover: <u>4</u>			

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____			
2. _____			
3. _____			
4. _____			
5. _____			
_____ =Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>33</u>	x 2 = <u>66</u>
FAC species <u>31</u>	x 3 = <u>93</u>
FACU species <u>7</u>	x 4 = <u>28</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>71</u> (A)	<u>187</u> (B)
Prevalence Index = B/A = <u>2.63</u>	

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

 3 - Prevalence Index is ≤3.0¹

 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

 Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)
Mostly bare ground and leaves. Lots of fallen branches.

SOIL

Sampling Point: DP4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 3/3	100					Loamy/Clayey	Loamy silt; many roots
5-8.5	10YR 5/2	70	10YR 3/2	30	D	M	Loamy/Clayey	
8.5-20	10YR 5/2	50	10YR 5/8	50	D	M	Loamy/Clayey	

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) **(LRR N)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- Thin Dark Surface (S9) **(MLRA 147, 148)**
- Loamy Mucky Mineral (F1) **(MLRA 136)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- Umbric Surface (F13) **(MLRA 122, 136)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/23/2024
 Applicant/Owner: HEF State: VA Sampling Point: DP5
 Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): LRR N Lat: 38.717664 Long: -77.518494 Datum: WGS84
 Soil Map Unit Name: Alden silt loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
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Remarks:
 DP in area with little groundcover and lots of water stained leaves. Water appeared in hole after approximately 25 minutes (12" below ground). Nearby drift deposits NE of the datapoint at elevation increase. Although the area appears to be influenced by flooding, it doesn't appear that water remains long enough for wetland conditions and soils to develop.

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ True Aquatic Plants (B14) <u>x</u> High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) <u>x</u> Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) <u>x</u> Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) <u>x</u> Sparsely Vegetated Concave Surface (B8) <u>x</u> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) <u>X</u> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes <u>x</u> No _____ Depth (inches): <u>12</u> Saturation Present? Yes _____ No <u>x</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: DP5

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. <u>Ulmus americana</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Acer rubrum</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>
4. <u>Quercus alba</u>	<u>3</u>	<u>No</u>	<u>FACU</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: <u>19</u>		20% of total cover: <u>8</u>	

Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: _____		20% of total cover: _____	

Herb Stratum (Plot size: <u>5 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Ulmus americana</u>	<u>3</u>	<u>No</u>	<u>FACW</u>
2. <u>Carex intumescens</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: <u>9</u>		20% of total cover: <u>4</u>	

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Smilax rotundifolia</u>	<u>3</u>	<u>No</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: <u>2</u>		20% of total cover: <u>1</u>	

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>33</u>	x 2 = <u>66</u>
FAC species <u>23</u>	x 3 = <u>69</u>
FACU species <u>3</u>	x 4 = <u>12</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>59</u> (A)	<u>147</u> (B)
Prevalence Index = B/A = <u>2.49</u>	

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤3.0¹

 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

 Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)
Mostly bare ground and leaves. Lots of fallen branches.

SOIL

Sampling Point: DP5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 4/3	100					Loamy/Clayey	Silt; fine roots present
4-10	10YR 5/3	80	10YR 5/8	20	D	M	Loamy/Clayey	Silt; fine roots present
10-22.5	10YR 6/3	20	10YR 5/8	80	D	M	Loamy/Clayey	Silt

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) (**LRR N**)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) (**MLRA 147, 148**)
- Thin Dark Surface (S9) (**MLRA 147, 148**)
- Loamy Mucky Mineral (F1) (**MLRA 136**)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) (**LRR N, MLRA 136**)
- Umbric Surface (F13) (**MLRA 122, 136**)
- Piedmont Floodplain Soils (F19) (**MLRA 148**)
- Red Parent Material (F21) (**MLRA 127, 147, 148**)

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) (**MLRA 147**)
- Coast Prairie Redox (A16) (**MLRA 147, 148**)
- Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
- Red Parent Material (F21) (**outside MLRA 127, 147, 148**)
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/23/2024
 Applicant/Owner: HEF State: VA Sampling Point: DP6
 Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): LRR N Lat: 38.717694 Long: -77.518653 Datum: WGS84
 Soil Map Unit Name: Alden silt loam NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>		
Wetland Hydrology Present?	Yes <u>X</u> No _____		

Remarks:
 Area appears to be influenced by flooding (drift deposits, water stained leaves, sparsely vegetated). Water appeared in the hole where soil was excavated after approximately 20 minutes (12" below ground). However, water does not appear to remain long enough to develop wetland soils.

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators</u> (minimum of one is required; check all that apply) <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input checked="" type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input checked="" type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) 	<u>Secondary Indicators</u> (minimum of two required) <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No _____ Depth (inches): _____ Water Table Present? Yes <u>x</u> No _____ Depth (inches): <u>12</u> Saturation Present? Yes _____ No _____ Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Water infiltrated hole ~ 20 minutes after soil excavation. Area appears to be within a flood pathway.

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

Sampling Point: DP6

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30 ft</u>)				
1.				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B) Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2.	<u>20</u>	<u>Yes</u>	<u>FACW</u>	
3.	<u>20</u>	<u>Yes</u>	<u>FAC</u>	
4.	<u>5</u>	<u>No</u>	<u>FACU</u>	
5.				
6.				
7.				
	<u>45</u>	=Total Cover		
	50% of total cover: <u>23</u>	20% of total cover: <u>9</u>		
Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)				
1.				Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
		=Total Cover		
	50% of total cover: _____	20% of total cover: _____		
Herb Stratum (Plot size: <u>5 ft</u>)				
1.	<u>15</u>	<u>Yes</u>		
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	<u>15</u>	=Total Cover		
	50% of total cover: <u>8</u>	20% of total cover: <u>3</u>		
Woody Vine Stratum (Plot size: _____)				
1.				
2.				
3.				
4.				
5.				
		=Total Cover		
	50% of total cover: _____	20% of total cover: _____		

Remarks: (Include photo numbers here or on a separate sheet.)
 Very little groundcover. Area appears to be within a floodway.

SOIL

Sampling Point: DP6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	10YR 3/3	100					Loamy/Clayey	Silt; many fine roots
5-22	10YR 5/1	50	7.5R 5/8	50	D	M	Loamy/Clayey	Silt

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) **(LRR N)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- Thin Dark Surface (S9) **(MLRA 147, 148)**
- Loamy Mucky Mineral (F1) **(MLRA 136)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- Umbric Surface (F13) **(MLRA 122, 136)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/23/2024
 Applicant/Owner: HEF State: VA Sampling Point: DP7
 Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): LRR N Lat: 38.717581 Long: -77.518542 Datum: WGS84
 Soil Map Unit Name: Alden silt loam NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: Somewhat sparse vegetation. Soils do not exhibit hydric conditions. Surrounding area lacks wetland hydrology indicators.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9) ___ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: DP7

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. <u>Ulmus americana</u>	<u>20</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Acer rubrum</u>	<u>25</u>	<u>Yes</u>	<u>FAC</u>
4. <u>Quercus alba</u>	<u>8</u>	<u>No</u>	<u>FACU</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
53 =Total Cover			
50% of total cover: <u>27</u> 20% of total cover: <u>11</u>			

Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Carya glabra</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
20 =Total Cover			
50% of total cover: <u>10</u> 20% of total cover: <u>4</u>			

Herb Stratum (Plot size: <u>5 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Carex blanda</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Podophyllum peltatum</u>	<u>1</u>	<u>No</u>	<u>FACU</u>
3. <u>Smilax rotundifolia</u>	<u>1</u>	<u>No</u>	<u>FAC</u>
4. <u>Viburnum prunifolium</u>	<u>15</u>	<u>Yes</u>	<u>FACU</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
22 =Total Cover			
50% of total cover: <u>11</u> 20% of total cover: <u>5</u>			

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ =Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Dominance Test worksheet:

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>20</u>	x 2 = <u>40</u>
FAC species <u>31</u>	x 3 = <u>93</u>
FACU species <u>44</u>	x 4 = <u>176</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>95</u> (A)	<u>309</u> (B)
Prevalence Index = B/A = <u>3.25</u>	

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0¹
- 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present?

Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)
Sparse groundcover, mostly dead leaves.

SOIL

Sampling Point: DP7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	7.5R 3/4	100					Loamy/Clayey	Silt; many fine roots
5-8	7.5R 4/4	100					Loamy/Clayey	Silt; many fine roots
8-23	7.5R 5/8	100					Loamy/Clayey	Silt

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) **(LRR N)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- Thin Dark Surface (S9) **(MLRA 147, 148)**
- Loamy Mucky Mineral (F1) **(MLRA 136)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- Umbric Surface (F13) **(MLRA 122, 136)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/24/2024
 Applicant/Owner: HEF State: VA Sampling Point: DP8
 Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): LRR N Lat: 38.717192 Long: -77.518125 Datum: WGS84
 Soil Map Unit Name: Elsinboro sandy loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	<table style="width:100%;"> <tr> <td style="width: 60%;">Is the Sampled Area within a Wetland?</td> <td style="width: 40%;">Yes _____ No <u>X</u></td> </tr> </table> Remarks: Diverse groundcover comprised of mostly upland species. No hydrologic indicators present.	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>		

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>x</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>x</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: DP8

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. <u>Ulmus americana</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Carya glabra</u>	<u>25</u>	<u>Yes</u>	<u>FACU</u>
4. <u>Quercus nigra</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
45 =Total Cover			
50% of total cover: <u>23</u>		20% of total cover: <u>9</u>	

Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Rosa multiflora</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>
2. <u>Carya glabra</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>
3. <u>Viburnum prunifolium</u>	<u>5</u>	<u>No</u>	<u>FACU</u>
4. <u>Lonicera morrowii</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
35 =Total Cover			
50% of total cover: <u>18</u>		20% of total cover: <u>7</u>	

Herb Stratum (Plot size: <u>5 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Parthenocissus quinquefolia</u>	<u>15</u>	<u>Yes</u>	<u>FACU</u>
2. <u>Carya glabra</u>	<u>3</u>	<u>No</u>	<u>FACU</u>
3. <u>Ulmus americana</u>	<u>2</u>	<u>No</u>	<u>FACW</u>
4. <u>Rosa multiflora</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>
5. <u>Galium aparine</u>	<u>2</u>	<u>No</u>	<u>FACU</u>
6. <u>Lonicera japonica</u>	<u>3</u>	<u>No</u>	<u>FACU</u>
7. <u>Podophyllum peltatum</u>	<u>2</u>	<u>No</u>	<u>FACU</u>
8. <u>Asimina triloba</u>	<u>1</u>	<u>No</u>	<u>FAC</u>
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
38 =Total Cover			
50% of total cover: <u>19</u>		20% of total cover: <u>8</u>	

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ =Total Cover			
50% of total cover: _____		20% of total cover: _____	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
 Total Number of Dominant Species Across All Strata: 8 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 25.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>12</u>	x 2 = <u>24</u>
FAC species <u>11</u>	x 3 = <u>33</u>
FACU species <u>95</u>	x 4 = <u>380</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>118</u> (A)	<u>437</u> (B)
Prevalence Index = B/A = <u>3.70</u>	

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0¹
- 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present?

Yes No X

Remarks: (Include photo numbers here or on a separate sheet.)

Fewer downed trees, much more diverse groundcover than in other areas of the survey area.

SOIL

Sampling Point: DP8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	7.5R 3/4	100					Loamy/Clayey	Silty loam; few roots
6-20	7.5R 4/6	100					Loamy/Clayey	Silt

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) **(LRR N)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- Thin Dark Surface (S9) **(MLRA 147, 148)**
- Loamy Mucky Mineral (F1) **(MLRA 136)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- Umbric Surface (F13) **(MLRA 122, 136)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/24/2024
 Applicant/Owner: HEF State: VA Sampling Point: DP9
 Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): LRR N Lat: 38.717378 Long: -77.518292 Datum: WGS84
 Soil Map Unit Name: Elsinboro sandy loam NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: Area slightly depressed, appears to be influenced by flooding events based on sparse groundcover vegetation (FACU, FAC), water stained leaves and drift deposits. However, soils do not indicate that water remains long enough to create true wetland soils/wetland characteristics.	

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply) _____ Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) <u>x</u> Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) <u>x</u> Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	Secondary Indicators (minimum of two required) _____ Surface Soil Cracks (B6) <u>x</u> Sparsely Vegetated Concave Surface (B8) <u>x</u> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>x</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>x</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: DP9

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. <u>Ulmus americana</u>	<u>25</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Acer rubrum</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>
4. <u>Quercus alba</u>	<u>5</u>	<u>No</u>	<u>FACU</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
50 = Total Cover			
50% of total cover: <u>25</u> 20% of total cover: <u>10</u>			

Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Asimina triloba</u>	<u>2</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Viburnum prunifolium</u>	<u>3</u>	<u>Yes</u>	<u>FACU</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
5 = Total Cover			
50% of total cover: <u>3</u> 20% of total cover: <u>1</u>			

Herb Stratum (Plot size: <u>5 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Carya glabra</u>	<u>1</u>	<u>No</u>	<u>FACU</u>
2. <u>Viburnum prunifolium</u>	<u>3</u>	<u>Yes</u>	<u>FACU</u>
3. <u>Claytonia virginica</u>	<u>1</u>	<u>No</u>	<u>FAC</u>
4. <u>Carex blanda</u>	<u>2</u>	<u>Yes</u>	<u>FAC</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
7 = Total Cover			
50% of total cover: <u>4</u> 20% of total cover: <u>2</u>			

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species <u>0</u>	x 1 =	<u>0</u>
FACW species <u>25</u>	x 2 =	<u>50</u>
FAC species <u>25</u>	x 3 =	<u>75</u>
FACU species <u>12</u>	x 4 =	<u>48</u>
UPL species <u>0</u>	x 5 =	<u>0</u>
Column Totals: <u>62</u> (A)		<u>173</u> (B)
Prevalence Index = B/A = <u>2.79</u>		

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0¹
- 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present?

Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)
 Very little herbaceous and shrub species. Area appears to be in a slight depression.

SOIL

Sampling Point: DP9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	7.5R 3/3	100					Loamy/Clayey	Silt; many roots throughout
10-23	7.5R 4/6	100					Loamy/Clayey	Silt

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) **(LRR N)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- Thin Dark Surface (S9) **(MLRA 147, 148)**
- Loamy Mucky Mineral (F1) **(MLRA 136)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- Umbric Surface (F13) **(MLRA 122, 136)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

DP in area where water appears to convey during flooding events. Found hardware/gardenign cloth near DP 8 in a shallow channel that appears to lead to this location.

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/24/2024
 Applicant/Owner: HEF State: VA Sampling Point: DP10
 Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): LRR N Lat: 38.717378 Long: -77.518292 Datum: WGS84
 Soil Map Unit Name: Elsinboro sandy loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes <u>X</u> No _____	

Remarks:
 Survey point was taken just outside of the depression where DP9 is located. Drift deposits appear to be nearby. Area likely influenced by flooding events, however, wetland conditions/soils have not developed.

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ High Water Table (A2) _____ Saturation (A3) _____ Water Marks (B1) _____ Sediment Deposits (B2) <u>x</u> Drift Deposits (B3) _____ Algal Mat or Crust (B4) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) <u>x</u> Water-Stained Leaves (B9) _____ Aquatic Fauna (B13) _____ True Aquatic Plants (B14) _____ Hydrogen Sulfide Odor (C1) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Presence of Reduced Iron (C4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Thin Muck Surface (C7) _____ Other (Explain in Remarks)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) <u>x</u> Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>x</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>x</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: DP10

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. <u>Ulmus americana</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Acer rubrum</u>	<u>25</u>	<u>Yes</u>	<u>FAC</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
35 =Total Cover			
50% of total cover: <u>18</u> 20% of total cover: <u>7</u>			

Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Asimina triloba</u>	<u>7</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Carya glabra</u>	<u>2</u>	<u>Yes</u>	<u>FACU</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
9 =Total Cover			
50% of total cover: <u>5</u> 20% of total cover: <u>2</u>			

Herb Stratum (Plot size: <u>5 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Asimina triloba</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Viburnum prunifolium</u>	<u>3</u>	<u>No</u>	<u>FACU</u>
3. <u>Ulmus americana</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>
4. <u>Podophyllum peltatum</u>	<u>1</u>	<u>No</u>	<u>FACU</u>
5. <u>Claytonia virginica</u>	<u>2</u>	<u>No</u>	<u>FAC</u>
6. <u>Stellaria pubera</u>	<u>5</u>	<u>Yes</u>	<u>UPL</u>
7. <u>Viola sororia</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
8. <u>Galium circaeazans</u>	<u>1</u>	<u>No</u>	<u>UPL</u>
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
27 =Total Cover			
50% of total cover: <u>14</u> 20% of total cover: <u>6</u>			

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ =Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)
 Total Number of Dominant Species Across All Strata: 8 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>15</u>	x 2 = <u>30</u>
FAC species <u>44</u>	x 3 = <u>132</u>
FACU species <u>6</u>	x 4 = <u>24</u>
UPL species <u>6</u>	x 5 = <u>30</u>
Column Totals: <u>71</u> (A)	<u>216</u> (B)
Prevalence Index = B/A = <u>3.04</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
3 - Prevalence Index is ≤3.0¹
4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
_____ Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.
Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.
Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.
Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present?

Yes No _____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/4	100					Loamy/Clayey	Silt; many fine roots
2-7	10YR 3/6	100					Loamy/Clayey	Silt
7-23	7.5R 4/6	100					Loamy/Clayey	Silty clay

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) **(LRR N)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- Thin Dark Surface (S9) **(MLRA 147, 148)**
- Loamy Mucky Mineral (F1) **(MLRA 136)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- Umbric Surface (F13) **(MLRA 122, 136)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Approximately 30 ft from DP 9, outside depression. Displayed similar soils despite being in what appears to be a different ecotone.

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/24/2024
 Applicant/Owner: HEF State: VA Sampling Point: DP11
 Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): LRR N Lat: 38.717025 Long: -77.518744 Datum: WGS84
 Soil Map Unit Name: Elsinboro sandy loam NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: Survey point in the SW portion of the site. Bottom portion of soils were much more saturated than the top, and water seeped into the hole after approximately 20 minutes (20" below ground). UPL and FACU dominated groundcover. Water appears to not remain long enough to develop wetland soils/conditions.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ True Aquatic Plants (B14) <u>x</u> High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) <u>x</u> Drainage Patterns (B10) _____ Moss Trim Lines (B16) Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) <u>X</u> FAC-Neutral Test (D5)
---	--

Field Observations: Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes <u>x</u> No _____ Depth (inches): <u>20</u> Saturation Present? Yes _____ No <u>x</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
--	---

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

Remarks:
 Bottom portion of soil profile much more saturated than the top. Water seeps in ~20 minutes.

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

Sampling Point: DP11

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. <u>Ulmus americana</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Quercus alba</u>	<u>5</u>	<u>No</u>	<u>FACU</u>
4. <u>Carya glabra</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
30 =Total Cover			
50% of total cover: <u>15</u> 20% of total cover: <u>6</u>			

Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Ulmus americana</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
5 =Total Cover			
50% of total cover: <u>3</u> 20% of total cover: <u>1</u>			

Herb Stratum (Plot size: <u>5 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Lonicera japonica</u>	<u>15</u>	<u>Yes</u>	<u>FACU</u>
2. <u>Ulmus americana</u>	<u>10</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Carya glabra</u>	<u>3</u>	<u>No</u>	<u>FACU</u>
4. <u>Claytonia virginica</u>	<u>3</u>	<u>No</u>	<u>FAC</u>
5. <u>Quercus alba</u>	<u>1</u>	<u>No</u>	<u>FACU</u>
6. <u>Carex blanda</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
7. <u>Smilax ecirrhata</u>	<u>5</u>	<u>No</u>	<u>UPL</u>
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
47 =Total Cover			
50% of total cover: <u>24</u> 20% of total cover: <u>10</u>			

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ =Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>30</u>	x 2 = <u>60</u>
FAC species <u>13</u>	x 3 = <u>39</u>
FACU species <u>34</u>	x 4 = <u>136</u>
UPL species <u>5</u>	x 5 = <u>25</u>
Column Totals: <u>82</u> (A)	<u>260</u> (B)
Prevalence Index = B/A = <u>3.17</u>	

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0¹
- 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present?

Yes X No _____

Remarks: (Include photo numbers here or on a separate sheet.)
Very little herbaceous and shrub species. Area appears to be in a slight depression.

SOIL

Sampling Point: DP11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4.5	10YR 3/4	100					Loamy/Clayey	Silt; many fine roots
4.5-9	10YR 3/6	100					Loamy/Clayey	Silt; few fine roots
9-24	7.5R 4/6	100					Loamy/Clayey	Silt

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) **(LRR N)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- Thin Dark Surface (S9) **(MLRA 147, 148)**
- Loamy Mucky Mineral (F1) **(MLRA 136)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- Umbric Surface (F13) **(MLRA 122, 136)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

DP adjacent to floodway (to the SW). Elevation increases to the east. Water seeps into hole after ~20 minutes.

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/24/2024
 Applicant/Owner: HEF State: VA Sampling Point: DP 12
 Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): LRR N Lat: 38.717264 Long: -77.518564 Datum: WGS84
 Soil Map Unit Name: Elsinboro sandy loam NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: Area dominated by FAC/UPL plants with no hydrology indicators present. Appears to be an upland.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>x</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>x</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
--	---

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

Remarks:
 DP at the top of the elevated area between DP 10 and DP 11.

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

Sampling Point: DP 12

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. <u>Carya glabra</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>
3. <u>Quercus alba</u>	<u>15</u>	<u>Yes</u>	<u>FACU</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
_____ =Total Cover			
50% of total cover: <u>10</u> 20% of total cover: <u>4</u>			

Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Carya glabra</u>	<u>5</u>	<u>No</u>	<u>FACU</u>
2. <u>Asimina triloba</u>	<u>25</u>	<u>Yes</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
_____ =Total Cover			
50% of total cover: <u>15</u> 20% of total cover: <u>6</u>			

Herb Stratum (Plot size: <u>5 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Ulmus americana</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>
2. <u>Carex blanda</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
3. <u>Parthenocissus quinquefolia</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>
4. <u>Lonicera japonica</u>	<u>3</u>	<u>No</u>	<u>FACU</u>
5. <u>Thalictrum thalictroides</u>	<u>1</u>	<u>No</u>	<u>FACU</u>
6. <u>Stellaria pubera</u>	<u>3</u>	<u>No</u>	<u>UPL</u>
7. <u>Geranium maculatum</u>	<u>3</u>	<u>No</u>	<u>FACU</u>
8. <u>Acer rubrum</u>	<u>2</u>	<u>No</u>	<u>FAC</u>
9. <u>Oxalis stricta</u>	<u>1</u>	<u>No</u>	<u>FACU</u>
10. _____	_____	_____	_____
11. _____	_____	_____	_____
_____ =Total Cover			
50% of total cover: <u>14</u> 20% of total cover: <u>6</u>			

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ =Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>5</u>	x 2 = <u>10</u>
FAC species <u>32</u>	x 3 = <u>96</u>
FACU species <u>38</u>	x 4 = <u>152</u>
UPL species <u>3</u>	x 5 = <u>15</u>
Column Totals: <u>78</u> (A)	<u>273</u> (B)
Prevalence Index = B/A = <u>3.50</u>	

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0¹

___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	7.5R 3/4	100					Sandy	Sandy silt; many fine roots
4-21	7.5R 4/6	100					Sandy	Sandy silt

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) **(LRR N)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- Thin Dark Surface (S9) **(MLRA 147, 148)**
- Loamy Mucky Mineral (F1) **(MLRA 136)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- Umbric Surface (F13) **(MLRA 122, 136)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Approximately 30 ft from DP 9, outside depression. Displayed similar soils despite being in what appears to be a different ecotone.

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/24/2024
 Applicant/Owner: HEF State: VA Sampling Point: DP 13
 Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): LRR N Lat: 38.716886 Long: -77.518092 Datum: WGS84
 Soil Map Unit Name: Elsinboro sandy loam NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: Dominated by FACU/UPL vegetation. Some drift deposits present, likely from past flooding events. However, water does not appear to remain long enough for wetland soils or conditions to develop.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) <u>x</u> _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>x</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>x</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

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

Sampling Point: DP 13

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. <u>Ulmus americana</u>	<u>5</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Carya glabra</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>
4. <u>Quercus alba</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>
5. <u>Acer rubrum</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>
6. _____	_____	_____	_____
7. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: <u>15</u> 20% of total cover: <u>6</u>			

Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Viburnum prunifolium</u>	<u>20</u>	<u>Yes</u>	<u>FACU</u>
2. <u>Asimina triloba</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: <u>13</u> 20% of total cover: <u>5</u>			

Herb Stratum (Plot size: <u>5 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Viburnum prunifolium</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>
2. <u>Parthenocissus quinquefolia</u>	<u>3</u>	<u>No</u>	<u>FACU</u>
3. <u>Stellaria pubera</u>	<u>1</u>	<u>No</u>	<u>UPL</u>
4. <u>Toxicodendron radicans</u>	<u>3</u>	<u>No</u>	<u>FAC</u>
5. <u>Erythronium americanum</u>	<u>5</u>	<u>Yes</u>	<u>UPL</u>
6. <u>Carex blanda</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
7. <u>Podophyllum peltatum</u>	<u>2</u>	<u>No</u>	<u>FACU</u>
8. <u>Carya glabra</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: <u>17</u> 20% of total cover: <u>7</u>			

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 10 (B)

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>5</u>	x 2 = <u>10</u>
FAC species <u>33</u>	x 3 = <u>99</u>
FACU species <u>45</u>	x 4 = <u>180</u>
UPL species <u>6</u>	x 5 = <u>30</u>
Column Totals: <u>89</u> (A)	<u>319</u> (B)
Prevalence Index = B/A = <u>3.58</u>	

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0¹

___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	7.5R 3/4	100					Loamy/Clayey	Silt; many fine roots
4-22	10YR 3/6	100					Loamy/Clayey	Silt

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) **(LRR N)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- Thin Dark Surface (S9) **(MLRA 147, 148)**
- Loamy Mucky Mineral (F1) **(MLRA 136)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- Umbric Surface (F13) **(MLRA 122, 136)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/24/2024
 Applicant/Owner: HEF State: VA Sampling Point: DP 14
 Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): LRR N Lat: 38.717828 Long: -77.518719 Datum: WGS84
 Soil Map Unit Name: Alden Silt loam NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: Damp moss, drift deposits, and water stained leaves in the area. Vegetation dominated by FA/FACU species. Wetland hydrology indicators likely due to past flooding events, however, water does not remain in the area long enough for wetland soils to develop.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) <u>x</u> Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) <u>x</u> Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) <u>x</u> Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>x</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>x</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
 Saturated moss adjacent to DP.

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

Sampling Point: DP 14

<u>Tree Stratum</u> (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40.0%</u> (A/B)
2. <u>Quercus alba</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>	
3. <u>Ulmus americana</u>	<u>2</u>	<u>No</u>	<u>FACW</u>	
4. <u>Acer rubrum</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
_____ =Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>2</u> x 2 = <u>4</u> FAC species <u>18</u> x 3 = <u>54</u> FACU species <u>27</u> x 4 = <u>108</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>47</u> (A) <u>166</u> (B) Prevalence Index = B/A = <u>3.53</u>
50% of total cover: <u>9</u>	20% of total cover: <u>4</u>			
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15 ft</u>)				
1. <u>Viburnum prunifolium</u>	<u>3</u>	<u>No</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
_____ =Total Cover				
50% of total cover: <u>2</u>	20% of total cover: <u>1</u>			
<u>Herb Stratum</u> (Plot size: <u>5 ft</u>)				
1. <u>Oxalis stricta</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Four Vegetation Strata: Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody Vine – All woody vines greater than 3.28 ft in height.
2. <u>Carex blanda</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>	
3. <u>Claytonia virginica</u>	<u>1</u>	<u>No</u>	<u>FAC</u>	
4. <u>Toxicodendron radicans</u>	<u>2</u>	<u>No</u>	<u>FAC</u>	
5. <u>Carya glabra</u>	<u>3</u>	<u>No</u>	<u>FACU</u>	
6. <u>Bryophyta (moss)</u>	<u>7</u>	<u>Yes</u>	_____	
7. <u>Quercus alba</u>	<u>3</u>	<u>No</u>	<u>FACU</u>	
8. <u>Viburnum prunifolium</u>	<u>3</u>	<u>No</u>	<u>FACU</u>	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ =Total Cover				
50% of total cover: <u>17</u>	20% of total cover: <u>7</u>			
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ =Total Cover				
50% of total cover: _____	20% of total cover: _____			

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP 14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5	7.5R 3/3	100					Loamy/Clayey	Silt; many fine roots
5-13	7.5R 5/1	70	7.5R 5/8	30	D	M	Loamy/Clayey	Silt
13-24	7.5R 5/8	90	7.5R 5/1	10	D	M	Loamy/Clayey	Silt

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) **(LRR N)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- Thin Dark Surface (S9) **(MLRA 147, 148)**
- Loamy Mucky Mineral (F1) **(MLRA 136)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- Umbric Surface (F13) **(MLRA 122, 136)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Project/Site: Manassas Regional Airport City/County: Manassas/Prince William County Sampling Date: 4/24/2024
 Applicant/Owner: HEF State: VA Sampling Point: DP 15
 Investigator(s): Katy Martin Section, Township, Range: Map 091; Block 00; Lot 2
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR or MLRA): LRR N Lat: 38.717728 Long: -77.518789 Datum: WGS84
 Soil Map Unit Name: Alden silt loam NWI classification: PFO1C

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes x No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	

Remarks:
 Nearby drift deposits likely a result of past flooding events. Vegetation and soils do not indicate that water remains long enough to develop wetland conditions.

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ True Aquatic Plants (B14) _____ High Water Table (A2) _____ Hydrogen Sulfide Odor (C1) _____ Saturation (A3) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Water Marks (B1) _____ Presence of Reduced Iron (C4) _____ Sediment Deposits (B2) _____ Recent Iron Reduction in Tilled Soils (C6) <u>x</u> _____ Drift Deposits (B3) _____ Thin Muck Surface (C7) _____ Algal Mat or Crust (B4) _____ Other (Explain in Remarks) _____ Iron Deposits (B5) _____ Inundation Visible on Aerial Imagery (B7) _____ Water-Stained Leaves (B9) _____ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Sparsely Vegetated Concave Surface (B8) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
--	--

Field Observations: Surface Water Present? Yes _____ No <u>x</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>x</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>x</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
--	---

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

Remarks:

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

Sampling Point: DP 15

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. <u>Acer rubrum</u>	<u>25</u>	<u>Yes</u>	<u>FAC</u>
3. <u>Carya glabra</u>	<u>10</u>	<u>Yes</u>	<u>FACU</u>
4. <u>Ulmus americana</u>	<u>5</u>	<u>No</u>	<u>FACW</u>
5. <u>Quercus alba</u>	<u>3</u>	<u>No</u>	<u>FACU</u>
6. _____	_____	_____	_____
7. _____	_____	_____	_____
43 = Total Cover			
50% of total cover: <u>22</u>		20% of total cover: <u>9</u>	

Sapling/Shrub Stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Carya glabra</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>
2. <u>Viburnum prunifolium</u>	<u>5</u>	<u>Yes</u>	<u>FACU</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10 = Total Cover			
50% of total cover: <u>5</u>		20% of total cover: <u>2</u>	

Herb Stratum (Plot size: <u>5 ft</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Carex blanda</u>	<u>10</u>	<u>Yes</u>	<u>FAC</u>
2. <u>Carex intumescens</u>	<u>15</u>	<u>Yes</u>	<u>FACW</u>
3. <u>Viburnum prunifolium</u>	<u>15</u>	<u>Yes</u>	<u>FACU</u>
4. <u>Geranium maculatum</u>	<u>2</u>	<u>No</u>	<u>FACU</u>
5. <u>Viola sororia</u>	<u>5</u>	<u>No</u>	<u>FAC</u>
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
47 = Total Cover			
50% of total cover: <u>24</u>		20% of total cover: <u>10</u>	

Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Smilax rotundifolia</u>	<u>5</u>	<u>Yes</u>	<u>FAC</u>
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
5 = Total Cover			
50% of total cover: <u>3</u>		20% of total cover: <u>1</u>	

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>20</u>	x 2 = <u>40</u>
FAC species <u>45</u>	x 3 = <u>135</u>
FACU species <u>40</u>	x 4 = <u>160</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>105</u> (A)	<u>335</u> (B)
Prevalence Index = B/A = <u>3.19</u>	

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0¹

___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody Vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ___ No X

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: DP 15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 3/3	100					Loamy/Clayey	Silt; many fine roots
4-9	10YR 7/2	50	10YR 5/8	50	D	M	Loamy/Clayey	Silt; few fine roots
9-24	10YR 5/8	90	10YR 7/2	10	D	M	Loamy/Clayey	Silt

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

²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- 2 cm Muck (A10) **(LRR N)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Dark Surface (S7)

- Polyvalue Below Surface (S8) **(MLRA 147, 148)**
- Thin Dark Surface (S9) **(MLRA 147, 148)**
- Loamy Mucky Mineral (F1) **(MLRA 136)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Iron-Manganese Masses (F12) **(LRR N, MLRA 136)**
- Umbric Surface (F13) **(MLRA 122, 136)**
- Piedmont Floodplain Soils (F19) **(MLRA 148)**
- Red Parent Material (F21) **(MLRA 127, 147, 148)**

Indicators for Problematic Hydric Soils³:

- 2 cm Muck (A10) **(MLRA 147)**
- Coast Prairie Redox (A16) **(MLRA 147, 148)**
- Piedmont Floodplain Soils (F19) **(MLRA 136, 147)**
- Red Parent Material (F21) **(outside MLRA 127, 147, 148)**
- Very Shallow Dark Surface (F22)
- Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes _____ No X

Remarks:

Attachment 3 – Site Photographs



DP 1 – Facing North



DP 1 – Facing East



DP 1 – Facing South



DP 1 – Facing West



DP 1 – Soil Profile



DP 2 – Facing North



DP 2 – Facing East



DP 2 – Facing South



DP 2 – Facing West



DP 2 – Soil Profile



DP 3 – Facing North



DP 3 – Facing East



DP 3 – Facing South



DP 3 – Facing West



DP 3 – Soil Profile



DP 4 – Facing North



DP 4 – Facing East



DP 4 – Facing South



DP 4 – Facing West



DP 4 – Soil Profile



DP 5 – Facing North



DP 5 – Facing East



DP 5 – Facing South



DP 5 – Facing West



DP 5 – Soil Profile



DP 6 – Facing North



DP 6 – Facing East



DP 6 – Facing South



DP 6 – Facing West



DP 6 – Soil Profile



DP 7 – Facing North



DP 7 – Facing East



DP 7 – Facing South



DP 7 – Facing West



DP 7 – Soil Profile



DP 8 – Facing North



DP 8 – Facing East



DP 8 – Facing South



DP 8 – Facing West



DP 8 – Soil Profile



DP 9 – Facing North



DP 9 – Facing East



DP 9 – Facing South



DP 9 – Facing West



DP 9 – Soil Profile



DP 10 – Facing North



DP 10 – Facing East



DP 10 – Facing South



DP 10 – Facing West



DP 10 – Soil Profile



DP 11 – Facing North



DP 11 – Facing East



DP 11 – Facing South



DP 11 – Facing West



DP 11 – Soil Profile



DP 12 – Facing North



DP 12 – Facing East



DP 12 – Facing South



DP 12 – Facing West



DP 12 – Soil Profile



DP 13 – Facing North



DP 13 – Facing East



DP 13 – Facing South



DP 13 – Facing West



DP 13 – Soil Profile



DP 14 – Facing North



DP 14 – Facing East



DP 14 – Facing South



DP 14 – Facing West



DP 14 – Soil Profile



DP 15 – Facing North



DP 15 – Facing East



DP 15 – Facing South

Photo unavailable

DP 15 – Facing West



DP 15 – Soil Profile



Drift Debris



Drift Debris



Intermittent Stream



Intermittent Stream

Attachment 4 – Regulatory Correspondence



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Virginia Ecological Services Field Office
6669 Short Lane
Gloucester, VA 23061-4410
Phone: (804) 693-6694

In Reply Refer To:

10/09/2024 19:24:08 UTC

Project Code: 2024-0088272

Project Name: HEF Replacement Air Traffic Control Tower

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*). Any activity proposed on National Wildlife Refuge lands must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see <https://www.fws.gov/program/migratory-bird-permit/what-we-do>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see <https://www.fws.gov/library/collections/threats-birds>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/partner/council-conservation-migratory-birds>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Project Code in the header of this

letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Bald & Golden Eagles
- Migratory Birds

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Virginia Ecological Services Field Office

6669 Short Lane

Gloucester, VA 23061-4410

(804) 693-6694

PROJECT SUMMARY

Project Code: 2024-0088272

Project Name: HEF Replacement Air Traffic Control Tower

Project Type: Airport - New Construction

Project Description: The City of Manassas proposes a replacement air traffic control tower (ATCT), support facility, and ATCT employee parking at the Manassas Regional Airport. The proposed location is within a 3.9 acre forested area off of Observation Road.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.71738725,-77.5184733026195,14z>



Counties: Manassas County, Virginia

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Tricolored Bat <i>Perimyotis subflavus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

CLAMS

NAME	STATUS
Dwarf Wedgemussel <i>Alasmidonta heterodon</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/784	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

USFWS NATIONAL WILDLIFE REFUGE LANDS AND FISH HATCHERIES

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

BALD & GOLDEN EAGLES

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act¹ and the Migratory Bird Treaty Act².

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats³, should follow appropriate regulations and consider

implementing appropriate conservation measures, as described in the links below. Specifically, please review the ["Supplemental Information on Migratory Birds and Eagles"](#).

1. The [Bald and Golden Eagle Protection Act](#) of 1940.
2. The [Migratory Birds Treaty Act](#) of 1918.
3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

There are likely bald eagles present in your project area. For additional information on bald eagles, refer to [Bald Eagle Nesting and Sensitivity to Human Activity](#)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle <i>Haliaeetus leucocephalus</i> This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31

PROBABILITY OF PRESENCE SUMMARY

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

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)

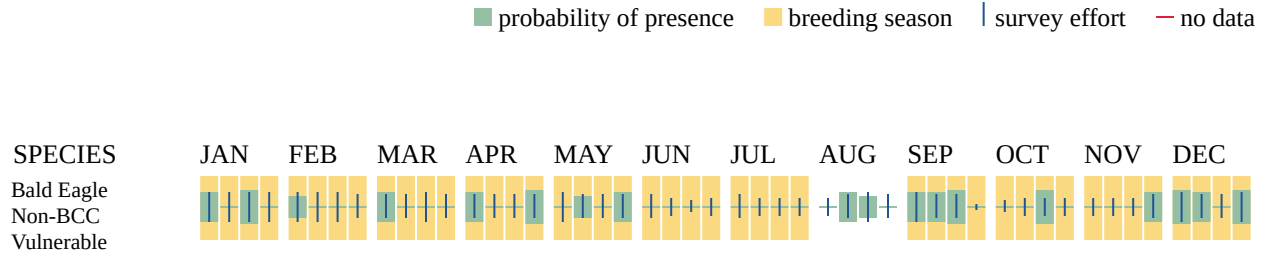
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (—)

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



Additional information can be found using the following links:

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

MIGRATORY BIRDS

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats³ should follow appropriate regulations and consider implementing appropriate conservation measures, as described in the links below. Specifically, please review the "[Supplemental Information on Migratory Birds and Eagles](#)".

-
1. The [Migratory Birds Treaty Act](#) of 1918.
 2. The [Bald and Golden Eagle Protection Act](#) of 1940.
 3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the PROBABILITY OF PRESENCE SUMMARY below to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
<p>Bald Eagle <i>Haliaeetus leucocephalus</i></p> <p>This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.</p> <p>https://ecos.fws.gov/ecp/species/1626</p>	Breeds Sep 1 to Jul 31
<p>Chimney Swift <i>Chaetura pelagica</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/9406</p>	Breeds Mar 15 to Aug 25
<p>Grasshopper Sparrow <i>Ammodramus savannarum perpallidus</i></p> <p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p> <p>https://ecos.fws.gov/ecp/species/8329</p>	Breeds Jun 1 to Aug 20
<p>Prairie Warbler <i>Setophaga discolor</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/9513</p>	Breeds May 1 to Jul 31
<p>Prothonotary Warbler <i>Protonotaria citrea</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/9439</p>	Breeds Apr 1 to Jul 31
<p>Red-headed Woodpecker <i>Melanerpes erythrocephalus</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/9398</p>	Breeds May 10 to Sep 10
<p>Rusty Blackbird <i>Euphagus carolinus</i></p> <p>This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA</p> <p>https://ecos.fws.gov/ecp/species/9478</p>	Breeds elsewhere
<p>Wood Thrush <i>Hylocichla mustelina</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p>https://ecos.fws.gov/ecp/species/9431</p>	Breeds May 10 to Aug 31

PROBABILITY OF PRESENCE SUMMARY

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

Probability of Presence (■)

Green bars; the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during that week of the year.

Breeding Season (■)

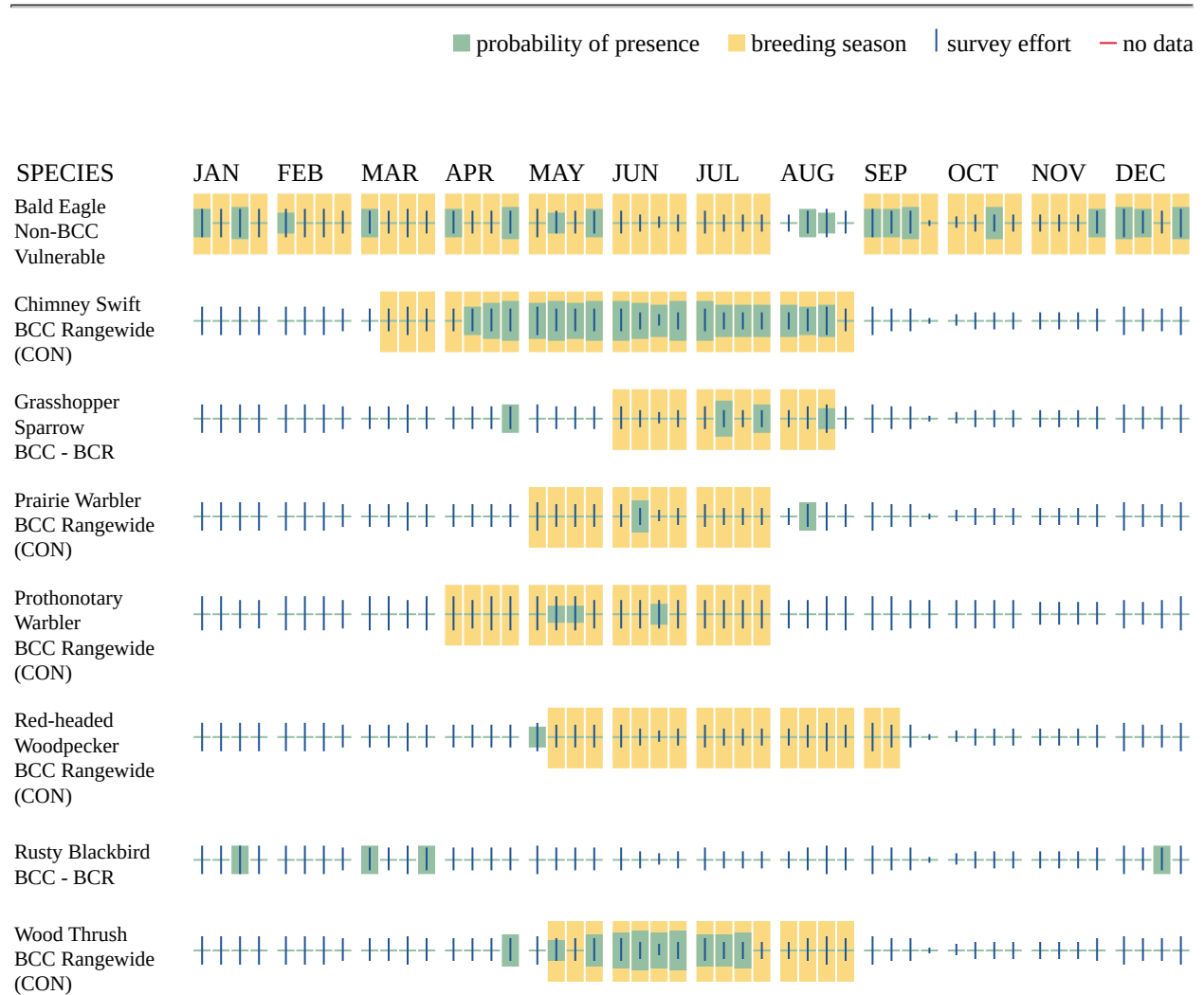
Yellow bars; liberal estimate of the timeframe inside which the bird breeds across its entire range.

Survey Effort (|)

Vertical black lines; the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data (-)

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



Additional information can be found using the following links:

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

IPAC USER CONTACT INFORMATION

Agency: Portland city
Name: Katy Martin
Address: 811 SW 6th Ave Ste 1000
City: Portland
State: OR
Zip: 97204
Email: katherine.martin@rsandh.com
Phone: 3055879181

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Aviation Administration

You have indicated that your project falls under or receives funding through the following special project authorities:

- BIPARTISAN INFRASTRUCTURE LAW (BIL) (OTHER)



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Virginia Field Office
6669 Short Lane
Gloucester, VA 23061

Date:

Self-Certification Letter

Project Name:

Dear Applicant:

Thank you for using the U.S. Fish and Wildlife Service (Service) Virginia Ecological Services online project review process. By submitting this letter, in conjunction with your project review package to our office for review, you are certifying that you have completed the online project review process for the project named above in accordance with all instructions provided, using the best available information to reach your determinations. From the date of receipt, our office has 60 days (50 CFR § 402.13(c)(2)) to review your project package. If we do not concur with the Section 7 determination(s) provided or if we have any questions/concerns regarding the information provided, you will be contacted. If you are not contacted during the 60-day review period, this letter and your project review package, complete the review of your project in accordance with the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended (ESA). This letter also provides information for your project review under the National Environmental Policy Act of 1969 (P.L. 91-190, 42 U.S.C.4321-4347, 83 Stat. 852), as amended. A copy of this letter and the project review package must be submitted to this office for this self-certification letter to be valid. This letter and the project review package will be maintained in our records.

The ESA Section 7 Determination Table in the enclosed project review package summarizes your ESA analyses and determinations. These analyses resulted in a “no effect” and/or a “may affect, not likely to adversely affect” determination for proposed/listed species and/or proposed/designated critical habitat.

The use of the online project review process in strict accordance with the instructions provided as documented in the enclosed project review package resulted in reaching the appropriate determinations. Therefore, we concur with the not likely to adversely affect determination(s) for proposed/listed species and proposed/designated critical habitat provided in the ESA Section 7 Determination Table.

Should project plans change, surveys expire, or information on the distribution or status of proposed/listed species and/or proposed/designated critical habitat become available/change, this letter is no longer valid and you must submit an updated project package.

Note that under 50 CFR 402.12(e) of the regulations implementing Section 7 of the ESA, the accuracy of official species lists should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information.

Information about the online project review process including instructions and use, species information, and other information regarding project reviews within Virginia is available on our website (<https://www.fws.gov/office/virginia-ecological-services/virginia-field-office-online-review-process>). If you have any questions, please contact Troy Andersen of this office at (804) 728-0695.

Sincerely,

A handwritten signature in blue ink that reads "Cynthia A. Schulz". The signature is written in a cursive style and is centered on the page.

Cindy Schulz
Field Supervisor
Virginia Ecological Services

Enclosures - project review package

Endangered Species Act (ESA) Section 7 Determination Table

Project Name: HEF Replacement Air Traffic Control Tower

Date: 10/17/2024

Consultation Code: 2024-0088272

<p>Species / Resource Name <i>Insert name of species or resource as listed on Official Species List.</i></p>	<p>Habitat/Species Presence in Action Area <i>Indicate if suitable habitat and species are present in the Action Area (see examples in Step 5).</i></p>	<p>Sources of Info <i>Explain what info suitable habitat/species presence is based on.</i></p>	<p>ESA Section 7 Determination <i>Using reasoning and decision tables in Step 5, select determination for each species (e.g. no effect, not likely to adversely affect, or likely to adversely affect).</i></p>	<p>Project Elements that Support Determination <i>Explain which project elements may impact the habitat or individuals of each species and any Avoidance and Minimization Measures being implemented.</i></p>
<p>Tricolored Bat <i>(Perimyotis subflabus)</i></p>	<p>Suitable habitat present</p>	<p>VAFO CH Map Tool; VDCR-NHP; USFWS ECOS; Center for Biological Diversity website; The USFWS indicates that bats spend the winter hibernating in caves or mines (hibernacula). There are no caves or mines in the project study area.</p>	<p>Not likely to adversely affect</p>	<p>The entire project area is forested and immediately adjacent to aircraft hangars, taxi lanes, and parking lots. There are few large trees and no caves for hibernation. Tricolored bats that may be present during construction are highly mobile and would relocate to adjacent suitable habitat in the vicinity. The amount of forested habitat (approx. 2 acres) is negligible compared to the suitable habitat in the vicinity.</p>
<p>Dwarf Wedgemussel <i>(Alasmidonta heterodon)</i></p>	<p>No suitable habitat present</p>	<p>VAFO CH Map Tool; VDCR-NHP; USFWS ECOS; USFWS indicates that mussels live in streams and rivers, of which there are none within the project study area.</p>	<p>No effect</p>	<p>N/A</p>
<p>Monarch Butterfly <i>(Danaus Plexippus)</i></p>	<p>No suitable habitat present</p>	<p>VAFO CH Map Tool; VDCR-NHP; Reviewed habitat information on NPS.gov; FS.USDA.gov</p>	<p>No effect</p>	<p>N/A</p>
<p>Critical Habitat not present</p>		<p>VAFO CH Map Tool</p>		

Known or likely to occur within a **2 mile radius around point 38.7209000 -77.5132992**
 in **153 Prince William County, 683 Manassas City, VA**

[View Map of Site Location](#)

557 Known or Likely Species ordered by Status Concern for Conservation
 (displaying first 24) (24 species with Status* or Tier I** or Tier II**)

<u>BOVA Code</u>	<u>Status*</u>	<u>Tier**</u>	<u>Common Name</u>	<u>Scientific Name</u>	<u>Confirmed</u>	<u>Database(s)</u>
050022	FEST	Ia	<u>Bat, northern long-eared</u>	Myotis septentrionalis		BOVA
010032	FESE	Ib	<u>Sturgeon, Atlantic</u>	Acipenser oxyrinchus		BOVA
060029	FTST	IIa	<u>Lance, yellow</u>	Elliptio lanceolata	<u>Yes</u>	BOVA,SppObs,HU6
050020	SE	Ia	<u>Bat, little brown</u>	Myotis lucifugus		BOVA
050027	FPSE	Ia	<u>Bat, tri-colored</u>	Perimyotis subflavus		BOVA
060006	SE	Ib	<u>Floater, brook</u>	Alasmidonta varicosa	<u>Yes</u>	BOVA,TEWaters,Habitat,SppObs,HU6
040096	ST	Ia	<u>Falcon, peregrine</u>	Falco peregrinus		BOVA
040293	ST	Ia	<u>Shrike, loggerhead</u>	Lanius ludovicianus	<u>Potential</u>	BOVA,BBA
040379	ST	Ia	<u>Sparrow, Henslow's</u>	Centronyx henslowii		BOVA
040292	ST		<u>Shrike, migrant loggerhead</u>	Lanius ludovicianus migrans		BOVA
100079	FC	IIIa	<u>Butterfly, monarch</u>	Danaus plexippus		BOVA
030063	CC	IIIa	<u>Turtle, spotted</u>	Clemmys guttata		BOVA
030012	CC	IVa	<u>Rattlesnake, timber</u>	Crotalus horridus		BOVA
010077		Ia	<u>Shiner, bridle</u>	Notropis bifrenatus		BOVA
040306		Ia	<u>Warbler, golden-winged</u>	Vermivora chrysoptera		BOVA
100248		Ia	<u>Fritillary, regal</u>	Speyeria idalia idalia		BOVA,HU6

040213		Ic	<u>Owl, northern saw-whet</u>	Aegolius acadicus		BOVA,HU6
040052		IIa	<u>Duck, American black</u>	Anas rubripes		BOVA,HU6
040036		IIa	<u>Night-heron, yellow-crowned</u>	Nyctanassa violacea violacea		BOVA
040181		IIa	<u>Tern, common</u>	Sterna hirundo		BOVA,HU6
040320		IIa	<u>Warbler, cerulean</u>	Setophaga cerulea		BOVA,HU6
040140		IIa	<u>Woodcock, American</u>	Scolopax minor	<u>Potential</u>	BOVA,BBA,HU6
040203		IIb	<u>Cuckoo, black-billed</u>	Coccyzus erythrophthalmus	<u>Potential</u>	BOVA,BBA
040105		IIb	<u>Rail, king</u>	Rallus elegans		BOVA

To view **All 557 species** [View 557](#)

*FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; CC=Collection Concern

**I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need
 Virginia Wildlife Action Plan Conservation Opportunity Ranking:
 a - On the ground management strategies/actions exist and can be feasibly implemented.; b - On the ground actions or research needs have been identified but cannot feasibly be implemented at this time.; c - No on the ground actions or research needs have been identified or all identified conservation opportunities have been exhausted.

[View Map of All Query Results from All Observation Tables](#)

Bat Colonies or Hibernacula: **Not Known**

Anadromous Fish Use Streams

N/A

Impediments to Fish Passage

N/A

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters (18 Reaches)

[View Map of All Threatened and Endangered Waters](#)

Stream Name	T&E Waters Species						View Map
	Highest TE *	BOVA Code, Status *, Tier **, Common & Scientific Name					
Broad Run (011037)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (015607)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (016525)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (016765)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (019062)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (019494)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (020916)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (021994)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (022362)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (022431)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (023568)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (024722)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (024825)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (025139)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (026195)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (027949)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Broad Run (029210)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes

Broad Run (06822)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
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Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests

N/A

Species Observations (142 records - displaying first 20 , 8 Observations with Threatened or Endangered species)

[View Map of All Query Results Species Observations](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
55402	SppObs	Aug 21 1998	BEATY, WINTERRINGER, ZIMMERMAN, MAIR, JONES, DORSEY, CHEN, , AND GILBERT, VIRGINIA COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT	6	FTSE	I	Yes
55694	SppObs	Aug 21 1998	Braven B. Beaty and Richard J. Neves, Virginia Cooperative Fish and Wildlife Unit, VA Tech	6	FTSE	I	Yes
3602	SppObs	Sep 24 1991	Div. Natural Heritage	4	FTSE	I	Yes
315311	SppObs	Sep 16 2005	D. Neves, J. Jones, A. Liberty, H. Dan, J. Schmerfeld, T. Bolton	2	FTST	II	Yes
55533	SppObs	Sep 4 1997	BEATY, AND JONES, VIRGINIA COOPERATIVE FISH AND WILDLIFE RESEARCH UNIT.	4	FTST	II	Yes
648647	SppObs	Aug 15 2023	Caitlin Carey; Brian Watson; Brittany Bajo-Walker; Ki	5	SE	I	Yes
5952	SppObs	Aug 24 1993	Stevenson, P. H.	8	SE	I	Yes
5949	SppObs	Aug 23 1993	Stevenson, P. H.	9	SE	I	Yes
607558	SppObs	Jun 6 2009	Mark; Causey	1		III	Yes

603467	SppObs	May 29 2009	Mark; Causey	1		III	Yes
602319	SppObs	May 29 2009	Mark; Causey	1		III	Yes
320587	SppObs	Jun 23 2007	Mark Causey	1		III	Yes
320589	SppObs	May 31 2007	Mark Causey	1		III	Yes
320586	SppObs	May 31 2007	Mark Causey	1		III	Yes
317031	SppObs	Jun 4 2006	Mark Causey	1		III	Yes
312736	SppObs	Jul 10 2005	Mark Causey	1		III	Yes
307474	SppObs	Jun 6 2004	Mark Causey	1		III	Yes
307473	SppObs	Jun 6 2004	Mark Causey	1		III	Yes
302356	SppObs	Jul 13 2003	Mark Causey	1		III	Yes
302334	SppObs	Jun 22 2003	Mark Causey	1		III	Yes

Displayed 20 Species Observations

Selected 142 Observations [View all 142 Species Observations](#)

Habitat Predicted for Aquatic WAP Tier I & II Species (2 Reaches)

[View Map Combined Reaches from Below of Habitat Predicted for WAP Tier I & II Aquatic Species](#)

Stream Name	Tier Species						View Map
	Highest TE *	BOVA Code, Status *, Tier **, Common & Scientific Name					
Broad Run (20700102)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Kettle Run (20700102)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes
Kettle Run (20700102)	SE	060006	SE	Ib	Floater, brook	Alasmidonta varicosa	Yes

Habitat Predicted for Terrestrial WAP Tier I & II Species

N/A

Virginia Breeding Bird Atlas Blocks (3 records)

[View Map of All Query Results Virginia Breeding Bird Atlas Blocks](#)

BBA ID	Atlas Quadrangle Block Name	Breeding Bird Atlas Species			View Map
		Different Species	Highest TE*	Highest Tier**	
51181	<u>Independent Hill, NW</u>	1			Yes
50184	<u>Nokesville, CE</u>	94	ST	I	Yes
50182	<u>Nokesville, NE</u>	84		II	Yes

Public Holdings:

N/A

Summary of BOVA Species Associated with Cities and Counties of the Commonwealth of Virginia:

FIPS Code	City and County Name	Different Species	Highest TE	Highest Tier
153	<u>Prince William</u>	483	FESE	I
683	<u>Manassas City</u>	372	FESE	I

USGS 7.5' Quadrangles:

Nokesville
Independent Hill

USGS NRCS Watersheds in Virginia:

N/A

USGS National 6th Order Watersheds Summary of Wildlife Action Plan Tier I, II, III, and IV Species:

HU6 Code	USGS 6th Order Hydrologic Unit	Different Species	Highest TE	Highest Tier
PL33	<u>Kettle Run</u>	59	FTSE	I
PL34	<u>Broad Run-Rocky Branch</u>	59	FTSE	I
PL41	<u>Occoquan River-Occoquan Reservoir-Lake Jackson</u>	56		I

Compiled on 10/10/2024, 7:23:27 PM 12702119.0 report=all searchType= R dist= 3218 poi= 38.7209000 -77.5132992

PixelSize=64; Anadromous=0.014738; BBA=0.026725; BECAR=0.01434; Bats=0.013611; Buffer=0.063965; County=0.04508; HU6=0.038879; Impediments=0.013584; Init=0.096402; PublicLands=0.017498; Quad=0.023521; SppObs=0.14728; TEWaters=0.019476; TierReaches=0.029096; TierTerrestrial=0.024215; Total=0.8735; Tracking_BOVA=0.309501; Trout=0.01494; huva=0.021125

Attachment 5 – 2016 Preliminary Jurisdictional Determination Letter



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

March 14, 2017

PRELIMINARY JURISDICTIONAL DETERMINATION

Northern Virginia Regulatory Section
NAO-2017-00508 (Manassas Regional Airport)

Manassas Regional Airport
10600 Harry J. Parrish Boulevard
Manassas, VA 20110

Ladies and/or Gentlemen:

This letter is in regard to your request for a verification of a preliminary jurisdictional determination for waters of the U.S. (including wetlands) on property known as the Manassas Regional Airport, located on an approximately 47 acre parcel, at 10600 Harry J. Parrish Boulevard, in Manassas, Virginia.

The maps entitled "Manassas Regional Airport Corporate Development Environmental Assessment Wetland Delineation Map", by Mill Creek Environmental Consultants, LTD dated October 2016 (*copies enclosed*) provides the location of waters and/or wetlands on the property listed above. The basis for this delineation includes application of the Corps' 1987 Wetland Delineation Manual and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region*, and the positive indicators of wetland hydrology, hydric soils, and hydrophytic vegetation and the presence of an ordinary high water mark.

Discharges of dredged or fill material, including those associated with mechanized landclearing, into waters and/or wetlands on this site may require a Department of the Army permit and authorization by state and local authorities 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 letter is a confirmation of the Corps preliminary jurisdiction for the waters and/or wetlands on the subject property and does not authorize any work in these areas. Please obtain all required permits before starting work in the delineated waters/wetland areas.

This is a preliminary jurisdictional determination and is therefore not a legally binding determination regarding whether Corps jurisdiction applies to the waters or wetlands in question. Accordingly, you may either consent to jurisdiction as set out in this preliminary jurisdictional determination and the attachments hereto if you agree with the determination, or you may request and obtain an approved jurisdictional determination.

“This preliminary jurisdictional determination and associated wetland delineation map may be submitted with a permit application.”

Enclosed is a copy of the “Preliminary Jurisdictional Determination Form”. Please review the document, sign, and return one copy to Ms. Theresita Crockett-Augustine either via email (theresita.m.crockett-augustine@usace.army.mil) or via standard mail to US Army Corps of Engineers, Northern Virginia Field Office at 18139 Triangle Plaza, Suite 213, Dumfries, Virginia 22026 within 30 days of receipt and keep one for your records. This delineation of waters and/or wetlands is valid for a period of five years from the date of this letter unless new information warrants revision prior to the expiration date.

If you have any questions, please contact Ms. Theresita Crockett-Augustine at (703) 221-9736 or theresita.m.crockett-augustine@usace.army.mil.

Sincerely,



Theresita Crockett-Augustine
Environmental Scientist
Northern Virginia Regulatory Section

Enclosures

Appendix 2 - PRELIMINARY JURISDICTIONAL DETERMINATION (PJD) FORM

BACKGROUND INFORMATION:

A. REPORT COMPLETION DATE FOR PJD: March 14, 2017

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:

Manassas Regional Airport
 10600 Harry J. Parrish Boulevard
 Manassas, VA 20110

DISTRICT OFFICE, FILE NAME, AND NUMBER: NAO, Manassas Regional Airport,
 NAO-2017-00508

**C. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
 (USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT
 DIFFERENT SITES)**

State: **VIRGINIA** County/parish/borough: City: Manassas

Center coordinates of site (lat/long in degree decimal format):

Latitude: 38.723 ° N Longitude: -77.517 ° W

Universal Transverse Mercator:

Name of nearest waterbody: Cannon Branch

D. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- Office (Desk) Determination. Date:
- Field Determination. Date(s): 2/16/17

**TABLE OF AQUATIC RESOURCES IN REVIEW AREA WHICH "MAY BE" SUBJECT TO
 REGULATORY JURISDICTION.**

Site Number	Latitude (decimal degrees)	Longitude (decimal degrees)	Estimated amount of aquatic resource in review area (acreage and linear feet, if applicable)	Type of aquatic resource (i.e., wetland vs. non-wetland waters)	Geographic authority to which the aquatic resource "may be" subject (i.e., Section 404 or Section 10/404)
1			114 LF	RPW	Section 404
2			4.84 acre	Wetland	Section 404
3					

1. The Corps of Engineers believes that there may be jurisdictional aquatic resources in the review area, and the requestor of this PJD is hereby advised of his or her option to request and obtain an approved JD (AJD) for that review area based on an informed decision after having discussed the various types of JDs and their characteristics and circumstances when they may be appropriate.
2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre- construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an AJD for the activity, the permit applicant is hereby made aware that: (1) the permit applicant has elected to seek a permit authorization based on a PJD, which does not make an official determination of jurisdictional aquatic resources; (2) the applicant has the option to request an AJD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an AJD could possibly result in less compensatory mitigation being required or different special conditions; (3) the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) undertaking any activity in reliance upon the subject permit authorization without requesting an AJD constitutes the applicant's acceptance of the use of the PJD; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a PJD constitutes agreement that all aquatic resources in the review area affected in any way by that activity will be treated as jurisdictional, and waives any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an AJD or a PJD, the JD will be processed as soon as practicable. Further, an AJD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331. If, during an administrative appeal, it becomes appropriate to make an official determination whether geographic jurisdiction exists over aquatic resources in the review area, or to provide an official delineation of jurisdictional aquatic resources in the review area, the Corps will provide an AJD to accomplish that result, as soon as is practicable. This PJD finds that there "may be" waters of the U.S. and/or that there "may be" navigable waters of the U.S. on the subject review area, and identifies all aquatic features in the review area that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA: Data reviewed for preliminary JD (check all that apply)

Checked items should be included in subject file. Appropriately reference sources below where indicated for all checked items.

- Maps, plans, plots or plat submitted by or on behalf of the PJD requestor:
Map:
- Data sheets prepared/submitted by or on behalf of the PJD requestor.
 - Office concurs with data sheets/delineation report.
 - Office does not concur with data sheets/delineation report. Rationale:
- Data sheets prepared by the Corps:
- Corps navigable waters' study:
- U.S. Geological Survey Hydrologic Atlas: USGS
 - NHD data.
 - USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Cite scale & quad name:
- Natural Resources Conservation Service Soil Survey. Citation:
- National wetlands inventory map(s). Cite name:
- State/Local wetland inventory map(s):
- FEMA/FIRM maps:
- 100-year Floodplain Elevation: (National Geodetic Vertical Datum of 1929)
- Photographs Aerial (Name & Date):
or Other (Name & Date):
- Previous determination(s):
File no. and date of response letter:
- Other information (please specify):

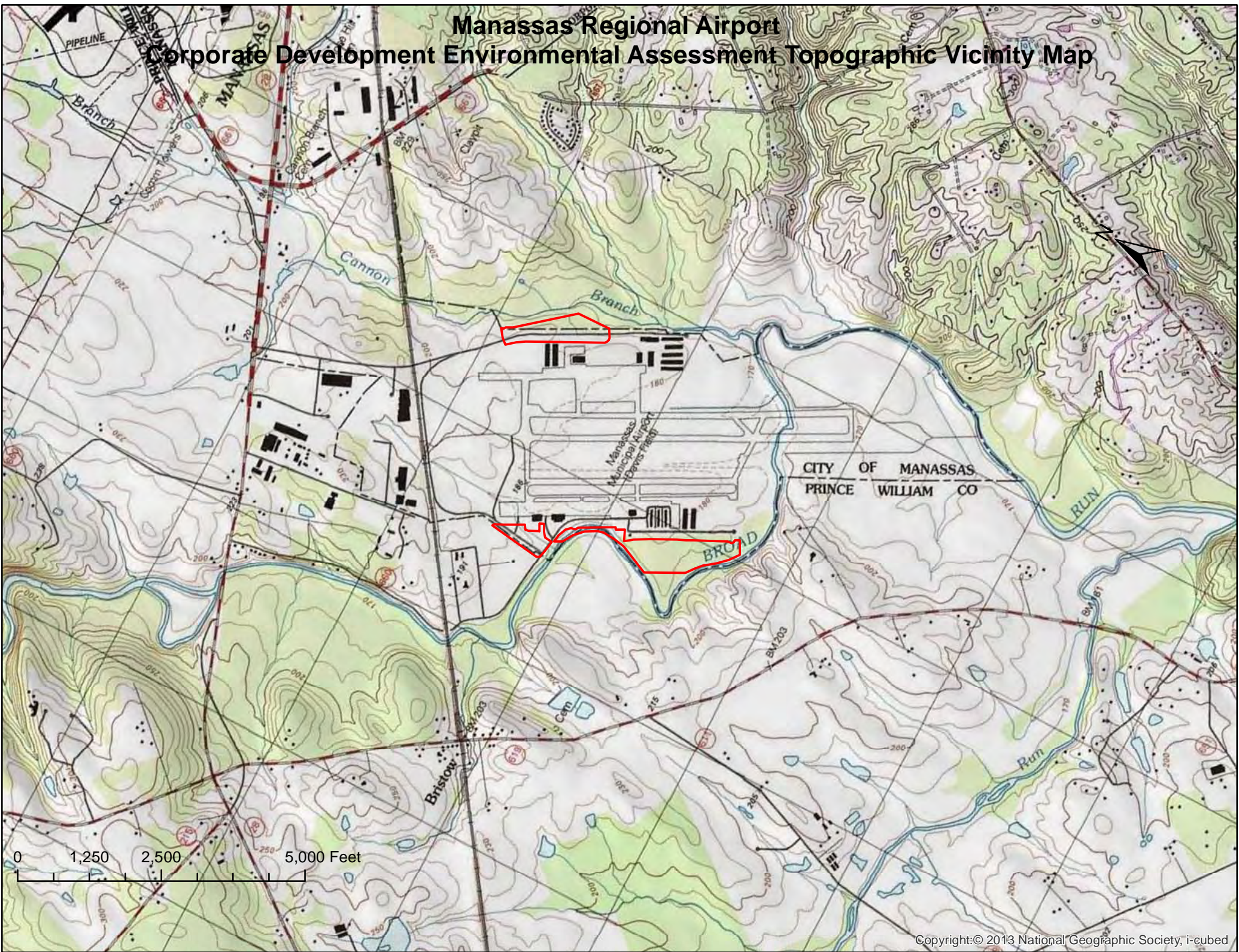
IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Signature and date of
Regulatory staff member
completing PJD

Signature and date of person requesting
PJD (REQUIRED, unless obtaining the signature
is impracticable)¹

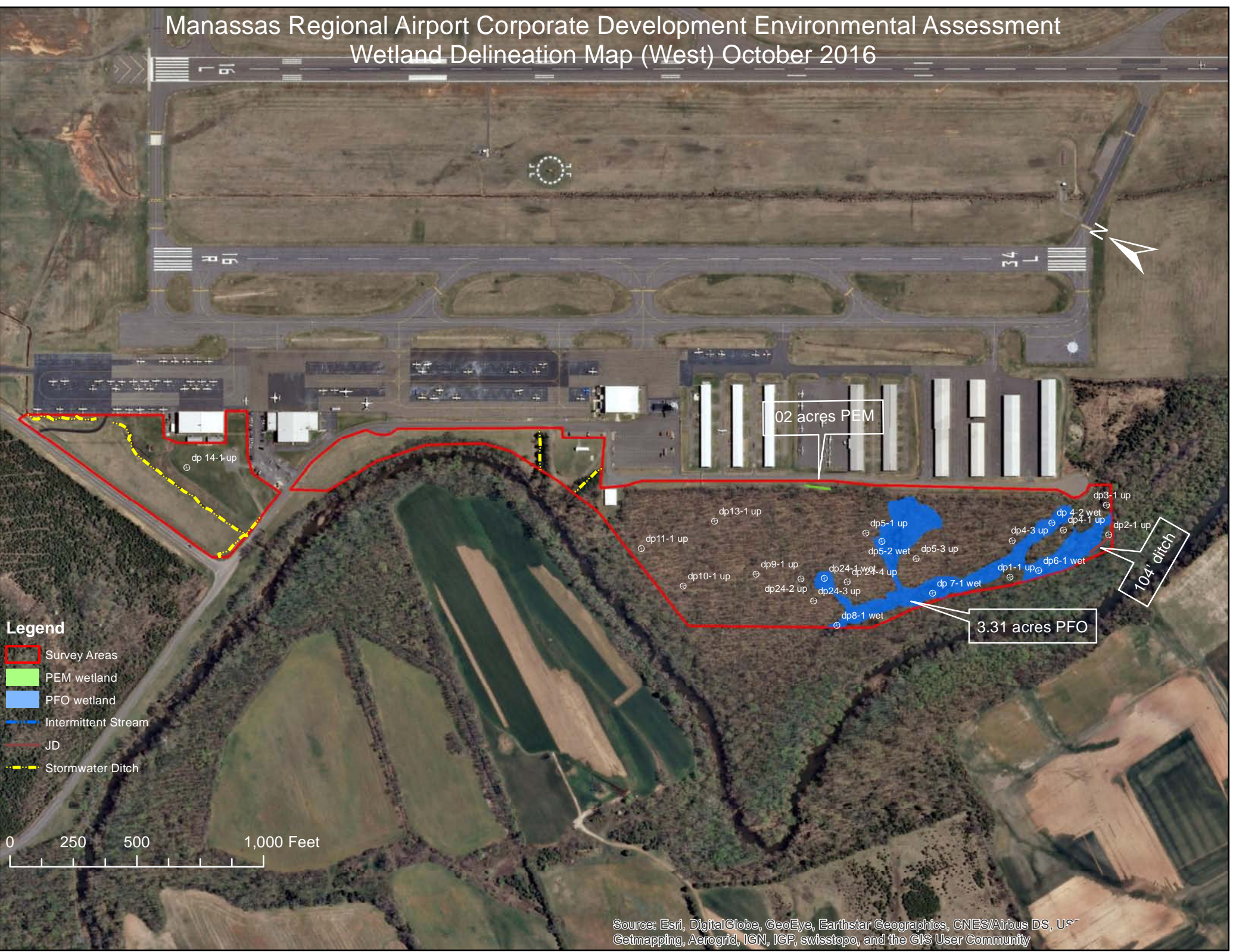
¹ Districts may establish timeframes for requester to return signed PJD forms. If the requester does not respond within the established time frame, the district may presume concurrence and no additional follow up is necessary prior to finalizing an action.

Manassas Regional Airport Corporate Development Environmental Assessment Topographic Vicinity Map



0 1,250 2,500 5,000 Feet

Manassas Regional Airport Corporate Development Environmental Assessment Wetland Delineation Map (West) October 2016



Legend

- Survey Areas
- PEM wetland
- PFO wetland
- Intermittent Stream
- JD
- Stormwater Ditch

0 250 500 1,000 Feet

0.02 acres PEM

3.31 acres PFO

104 ditch

Manassas Regional Airport Corporate Development Environmental Assessment Wetland Delineation Map (East) October 2016

Legend

- Survey Areas
- PEM wetland
- PFO wetland
- Intermittent Stream

0 125 250 500 Feet

10' intermittent stream

1.49 acres PFO

.004 acres PEM

.02 acres PFO

dp18-2 wet
dp 23-1 up

dp 18-1 up

dp17-2 up

dp16-1 up

dp22-1 up

dp21-1 up

dp 20-2 up

dp 20-1 wet

dp19-1 up

dp15-2 wet

dp15-1 up



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

MARCH 14, 2017

Supplemental Preapplication Information

Project Number: NAO-2017-00508 (Manassas Regional Airport)
Applicant: Manassas Regional Airport
Project Location: Manassas, Virginia

1. A search of the Virginia Department of Historic Resources data revealed the following:

- No known historic properties are located on the property.
- The following known architectural resources are located on the property:

DHR ID	Address	Restricted	Property Names
076-5036	Centreville Road - Alt Route 28, John Marshall Highway - Alt Route 55, Linton Hall Road - Alt Route 619, Sudley Road - Alt Route 234	Unrestricted	Bristoe Station Battlefield (Historic), Bull Run Bridge (Historic), Kettle Run Battlefield (Historic), Manassas Station Operations Battlefield (Historic), Union Mills (Historic)
076-5399	-	Unrestricted	Orange and Alexandria Railway section (Descriptive), Train Tracks, South of the Route 28 and 234 Intersection (Function/Location)

- The following known archaeological resources are located on the property:

DHR ID	Site Name	Site Category	Time Period	NR Eligible	Restricted
44PW0729	-	DSS Legacy	Middle Archaic (6500 - 3001 B.C.), Woodland (1200 B.C. - 1606 A.D.)	-	Restricted: No release

- The following known historic resources are located in the vicinity of the property (potential for effects to these resources from future development):

NOTE:

- 1) *The information above is for planning purposes only. In most cases, the property has not been surveyed for historic resources. Undiscovered historic resources may be located on the subject property or adjacent properties and this supplemental information is not intended to satisfy the Corps' requirements under Section 106 of the National Historic Preservation Act (NHPA).*
- 2) *Prospective permittees should be aware that Section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant.*

2. A search of the data supplied by the U.S. Fish & Wildlife Service, the Virginia Department of Conservation and Recreation and the Virginia Department of Game and Inland Fisheries revealed the following:

- No known populations of threatened or endangered species are located on or within the vicinity of the subject property.
- The following federally-listed species may occur within the vicinity of the subject property. See attached.

The following state-listed (or other) species may occur within the vicinity of the subject property:

Genus	Species	Subspecies	Common Name	Fedstatus	Statestatus
Alasmidonta	varicosa	-	Floater, brook	-	State Endangered

NHR ID	Site Description	Legal Status	Type	Site Name
S_1325	This SCU delineates riparian reaches that provide habitat for one or more rare aquatic plants or animals.	SL	SCU	BROAD RUN SCU

Please note this information is being provided to you based on the preliminary data you submitted to the Corps relative to project boundaries and project plans. Consequently, these findings and recommendations are subject to change if the project scope changes or new information becomes available and the accuracy of the data.

Attachment 6 – 2024 USACE Coordination

From: [Martin, Katherine](#)
To: cenao-reg_rod@USACE.army.mil
Subject: Wetlands question - Manassas
Date: Tuesday, October 29, 2024 10:49:00 AM

Hi there!

We performed a wetland delineation in the spring at an area owned by the HEF airport in Manassas, where we didn't find any jurisdictional wetlands (the only water feature was a dried up little drainage pathway/stream, but the soils did not qualify as wetlands). Is it still necessary to coordinate with USACE and get a jurisdictional determination?

Thanks,
Katy

APPENDIX D
CULTURAL RESOURCES SURVEY



**U.S. Department
of Transportation**

Federal Aviation
Administration

Beckley Airports Field Office

176 Airport Circle, Room 101

Beaver, West Virginia 25813

Telephone: (304) 252-6216

FAX: (304) 253-8028

January 30, 2024

Adrienne Birge-Wilson
Division of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

RE: Early Agency Coordination

Environmental Assessment for a Replacement Air Traffic Control Tower (ATCT)

Manassas Regional Airport

Manassas, VA

Dear Ms. Birge Wilson

The City of Manassas (City) proposes the construction and operation of a replacement Air Traffic Control Tower (ATCT) at Manassas Regional Airport (HEF or Airport) (see **Figure 1**). The City proposes to construct a replacement ATCT at the Airport to improve the functional and operational capabilities of the service provided by the FAA ATCT personnel. The need to replace the ATCT is a combination of safety, operational, and infrastructure deficiencies.

The City will request the Federal Aviation Administration's (FAA) unconditional approval of the project as shown on the Airport's Airport Layout Plan as well as federal funding for the proposed replacement ATCT. This request is a Federal action, subject to the requirements of the National Environmental Policy Act (NEPA). In compliance with NEPA and under the direction of the FAA, the City through their consultant (RS&H, Inc.) is initiating preparation of an Environmental Assessment (EA). The EA will assess the potential environmental impacts of the replacement ATCT components at each site:

- » Clearing and grading activities and construction staging areas;
- » Construction of a replacement ATCT with support building;
- » Construction of ATCT employee parking lot; and
- » Demolition and disposal of the existing ATCT.

The Proposed Action, Alternative 1, Alternative 2, and the direct study area are within City of Manassas limits (see **Figure 2**). The EA will evaluate each of the three site locations (see **Figure 2**). The siting of the Proposed Action and two alternatives took into consideration clearing an FAA recommended 2-acre site and avoiding an existing floodway, wetlands, and an archaeological site.

In accordance with the NEPA and FAA Orders 1050.1F, *Policies and Procedures for Considering Environmental Impacts* and 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions of Airport Actions*, the EA will analyze the potential environmental effects of the Proposed Action. As part of the EA process, various field surveys will be conducted. These include a threatened and endangered species survey, floodplain analysis, and wetland delineation (including a jurisdictional determination).

On behalf of the City, we are sending you this early notification letter to:

1. Advise your agency of the preparation of the EA;
2. Request any relevant information that your agency may have regarding the project site or environs; and
3. Solicit early comments regarding potential environmental, social, and economic issues for consideration during the preparation of the EA.

You may send any information and comments to Susan Stafford of my staff at susan.stafford@faa.gov or to the address provided at the top of this letter. We would appreciate your prompt response within 30 days.

We would like to thank you for your interest in this project and look forward to working with you as we prepare the EA. If you have any questions or need additional information regarding Proposed Action or EA, please do not hesitate to contact me at (304) 252-6216.

Sincerely,

**MATTHEW
DIGIULIAN**

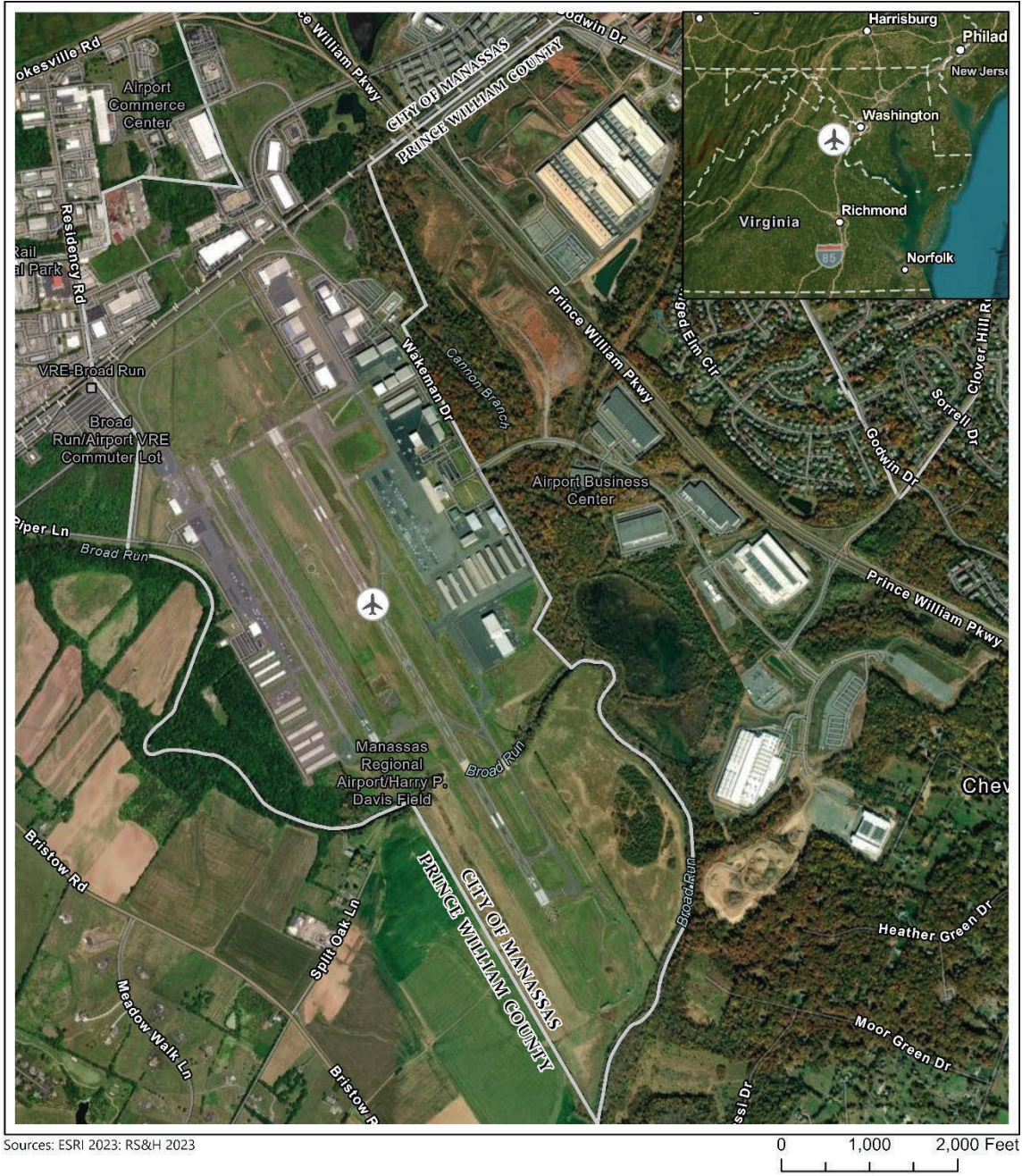
Digitally signed by
MATTHEW DIGIULIAN
Date: 2024.01.30
07:21:10 -05'00'

Matthew Di Giulian, P.E.
Manager
Beckley Airports Field Office

Attachments

cc: Juan Rivera, Manassas Regional Airport
Jolene Berry, Manassas Regional Airport
Susan Stafford, Federal Aviation Administration
Scott Denny, Virginia Department of Aviation

Figure 1
Airport Location



Sources: ESRI 2023; RS&H 2023



Legend

- Airport Location
- Jurisdictions



Figure 2
Proposed Action & Alternatives



Sources: ESRI 2023; RS&H 2023

0 250 500 Feet

Legend

- Direct Study Area
- Alternative 1
- Proposed Action
- Alternative 2



From: [Stafford, Susan \(FAA\)](#)
To: [Alberts, David](#); [Juan Rivera \(jrivera@ci.manassas.va.us\)](mailto:jrivera@ci.manassas.va.us)
Subject: FW: HEF West Corporate Development and East Parcel Development (DHR File No. 2017-0348)
Date: Thursday, March 21, 2024 2:40:19 PM

FYI

Susan B. Stafford
Environmental Protection Specialist
Beckley Airports Field Office
176 Airport Circle, Rm 101
Beaver, WV 25813
304-252-6216 x 130

From: Birge-wilson, Adrienne (DHR) <adrienne.birge-wilson@dhr.virginia.gov>
Sent: Thursday, March 21, 2024 9:59 AM
To: Stafford, Susan (FAA) <Susan.Stafford@faa.gov>
Subject: RE: HEF West Corporate Development and East Parcel Development (DHR File No. 2017-0348)

CAUTION: This email originated from outside of the Federal Aviation Administration (FAA). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Susan- We understand that the FAA has determined that the subject area is not viable for additional archaeological testing and the area is also beyond any proposed disturbance associated with the current ATCT project. We concur with the condition that future proposals at HEF will be coordinated with DHR, to include all ground disturbing activities including development areas, staging areas, as well as any identified project mitigation efforts that require additional ground disturbing activities.

V/R,

Adrienne Birge-Wilson

Architectural Historian | Review and Compliance Division

Department of Historic Resources

Email adrienne.birge-wilson@dhr.virginia.gov

Phone 804-482-6092

From: Stafford, Susan (FAA) <Susan.Stafford@faa.gov>
Sent: Wednesday, March 20, 2024 1:08 PM
To: Birge-wilson, Adrienne (DHR) <adrienne.birge-wilson@dhr.virginia.gov>
Cc: Juan Rivera (jrivera@ci.manassas.va.us) <jrivera@ci.manassas.va.us>; Alberts, David <David.Alberts@rsandh.com>
Subject: HEF West Corporate Development and East Parcel Development (DHR File No. 2017-0348)

Adrienne,

Based on our recent discussions about concerns you addressed below, regarding an area adjacent to the HEF ATCT Alternative 2 location, I have prepared the attached letter for your review.

Thank you,

Susan B. Stafford
Environmental Protection Specialist
Beckley Airports Field Office
176 Airport Circle, Rm 101
Beaver, WV 25813
304-252-6216 x 130

From: Birge-wilson, Adrienne (DHR) <adrienne.birge-wilson@dhr.virginia.gov>
Sent: Wednesday, March 6, 2024 1:14 PM
To: Stafford, Susan (FAA) <Susan.Stafford@faa.gov>
Subject: FW: Manassas Regional Airport (HEF) Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2024-3226) | e-Mail #03397

CAUTION: This email originated from outside of the Federal Aviation Administration (FAA). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

----- Original Message -----

From: Adrienne Birge-wilson;
Received: Wed Mar 06 2024 11:19:59 GMT-0500 (Eastern Standard Time)
To: Susan Stafford;
Cc: a;
Subject: Manassas Regional Airport (HEF) Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2024-3226) | e-Mail #03397

Susan-

We appreciate the early coordination letter and we will need some additional information in order to provide meaningful comments on the impacts to historic resources. Please provide an archives search. In general, for incoming projects, applicants are asked to complete an archives search before submitting the project for review. An archives search is how you will find out if the property has been evaluated for archaeological or historical importance.

To get an archives search done, applicants can request an archives search by going to the following address and filling out the online form (for a fee): <https://www.dhr.virginia.gov/archive/archives-search-service/>. The archives search is not done by the same division at DHR that does the actual project review. When the archives search is complete, the Review and Compliance Division (my Division) can begin a review, assuming all the additional documentation is complete. **Please note that applicants can come to DHR archives for a free search, but appointments are required. Contact quatro.hubbard@dhr.virginia.gov for an appointment.

Regarding archaeology, the area of potential effects (APE) exhibits moderate to high probability for containing precolonial Native American archaeological deposits. A Phase I archaeological survey is recommended to assess this potential and identify any previous unrecorded archaeological resources. Aerial imagery, captured on 8/18/2023 and obtained from Google Earth, shows heavy machinery and paving within an area immediate east of the Alternative 2 polygon and overlapping the Direct Study Area. We are not aware of any correspondence with our agency regarding these operations and it is unclear whether this recent development is part of this proposed project.

Adrienne Birge-Wilson, Architectural Historian
Office of Review and Compliance
Division of Resource Services and Review
Phone: (804) 482-6092
Adrienne.Birge-Wilson@dhr.virginia.gov



**U.S. Department
of Transportation**

Federal Aviation
Administration

**Beckley Airports Field Office
176 Airport Circle, Room 101
Beaver, West Virginia 25813
Telephone: (304) 252-6216
FAX: (304) 253-8028**

March 20, 2024

Adrienne Birge-Wilson, Architectural Historian
Review and Compliance Division
Department of Resource Services
2801 Kensington Avenue
Richmond, Virginia 23221

RE: HEF West Corporate Development and East Parcel Development (DHR File No. 2017-0348)

Dear Ms. Birge-Wilson:

Thank you for your email response on the early coordination letter for the proposed air traffic control tower (ATCT) project at Manassas Regional Airport (HEF) (DHR File No. 2024-3226). In your response, you noted that the area of potential effects (APE) exhibits moderate to high probability for containing precolonial Native American archaeological deposits. A Phase I archaeological survey was recommended to assess this potential and identify any previous unrecorded archaeological resources. You also noted that aerial imagery, captured on August 18, 2023 and obtained from Google Earth, shows heavy machinery and paving within an area adjacent to the Alternative 2 polygon and overlapping the Direct Study Area. You are not aware of any correspondence with DHR regarding these operations and it is unclear whether this recent development is part of this proposed project.

In April 2017, a Project Review Application Form was submitted to your office that included a Phase I Archaeological Study for the Proposed West Corporate Development and East Parcel Development at HEF. The submittal received your concurrence on June 2, 2017 (DHR File No. 2017-0348). The Phase I Archaeological Study was completed in support of a March 2018 Environmental Assessment (EA) for the West Corporate Development and East Parcel Development project. The disturbance you noted is associated with the 2017 coordination with your office and the 2018 EA.


Based on your response for the currently proposed ATCT project, it has come to our attention that the study area evaluated as the 2017 direct APE does not fully align with the study area evaluated in the 2018 EA. An area to the southwest of the direct APE was included in the 2018 EA study area but was omitted from the 2017 direct APE coordinated with your office. As you

noted, the area has recently been disturbed by heavy machinery. This disturbance is associated with a mitigation area for floodplain impacts identified in the 2018 EA. The area was selected due to its location within the 2018 EA study area in a location beyond the proposed development actions in the EA. At the time of its construction, it was assumed that it was also within the 2017 direct APE and this discrepancy in mapped study areas was not identified.

Based on the recent disturbance incurred, the FAA has determined that the area is not viable for additional archaeological testing. This area is also beyond any proposed disturbance associated with the current ATCT project. Due to this discrepancy being brought to our attention, future proposals at HEF will ensure that coordination efforts with your office include all ground disturbing activities including development areas, staging areas, as well as any identified project mitigation efforts that require additional ground disturbing activities. If proposed staging and/or mitigation is unknown at the time the project is coordinated with your office, additional coordination will be initiated once impacts associated with the staging and/or mitigation efforts are identified. If you concur that no additional testing can be completed in the identified area, and with the proposed path forward for future projects, please acknowledge your concurrence below.

Should you have any questions, or require additional information, please do not hesitate to contact me at susan.stafford@faa.gov or (304) 252-6216 x130.

Sincerely,



Susan Stafford
Environmental Protection Specialist

Concur:

Adrienne Birge-Wilson
Architectural Historian,
Review and Compliance Division
Department of Resource Services

Date

Non-concur:

Adrienne Birge-Wilson
Architectural Historian,
Review and Compliance Division
Department of Resource Services

Date

cc: David E. Alberts, Aviation Senior Environmental Manager, RS&H, Inc.
Juan Rivera, Airport Director, Manassas Regional Airport

From: [Stafford, Susan \(FAA\)](#)
To: [Alberts, David](#)
Subject: FW: Manassas Regional Airport (HEF) Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2024-3226) | e-Mail #03397
Date: Friday, March 15, 2024 2:04:48 PM
Attachments: [44PW0729 Revised VCRIS Map 2024-3226.pdf](#)
[44PW0729 Revised VCRIS Record.pdf](#)

Dave,

Below is the response I received last week from DHR on the early coordination letters for the HEF ATCT project. If you look at the third paragraph, there is a discrepancy between what was defined in the HEF West Corporate Development and East Parcel Development EA as the survey area associated with the West Corporate Development portion of the project (attached) and what was defined as the Direct APE and survey area associated with the West Corporate Development portion of the project evaluated for cultural resources (attached). I've been working with DHR to try and resolved the discrepancy. They have redefined the boundary for Site 44PW729 (attached), but we have not resolved the survey area discrepancy.

Susan B. Stafford
Environmental Protection Specialist
Beckley Airports Field Office
176 Airport Circle, Rm 101
Beaver, WV 25813
304-252-6216 x 130

From: Birge-wilson, Adrienne (DHR) <adrienne.birge-wilson@dhr.virginia.gov>
Sent: Wednesday, March 6, 2024 1:14 PM
To: Stafford, Susan (FAA) <Susan.Stafford@faa.gov>
Subject: FW: Manassas Regional Airport (HEF) Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2024-3226) | e-Mail #03397

CAUTION: This email originated from outside of the Federal Aviation Administration (FAA). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

----- Original Message -----

From: Adrienne Birge-wilson;
Received: Wed Mar 06 2024 11:19:59 GMT-0500 (Eastern Standard Time)
To: Susan Stafford;
Cc: a;
Subject: Manassas Regional Airport (HEF) Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2024-3226) | e-Mail #03397

Susan-

We appreciate the early coordination letter and we will need some additional information in order to provide meaningful comments on the impacts to historic resources. Please provide an archives search. In general, for incoming projects, applicants are asked to complete an archives search before submitting the project for review. An archives search is how you will find out if the property has been evaluated for archaeological or historical importance.

To get an archives search done, applicants can request an archives search by going to the following address and filling out the online form (for a fee): <https://www.dhr.virginia.gov/archive/archives-search-service/>. The archives search is not done by the same division at DHR that does the actual project review. When the archives search is complete, the Review and Compliance Division (my Division) can begin a review, assuming all the additional documentation is complete. **Please note that applicants can come to DHR archives for a free search, but appointments are required. Contact quatro.hubbard@dhr.virginia.gov for an appointment.

Regarding archaeology, the area of potential effects (APE) exhibits moderate to high probability for containing precolonial Native American archaeological deposits. A Phase I archaeological survey is recommended to assess this potential and identify any previous unrecorded archaeological resources. Aerial imagery, captured on 8/18/2023 and obtained from Google Earth, shows heavy machinery and paving within an area immediate east of the Alternative 2 polygon and overlapping the Direct Study Area. We are not aware of any correspondence with our agency regarding these operations and it is unclear whether this recent development is part of this proposed project.

Adrienne Birge-Wilson, Architectural Historian
Office of Review and Compliance
Division of Resource Services and Review
Phone: (804) 482-6092
Adrienne.Birge-Wilson@dhr.virginia.gov

Snapshot

Date Generated: March 14, 2024

Site Name: No Data
Site Classification: Terrestrial, open air
Year(s): 6500 - 3001 B.C.E, 1200 B.C.E - 1606 C.E
Site Type(s): Camp
Other DHR ID: No Data
Temporary Designation: No Data

Site Evaluation Status

DHR Staff: Potentially Eligible

Locational Information

USGS Quad: NOKESVILLE
County/Independent City: Manassas (Ind. City)
Physiographic Province: Piedmont
Elevation: No Data
Aspect: No Data
Drainage: Potomac
Slope: No Data
Acreage: 0.140
Landform: Other
Ownership Status: No Data
Government Entity Name: No Data

Site Components

Component 1

Category: No Data
Site Type: No Data
Cultural Affiliation: Native American
Cultural Affiliation Details: No Data
DHR Time Period: Middle Archaic Period
Start Year: -6500
End Year: -3001
Comments: No Data

Component 2

Category: No Data
Site Type: No Data
Cultural Affiliation: Native American
Cultural Affiliation Details: No Data
DHR Time Period: Early Woodland, Late Woodland, Middle Woodland
Start Year: -1200
End Year: 1606
Comments: No Data

Component 3

Category: Domestic
Site Type: Camp
Cultural Affiliation: No Data
Cultural Affiliation Details: No Data
DHR Time Period: No Data
Start Year: No Data

End Year:	No Data
Comments:	No Data

Bibliographic Information

Bibliography:

Tery Harris
2017 Phase I Archaeological Study for the Proposed West Corporate Development and East Parcel Development at Manassas Regional Airport, City of Manassas, Prince William County, Virginia
prepared by Elizabeth Anderson Comer/Archaeology.
DHR Project No 2017-0348
DHR Report No. PW-661

Informant Data:

No Data

CRM Events

Event Type: DHR Staff: Other

DHR ID: 44PW0729
Staff Name: Sean Tennant
Event Date: 3/13/2024
Staff Comment: Updated the site boundary to better align with the mapping presented in the 1994 WMCAR report, in consultation with Adrienne Birge-Wilson.

Event Type: DHR Staff: Other

DHR ID: 44PW0729
Staff Name: Adrienne Birge-Wilson, DHR
Event Date: 6/2/2017
Staff Comment: DHR File No. 2017-0348
Manassas Regional Airport West Corporate Development and East Parcel Development, City of Manassas

DHR concurs with FAA that the proposed airport improvement project will have no adverse effect on historic properties with the condition that protective measures should be employed during construction for adjacent site 44PW0729.

Event Type: DHR Staff: Potentially Eligible

DHR ID: 44PW0729
Staff Name: David H. Dutton, DHR
Event Date: 10/25/1994
Staff Comment: The survey identified one new prehistoric site, 44PW0729. Based upon the information provided in the report, we agree with the consultant's recommendation of Evaluation (Phase II testing) for this site to determine conclusively its potential eligibility in terms of National Register criteria.

DHR File No. 1993-0611-F
West Complex of Manassas Regional Airport; C & P Job No. 9214
Manassas Regional Airport Environmental Assessment
City of Manassas and Prince William County, Virginia

Event Type: Survey:Phase I/Reconnaissance

Project Staff/Notes:
Site 1
Project Review File Number: 1993-0611
Sponsoring Organization: No Data
Organization/Company: William and Mary Center for Archaeological Research
Investigator: WMCAR
Survey Date: 8/11/1994
Survey Description:
This site was located during an archaeological assessment of the Manassas Regional Airport. Artifacts were recovered from subsurface shovel testing at 23m (75 ft.) intervals, with additional tests to define site limits.

Current Land Use	Date of Use	Comments
Forest	No Data	Reforested.
Threats to Resource:	No Data	
Site Conditions:	No Surface Deposits but With Subsurface Integrity	
Survey Strategies:	Subsurface Testing	

Specimens Collected: Yes

Specimens Observed, Not Collected: Yes

Artifacts Summary and Diagnostics:

1 cordmarked shell-tempered sherd, 1 sand/grit tempered sherd, 1 shell tempered sherd, 1 possible Rossville/Morrow Mtn. hafted biface proximal fragment, 3 quartz debitage, 3 quartzite debitage, 2 metavolcanic debitage, 7 fire cracked rock.

Summary of Specimens Observed, Not Collected:

See report

Current Curation Repository: WMCAR

Permanent Curation Repository: No Data

Field Notes: Yes

Field Notes Repository: WMCAR

Photographic Media: No Data

Survey Reports: Yes

Survey Report Information:

"A Phase I Archaeological Survey of the Proposed Helicopter Facilities, Manassas Regional Airport, Prince William County," by Veronica Deitrick and Christopher McDaid (1994).

Survey Report Repository: WMCAR/DHR

DHR Library Reference Number: PW-104

Significance Statement: No Data





Surveyor's Eligibility Recommendations: Recommended Potentially Eligible

Surveyor's NR Criteria Recommendations, : D

Surveyor's NR Criteria Considerations: No Data

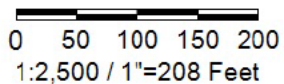


Legend

-  Archaeological Resources
-  Archaeology Labels
-  DHR Easements
-  County Boundaries



Feet



Title: Archaeological Resources





Date: 3/14/2024

DISCLAIMER: Records of the Virginia Department of Historic Resources (DHR) have been gathered over many years from a variety of sources and the representation depicted is a cumulative view of field observations over time and may not reflect current ground conditions. The map is for general information purposes and is not intended for engineering, legal or other site-specific uses. Map may contain errors and is provided "as-is". More information is available in the DHR Archives located at DHR's Richmond office.

Notice if AE sites: Locations of archaeological sites may be sensitive to the National Historic Preservation Act (NHPA), and the Archaeological Resources Protection Act (ARPA) and Code of Virginia §2.2-3705.7 (10). Release of precise locations may threaten archaeological sites and historic resources.

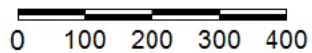


Legend

-  Archaeological Resources
-  Archaeology Labels
-  DHR Easements
-  County Boundaries



Feet



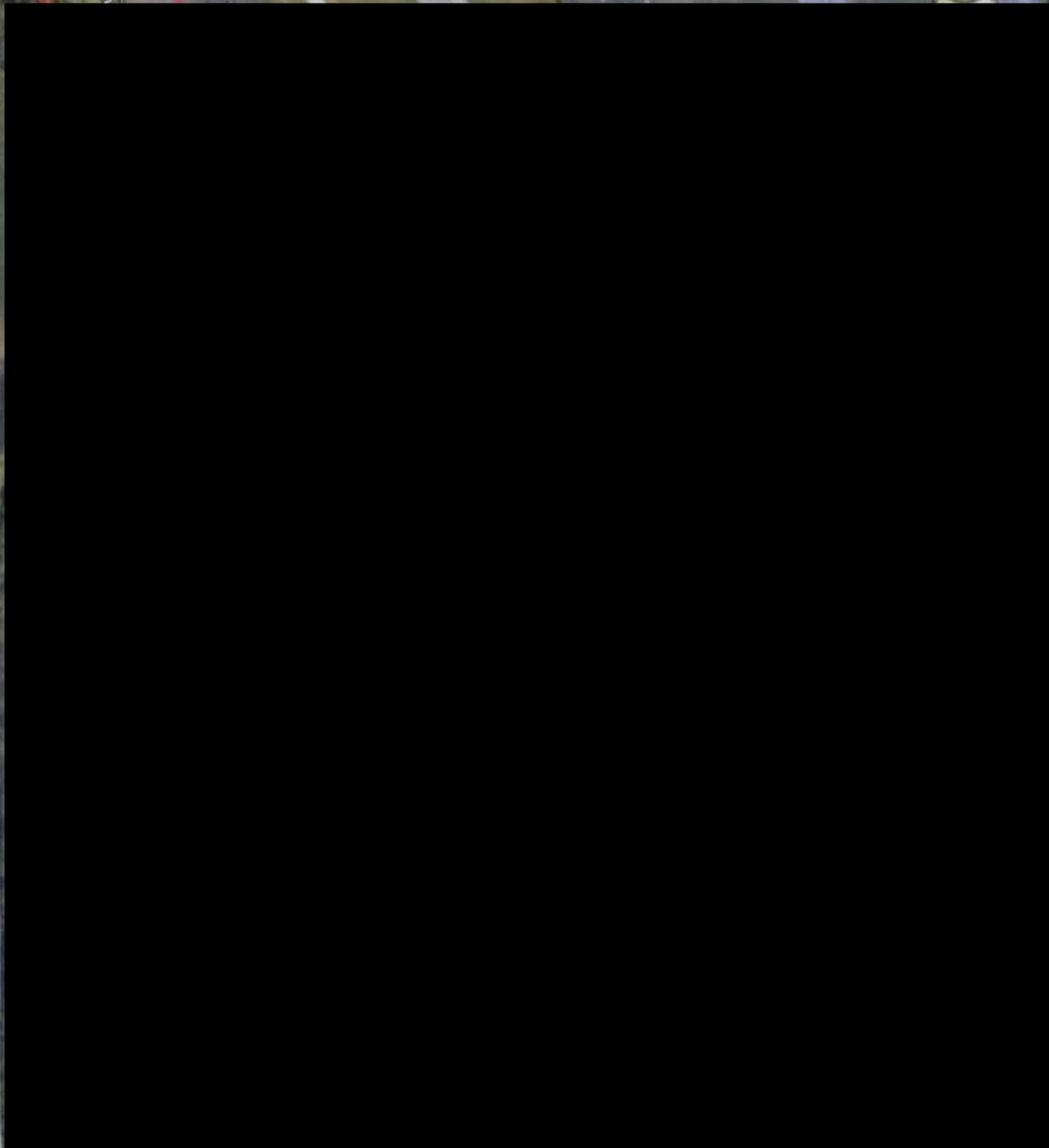
1:4,514 / 1"=376 Feet

Title:

Date: 3/14/2024

DISCLAIMER: Records of the Virginia Department of Historic Resources (DHR) have been gathered over many years from a variety of sources and the representation depicted is a cumulative view of field observations over time and may not reflect current ground conditions. The map is for general information purposes and is not intended for engineering, legal or other site-specific uses. Map may contain errors and is provided "as-is". More information is available in the DHR Archives located at DHR's Richmond office.

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● Datum points

200 0 200 400 ft



Piper Ln

Observation
Massas (C)




Observation Rd

Observation Rd

Wakeman Dr

Skyview Terrace

Legend

-  Survey Area
-  Project Study Area
-  County/City Boundary



0 250 500 1,000



**U.S. Department
of Transportation**

Federal Aviation
Administration

Beckley Airports Field Office

176 Airport Circle, Room 101

Beaver, West Virginia 25813

Telephone: (304) 252-6216

FAX: (304) 253-8028

March 21, 2025

Adrienne Birge-Wilson
Division of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

RE: Section 106 No Historic Properties Affected Finding and Section 4(f) *De Minimis* Impact Determination for a Replacement Air Traffic Control Tower (ATCT), Manassas Regional Airport, Manassas, VA; DHR File No. 2024-3226

Dear Ms. Birge-Wilson,

On March 6, 2024, the Virginia Department of Historic Resources (VDHR) responded to our letter initiating consultation for the proposed Manassas Regional Airport Air Traffic Control Tower (ATCT) replacement project (Proposed Undertaking). The VDHR response stated in part, “Regarding archaeology, the area of potential effects (APE) exhibits moderate to high probability for containing pre-colonial Native American archaeological deposits. A Phase I archaeological survey is recommended to assess this potential and identify any previous unrecorded archaeological resources.”

The City of Manassas has completed a VDHR Project Review Application Form which includes a Phase I Archaeological Survey as well as a Visual Effects Study for the Proposed Undertaking. The Direct Area of Potential Effects (APE) encompasses approximately four (4) acres and includes the site of the proposed ATCT, support building, parking lot, and any areas with potential for ground disturbance. A portion of the Direct APE overlaps with a Phase I cultural resources survey that was completed in 2017 (DHR File No. 2017-0348). This previous survey did not identify any cultural resources within the boundary of the current project area. Given the recent date of this survey, the area of overlap was not resurveyed. The current survey area covered approximately 2.4 acres of the Direct APE outside of the 2017 survey boundary and consisted of shovel testing at a 15-meter interval on a grid pattern as well as a visual inspection of the entire four (4) acre study area. No surface artifact deposits were encountered, and none of the twenty-three (23) excavated shovel tests yielded any artifacts or evidence of subsurface cultural features.

The Indirect APE is defined as approximately 1,600-acres surrounding the project area where the expected visibility of the proposed ATCT could occur. Bristoe Station Battlefield (DHR Resource 076-0024 and 076-5036) is located outside of the Proposed Undertaking’s Direct APE, but within the Indirect APE. The Battlefield is identified as potentially eligible for listing in the National Register of Historic Places. The Visual Effects Study evaluated light emissions as well as visual resources and visual character effects that may result from the Proposed Undertaking to properties identified with the project’s Indirect APE utilizing both daytime and nighttime simulations.

The Visual Effects Study concluded that the Proposed Undertaking would not result in light emission effects to the degree that the Proposed Undertaking would: 1) have the potential to create annoyance or interfere with normal activities; or, 2) have the potential to affect the visual character of the area due to light emissions. The Study also concluded that the Proposed Undertaking would result in visual resources and visual character effects that: 1) would change the viewshed but would not affect the nature of the visual character of the area; 2) would to a degree contrast with the visual resources and/or visual character of areas west of the Airport; and, 3) would not block or obstruct the views of visual resources.

The Visual Effects Study also concluded that the ATCT's lighting system would not compromise the character of the Bristoe Station Battlefield Heritage Park which is a 140-acre county owned park, located approximately one-mile west of the Proposed Undertaking, preserving a portion of the Bristoe Station Battlefield. While the proposed replacement ATCT would not be seen from the Bristoe Station Battlefield Heritage Park, it could introduce a new visual element that may not seamlessly blend with the existing visual character of the surrounding areas, particularly those west of the Airport. However, the proposed replacement ATCT would be designed to be visually compatible with the existing Airport facilities and the surrounding environment.

The FAA respectfully requests your review of the Phase I Archaeological Survey and Visual Effects Study. In accordance with 36 CFR Part 800.3(g), the FAA requests your concurrence with the defined Direct and Indirect APEs as well as concurrence with a finding of no historic properties affected per 36 CFR 800.4(d)(1). This finding is based on the lack of artifacts or cultural features encountered during the Archaeological Survey of the Direct APE and the conclusions reached in the Visual Effects Study regarding the Indirect APE. In accordance with Section 4(f) of the Department of Transportation Act of 1966 (49 U.S.C. § 303), the FAA also intends to make a *de minimis* impact determination based on concurrence with our finding of no historic properties affected. If you have any questions or need additional information regarding the Proposed Undertaking, please do not hesitate to contact Susan Stafford of my staff at susan.stafford@faa.gov or (609) 916-5793. We would appreciate your response within 30 days per 36CFR 800.5(c).

Sincerely,



Matthew Di Giulian, P.E.
Manager
Beckley Airports Field Office

Attachments

- VDHR Project Review Form
- FAA to VDHR Letter, dated 1/30/24
- Phase I Archaeological Survey, October 2024
- Visual Effects Study, February 2025

cc:

Juan Rivera, Manassas Regional Airport
Jolene Berry, Manassas Regional Airport
Susan Stafford, Federal Aviation Administration
Stephen Smiley, Virginia Department of Aviation
David Alberts, RS&H, Inc.

Project Review Application Form

This application must be completed for all projects that will be federally funded, licensed, or permitted, or that are subject to state review. Please allow 30 days from receipt for the review of a project. All information must be completed before review of a project can begin and incomplete forms will be returned for completion.

I. GENERAL PROJECT INFORMATION

1. Has this project been previously reviewed by DHR? YES NO DHR File # 2024-3226
2. Project Name Environmental Assessment for a Replacement Air Traffic Control Tower (ATCT)
3. Project Location Manassas Prince William
City Town County
4. Specify Federal and State agencies involved in project (providing funding, assistance, license or permit). Refer to the list of agencies and abbreviations in the instructions.

Lead Federal Agency Federal Aviation Administration

Other Federal Agency _____

State Agency _____

5. Lead Agency Contact Information

Contact Person Susan Stafford

Mailing Address FAA Beckley Airports Office 176 Airport Circle, Room 101, Beaver, WV 25813

Phone Number 304-252-6216 Fax Number 304-253-8028

Email Address susan.stafford@faa.gov

6. Applicant Contact Information

Contact Person Juan Rivera, C.M., ACE, Airport Director

Mailing Address 10600 Harry J Parrish Blvd. Manassas, VA 20110

Phone Number 703-361-1882 Fax Number _____

Email Address jrivera@manassasva.gov

II. PROJECT LOCATION AND DESCRIPTION

7. USGS Quadrangle Name Nokesville
8. Number of acres included in the project 3.9 acres

MAIL COMPLETED FORM AND ATTACHMENTS TO:

Virginia Department of Historic Resources
Attention: Project Review
2801 Kensington Avenue, Richmond, VA 23221
www.dhr.virginia.gov

9. Have any architectural or archaeological surveys of the area been conducted? YES X
NO if

yes, list author, title, and date of report here. Indicate if a copy is on file at DHR.
A total of 27 previous cultural inventory surveys have previously been conducted. See Phase I. Appendix B

10. Are any structures 50 years old or older within or adjacent to the project area? If yes, give date(s) of construction and provide photographs. The ATCT was built in the 1960s and was moved and reassembled at HEF in 1991. YES X
NO ---

11. Does the project involve the rehabilitation, alteration, removal, or demolition of any structure building, designed site (e.g. park, cemetery), or district that is 50 years or older? If yes, this must be explained fully in the project description. The existing ATCT is planned for demolition. YES X
NO ---

12. Does the project involve any ground disturbance (e.g. excavating for footings, installing sewer or water lines or utilities, grading roads, etc.)? If yes, this must be explained fully in the project description. YES X
NO ---

13. DESCRIPTION: Attach a complete description of the project. Refer to the instructions for the required information.
See FAA to VDHR letter dated 1/30/24, attached.

To the best of my knowledge, I have accurately described the proposed project and its likely impacts.

[Signature] _____ 2/3/25 _____
Signature of Applicant/Agent Date

The following information must be attached to this form:

- X Completed DHR Archives search
- X USGS map with APE shown
- X Complete project description
- X Any required photographs and plans

<p><u>---</u> No historic properties affected <u>---</u> No adverse effect</p> <p><u>---</u> Additional information is needed in order to complete our review.</p> <p><u>---</u> We have previously reviewed this project. A copy of our correspondence is attached.</p> <p>Comments: _____</p> <p>_____</p> <p>_____</p> <p>Signature _____ Date _____</p> <p>Phone number _____ DHR File # _____</p> <p><i>This Space For Department Of Historic Resources Use Only</i></p>

MAIL COMPLETED FORM AND ATTACHMENTS TO:
Virginia Department of Historic Resources
Attention: Project Review
2801 Kensington Avenue, Richmond, VA 23221
www.dhr.virginia.gov



**U.S. Department
of Transportation**

Federal Aviation
Administration

Beckley Airports Field Office

176 Airport Circle, Room 101

Beaver, West Virginia 25813

Telephone: (304) 252-6216

FAX: (304) 253-8028

January 30, 2024

Adrienne Birge-Wilson
Division of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

RE: Early Agency Coordination

Environmental Assessment for a Replacement Air Traffic Control Tower (ATCT)

Manassas Regional Airport

Manassas, VA

Dear Ms. Birge Wilson

The City of Manassas (City) proposes the construction and operation of a replacement Air Traffic Control Tower (ATCT) at Manassas Regional Airport (HEF or Airport) (see **Figure 1**). The City proposes to construct a replacement ATCT at the Airport to improve the functional and operational capabilities of the service provided by the FAA ATCT personnel. The need to replace the ATCT is a combination of safety, operational, and infrastructure deficiencies.

The City will request the Federal Aviation Administration's (FAA) unconditional approval of the project as shown on the Airport's Airport Layout Plan as well as federal funding for the proposed replacement ATCT. This request is a Federal action, subject to the requirements of the National Environmental Policy Act (NEPA). In compliance with NEPA and under the direction of the FAA, the City through their consultant (RS&H, Inc.) is initiating preparation of an Environmental Assessment (EA). The EA will assess the potential environmental impacts of the replacement ATCT components at each site:

- » Clearing and grading activities and construction staging areas;
- » Construction of a replacement ATCT with support building;
- » Construction of ATCT employee parking lot; and
- » Demolition and disposal of the existing ATCT.

The Proposed Action, Alternative 1, Alternative 2, and the direct study area are within City of Manassas limits (see **Figure 2**). The EA will evaluate each of the three site locations (see **Figure 2**). The siting of the Proposed Action and two alternatives took into consideration clearing an FAA recommended 2-acre site and avoiding an existing floodway, wetlands, and an archaeological site.

In accordance with the NEPA and FAA Orders 1050.1F, *Policies and Procedures for Considering Environmental Impacts* and 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions of Airport Actions*, the EA will analyze the potential environmental effects of the Proposed Action. As part of the EA process, various field surveys will be conducted. These include a threatened and endangered species survey, floodplain analysis, and wetland delineation (including a jurisdictional determination).

On behalf of the City, we are sending you this early notification letter to:

1. Advise your agency of the preparation of the EA;
2. Request any relevant information that your agency may have regarding the project site or environs; and
3. Solicit early comments regarding potential environmental, social, and economic issues for consideration during the preparation of the EA.

You may send any information and comments to Susan Stafford of my staff at susan.stafford@faa.gov or to the address provided at the top of this letter. We would appreciate your prompt response within 30 days.

We would like to thank you for your interest in this project and look forward to working with you as we prepare the EA. If you have any questions or need additional information regarding Proposed Action or EA, please do not hesitate to contact me at (304) 252-6216.

Sincerely,

**MATTHEW
DIGIULIAN**

Digitally signed by
MATTHEW DIGIULIAN
Date: 2024.01.30
07:21:10 -05'00'

Matthew Di Giulian, P.E.
Manager
Beckley Airports Field Office

Attachments

cc: Juan Rivera, Manassas Regional Airport
Jolene Berry, Manassas Regional Airport
Susan Stafford, Federal Aviation Administration
Scott Denny, Virginia Department of Aviation

Figure 1
Airport Location



Legend

-  Airport Location
-  Jurisdictions



Figure 2
Proposed Action & Alternatives



Sources: ESRI 2023; RS&H 2023

0 250 500 Feet

Legend

- Direct Study Area
- Alternative 1
- Proposed Action
- Alternative 2



PHASE I ARCHAEOLOGICAL SURVEY

AIR TRAFFIC CONTROL TOWER REPLACEMENT
MANASSAS REGIONAL AIRPORT (HEF)
CITY OF MANASSAS
PRINCE WILLIAM COUNTY, VIRGINIA

OCTOBER 2024 (REVISED)

PREPARED FOR:

REYNOLDS, SMITH & HILLS, INC.

2600 PARK TOWER DR., SUITE 101

VIENNA, VA 22180

PREPARED BY:

THE MANNIK & SMITH GROUP, INC.

1800 INDIAN WOOD CIRCLE

MAUMEE, OH 43537



Results of a Phase I Archaeological Survey for the Proposed Air Traffic Control Tower Replacement Project at Manassas Regional Airport (HEF) in the City of Manassas, Prince William County, Virginia

VHDR File Number Not Yet Assigned

Submitted by:

Dr. Robert C. Chidester, RPA 1066050
Principal Investigator / Project Manager

Prepared by:

Timothy J. Maze, M.S.
Robert C. Chidester, Ph.D.
Meagan N. Bell, M.P.S.
Julia R. Joblinski, B.A.
Jeffrey P. Nagle, M.A.

The Mannik & Smith Group, Inc.
1800 Indian Wood Circle
Maumee, OH 43537

Submitted to:

Reynolds, Smith & Hills, Inc.
2600 Park Tower Drive, Suite 101
Vienna, VA 22180

Lead Federal Agency:

Federal Aviation Administration

October 2024 (Revised)



ABSTRACT

In June 2024, Reynolds, Smith & Hills, Inc. (RS&H) contracted The Mannik & Smith Group, Inc. (MSG) to conduct a Phase I archaeological reconnaissance survey for the proposed Air Traffic Control Tower Replacement project at Manassas Regional Airport (HEF) in the City of Manassas, Prince William County, Virginia. The Project involves the construction of a new air traffic control tower along with an associated support building and parking lot on the west side of Observation Road at its south end. Including a buffer for ancillary work areas, the overall Project Area encompasses 3.9 ac (1.6 ha). A portion of the Project Area overlaps with a Phase I cultural resources survey that was previously completed in 2017; this previous survey did not identify any cultural resources within the boundary of the current Project Area (Harris 2017). Given the recent date of this survey, the area of overlap was not surveyed again. Thus, the current Survey Area covered 2.4 ac (1.0 ha).

Background research efforts included a literature review of cultural resources data in the Virginia Cultural Resources Information System database, examination of historic cartographic resources, and secondary-source research on the general environmental, pre-contact and post-contact cultural/historical contexts that have shaped the development of the Manassas Regional Airport. Based on this research, it was anticipated that the archaeological survey was most likely to encounter small pre-contact lithic scatters representing short-term encampments. Although the Bristoe Station and Kettle Run battlefields are located near the Project Area, the results of prior studies (Jacobs et al. 2016, Harris 2017) did not indicate a likelihood that battlefield-related artifacts would be present.

The survey consisted of shovel testing at 15-m (49.2-ft) intervals on a grid pattern within the Survey Area and visual inspection of the entire Project Area. No surface artifact deposits were encountered, and none of the 23 excavated STPs yielded any artifacts or evidence of subsurface cultural features.

In summary, no archaeological resources have been identified within the Project Area for the proposed Air Traffic Control Tower Replacement project. Therefore, the project will not have any impact on archaeological resources that are listed on or eligible for the National Register of Historic Places. No further archaeological investigations are recommended.

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1.0 INTRODUCTION AND DESCRIPTION OF UNDERTAKING

In June 2024, Reynolds, Smith & Hills, Inc. (RS&H) contracted The Mannik & Smith Group, Inc. (MSG) to conduct a Phase I archaeological reconnaissance survey for the proposed Air Traffic Control Tower Replacement project (hereafter, the Project) at Manassas Regional Airport (HEF) in the City of Manassas, Prince William County, Virginia (Figure 1.1). The Project requires the approval of the Federal Aviation Administration, and is therefore subject to review under the National Environmental Policy Act of 1969 (NEPA) and the National Historic Preservation Act of 1966 (as amended) (NHPA). RS&H is preparing an Environmental Assessment (EA) for the Project, which includes consultation with the Virginia Department of Historic Resources (VDHR) (which serves as the State Historic Preservation Office) pursuant to Section 106 of the NHPA. The Phase I archaeological survey was completed to assist with this consultation.

The Project involves the construction of a new air traffic control tower along with an associated support building and parking lot in the west-central portion of the airport property, on the west side of Observation Road at its south end. The new control tower will measure approximately 8.5 m (28 ft) in diameter. The support building will have a footprint of 18 m (60 ft) x 8 m (26 ft), while the parking lot will measure 57 m (188 ft) x 19 m (63 ft) with access from Observation Road. An area measuring approximately 1.15 ac (0.5 ha) and extending approximately 36 m (119 ft) off of Observation Road will be cleared of trees prior to construction. Including a buffer for ancillary work areas, the overall Project Area encompasses 3.9 ac (1.6 ha). A portion of the Project Area overlaps with a Phase I cultural resources survey that was previously completed in 2017; this previous survey did not identify any cultural resources within the boundary of the current Project Area (Harris 2017). Given the recent date of this survey, the area of overlap was not surveyed again. Thus, the Survey Area covered 2.4 ac (1.0 ha) (Figure 1.2).

Background research and field reconnaissance were completed in June. The following report includes overviews of the environmental, pre-contact and post-contact cultural contexts of Prince William County and the City of Manassas; the results of a cultural resources literature review; the methods used during the field survey; and the results of the survey. Appendices include reproductions of historic maps of the Project Area, the literature review results in tabular format, a photograph log, and curricula vitae of the Principal Investigator and Field Director.

Dr. Robert Chidester, RPA, served as the Project Manager and Principal Investigator for this survey. Dr. Chidester, who meets the Secretary of the Interior's standards (36 CFR 61) in archaeology and history, coordinated all project tasks. The literature review was conducted by Project Archaeologist Nicole Davis, B.S., and fieldwork was conducted by Field Director Timothy Maze, M.S. The environmental and pre-contact cultural overviews were prepared by Project Archaeologist Julia Joblinski, B.A., while the post-contact cultural overview was prepared by Project Historian Jeffrey Nagle, M.A. Maze and Chidester are the primary authors of this report. Project Archaeologists Meagan Bell, M.P.S., Elizabeth Hickle, B.S., Adam Darkow, B.A., and Nicole Davis, B.S., prepared the figures and appendices.



 Project Area

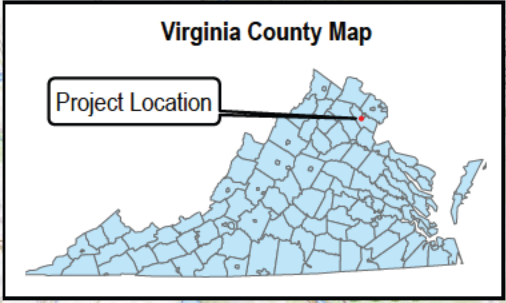
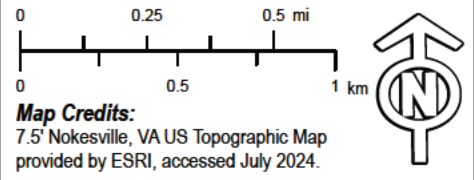
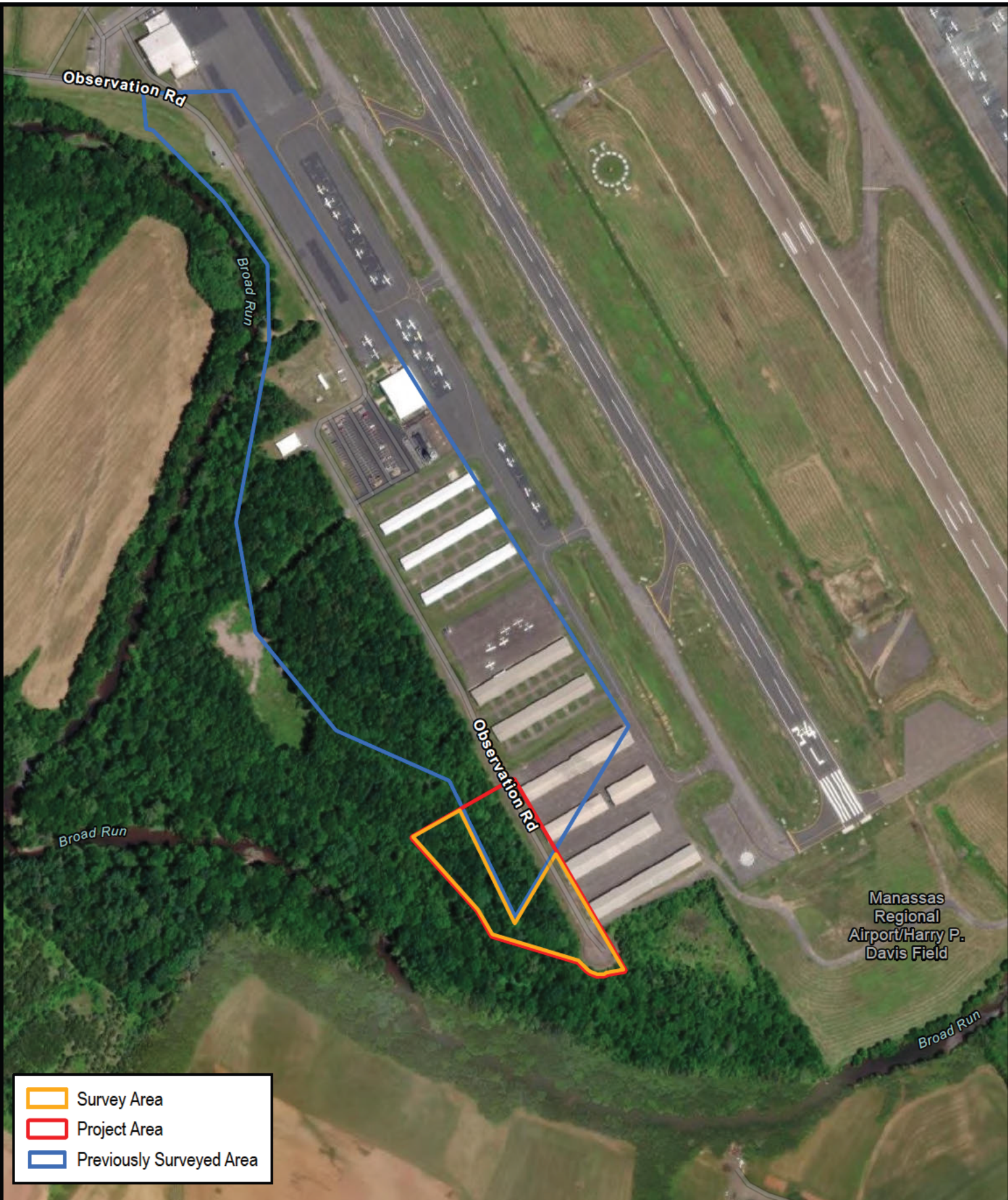


Figure 1.1
Project Location
Phase I Archaeological Survey
Manassas Regional Airport
City of Manassas, Prince William County, VA





- Survey Area
- Project Area
- Previously Surveyed Area

Manassas
Regional
Airport/Harry P.
Davis Field



Figure 1.2
Survey Area
Phase I Archaeological Survey
Manassas Regional Airport
City of Manassas, Prince William County, VA

0 250 500 Feet
 0 75 150 Meters

Map Credits:
 Prince William County aerial photography
 provided by ESRI, accessed July 2024.

2.0 BACKGROUND RESEARCH

The specific methods utilized during any archaeological survey should ideally be based on a sound research design that takes into account environmental variables, documentation of known and suspected archaeological sites in the general vicinity of the project area, and a thorough understanding of the relevant pre-contact and post-contact contexts for a given area. This background information is presented here.

2.1 Environmental Context

Before proceeding to the statement of pre-contact and post-contact cultural contexts and the literature review of previously recorded cultural resources within the vicinity of the Project Area, this section will discuss the environmental context of northern Virginia, focusing on Prince William County. Included are sub-sections on the physiography and geology of Virginia, the paleoclimate and paleoecology of the region, the modern environment of Prince William County, and current land use and soils within the Project Area.

2.1.1 Physiography and Geology of Northern Virginia and Prince William County

The state of Virginia is located on the east coast of the United States, abutting to the coast of the Atlantic Ocean to the east, and connecting to West Virginia and Kentucky to the west, North Carolina and Tennessee to the south, and Maryland to the north. Prince William County is located in the northern region of Virginia, much of which is located in the Piedmont physiographic province of the state. Small portions of the eastern end of the county are within the Coastal Plain and Blue Ridge physiographic provinces. The Project Area is within the north-central portion of Prince William County (Bailey 1999; National Park Service [NPS] 2009).

The Piedmont physiographic province stretches from northeastern Virginia to the south, to make up much of the south-central region of the state. Geology within the Piedmont province consists of bedrock buried by 2 – 20 m (6.6 – 66 ft) of saprolite (weathered and disintegrating bedrock). This bedrock is largely made up of igneous and metamorphic rock dating to the Proterozoic and Paleozoic eras, which are characteristic of the Appalachian Mountains. Unlike the other physiographic provinces of the state – which contain more topographic variation due to their location within or near the Appalachian mountain belt – the Piedmont physiographic province contains gently rolling topography (Geology of Virginia [GOV] 2024c). Some physiographic features of this part of the Piedmont province within Prince William County consist of Mesozoic basins and western Piedmont-Potomac Terrane. Three sub-provinces of the Piedmont province – foothills, Mesozoic lowlands, and the outer Piedmont – are present within Prince William County, consisting of broad rolling hills and low-moderate slopes underlain by Mesozoic sedimentary and igneous rocks (Bailey 1999, 2016; GOV 2024c).

The portion of Prince William County that contains the Coastal Plain physiographic province (the easternmost part of the county) primarily consists of coastal terrace containing Quaternary alluvium and gravel, among other Cretaceous and Ordovician sediments and rock outcrops (Virginia Energy 2024). The Coastal Plain province within Prince William County consists of two sub-provinces: the upland and lowland sub-provinces. These sub-provinces consist of broad upland landforms with low slopes and gentle drainage (except in areas there is significant erosion on the edges of streams), and flat, lowly sloping areas along rivers and the Chesapeake Bay, which has facilitated the growth of marshes and swamps. The northern Blue Ridge physiographic sub-province (part of the Blue Ridge province), which makes up the north-northwestern end of Prince William County, consists of steep slopes, narrow ridges and broad mountains, much unlike the gently rolling topography of the physiographic regions to the east (Bailey 1999; NPS 2009; Virginia Department of Conservation and Recreation [VDC&R] 2021).

2.1.2 Paleoclimate and Paleoecology of Northern Virginia

No glaciers extended as far as present-day Maryland during the Pleistocene. However, the effects of the rebounding and subsidence of the Laurentide ice sheet are noticeable in the landscape of modern-day Virginia. Retreating glacial ice caused ocean levels to rise, and especially in areas like the Coastal Plain physiographic province where forested swamps and wetlands were prevalent, flooding of lower-lying topography, rivers, and streams occurred frequently. The present-day Chesapeake Bay was directly impacted, causing parts of Virginia's east coast to sink into the Atlantic Ocean with post-glacial rising sea levels (U.S. Geological Survey [USGS] 2022; Dalton et al. 2020).

Since most of the bedrock within Prince William County is of igneous or metamorphic origin (and, therefore, there is less sedimentary rock in which to find fossils), there is a dearth of information on extinct animal species that were present within Prince William County prior to the arrival of European colonists. However, multiple species of Pleistocene megafauna and other species of mammals were known to live within what is now modern-day Virginia, including the following: Imperial mammoth (*Mammuthus imperator*) and Columbian mammoth (*Mammuthus columbi*), mastodon (*Mammuth americanum*), Ice Age and long-horned bison (*Bison antiquus*, *Bison latifrons*), various horse species (namely *Equus hippidion*), short-faced bear (*Arctodus simus*), tapir species (*Tapirus haysii* and *veroensis*), American black bear (*Ursus americanus*), American Lion (*Panthera atrox*), giant ground sloth (*Eremotherium mirabile* and *Megalonyx jeffersonii*), dire wolf (*Canis dirus*), giant armadillo (*Holmesina floridanus*), North American beaver (*Castor canadensis*), peccaries (*Platygonus compressus*), round-tailed muskrat (*Neofiber alleni*), saber-toothed cat (*Smilodon fatalis*), and stag moose (*Cervalces scotti*) (Handley 1992).

Not much is known about the historic flora that existed in Prince William County; however, according to early accounts from European settlers, the landscape and flora which existed in the Piedmont province likely consisted of savanna-like grasslands and woodlands, which were managed with intentional fires set by indigenous peoples (VDC&R 2021). In places like the northern Blue Ridge sub-province, for instance, taller mountain ranges were likely treeless while lower mountains were covered with coniferous forest; lower-lying places, such as the Coastal Plain province, likely contained open parkland vegetation with coniferous tree cover and savanna-like grassland (Handley 1992).

2.1.3 Modern Environment of Prince William County

In modern-day Prince William County, winters are typically cold with average temperatures in the 36 °F range; summers are mild, with an average temperature of approximately 76 °F, not typically getting higher than 88 °F. Average precipitation is approximately 36 inches, most of which falls during the growing season (April-September). Prior to European settlement, the majority of Prince William County consisted of savanna-like grasslands and dense woodlands, although most of this has been cleared for agriculture and industrial encroachment in the present day. Being that the state has one of the most topographically diverse settings on the east coast, heterogeneous vegetation and wildlife habitats can thrive within close proximity (Elder 1989; VDC&R 2021).

2.1.4 Current Land Use and Soils

Current land use within the Project Area can be described as undeveloped woodlot on the edge of the HEF property. The southern end of Observation Road, including a turnaround at the end of the road, occupy the eastern edge of the Project Area (see Figure 1.2).

Soil properties can generally be correlated with the likely presence of archaeological resources. Poorly drained soils, for instance, generally retain a low probability for archaeological resources since they are frequently inundated with water and are otherwise uninhabitable. Well-drained soils generally retain a higher probability for archaeological resources since they would have proffered a relatively dry habitation space. Different combinations of soil types within an area can also be useful for predicting the likely existence of archaeological resources. Well-drained hummocks, for instance, often contain archaeological resources when in proximity to poorly-drained soils, and may have been preferred locations for pre-contact hunter-gatherers due to the diversity in faunal and floral taxa that are characteristic of wetland or estuarine environments. The Project Area is characterized by three individual soil types (U.S. Department of Agriculture, Natural Resources Conservation Service 2024), which are summarized in Table 2.1 and shown on Figure 2.1.

Table 2.1 Soil Types within the Project Area

Map Symbol	Soil Name	Slope (%)	Drainage	Landform Type(s)	Acres	% of Project Area
1A	Aden silt loam	0-2	Poorly drained	Terraces	1.75	44.75%
20B	Elsinboro sandy loam	2-7	Well drained	Stream terraces, flood plain	1.99	50.89%
49A	Rowland	0-2	Moderately well drained	Flood plain	0.17	4.34%

2.2 Pre-Contact Cultural Contexts

2.2.1 The Paleoindian Period (13,000–10,000 B.P.)

The Paleoindian period in present-day Virginia and the eastern United States ranged between 13,000-10,000 years before present (B.P.). Before discussing the Paleoindian period in full, however, it should be noted here that prior to the use of Clovis-type projectile points (one of the main markers of the Paleoindian period in the state), the region of what is currently North America was likely populated by humans before 13,000 B.P., possibly by 15,000 B.P. or earlier. Recent radiocarbon studies on the buried stratigraphy at the Cactus Hill site in Sussex County in southeastern Virginia have shown that pre-Clovis peoples occupied the site by approximately 15,000 B.P. Material culture within the same strata consisted of unfluted knives, expedient tools such as prismatic blades and blade cores made from river cobbles, groundstone tools made from sandstone, and possibly non-descript tools made from bone and wood (McAvoy and McAvoy 1997; Carr 2018; Johnson et al. 2022).






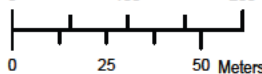
	Survey Area
	Project Area
	Soil Boundary




Figure 2.1
Soils within the Project Area
Phase I Archaeological Survey
Manassas Regional Airport
City of Manassas, Prince William County, VA

0 100 200 Feet



0 25 50 Meters

Map Credits:
 Prince William County aerial photography provided by ESRI, accessed July 2024.



The general assumption in eastern North America is that Paleoindian peoples lived in fairly small family groups, foraging for plant foods and likely taking advantage of Pleistocene megafauna species as they migrated seasonally. However, there is no explicit evidence of fluted projectile point use at butchering sites in the eastern United States (Hranicky 2009). Evidence from Maryland also suggests that Paleoindian peoples were more socially connected across long distances than originally assumed. First, quarry sites are prevalent in the state, containing a wide range of tools made from chert, aside from the typical fluted Clovis-type projectile points. Paleoindian peoples were quarrying large amounts of materials and camping near the quarries, indicating prolonged use. At campsites, locally-quarried chert types were found alongside tools made of non-local cherts (including chalcedony and jasper), indicating that trade networks had a much wider range than previously thought. Data from these campsites also indicated prolonged use, meaning that they were visited and lived in frequently; people were using spaces near water, such as on river terraces and nearby swamps and wetlands (Custer 1990; Dent 1995). While group size likely remained limited to immediate family, there is evidence of group interaction on a wider scale than previously assumed. Diagnostic stone tools from the Paleoindian period in Prince William County specifically include Clovis, Dalton, and Hardaway projectile points (Gardner 1989; McAvoy 1992).

2.2.2 Archaic Period (10,000–3200 B.P.)

The Archaic period can be divided into three phases, Early (10,000–8800 B.P.), Middle (8800–5500 B.P.), and Late (5500–3200 B.P.). Tool production moved from fluted lanceolate projectile points to smaller, stemmed and side-notched projectile points by the middle of the Early Archaic period; however, Paleoindian tool types were still in use during the Paleoindian-Early Archaic transition, indicating a slow change in subsistence strategies. It is assumed that the change in stone tool production was brought about by environmental changes, namely the overall warming and moistening of the environment. These environmental changes shifted people from foraging and large game hunting to relying on more local resources, such as a wide range of smaller game species (e.g., white-tailed deer and fish). There was also an increased reliance on plant foods, marked by the presence of groundstone tools such as grinding stones, mortars and pestles (Kraft 1976; Dent 1995). There is also a dramatic increase in Archaic-range sites within eastern North America and Prince William County specifically. In both Prince William County and Virginia as a whole, Archaic-period peoples would have had access to a wide range of topography (and, thus, a wide range in animal and plant habitats, increasing one's choices for food). Fauna from multiple sites in Virginia indicate that by the Early Archaic period, groups were utilizing a wide range of animal species (Kraft 1976; Leedecker and Holt 1991). Diagnostic tools include Palmer corner-notched, Kirk corner-notched and Kirk Stemmed, and bifurcate projectile points; the Early Archaic also saw the introduction of ground axes, adzes, and celts, typically made from mafic, igneous materials. It has also been noted that non-projectile chert tools, such as end scrapers, were being used in higher quantities (Coe 1964; Custer 1990).

The Middle Archaic period (8800–5500 B.P.) is well represented in Virginia, in part by better site preservation, longer-term settlements, and also due to an assumed increase in population or group size. By the Middle Archaic period, the environment had grown even warmer but dryer, and it stayed this way into the Late Archaic period. This Holocene environment, however, allowed more species and habitats to develop, thus allowing for a wider range of choices in people's diets and subsistence movement (Delcourt and Delcourt 1987). This change in environment likely resulted in movements of small bands of people from season to season, with encampments becoming less permanent and group interaction possibly becoming less frequent on a large scale (Mouer 1991). However, site data seems to support the theory that during seasons when fish were in abundance within drainage areas and streams, Middle Archaic-period peoples would gather in large fishing

groups and take advantage of the high volume of fish, while also decreasing the amount of labor it took to catch and process the fish (and also increasing group cooperation and interaction on a smaller scale) (Gardner 1978; Custer 1990). Diagnostic projectile points include stemmed and side-notched varieties from the Stanley, Morrow Mountain, Neville, Halifax and Guilford types. Grinding tools, like mortars and pestles, became commonplace by the Middle Archaic. Marine food sources, namely from wetland and floodplain areas, are seen in faunal assemblages with high frequency (Custer 2000; Dent 1995).

During the Late Archaic period (5500–3200 B.P.) in Virginia, the climate remained much the same, except for the increase of shallow estuarine waters (especially on the east coast, near the Chesapeake Bay). These estuarine areas were yet another source of food, and towards the end of the Late Archaic period, indigenous groups exhibited an ever-increasing reliance on marine mollusks. Fishing-related tools such as net sinkers were common by the Late Archaic. The increased manufacture of expedient tools, such as flake scrapers, burins, drills, and utilized flakes, is demonstrated by their recovery in larger quantities on Late Archaic archaeological sites. Ground stone tools remained common, with the addition of grooved axes and steatite bowls during the Late Archaic. Projectile points from the Vernon, Perkiomen, Brewerton, Holmes, and Susquehanna types are diagnostic to the Late Archaic period (Dent 1995).

2.2.3 Woodland Period (3200–400 B.P.)

The Woodland period is divided into three phases: Early (3200 B.P.–2300 B.P.), Middle (2300–1100 B.P.), and Late (1100–400 B.P.). The transition from the Late Archaic to the Early Woodland was somewhat smooth, with the Late Archaic-Transitional sub-period in which groups became mostly sedentary, occupying areas containing tributaries and interior river drainages (Mouer 1991). The Early Woodland in the eastern United States is mostly marked by the introduction of “crude” pottery types and experimentation with horticulture. The population growth that began in the Late Archaic and the Late Archaic-Transitional period continued, and groups became mostly sedentary. The use of steatite continued, primarily as temper for pottery vessels, particularly the Marcey Creek and Seldon Island pottery types. These pottery types are thought to be the first ones used within the Piedmont province, and they were fairly rudimentary as the vessels were shallow and were somewhat poorly built from slabs. Vessels tempered with sand and quartz became popular as well, with the use of Accokeek-style pottery towards the end of the Early Woodland period (Dent 1995).

During the Middle Woodland period (2300-1100 B.P.) in Virginia, large settlements existed along coastal areas and within the estuarine settings of the Chesapeake Bay. Archaeological data implies that the Piedmont province was used primarily for game hunting in groups, rather than as a place to set up a home base. Settlements in the Coastal Plain province contained storage facilities, and were localized nearby or adjacent to wild food sources (Curry and Kavanagh 1991). While not formally part of the Hopewell cultural sphere centered in the Ohio River valley to the west, there were changes in widespread regional group interaction in Virginia, marked by non-local chert and stone materials as well as pottery styles. Towards the end of the Middle Woodland and the start of the Late Woodland periods, pottery styles shifted from the thick, shallow vessels that were popular in the Early Woodland to thinner vessels of conical and globular shapes, employing coiling as a manufacturing method. Much like pottery in other places within the eastern United States, cordmarking, net impressing, and other surface treatment techniques became commonplace in Prince William County and northern Virginia. Accokeek, Mockley, and Popes Creek are diagnostic ceramic ware types of the Middle Woodland, along with small triangular notched and lanceolate projectile points (Dent 1995).

The Late Woodland period (1100–400 B.P.) is marked by larger villages localized on floodplains, further reliance on agriculture, and an increase in social stratification. The Potomac and Monocacy River floodplains seemed to be an ideal village setting for Late Woodland peoples, containing fertile bottomland soils for the cultivation of corn, squash, and beans. Many village sites have been outlined with some form of fortification or palisades, which may indicate some amount of inter-group conflict. Starchy tubers, berries, and roots of edible and medicinal types were foraged in addition to plant cultivation. Due to the landscape's diverse habitats, Late Woodland peoples had a diverse meat diet as well, taking advantage of small mammal, waterfowl, fish, and marine mussel populations. Villages closer to the coastline used more marine food sources than their inland counterparts, who relied more heavily on mammalian species (Hantman and Klein 1992). Jewelry and personal adornments have been found on Late Woodland sites within northern Virginia, including slate gorgets. Diagnostic pottery vessel types include Keyser, Shepard, Potomac Creek, and Dan River styles; projectile points include the small, Madison-style chert points, but there is evidence of animal parts being used as projectiles as well, including shark teeth, stingray barbs, sharpened antler, and sharpened bone fragments. Late Woodland village sites exhibit a much wider array of food sources, depending on the season and availability; as such, their tools needed to be diverse as well. Hefty ground stone tools, like manos, metates, mortars, and pestles are common on Late Woodland village sites; woodworking and carving implements, net sinkers, and fishing harpoons have also been found. Bone tools, such as bone and antler agricultural tools and bone awls, became commonplace (Dent 1995; Hantman and Klein 1992).

Two cultural complexes – the Montgomery and Keyser complexes – manifested during the Late Woodland in and around Virginia, ca. 600-700 B.P. The Montgomery Complex is most easily identified through their pottery: Shepard style ceramic wares, which can be identified as granitic, grit-tempered, cordmarked vessels with conical bases and slightly restricted necks. Shepard ceramics often contained raised collars made by appliqueing a thin strip of wet clay to the unfired vessel. These vessels were often decorated via incising, corded stick impressions, and/or punctations. Site data suggests that Montgomery Complex peoples relied heavily on cultivated corn, squash and beans, but also took advantage of available forageable foods in nearby floodplains. Keyser Complex peoples briefly overlapped Montgomery Complex groups, but mostly after 600 B.P. Keyser Complex ceramics contain shell fragments as pottery temper, and surface decoration primarily consisted of cordmarking and tool impressions. Keyser Complex village sites were typically placed along rivers (Dent 1995).

2.3 Post-Contact Cultural Contexts

Due to the small size of the Project Area, this section will focus on two major themes relevant to the project location: the American Civil War and the history of Manassas Regional Airport.

2.3.1 Manassas and the American Civil War

2.3.1.1 Manassas as a Strategic Location during the Civil War

Manassas as it exists was largely a post-Civil War creation, but the now-city was the site of multiple battles during the American Civil War. Although rail infrastructure was slow to develop in Virginia as in much of the South, by the late 1850s, Manassas Junction was an important spot in the state. Manassas Junction marked the spot where freight and passengers from the narrow-gauge Manassas Gap Railroad (connecting west to Strasburg and the Shenandoah Valley) were loaded onto the standard-gauge Orange and Alexandria Railroad, the only railroad linking Washington with the Virginia piedmont and – after another change to the Virginia Central Railroad

at Gordonsville in Orange County – the state’s capital and largest city, Richmond (Johnson 2004; Virginia Railway Express 2024).

The outbreak of civil war following the election of Abraham Lincoln made Manassas Junction a militarily strategic point. In the early summer of 1861, Union armies outnumbered Confederate forces in northern Virginia but were divided between the Shenandoah Valley in the west and the vicinity of Washington in the east. As newly-volunteered Union troops under Irvin McDowell advanced on Manassas Junction to sever the internal Confederate rail line, sightseers and picnickers from the capital followed. July 18 saw initial skirmishes, and Confederates from the Shenandoah Valley began concentrating at Manassas Junction, joining with the army already there under P.G.T. Beauregard for the first military operation to use railroads. Concentrated on the south side of bridges and fords crossing Bull Run to the north and west of modern Manassas, the Confederates repulsed the Union advance down the rail line and across the creek in a confused battle on July 21, in which both sides were equally untrained, were clad in similarly disorganized uniforms and followed nearly identical flags. The First Battle of Bull Run was the bloodiest battle yet in American history, and made it clear that the rebellion would not be decided in a single decisive encounter (Luebke 2023).

By 1862, Confederates had abandoned northern Virginia to reinforce Richmond and the York-James peninsula as George McClellan’s Army of the Potomac advanced slowly from the Chesapeake. Union forces in northern Virginia were organized into the Army of Virginia under John Pope. With the Army of the Potomac stuck outside Richmond and slowly withdrawing to the north, Confederates under Robert E. Lee, Thomas Jackson and James Longstreet moved against the Army of Virginia scattered along the Rappahannock River. On August 27, Jackson’s troops marched 50 miles around the end of the line and seized the Union supply depot at Manassas Junction, raiding food and destroying materiel. The Army of Virginia abandoned its defensive line and returned to Manassas on the 28th, thinking they had Jackson trapped. Finding the Confederates dug in along an unfinished rail line near the site of the first battle, Pope ordered his troops into futile, uncoordinated attacks on the defensive position over the next two days. On August 30, James Longstreet pushed his troops forward in one of the largest flank attacks of the Civil War, bloodily sweeping Pope’s Army of Virginia northeast to Centreville and opening the way for Lee’s advance into Maryland (Luebke 2021).

In 1863 Manassas was the site of yet another battle: the Battle of Bristoe Station. In the wake of the Confederate retreat after Gettysburg, Lee’s Army of Northern Virginia had retreated to the Rapidan River near Culpeper. Seeing the Union Army of the Potomac’s supply depot at Centreville as a target, Confederate forces under A. P. Hill followed the Army of the Potomac to an Orange and Alexandria Railroad bridge over Broad Run, south of modern Manassas. However, Hill’s forces had missed the rear guard dug in and concealed along the rail line. In a matter of hours, Hill’s troops took 1,400 casualties without making any strategic or tactical advance (Singel 2010).

2.3.1.2 Preservation of Manassas-Area Battlefields

In the early 20th century, formal memorialization began around the battlefields at Manassas. The United Daughters of the Confederacy (UDC) and the state of New York both commissioned monuments. As part of the national reconciliation of the emerging industrial and colonial power and the post-*Plessy* end of the last vestiges of Reconstruction, George Round organized the “Manassas National Jubilee of Peace” on the 50th anniversary of First Bull Run in 1911, with the hope that the Jubilee would lead to the causes of the war being “buried, forgotten and forever settled” (quoted in Zenzen 1998:7). Tens of thousands arrived in Manassas by rail for a picnic with food provided by the UDC and speeches from the governor of Virginia and President Taft (Zenzen

1998:4-7). Interest in the preservation of the battlefields at Manassas had already begun to percolate within the Union veteran organization, the Grand Army of the Republic, although it took the purchase of a Confederate park by the Sons of Confederate Veterans and, later, the New Deal expansion of the national park system under the Resettlement Administration, the Civilian Conservation Corps, the Works Progress Administration and others for the battlefields of First and Second Bull Run to be formally established as National Battlefield Parks in 1938 (Zenzen 1998:7-24).

Through the second half of the 20th century, suburban growth outside Washington and a proposed Disney theme park in Manassas encroached on the area. In the 1980s, the site of Bristoe Station was private land slated for use as a landfill; it was established as Bristoe Station Battlefield Heritage Park in 2006 by Prince William County, almost 70 years after the establishment of a national park for the better-known battlefields to its north (Backus and Orrison 2015:xiv).

2.3.2 Manassas Regional Airport (HEF)

2.3.2.1 Civil Aviation in the United States

In the two decades following Wilbur and Orville Wright's famous first flight in 1903, civil aviation in the U.S. grew quickly. The U.S. Post Office's Airmail Services began in 1918, and the federal government encouraged – but did not fund – the construction of airfields in support of the U.S. Postal Service and the U.S. military. Instead, local interests – both public and private – often joined together to build airfields. Some of the first municipal airports in the country were in places as disparate as Tucson, Arizona (1919), Cleveland, Ohio (1925), and Albany, New York (1928). "Municipal airports were symbolic of civic progressiveness and pride" (Eggebeen 2007).

Several pieces of legislation passed during the early and mid-20th century greatly impacted the development of airfields – later airports – in the U.S. The Air Commerce Act, passed in 1926, not only created the Aeronautics Branch in the Department of Commerce, but also codified local responsibility for airports. Through the mid-1930s, public fascination with and support of air travel grew. Bolstered by the Urban Boosterism movement of putting effort into promoting the growth and development of one's own city, so too did public funding efforts and operation of the country's major airports continue to increase. With the passing of the Civil Aeronautics Act in 1938, the federal government began contributing to the construction of airports, and aid came directly. Following World War II, aviation in the U.S. had gained a place of priority in transportation planning and had become a highly popular method of travel. In 1946 Congress passed the Federal Airport Act, which led to a long-term program of federal aid to municipal airports to comply with increasing regulations for airport safety. Notably, at this time passenger terminals were not considered critical for airport safety or operations, so the construction of passenger terminals remained unfunded through federal monies (Eggebeen 2007).

2.3.2.2 History of Aviation in Manassas

The first airport in Manassas was established in 1932, when 17 residents of the farming community, led by Mayor Harry Davis, purchased a part of the Ben Lomond plantation to serve as a local landing field. The first airport was officially opened June 8, 1932 (Anderson 1999). "What Manassas needs or wants with an airport," wrote *Washington Daily News* aviation columnist Ernie Pyle, "I haven't the slightest idea." At that point, Manassas was an unincorporated village of 1,212, located 30 miles from Washington; the airport was "on rolling ground alongside a dirt road," with "no hangar, but there is a telephone in a little shack." Despite this, Pyle estimated 3,000 farmers, babies, and Civil War veterans turned out to see the new airport and hear from "Manassas airport

orators" that Virginia-based Smithsonian director Samuel P. Langley invented the airplane, not the Wright Brothers, who were "just a couple of boys who also ran" (Pyle 1932).

In the 1930s, boosterish city governments – and particularly city planners – began to see airports as a part of their purview, although their plans tended to follow the lead of existing industry practices and planners' successes at exerting their influence were quite limited when compared to their role in highway planning. Still, states and cities understood airports' potential for economic development; by the early 1940s, all 48 states had passed laws authorizing municipalities to acquire airports, which contemporary legal scholar Charles Rhyne considered "as essential to cities today as the highways and streets over which surface traffic [moved] in metropolitan areas" (quoted in Bednarek 2001:149).

After the Second World War, cities whose small airports had been federalized by the Navy or the Army Air Forces found themselves acquiring larger, up-to-date airports, a result of wartime construction and improvements (Bednarek 2001:163). While Manassas was not one of these, the city did join many others in moving to acquire its local airport from its private holders and purchased the original 94-acre airport in October 1945 (Richmond News-Leader 1945). The transition to peacetime was expected to bring a boom in general aviation, as pilots trained by the U.S. Navy and Army Air Force were mustered out of service and planned postwar prosperity reigned. And briefly, a boom did appear: in 1946, 33,254 light aircraft were sold, more than doubling pre-war sales of private airplanes. But this boom passed swiftly. In 1947 and 1948, the number of airplanes sold fell by half each year; by 1951, only 2,302 new planes were sold. The general aviation industry contracted sharply, while the unexpected growth of the airlines meant the federal government's attention quickly turned elsewhere (Bednarek 2003:86-95).

2.3.2.3 Manassas Regional Airport / Harry P. Davis Field

When the first Manassas airport was established, Manassas was an unincorporated settlement of 1,200, set in a rural county of just under 14,000. By the 1960s, the expansion of Washington, D.C.'s sprawling suburbs had tripled Manassas' population and sent Prince William County's population to 50,000, a number that would more than double again by the end of the decade.

The expansion of tract housing through Prince William County and into Manassas along State Route 234 spelled the end for the first Manassas Airport, where the noisy flightpath crossed expected new housing along the planned extension of Interstate 66, a direct link between the county and downtown Washington. The city purchased a new 268-acre site further from planned development in 1963, and the original airport was redeveloped as the Manaport Plaza strip mall. In 1964, the current site of Manassas Regional Airport was opened, with a 3,700-foot runway, a rotating beacon, and siting for an expected 100 small planes (Anderson 1999). In a Civil War-themed speech, Virginia governor and Massive Resistance architect Albertis Harrison noted that "not since First and Second Manassas have Prince William and Virginia faced such a monumental adjustment" as suburbanization. "We are experiencing a rate of growth unmatched in 100 years," he claimed, "one that promises to continue and even accelerate, and one that will test the same qualities of dedication of leadership, yes, and of sacrifice too, that were in evidence on the battlefields of Bull Run" (Daniel 1964).

Like many airports in the period, the development was expected to serve not just as an airport but as the core of a larger industrial park. Because industrial tenants were less likely to be concerned about airplane noise and because they had similar requirements for large, low-lying construction, cities began to site industrial parks alongside new airports in the 1950s – a development that also allowed them to capture some of the postwar suburbanization of American industry (Bednarek

2016:199-201). In addition to the “first-class 3,700 foot lighted runway” and “complete executive airport facilities for the air-minded industry,” the 600-acre Manassas Airport Industrial Park complex boasted the ability to move products “from plant to consumer days ahead of other competition” with its airport and easy access to the “Washington Circumferential Highway” (Tayman 1964).

Although it served primarily as a general aviation airport, the arrival of IBM in Manassas in 1968 brought more than a manufacturing and laboratory facility that would eventually be listed as a Superfund site (Choose Manassas 2019, EPA 2010). Colgan Air, a local air taxi and flying lessons service, began Manassas Regional Airport’s first regularly scheduled service in 1970, connecting the Washington suburb directly with Poughkeepsie in upstate New York, the location of IBM’s headquarters. This service would continue for the rest of the decade, until IBM ceased manufacturing operations in Manassas, and spurred Colgan Air’s growth into a regional carrier eventually acquired by Presidential Airways (Lewis 1982, Anderson 1999).

By the 1990s, Manassas was firmly within the Washington suburbs, a far cry from the unincorporated farm community of 1,200 of 1932. Manassas Regional Airport was the third-busiest airport in Virginia by 1998, behind only Washington Dulles International and Washington National, despite only serving general and corporate aviation customers. In 1996, amidst competition with Vienna and other suburbs for jobs and residents from new “Silicon Dominion” corporate titans like America Online, Manassas Airport added a new \$4.2 million terminal building in the postmodern style, with a roof cambered like a plane’s wing. At its dedication, state Secretary of Transportation Robert Martinez noted the new terminal would “be a highly-visible front and backyard to your region because it will be the first and last thing visitors to Manassas see” (McCallister 2000, Fisher 1996).

2.4 Literature Review

MSG completed a cultural resources literature review within a 3.2-km (2.0-mi) buffer (hereafter referred to as the Study Area) around the Project Area. The literature review was directed toward identifying previously recorded cultural resources and general information about the historic development of the project vicinity. Research was conducted using the VDHR’s Virginia Cultural Resources Information System (VCRIS) online database (<https://www.dhr.virginia.gov/programs/vcris/>) and other online sources, as well as MSG’s in-house library. MSG collected data for the following:

- Architectural Resources, including the National Register of Historic Places (NRHP) and Virginia Landmarks Register (VLR)
- Archaeological Resources
- Battlefield Sites
- Previous Cultural Resource Management and Historic Resource Inventory reports
- Historic cartographic resources

The results of the literature review are described below, and presented graphically in Figures 2.2-2.6. Details about previously recorded cultural resources within the Study Area are presented in tabular form in Appendix B.

2.4.1 Architectural Resources

A total of 80 architectural resources are present within the Study Area (Figure 2.2; Appendix B, Table B1). Single-family dwellings predominate, but other resource types include farm buildings, mills, cemeteries, commercial properties, multi-family dwellings, rail-related properties, two historic districts, a military fort, and a battlefield. Twenty-one of the individual properties are associated with one of the two historic districts.

Four of the architectural resources are listed on both the NRHP and the VLR. These include the Brentsville Historic District, Cannon Branch Fort, and two single-family dwellings. A fifth property, the Bristoe Station Battlefield, was once listed on the VLR but has been de-listed. Two farm properties have formally been determined eligible for the NRHP, and a collection of resources that include the Bristoe Station Battlefield, Bull Run Bridge, Kettle Run Battlefield, Manassas Station Operations Battlefield, and Union Mills is listed as potentially eligible for the NRHP. A total of 33 properties have been formally determined ineligible for NRHP listing. The remaining 39 architectural resources have not been evaluated for NRHP eligibility. None of the 80 architectural resources within the Study Area are located within or adjacent to the current Project Area.

2.4.2 Archaeological Resources

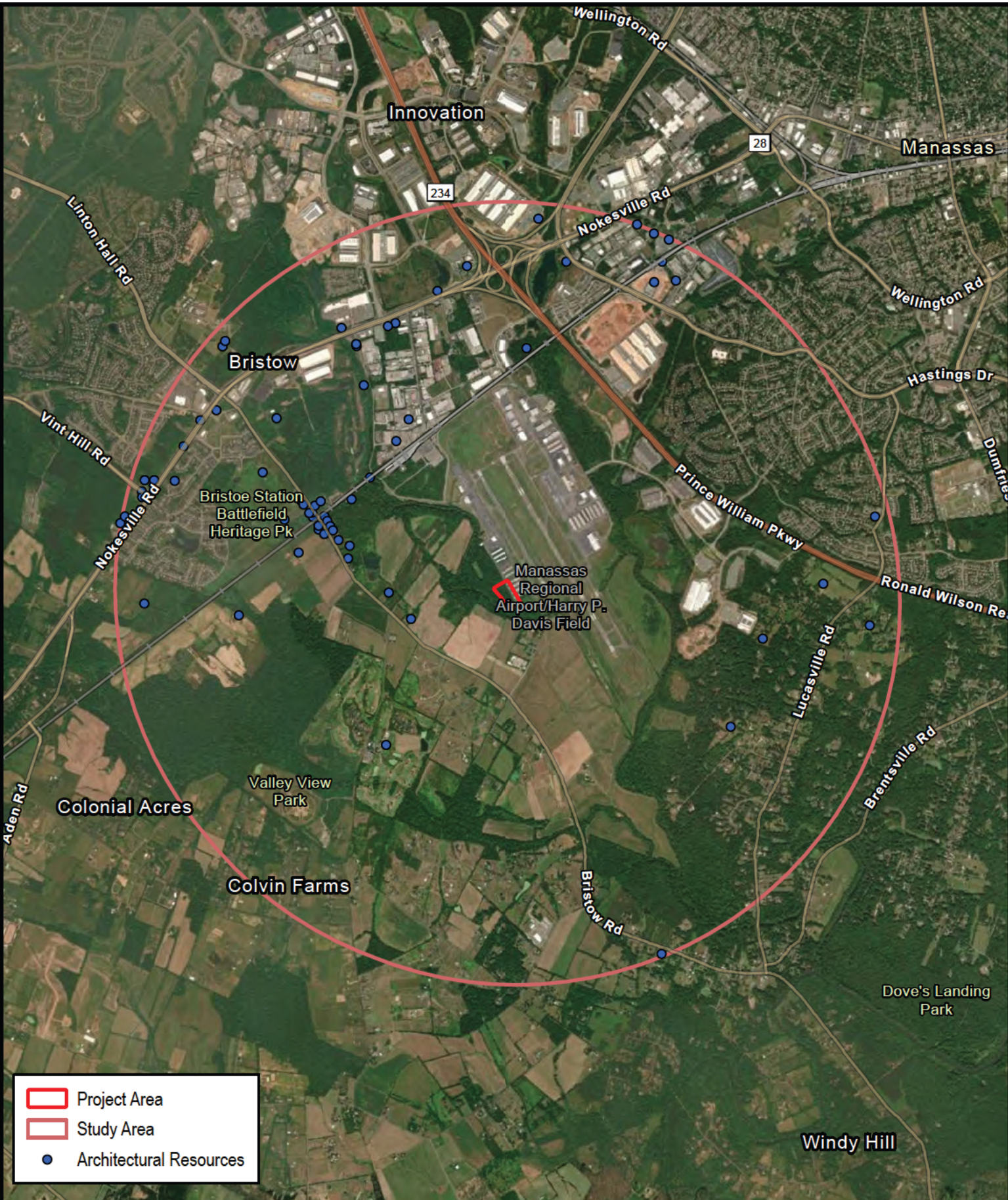
A total of 122 previously recorded archaeological resources are present within the Study Area (Figure 2.3; Appendix B, Table B2). Pre-contact archaeological components represented by these sites include all time periods except for the Paleoindian period, though a number of pre-contact sites / site components cannot be assigned to specific time periods. Pre-contact site components are all described as either camps or lithic workshops. Post-contact site components represent all time periods from 1750 forward; site functions include farmsteads and farm components, dwellings, mills, cemeteries, battlefields, military camps, forts, and earthworks, trash scatters/pits/middens, and a blacksmith shop.




Three of the archaeological sites within the Study Area have been determined eligible for listing on the NRHP, and nine sites are listed as potentially eligible. One site, a Civil War earthworks, has been listed on the NRHP. Fifteen archaeological sites have been determined not eligible for the NRHP. The remaining 92 archaeological sites within the Study Area have not been evaluated for NRHP eligibility.

While none of the archaeological sites within the Study Area are located within or directly adjacent to the Project Area, one site is located approximately 0.3 km (0.2 mi) north of the Project Area, in the same woodlot on the west side of Observation Road. Site 44PW0729 is a pre-contact camp site with Middle Archaic, Early Woodland, Middle Woodland, and Late Woodland components. This site was originally recorded during a Phase I survey conducted in 1994, and re-located during a Phase I survey conducted in 2017 (Harris 2017). This site is listed as potentially eligible for the NRHP.

2.4.3 Battlefield Sites

As noted above in Section 2.4.1, there are two battlefield site listings within the Study Area (Figure 2.4; Appendix B, Table B3), though these appear represent partially the same resource. The Bristoe Station Battlefield was once listed on the VLR but has been de-listed, while a battlefield resource group that includes the Bristoe Station Battlefield, Bull Run Bridge, Kettle Run Battlefield, Manassas Station Operations Battlefield, and Union Mills is listed as potentially eligible for the NRHP. Neither of these resources are located within or adjacent to the current Project Area.



	Project Area
	Study Area
	Architectural Resources




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Figure 2.2
Historic Properties within the Study Area
Phase I Archaeological Survey
Manassas Regional Airport
City of Manassas, Prince William County, VA

0 0.5 1 mi
 0 0.75 1.5 km

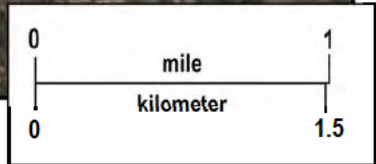
Map Credits:
 Prince William, Fairfax County aerial photography provided by ESRI, accessed



PUBLIC VERSION:
CONFIDENTIAL INFORMATION NOT INCLUDED



-  Project Area
-  Study Area
-  Potential NR Areas
-  ABPP Study Areas
-  Battlefield Core Areas

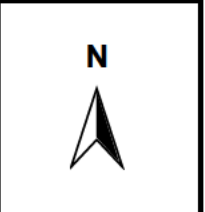



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Figure 2.4
Literature Review - Battlefields
Phase I Archaeological Survey
Manassas Regional Airport
City of Manassas, Prince William County, VA



2.4.1 Previous Cultural Resource Management and Historic Resource Inventory Reports

A total of 27 previous cultural resource management and historic resource inventory surveys have previously been conducted within the Study Area (Figures 2.5-2.6; Appendix B, Table B4), including seven surveys for various developments at the Manassas Regional Airport. As noted in Section 1.0, one of these surveys (Harris 2017) partially overlaps the current Project Area. This survey involved both shovel testing and metal detection survey.

2.4.2 Historic Cartographic Resources

Two historic cartographic resources were examined as part of the literature review. These include a railroad map from 1854 (Faul 1854) and a 15' topographic quadrangle from 1943 (USGS 2024) (see Appendix A). Neither map shows any sites or structures within or adjacent to the current Project Area. While the hamlet of Bristow is not labeled on the 1854 map, a cluster of structures is shown around the location where the Manassas Gap Railroad crossed Broad Run. Kettle Run is shown to the southwest of the Project Area. Upland areas are shown on both side of Broad Run in the vicinity of the Project Area.



Project Area
 Study Area
 Archaeological Survey

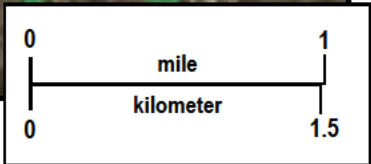



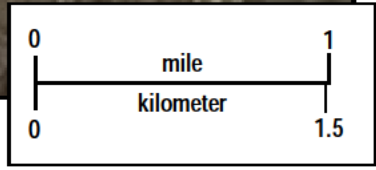


Figure 2.5
Literature Review - Archaeological Surveys
Phase I Archaeological Survey
Manassas Regional Airport
City of Manassas, Prince William County, VA





	Project Area
	Study Area
	Architectural Survey




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Figure 2.6
*Literature Review - Architectural Surveys
 Phase I Archaeological Survey
 Manassas Regional Airport
 City of Manassas, Prince William County, VA*



3.0 RESEARCH DESIGN

This section of the report includes an archaeological sensitivity assessment and survey objectives based on the results of the background research (detailed in Section 2), a description of the research and field methods employed to identify archaeological resources within the Survey Area (see Figure 1.2), and a statement of expected results.

3.1 Archaeological Sensitivity Assessment and Survey Objectives

Pre-contact indigenous populations in Virginia can generally be characterized as practicing some combination of hunting, gathering and/or horticulture. Consequently, populations were intimately tethered to elements in the natural environment, most notably the distribution of plant and animal species, raw material sources, water resources, soil types, and landform features. Since these resources were unevenly distributed across the landscape during the prehistoric period, it is logical to assume that aboriginal subsistence and settlement systems articulated with these distributions (Cavallo and Mounier 1980:59).

Based on the known pre-contact culture history of the region and the environmental setting of the Project Area, the pre-contact archaeological site types most likely to be present within the Survey Area are short-term camp sites and lithic workshops. Particularly sensitive areas include areas characterized by well-drained soils in close proximity to water resources such as streams, drainages or extensive wetlands. Conversely, areas exhibiting a low sensitivity for prehistoric cultural resources are those that are characterized by poorly drained or hydric soils, excessive distance from water resources, and areas of excessive [greater than 15%] slope. The Project Area sits within a forested area on the southwestern edge of the Manassas Regional Airport, about 76 m (250 ft) east of Broad Run; a shallow, dry creek bed crosses through the Survey Area. The Survey Area is mostly level, with the exception of a slope adjacent to Observation Road. A little over half of the Project Area consists of moderately well drained and well drained soils within the flood plain of Broad Run, while the remainder consists of poorly drained soils on the terrace above Broad Run. Therefore, the Project Area exhibits a relatively high sensitivity for pre-contact cultural resources.

Based on the known history of the region and the environmental setting of the project vicinity, the post-contact archaeological site types most likely to be present within the Survey Area include historic plantation and farmstead components (e.g., Orser 1990); sites related to early settler-colonialism (e.g., Breen et al. 2017); and sites associated with the Civil War (e.g., Bruwelheide et al. 2023; Potter et al. 2001). The nearby Manassas Battlefield Park is already a significant archaeological site but its boundaries do not include surrounding sites that may have directly or indirectly contributed to the battle itself, or the events that occurred before and after (Galke 2009; Martin et al. 1997). Despite the location of the Survey Area near the Bristoe Station Battlefield and associated resources, there is no specific evidence of any military activity within the Survey Area during the Civil War. Furthermore, the 2017 survey that included a portion of the current Project Area, and which included metal detection survey, did not identify any Civil War-era artifacts (Harris 2017). Overall, the Project Area exhibits only moderate probability for post-contact archaeological resources.

Based on this sensitivity assessment, the objective of the current survey was to determine the presence or absence of both pre-contact and post-contact archaeological resources within the Project Area, consistent with the goals of state and federal guidelines for Phase I (reconnaissance) archaeological surveys.

3.2 Archival and Background Research

As described in Section 2.0, background research included a cultural resources literature review using the VCRIS database to identify previously documented cultural resources in the vicinity of the Project Area, as well as examination of historic cartographic resources obtained online to identify potential locations of

archaeological resources associated with historically-documented structure locations. In addition, various archival and online sources were consulted to develop general contexts for the environment, pre-contact culture history and post-contact culture history of the Manassas area. The purpose of this research was to identify environmental characteristics and historic trends that may influence the distribution of archaeological resources across the landscape in Prince William County.

3.3 Field Survey Methods

The archaeological reconnaissance survey was conducted in accordance with the guidelines developed by the VDHR (VDHR 2017). In areas where ground surface visibility was less than 50% (such as domestic yard areas or woodlots), cylindrical shovel test pits (STPs) measuring 30 cm (11.8 in) in diameter were excavated at 15-m (49.2-ft) intervals throughout the Survey Area. These STPs were excavated until culturally sterile subsoil was encountered or to a depth of 50 cm (19.7 in), whichever came first. Excavated soil was screened through ¼-in wire mesh, and recovered artifacts were bagged and labeled with the provenience. When surface artifacts or features were not present to indicate site boundaries, radial STPs were excavated at a distance of 7.5 m (24.6 ft) in cardinal directions from positive STPs in order to delineate the size of the archaeological site. Locations of surface artifact concentrations were recorded using a hand-held Trimble GPS unit capable of sub-meter accuracy.

In addition, the entire Project Area was visually inspected and photographically documented (see Appendix C). Members of the field crew took detailed notes about soil colors, textures, inclusions, stratigraphy, and other relevant information. When cultural material was identified, site boundaries were delineated and field site numbers were assigned. Metal detection survey was not conducted as part of the current survey.

3.4 Expected Results

Based on the results of background research and the archaeological sensitivity assessment described above, it was anticipated that the archaeological survey was most likely to encounter small pre-contact lithic scatters representing short-term encampments.

The results of the 2017 metal detection survey by Harris resulted primarily in the recovery of early 20th-century shotgun shell casings and undatable metal objects. Furthermore, a previous study of the Bristoe Station and Kettle Run battlefields (Jacobs et al. 2016) described by Harris did not indicate a high likelihood of associated artifacts in the location of the current Project Area (Harris 2017:39).

4.0 RESULTS

MSG conducted the archaeological reconnaissance survey of the 2.4-ac (1.0 ha) Survey Area in June 2024. The Survey Area is characterized by heavily wooded, low-lying terrain with dense vegetation that borders the southwestern edge of Observation Road. The north and west sections of the Survey Area were flat and heavily wooded. A shallow, dry creek bed ran east to west through the center of the Survey Area. Due to the heavily wooded nature of the Project Area, surface visibility in the area was approximately 30% and thus shovel testing on a 15-m (49-ft) interval grid was conducted throughout the flat part of the Survey Area (Figure 4.1; Appendix C). A total of 23 shovel test pits were plotted throughout the Survey Area. One shovel test pit was recorded as “wet” since, while it was dry at the time of the survey, it was located within the bed of an ephemeral stream (see Appendix C, Photos 10-11). One shovel test was recorded as “sloped” as it was located in an area exhibiting greater than 20% slope of the ground surface. The remaining 21 shovel test pits were excavated and recorded as negative, i.e., exhibiting intact soil strata but lacking any cultural material or evidence for subsurface cultural features.

A general pedestrian overview of the Survey Area also yielded negative results, with no surface artifacts being observed. A majority of the southeastern section of the Survey Area consisted of a fenced-in asphalt road which was surrounded by a downward slope covered by dense vegetation. Due to the disturbed nature of this section of the Survey Area, formal STPs were not warranted, but a thorough visual inspection of the area was made which yielded negative results.



- Negative STP
- Wet STP
- Sloped STP
- Study Area
- Survey Area
- Project Area



Figure 4.1
Survey Methods and Results
Phase I Archaeological Survey
Manassas Regional Airport
City of Manassas, Prince William County, VA

0 75 150 Feet
 0 15 30 Meters

Map Credits:
 Prince William County aerial photography provided by ESRI, accessed July 2024.

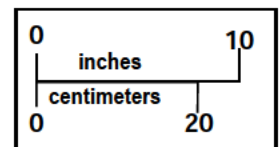
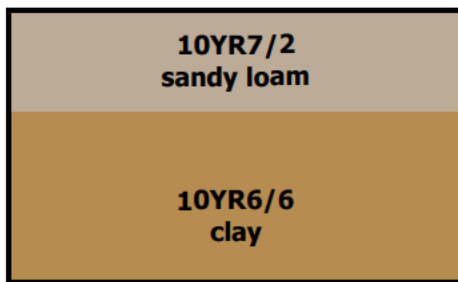
STP 3



STP 13



STP 21



5.0 SUMMARY AND RECOMMENDATIONS

In June 2024, MSG conducted a Phase I archaeological reconnaissance survey for the proposed Air Traffic Control Tower Replacement project at Manassas Regional Airport in the City of Manassas, Prince William County, Virginia. The Project involves the construction of a new air traffic control tower along with an associated support building and parking lot on the west side of Observation Road at its south end. Including a buffer for ancillary work areas, the overall Project Area encompasses 3.9 ac (1.6 ha). A portion of the Project Area overlaps with a Phase I cultural resources survey that was previously completed in 2017; this previous survey did not identify any cultural resources within the boundary of the current Project Area (Harris 2017). Given the recent date of this survey, the area of overlap was not surveyed again. Thus, the Survey Area covered 2.4 ac (1.0 ha).

Background research efforts included a literature review of cultural resources data in the VCRIS database, examination of historic cartographic resources, and secondary-source research on the general environmental, pre-contact and post-contact cultural/historical contexts that have shaped the development of the Manassas Regional Airport. Based on this research, it was anticipated that the archaeological survey was most likely to encounter small pre-contact lithic scatters representing short-term encampments. Although the Bristoe Station and Kettle Run battlefields are located near the Project Area, the results of prior studies (Jacobs et al. 2016, Harris 2017) did not indicate a likelihood that battlefield-related artifacts would be present.

The survey consisted of shovel testing at 15-m (49.2-ft) intervals on a grid pattern within the Survey Area and visual inspection of the entire Project Area. No surface artifact deposits were encountered, and none of the 23 excavated STPs yielded any artifacts or evidence of subsurface cultural features.

In summary, no archaeological resources have been identified within the Project Area for the proposed Air Traffic Control Tower Replacement project. Therefore, the project will not have any impact on NRHP-eligible or listed archaeological resources. No further archaeological investigations are recommended.

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APPENDIX A
HISTORIC MAPS AND AERIAL PHOTOGRAPHS





 Project Area

Figure A1
1854 Manasses Gap Rail Road Map
(Faul 1854)



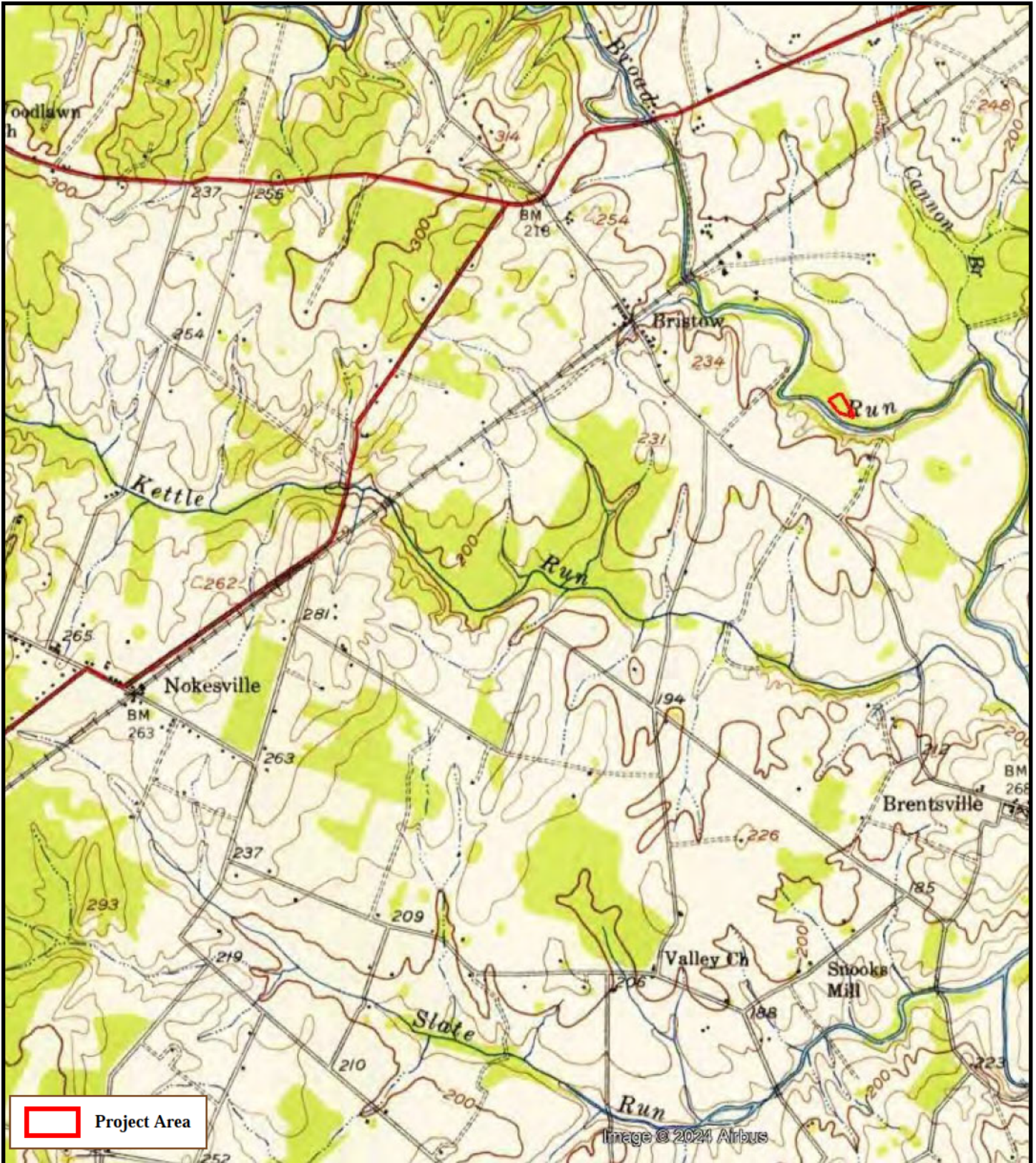


Figure A2
1943 Topographic Map
15' Catlett, VA Quadrangle
(USGS 2024)



APPENDIX B
LITERATURE REVIEW RESULTS



**Table B1
Architectural Resources**

DHR ID	Restricted?	Label Latitude	Label Longitude	Jurisdictions	Property Names	Addresses	Historic District Name	NR Eligibility Status	Primary Resource Type	
076-0285	Unrestricted	38.74233569	-77.52197807	Prince William (County)	Thomasson Barn (Historic / Current), W.J. Thomasson House and Barn (Historic)	9935 Discovery Boulevard, Nokesville Road - Alt Route 28		null	DHR Board Det. Eligible	Barn,Dairy
076-0608	null	38.72065819	-77.53864433	Prince William (County)	House & Farm, 10806-10810 Bristow Road (Rt 619) (Function / Location), Rollins Tract, Bristoe Station Battlefield (Descriptive)	10806 Bristow Road - Alt Route 619, 10810 Bristow Road - Alt Route 619		null	DHR Evaluation Committee: Not Eligible	Single Dwelling
076-0149	Unrestricted	38.71785674	-77.48767654	Prince William (County)	Bloom Hill Farm (Historic / Current)	10820 Lucasville Road, Route 692		null	DHR Staff: Eligible	Single Dwelling
076-5399	Unrestricted	38.73867095	-77.50604348	Prince William (County)	Orange and Alexandria Railway section (Descriptive), Train Tracks, South of the Route 28 and 234 Intersection (Function / Location)	Nokesville Road - Alt 28, Prince William Parkway - Alt 234	Bristoe Station Battlefield		DHR Staff: Not Eligible	Rail-Related
076-0314	Unrestricted	38.73773199	-77.53424883	Prince William (County)	Milford Mill Site (Historic)	11204 Nokesville Road, Broad Run		null	DHR Staff: Not Eligible	Archaeological Site
076-0612	Unrestricted	38.73567127	-77.54947757	Prince William (County)	House, 10115 Linton Hall Road (Function / Location)	10115 Linton Hall Road, Route 619		null	DHR Staff: Not Eligible	Single Dwelling
076-0613	Unrestricted	38.73470048	-77.55102275	Prince William (County)	House, 10110 Linton Hall Road (Function / Location), House, 10110 State Road 619 (Function / Location)	10110 Linton Hall Road, 10110 State Road 619		null	DHR Staff: Not Eligible	Single Dwelling
076-0614	Unrestricted	38.7308079	-77.54805557	Prince William (County)	House, 11712 Nokesville Road, Route 28 (Current)	11712 Nokesville Road, Route 28		null	DHR Staff: Not Eligible	Single Dwelling
076-0615	Unrestricted	38.7288447	-77.54971947	Prince William (County)	House, 11812 Nokesville Road, Route 28 (Current)	11812 Nokesville Road, Route 28		null	DHR Staff: Not Eligible	Single Dwelling
076-0616	Unrestricted	38.72621937	-77.55061875	Prince William (County)	Service Station, 11909 Nokesville Road (Function / Location)	11909 Nokesville Road, Route 28		null	DHR Staff: Not Eligible	Service Station
076-0658	Unrestricted	38.7364179	-77.5458301	Prince William (County)	House, 10215 Linton Hall Road (Function / Location)	10215 Linton Hall Road, Route 619		null	DHR Staff: Not Eligible	Single Dwelling
076-5019	Unrestricted	38.74046705	-77.52487694	Prince William (County)	House, Nokesville Road (Descriptive)	Nokesville Road		null	DHR Staff: Not Eligible	Single Dwelling
076-5020	Unrestricted	38.72304109	-77.55594662	Prince William (County)	House, 12104 Nokesville Road (Current)	12104 Nokesville Road		null	DHR Staff: Not Eligible	Single Dwelling
076-5021	Unrestricted	38.72071615	-77.55727646	Prince William (County)	Mary Holmes House (Current)	12120 Nokesville Road		null	DHR Staff: Not Eligible	Single Dwelling
076-5023	Unrestricted	38.71748473	-77.55833852	Prince William (County)	Mark E. Thomas House, 12163 Nokesville Rd (Historic / Location)	12163 Nokesville Road, Route 28		null	DHR Staff: Not Eligible	Single Dwelling
076-5040	Unrestricted	38.74560445	-77.53617521	Prince William (County)	B.G. Sowder Farm (Historic), House, 9604 Hornbaker Road (Function / Location), Land Bay 3 (Descriptive)	9604 Hornbaker Road		null	DHR Staff: Not Eligible	Single Dwelling
076-5043	Unrestricted	38.74588645	-77.51498218	Prince William (County)	House, 9550 Godwin Drive (Function / Location), Land Bay 25 (Descriptive), Prince William LLC House (Descriptive)	9550 Godwin Drive		null	DHR Staff: Not Eligible	Single Dwelling
076-5349	Unrestricted	38.73156356	-77.54649509	Prince William (County)	Commercial Building, 11705 Nokesville Rd (Function / Location)	11705 Nokesville Road, Route 28		null	DHR Staff: Not Eligible	Commercial Building
076-5350	Unrestricted	38.72544755	-77.5538308	Prince William (County)	House, 12004 Nokesville Rd (Function / Location)	12004 Nokesville Road, Route 28		null	DHR Staff: Not Eligible	Single Dwelling
076-5351	Unrestricted	38.72499796	-77.5537966	Prince William (County)	House, 12008 Nokesville Rd (Function / Location)	12008 Nokesville Road, Route 28		null	DHR Staff: Not Eligible	Single Dwelling

**Table B1
Architectural Resources**

DHR ID	Restricted?	Label Latitude	Label Longitude	Jurisdictions	Property Names	Addresses	Historic District Name	NR Eligibility Status	Primary Resource Type
076-5352	Unrestricted	38.72354865	-77.55549402	Prince William (County)	House, 12050 Nokesville Rd (Function / Location)	12050 Nokesville Road, Route 28	null	DHR Staff: Not Eligible	Single Dwelling
076-5353	Unrestricted	38.71940118	-77.55755569	Prince William (County)	House, 12143 Nokesville Rd (Function / Location)	12143 Nokesville Road, Route 28	null	DHR Staff: Not Eligible	Single Dwelling
076-5354	Unrestricted	38.71910742	-77.55781875	Prince William (County)	House, 12153 Nokesville Rd (Function / Location)	12153 Nokesville Road, Route 28	null	DHR Staff: Not Eligible	Single Dwelling
076-5355	Unrestricted	38.71877056	-77.55814475	Prince William (County)	House, 12159 Nokesville Rd (Function / Location)	12159 Nokesville Road, Route 28	null	DHR Staff: Not Eligible	Single Dwelling
076-5397	Unrestricted	38.72907021	-77.52903853	Manassas (Ind. City), Prince William (County)	Commercial Building, 10236 Residency Road (Function / Location), Hersch House (Historic)	10236 Residency Road	null	DHR Staff: Not Eligible	Single Dwelling
076-5398	Unrestricted	38.71372838	-77.49361053	Prince William (County)	Outbuilding, 9850 Chevalle Road (Function / Location)	9850 Chevalle Road	null	DHR Staff: Not Eligible	Shed
076-5889	null	38.73071791	-77.52780939	Prince William (County)	VDOT, 10228 Residency Road (Function / Location)	10228 Residency Road	null	DHR Staff: Not Eligible	Complex
076-5892	null	38.72631837	-77.5316282	Prince William (County)	Bridge, Piper Lane (Function / Location)	Piper Lane	null	DHR Staff: Not Eligible	Rail-Related
155-5023	Unrestricted	38.74470615	-77.50166883	Manassas (Ind. City)	Single Dwelling, 10060 Dean Dr (Function / Location)	10060 Dean Dr	null	DHR Staff: Not Eligible	Single Dwelling
155-5024	Unrestricted	38.74542601	-77.50536903	Manassas (Ind. City)	Cemetery, 10218 Foster Dr (Function / Location), Rose Hill Cemetery (Current)	10218 Foster Drive	null	DHR Staff: Not Eligible	Cemetery
155-5025	Unrestricted	38.7425865	-77.51231464	Manassas (Ind. City)	Cannon Branch Cemetery (Current), Cemetery, 9756 Godwin Drive (Function / Location)	9756 Godwin Drive	null	DHR Staff: Not Eligible	Cemetery
155-5026	Unrestricted	38.74251661	-77.50300143	Manassas (Ind. City)	Railroad Utility Building, Godwin Drive (Function / Location)	Godwin Drive	null	DHR Staff: Not Eligible	Rail-Related
155-5034	Unrestricted	38.74646047	-77.50540512	Manassas (Ind. City)	Prince William Animal Hospital (Current), Single Dwelling, 10227 Nokesville Road (Function / Location)	10227 Nokesville Road, Route 28	null	DHR Staff: Not Eligible	Single Dwelling
155-5035	null	38.74096141	-77.50379325	Manassas (Ind. City)	Glen-Gery Masonry Supply Center (Current Name), Industrial Complex, 9905 Godwin Drive (Function / Location), Marion Brick Corporation (Historic)	9905 Godwin Drive	null	DHR Staff: Not Eligible	Office / Office Building
155-5049	null	38.74466163	-77.50377132	Manassas (Ind. City)	House, 10216 Foster Drive (Function / Location)	10216 Foster Drive	null	DHR Staff: Not Eligible	Single Dwelling
076-5036	null	38.75884463	-77.51662025	Fairfax (County), Fauquier (County), Manassas (Ind. City), Manassas Park (Ind. City), Prince William (County)	Bristoe Station Battlefield (Historic), Bull Run Bridge (Historic), Kettle Run Battlefield (Historic), Manassas Station Operations Battlefield (Historic), Union Mills (Historic)	Centreville Road - Alt Route 28, John Marshall Highway - Alt Route 55, Linton Hall Road - Alt Route 619, Sudley Road - Alt Route 234	null	DHR Staff: Potentially Eligible	Battle Site
076-0338	Unrestricted	38.68914505	-77.50086138	Prince William (County)	Brentsville Historic District (Historic)	Barbee Street, Bristow Road, Center Street	Brentsville Historic District	NRHP Listing, VLR Listing	Historic District

**Table B1
Architectural Resources**

DHR ID	Restricted?	Label Latitude	Label Longitude	Jurisdictions	Property Names	Addresses	Historic District Name	NR Eligibility Status	Primary Resource Type
076-0245	Unrestricted	38.72334573	-77.53721891	Prince William (County)	Davis-Beard House, 10726 Bristow Rd (Historic / Location), Glee Hall (Historic), White Elephant Antiques & Bristow Book Nook (Current)	10726 Bristow Road - Alt 619	Bristoe Station Battlefield	NRHP Listing, VLR Listing	Single Dwelling
076-0014	Unrestricted	38.70704813	-77.49682601	Prince William (County)	Moor Green (Historic / Current), Moor House (Historic)	9850 Flint Rock Road, Lucasville Road (Route 692)	null	NRHP Listing, VLR Listing	Single Dwelling
155-5020	R	38.73603886	-77.51626974	Manassas (Ind. City)	Cannon Branch Fort (Current Name), Cannon Branch Fort (NRHP Listing), The Wakeman Site (Historic)	Gateway Boulevard, Norfolk Southern Railroad	null	NRHP Listing, VLR Listing	Fortification / Military Base
076-0273	null	38.68980474	-77.50378698	Prince William (County)	House, 12214 Bristow Road (Function / Location), Nelson House (Historic), Woodyard House (Historic)	12214 Bristow Road - Alt Route 619	Brentsville Historic District	null	Single Dwelling
076-0294	null	38.73090549	-77.54064623	Prince William (County)	Carr Family Cemetery (Historic), Ruins and Graveyard, Route 619 (Descriptive)	11500 New Life Way, Bristow Road (Route 619)	Bristoe Station Battlefield	null	Cemetery
076-0584	Unrestricted	38.72467123	-77.5334406	Prince William (County)	House, 10815 Milford Road (Function / Location)	10815 Milford Road - Alt 660	Bristoe Station Battlefield	null	Single Dwelling
076-0596	Unrestricted	38.72369016	-77.53727098	Prince William (County)	House, 10722 Bristow Road (Function / Location)	10722 Bristow Road - Alt 619	Bristoe Station Battlefield	null	Single Dwelling
076-0597	Unrestricted	38.72366084	-77.53757489	Prince William (County)	Rollins Store (Historic / Current), Store, 10720 Bristow Road (Function / Location)	10720 Bristow Road - Alt 619	Bristoe Station Battlefield	null	Commercial Building
076-0598	Unrestricted	38.72460373	-77.53834167	Prince William (County)	House, 10708 Bristow Road (Function / Location)	10708 Bristow Road - Alt 619	Bristoe Station Battlefield	null	Single Dwelling
076-0599	null	38.72431019	-77.53811261	Prince William (County)	House, 10710 Bristow Road (Function / Location), Layton House (Historic)	10704 Bristow Road - Alt Route 619, 10710 Bristow Road - Alt Route 619	Bristoe Station Battlefield	null	Single Dwelling
076-0600	Unrestricted	38.72421601	-77.53701801	Prince William (County)	House, 10717 Bristow Road (Function / Location)	10717 Bristow Road - Alt 619	Bristoe Station Battlefield	null	Single Dwelling
076-0601	Unrestricted	38.72454709	-77.53644634	Prince William (County)	House, 10721 Milford Road (Function / Location)	10721 Milford Road, Bristow Road - Alt 619	Bristoe Station Battlefield	null	Single Dwelling
076-0602	Unrestricted	38.72340214	-77.53609251	Prince William (County)	Store, 10805 Bristow Road (Rt 619) (Function / Location)	10805 Bristow Road, Route 619	Bristoe Station Battlefield	null	Commercial Building
076-0607	Unrestricted	38.72679752	-77.54205531	Prince William (County)	House and Farm, 10604 Bristow Road (Function / Location)	10604 Bristow Road - Alt 619	Bristoe Station Battlefield	null	Single Dwelling
076-5344	Unrestricted	38.72239938	-77.53667744	Prince William (County)	Village of Bristoe Historic District (Descriptive)	Bristow Road, Milford Road	Bristoe Station Battlefield	null	Historic District
076-5393	Unrestricted	38.72157929	-77.53475954	Prince William (County)	House, 10829 Bristow Rd (Rt 619) (Function / Location)	10829 Bristow Road - Alt Route 619	Bristoe Station Battlefield	null	Single Dwelling
076-5394	Unrestricted	38.7201754	-77.53384331	Prince William (County)	House, 10905 Bristow Rd (Rt 619) (Function / Location)	10905 Bristow Road - Alt Route 619	Bristoe Station Battlefield	null	Single Dwelling
076-0603	Unrestricted	38.72304417	-77.53582686	Prince William (County)	House, 10813 Bristow Road (Rt 619) (Function / Location)	10813 Bristow Road, Route 619	Bristoe Station Battlefield and the Proposed Village of Bristoe Historic District	null	Single Dwelling

**Table B1
Architectural Resources**

DHR ID	Restricted?	Label Latitude	Label Longitude	Jurisdictions	Property Names	Addresses	Historic District Name	NR Eligibility Status	Primary Resource Type
076-0604	Unrestricted	38.72264217	-77.53554372	Prince William (County)	House, 10823 Bristow Road (Rt 619) (Function / Location)	10823 Bristow Road, Route 619	Bristoe Station Battlefield and the Proposed Village of Bristoe Historic District	null	Single Dwelling
076-0605	null	38.7223219	-77.53528262	Prince William (County)	House, 10825 Bristow Road (Rt 619) (Function / Location)	10825 Bristow Road - Alt Route 619	Bristoe Station Battlefield and the Proposed Village of Bristoe Historic District	null	Single Dwelling
076-0606	Unrestricted	38.72268699	-77.53667393	Prince William (County)	House, 10804 Bristow Road (Rt 619) (Function / Location)	10804 Bristow Road, Route 619	Bristoe Station Battlefield and the Proposed Village of Bristoe Historic District	null	Single Dwelling
076-5392	Unrestricted	38.72205304	-77.53612753	Prince William (County)	House, 10808 Bristow Rd (Rt 619) (Function / Location)	10808 Bristow Road - Alt Route 619	Bristoe Station Battlefield and the Proposed Village of Bristoe Historic District	null	Single Dwelling
076-5073	Unrestricted	38.72317898	-77.53998457	Prince William (County)	Roberston Cemetery, Bristow Rd (Rt 619) (Historic / Current)	Bristow Road, Route 619	Bristoe Station Battlefield Historic District and the Proposed Village of Bristoe Historic District	null	Cemetery
076-0013	Unrestricted	38.70594078	-77.53034062	Prince William (County)	Bristow Manor (Current), Wellfly (Historic)	11506 Valley View Drive	null	null	Single Dwelling
076-0148	Unrestricted	38.71464734	-77.48320864	Prince William (County)	Boardman (Historic), Fostern (Historic)	11003 Lucasville Road, 9500 Fostern Lane	null	null	Single Dwelling
076-0609	Unrestricted	38.73633258	-77.53279478	Prince William (County)	House, 10106 Piper Lane, Route 660 (Current)	10106 Piper Lane, Route 660	null	null	Single Dwelling
076-0610	Unrestricted	38.7364891	-77.5328336	Prince William (County)	House, 10104 Piper Lane, Route 660 (Current)	10104 Piper Lane, Route 660	null	null	Single Dwelling
076-0611	Unrestricted	38.7333473	-77.53213187	Prince William (County)	House, 10204 Piper Lane, Route 660 (Current)	10204 Piper Lane, Route 660	null	null	Single Dwelling
076-0619	Unrestricted	38.73311148	-77.55260413	Prince William (County)	House, 12002 Vint Hill Road, Route 215 (Current)	12002 Vint Hill Road, Route 215	null	null	Single Dwelling
076-0620	Unrestricted	38.73334813	-77.55229036	Prince William (County)	House, 12000 Vint Hill Road (Current)	12000 Vint Hill Road, Route 215	null	null	Single Dwelling
076-5146	Unrestricted	38.71754227	-77.52992228	Prince William (County)	Farm Site, 11009 Bristow Rd (Rt 619) (Function / Location), M. Thomas House (Current)	11009 Bristow Road - Alt Route 619	null	null	Single Dwelling
076-5147	Unrestricted	38.72113547	-77.53367354	Prince William (County)	House, 10833 Bristow Road (Rt 619) (Function / Location)	10833 Bristow Road - Alt Route 619	null	null	Single Dwelling
076-5288	Unrestricted	38.72292959	-77.48257062	Prince William (County)	de Gastyne House (Current)	10608 Lucasville Road	null	null	Single Dwelling
076-5395	Unrestricted	38.7155167	-77.52778485	Prince William (County)	Blue Grass Acres Farm, 11105 Bristow Rd (Rt 619) (Function / Location)	11105 Bristow Road, Route 619	null	null	Single Dwelling
076-5871	null	38.7380585	-77.52899392	Prince William (County)	Commercial Building, 11013 Nokesville Rd (Function / Location)	11013 Nokesville Rd.	null	null	Commercial Building
076-5872	null	38.73782771	-77.52972776	Prince William (County)	Commercial Building, 11017 Nokesville Rd. (Function / Location)	11017 Nokesville Rd.	null	null	Commercial Building
076-6011	null	38.72628717	-77.55261819	Prince William (County)	House, 11916 Nokesville Road (Function / Location)	11916 Nokesville Road	null	null	Single Dwelling

Table B1
Architectural Resources

DHR ID	Restricted?	Label Latitude	Label Longitude	Jurisdictions	Property Names	Addresses	Historic District Name	NR Eligibility Status	Primary Resource Type
076-6012	null	38.72629709	-77.55353796	Prince William (County)	House, 11920 Nokesville Road (Function / Location)	11920 Nokesville Road	null	null	Single Dwelling
076-6219	null	38.7154181	-77.55652443	Prince William (County)	Thomas Family Cemetery (Historic)	12127 Nokesville Road	null	null	Cemetery
076-6222	null	38.73682925	-77.54557143	Prince William (County)	House, 10213 Linton Hall Road (Function / Location)	10213 Linton Hall Road	null	null	Single Dwelling
155-5058	null	38.74463226	-77.50238621	Manassas (Ind. City)	House, 10210 Foster Drive (Function / Location)	10210 Foster Drive	null	null	Single Dwelling
155-5060	null	38.74106193	-77.50168298	Manassas (Ind. City)	Thurman Cemetery (Current Name)	9905 Godwin Drive	null	null	Cemetery
076-0024	Unrestricted	38.71593152	-77.54452097	Manassas (Ind. City), Prince William (County)	Bristoe Station Battlefield (Historic / Current)	Bristow Road, Milford Road, Route 28, Route 619, Route 660	null	VLR Listing Removed	Battle Site

Table B2
Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW0011	28804	null	DSS Legacy	Camp	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0012	28803	null	DSS Legacy	Other	Late Archaic (3000 - 1201 B.C.), Woodland (1200 B.C. - 1606 A.D.), 18th Century (1700 - 1799)	null
44PW0013	2038	null	DSS Legacy	Camp	Middle Archaic (6500 - 3001 B.C.)	null
44PW0014	29633	null	DSS Legacy	Camp	Late Archaic (3000 - 1201 B.C.)	null
44PW0015	29632	null	DSS Legacy	Camp	Late Archaic (3000 - 1201 B.C.), Early Woodland (1200 B.C. - 299 A.D.)	null
44PW0016	4534	Kettle Run	DSS Legacy	Camp	Archaic (8500 - 1201 B.C.), Woodland (1200 B.C. - 1606 A.D.)	null
44PW0227	28625	The Wakeman Site Cannon Branch Fort	Military / Defense	Earthworks	19th Century: 3rd quarter (1850 - 1874)	NRHP Listing, VLR Listing
44PW0431	28362	null	null	null	Prehistoric / Unknown (15000 B.C. - 1606 A.D.), 19th Century (1800 - 1899), 20th Century (1900 - 1999)	null
44PW0432	28361	null	null	null	Early Archaic (8500 - 6501 B.C.)	null

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Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW0433	2724	null	null	null	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0434	28360	null	null	null	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0435	28359	null	null	null	Historic / Unknown, Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0436	28358	null	null	null	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0486	28494	null	Subsistence / Agriculture	Well	20th Century (1900 - 1999)	null
44PW0487	28493	null	Domestic, DSS Legacy	Farmstead, Ice house	19th Century (1800 - 1899), 20th Century (1900 - 1999)	null
44PW0509	28472	null	Domestic	Camp, temporary	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0510	53364	Site 2	Domestic, DSS Legacy	Camp, temporary, Trash scatter	Woodland (1200 B.C. - 1606 A.D.), 19th Century: 4th quarter (1875 - 1899), 20th Century: 1st half (1900 - 1949)	null

Table B2
Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW0511	28471	Site 3	Domestic	Farmstead	19th Century: 2nd half (1850 - 1899), 20th Century: 1st half (1900 - 1949)	null
44PW0600	28266	null	DSS Legacy	Other	Late Archaic (3000 - 1201 B.C.), 18th Century: 2nd half (1750 - 1799)	DHR Staff: Potentially Eligible
44PW0601	28264	null	Domestic	Camp, temporary	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0602	51946	null	Domestic	Camp, temporary	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0603	28414	null	Domestic	Camp, temporary	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0604	4486	null	Domestic	Camp, temporary	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0729	1348	null	Domestic	Camp	Middle Archaic Period (6500 - 3001 B.C.E), Early Woodland (1200 B.C.E - 299 C.E), Middle Woodland (300 - 999 C.E), Late Woodland (1000 - 1606)	DHR Staff: Potentially Eligible

Table B2
Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW0866	28080	null	null	null	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0867	678	null	null	null	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0868	28079	null	null	null	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0869	846	null	null	null	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0870	28078	null	null	null	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0969	21516	null	Domestic	Camp, temporary, Dwelling, single	Middle Archaic (6500 - 3001 B.C.), 18th Century: 2nd half (1750 - 1799), 19th Century: 1st half (1800 - 1849)	null
44PW0970	21515	null	Domestic	Camp, temporary, Dwelling, single	Late Woodland (1000 - 1606), 18th Century: 2nd half (1750 - 1799), 19th Century: 1st half (1800 - 1849)	null

Table B2
Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW0971	402131	Bristow 18th c. Tenant Site	Domestic, Funerary, Indeterminate, Military / Defense	Artifact scatter, Camp, temporary, Cemetery, Military camp	Late Woodland (1000 - 1606), Contact Period (1607 - 1750), Colony to Nation (1751 - 1789), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	null
44PW0972	37551	null	Domestic	Camp, temporary, Dwelling, single	Middle Archaic (6500 - 3001 B.C.), 18th Century: 2nd half (1750 - 1799), 19th Century: 1st half (1800 - 1849)	DHR Staff: Eligible
44PW0973	37542	null	Domestic	Camp, temporary, Dwelling, single	Prehistoric / Unknown (15000 B.C. - 1606 A.D.), 19th Century (1800 - 1899), 20th Century (1900 - 1999)	DHR Staff: Eligible
44PW0974	37550	null	Domestic	Camp, temporary	null	DHR Staff: Not Eligible
44PW0975	37549	null	Domestic	Camp, temporary	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null

Table B2
Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW0976	37548	null	Domestic, DSS Legacy	Camp, temporary, Trash scatter	Prehistoric / Unknown (15000 B.C. - 1606 A.D.), 19th Century (1800 - 1899)	null
44PW0977	37547	null	Domestic	Camp, temporary	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW0978	37546	null	Domestic, DSS Legacy	Camp, temporary, Trash scatter	Prehistoric / Unknown (15000 B.C. - 1606 A.D.), 19th Century (1800 - 1899)	null
44PW0979	37545	null	Domestic, DSS Legacy	Camp, temporary, Trash scatter	Prehistoric / Unknown (15000 B.C. - 1606 A.D.), 19th Century (1800 - 1899)	null
44PW0980	402132	Gaines Tenant House Site	Domestic	Camp, temporary, Dwelling, single	Pre-Contact, Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	null
44PW0981	37543	null	Domestic	Camp, temporary, Dwelling, single	Woodland (1200 B.C. - 1606 A.D.), 19th Century: 2nd half (1850 - 1899), 20th Century (1900 - 1999)	DHR Staff: Not Eligible

Table B2
Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW0993	428006	Harris House and Store	Commerce / Trade, Domestic	Farmstead, Store	Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945)	null
44PW0994	43161	null	DSS Legacy	Trash scatter	18th Century: 2nd half (1750 - 1799), 19th Century: 1st quarter (1800 - 1825)	DHR Staff: Not Eligible
44PW1072	35183	Chapel Springs Rd.	Domestic	Camp, temporary	Late Archaic (3000 - 1201 B.C.)	null
44PW1074	21539	null	null	null	null	null
44PW1107	38832	null	Domestic, Military / Defense	Battlefield, Dwelling, single	19th Century: 4th quarter (1875 - 1899), 20th Century: 1st quarter (1900 - 1924)	DHR Staff: Potentially Eligible
44PW1108	38828	null	Domestic	Dwelling, single	19th Century: 4th quarter (1875 - 1899), 20th Century: 1st quarter (1900 - 1924)	null
44PW1109	38830	null	Military / Defense	Battlefield	19th Century: 3rd quarter (1850 - 1874)	null
44PW1110	38827	null	DSS Legacy	Camp	Middle Archaic (6500 - 3001 B.C.), 19th Century: 3rd quarter (1850 - 1874)	DHR Staff: Potentially Eligible
44PW1111	36969	null	Domestic	Dwelling, single	19th Century: 4th quarter (1875 - 1899)	null

Table B2
Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW1112	38835	Robertson Cemetery	Funerary	Cemetery	20th Century: 1st quarter (1900 - 1924)	DHR Staff: Potentially Eligible
44PW1113	38836	null	DSS Legacy	Trash scatter	19th Century: 2nd half (1850 - 1899), 20th Century: 1st quarter (1900 - 1924)	DHR Staff: Potentially Eligible
44PW1114	38833	null	DSS Legacy	Trash scatter	19th Century: 4th quarter (1875 - 1899), 20th Century: 1st quarter (1900 - 1924)	null
44PW1115	38834	null	DSS Legacy	Trash scatter	Prehistoric / Unknown (15000 B.C. - 1606 A.D.), 19th Century: 4th quarter (1875 - 1899), 20th Century: 1st quarter (1900 - 1924)	null
44PW1116	38825	null	DSS Legacy	Camp	null	DHR Staff: Potentially Eligible
44PW1117	38824	null	DSS Legacy	Camp	19th Century: 3rd quarter (1850 - 1874)	DHR Staff: Potentially Eligible
44PW1118	38823	null	DSS Legacy	Trash scatter	19th Century: 2nd half (1850 - 1899)	null
44PW1119	38837	null	DSS Legacy	Trash scatter	19th Century: 4th quarter (1875 - 1899), 20th Century: 1st quarter (1900 - 1924)	null

Table B2
Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW1120	38826	null	Funerary	Cemetery	19th Century: 3rd quarter (1850 - 1874)	DHR Staff: Potentially Eligible
44PW1193	35631	null	Industry / Processing / Extraction	Lithic scatter	Middle Archaic (6500 - 3001 B.C.), Late Archaic (3000 - 1201 B.C.)	DHR Staff: Not Eligible
44PW1194	35626	null	Domestic	Farmstead	18th Century: 2nd half (1750 - 1799), 19th Century: 1st half (1800 - 1849)	DHR Staff: Not Eligible
44PW1195	35630	null	Domestic	Farmstead	19th Century (1800 - 1899)	DHR Staff: Not Eligible
44PW1196	35624	null	DSS Legacy	Blacksmith shop	18th Century: 2nd half (1750 - 1799), 19th Century: 1st half (1800 - 1849)	DHR Staff: Eligible
44PW1201	36957	null	DSS Legacy	Camp	Archaic (8500 - 1201 B.C.), Woodland (1200 B.C. - 1606 A.D.)	null
44PW1202	36956	null	Industry / Processing / Extraction	Lithic workshop	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	DHR Staff: Not Eligible
44PW1203	36955	null	Domestic	Dwelling, single	19th Century: 2nd half (1850 - 1899)	DHR Staff: Not Eligible
44PW1204	36954	null	null	null	19th Century: 2nd half (1850 - 1899)	DHR Staff: Not Eligible
44PW1206	163	null	Domestic	Dwelling, single	20th Century: 1st quarter (1900 - 1924)	DHR Staff: Not Eligible

Table B2
Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW1207	36952	null	Domestic	Dwelling, single	20th Century: 1st half (1900 - 1949)	DHR Staff: Not Eligible
44PW1208	36951	null	Industry / Processing / Extraction	Lithic workshop	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW1209	36950	null	null	null	20th Century: 1st quarter (1900 - 1924)	null
44PW1210	428003	Ewell's / Foster's Mill	Industry / Processing / Extraction	Mill, dam, Mill, raceway	Colony to Nation (1751 - 1789), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)	DHR Staff: Not Eligible
44PW1212	36948	null	Domestic	Trash pit	19th Century: 2nd half (1850 - 1899)	null
44PW1213	36947	null	null	null	19th Century: 1st half (1800 - 1849)	DHR Staff: Not Eligible
44PW1214	36946	null	Industry / Processing / Extraction	Lithic workshop	Archaic (8500 - 1201 B.C.)	null
44PW1217	36943	null	DSS Legacy	Mill	19th Century: 4th quarter (1875 - 1899)	null

Table B2
Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW1218	35627	null	Industry / Processing / Extraction	Lithic workshop	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW1219	36942	null	Industry / Processing / Extraction	Lithic workshop	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	DHR Staff: Not Eligible
44PW1220	35628	null	Industry / Processing / Extraction	Lithic workshop	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW1221	35622	null	Industry / Processing / Extraction	Lithic workshop	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW1234	37817	Bristow Battlefield Cemetery 2	Funerary	Cemetery	19th Century: 3rd quarter (1850 - 1874)	null
44PW1246	38372	Brentsville Historic Center	Commerce / Trade, DSS Legacy, Education, Government / Law / Political	County courthouse, Jail, Other, School, Tavern / Inn	Prehistoric / Unknown (15000 B.C. - 1606 A.D.), 19th Century (1800 - 1899)	null
44PW1247	38369	Brentsville Historic Center 2	null	null	19th Century (1800 - 1899), 20th Century (1900 - 1999)	null
44PW1339	46509	Lucaville 4	Domestic, Subsistence / Agriculture	Dwelling, single, Outbuilding	20th Century (1900 - 1999)	null
44PW1340	39557	Lucaville 5	DSS Legacy	Trash scatter	19th Century (1800 - 1899)	null

Table B2
Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW1393	44560	null	Domestic	Dwelling, single	19th Century (1800 - 1899), 20th Century (1900 - 1999)	null
44PW1449	44346	null	DSS Legacy	Trash scatter	19th Century (1800 - 1899), 20th Century (1900 - 1999)	null
44PW1450	42741	null	DSS Legacy	Other, Trash scatter	19th Century (1800 - 1899), 20th Century (1900 - 1999)	null
44PW1547	48352	null	Domestic	Camp, temporary, Farmstead	Prehistoric / Unknown (15000 B.C. - 1606 A.D.), 19th Century (1800 - 1899)	null
44PW1598	47556	Vint Hill I	Domestic	Farmstead	20th Century (1900 - 1999)	DHR Staff: Not Eligible
44PW1623	50618	null	Domestic, Military / Defense	Camp, temporary, Military base / facility	Late Archaic (3000 - 1201 B.C.), 19th Century: 2nd half (1850 - 1899)	null
44PW1624	51044	null	Domestic, Industry / Processing / Extraction	Dwelling, single, Lithic scatter	Late Archaic (3000 - 1201 B.C.), 19th Century: 1st half (1800 - 1849)	null

Table B2
Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW1625	49026	null	Domestic, Transportation / Communication	Camp, temporary, Trash scatter	Early Archaic Period (8500 - 6501 B.C.E), Middle Archaic Period (6500 - 3001 B.C.E), Late Archaic Period (3000 - 1201 B.C.E), Colony to Nation (1751 - 1789), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860)	null
44PW1626	48767	null	DSS Legacy	Trash scatter	20th Century (1900 - 1999)	null
44PW1627	43124	null	DSS Legacy	Trash scatter	20th Century: 1st half (1900 - 1949)	null
44PW1629	45376	null	Domestic	Camp, temporary	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW1630	42361	null	DSS Legacy	Trash scatter	19th Century: 2nd half (1850 - 1899)	null
44PW1631	45003	null	DSS Legacy	Trash scatter	19th Century: 4th quarter (1875 - 1899), 20th Century: 1st quarter (1900 - 1924)	null
44PW1632	40976	null	DSS Legacy	Trash scatter	19th Century (1800 - 1899)	null
44PW1633	51712	null	Domestic	Dwelling, single	19th Century: 1st half (1800 - 1849)	null

Table B2
Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW1634	49833	null	DSS Legacy	Trash scatter	19th Century: 4th quarter (1875 - 1899)	null
44PW1635	44566	null	DSS Legacy	Trash scatter	19th Century: 4th quarter (1875 - 1899), 20th Century (1900 - 1999)	null
44PW1643	52761	null	Domestic	Camp, temporary	Early Woodland (1200 B.C. - 299 A.D.)	null
44PW1644	51482	null	Domestic	Farmstead	20th Century: 2nd quarter (1925 - 1949), 20th Century: 2nd half (1950 - 1999)	null
44PW1646	44174	null	Domestic	Farmstead	19th Century: 3rd quarter (1850 - 1874), 20th Century: 1st half (1900 - 1949)	null
44PW1773	428005	Linton Hall Road Cell Tower Archaeological Site A	Transportation / Communication	Trash scatter	World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991), Post Cold War (1992 - Present)	null
44PW1872	428004	null	Transportation / Communication	Trash scatter	The New Dominion (1946 - 1991), Post Cold War (1992 - Present)	null
44PW1873	49156	Will Harris House site	Domestic	Farmstead	20th Century: 1st quarter (1900 - 1924)	null

Table B2
Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW1875	46665	null	Domestic	Dwelling, single	20th Century (1900 - 1999)	null
44PW1876	42540	null	DSS Legacy	Trash scatter	19th Century: 4th quarter (1875 - 1899), 20th Century: 1st quarter (1900 - 1924)	null
44PW1889	45820	null	Domestic	Dwelling, single	Pre-Contact, Contact Period (1607 - 1750), Colony to Nation (1751 - 1789), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	null
44PW1890	41251	null	Transportation / Communication	Trash scatter	Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	null
44PW1891	41249	null	DSS Legacy	Trash scatter	19th Century: 4th quarter (1875 - 1899), 20th Century (1900 - 1999)	null

Table B2
Archaeological Resources

DHR ID	Archaeology Site Survey ID	Site Name	Site Categories	Site Types	Time Periods	NR Eligibility Status
44PW1925	46705	null	Domestic	Camp, temporary	Prehistoric / Unknown (15000 B.C. - 1606 A.D.)	null
44PW2052	377465	null	Funerary	Cemetery	Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	null
44PW2094	440962	null	Domestic	Farmstead	Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945)	null
44PW2095	399705	null	Domestic	Camp, temporary	Pre-Contact	null
44PW2124	414014	Bristow Crossing	Domestic	Midden	Reconstruction and Growth (1866 - 1916)	null
44PW2138	417698	Daniel Jasper Tyler House	Domestic, Military / Defense	Farmstead, Other	Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991)	null
44PW2139	417699	Thomas Family Site	Military / Defense	Battlefield	Civil War (1861 - 1865)	null
44PW2214	441128	null	Military / Defense	Other	Civil War (1861 - 1865)	null

Table B3
Battlefields

DHR ID	Architecture Property Survey ID	Jurisdictions	Property Names	Addresses	NR Eligibility Status	Primary Resource Type
076-0024	351560	Manassas (Ind. City), Prince William (County)	Bristoe Station Battlefield (Historic / Current)	Bristow Road, Milford Road, Route 28, Route 619, Route 660	VLR Listing Removed	Battle Site
076-5036	437540	Fairfax (County), Fauquier (County), Manassas (Ind. City), Manassas Park (Ind. City), Prince William (County)	Bristoe Station Battlefield (Historic), Bull Run Bridge (Historic), Kettle Run Battlefield (Historic), Manassas Station Operations Battlefield (Historic), Union Mills (Historic)	Centreville Road - Alt Route 28, John Marshall Highway - Alt Route 55, Linton Hall Road - Alt Route 619, Sudley Road - Alt Route 234	DHR Staff: Potentially Eligible	Battle Site

**Table B4
Cultural Resource Investigations**

DHR Report #	County	Report Title	Report Author	Author Affiliation	Report Year	DHR Project Review Number
PW-002	Prince William	Archaeological Reconnaissance of the Manassas Municipal Airport, Prince William County, Virginia	Douglas C. McLearn	SHSI	1978	null
PW-019	Prince William	A Phase I Evaluation of Three Streams in Prince William County, Virginia: Broad Run, Bull Run, and Quantico Creek	James R. Cromwell, Jr., Robert McIver, Clarence R. Geier	JMU	1985	null
PW-034	Prince William	Phase I Archaeological Reconnaissance Survey, Route 28, Prince William County and City of Manassas, Virginia	J. Cooper Wamsley	VDOT	1985	null
PW-041	Prince William	Phase I Cultural Resources Survey of the Proposed Manassas Bypass, Route 234, Prince William County, Virginia	Douglas C. McLearn, Katharine E. Harbury	VCUARC	1988	1990-0911
PW-067	Prince William	Supplemental Phase I Archaeological Survey of Design Changes in Ramps and Cloverleaf in Four Locations Along Rt. 234 in Manassas	Robin L. Ryder, F.T. Barker	VCUARC	1992	1990-0911
PW-072	Prince William	A Phase I Cultural Resource Survey of the Proposed Broad Run Wetland Mitigation Project, Prince William County, Virginia	Joe B. Jones, Christopher McDaid	WMCAR	1992	1992-1259
PW-103	Prince William	Phase I Archaeological Survey of a Proposed Runway Protection Zone Manassas Regional Airport; Prince William County, Virginia	Douglas C. McLearn, Christopher P. Egghart, Mary Ellen Bushey	VCUARC	1995	1993-0611
PW-104	Prince William	A Phase I Archaeological Survey of the Proposed Helicopter Facilities Manassas Regional Airport, Prince William County, Virginia	Veronica L. Deitrick, Christopher L. McDaid	WMCAR	1994	1993-0611
PW-125	Prince William	Phase I Archeological Resources Reconnaissance of the 99 Acre Golf Academy Tract near Bristow, Prince William County	William Gardner, Kimberly Swears	TAA	1997	1997-1002

**Table B4
Cultural Resource Investigations**

DHR Report #	County	Report Title	Report Author	Author Affiliation	Report Year	DHR Project Review Number
PW-126	Prince William	Phase I Archeological Investigations at a 155 Acre Parcel near Bristow, Prince William County, Virginia	William M. Gardner, Kimberly A. Snyder, Gwen Hurst, John Mullen	TAA	1998	1998-1794
PW-135	Prince William	Archaeological Investigation of Proposed Route 234 Access Road, Prince William County, Virginia	Charles J. Rinehart	LBG	1999	1990-0911
PW-148	Prince William	Archaeological Survey of the Proposed Improvements to Route 619, Prince William County, Virginia	Eric E. Voigt, Jennifer Schmidt	LBG	1998	1995-0125
PW-158	Prince William	Prince William Innovation: Phase I Archaeological Survey and Architectural History Reconnaissance Survey of the Proposed PWC Innovation Business Park, Prince William County, Virginia	Heather Crowl, David Rotenstein, Susan Travis, Richard Vidutis	URS	2002	2001-1034
PW-165	Prince William	Phase I Archaeological Survey of the Proposed Manassas Municipal Airport Connector Road, Prince William County, Virginia	Clifton A. Huston, Matthew Laird, Justin R. Atkins	CRI	2001	2001-1127
PW-168	Prince William	Historical Research and Archaeological Reconnaissance at the Brentsville Historic Centre, Prince William County, Virginia	Michael J. Klein, Cheryl Shepard, Jessika Reuter, Emily Lindtveit, Josh Duncan	MWC	2001	null
PW-195	Prince William	Phase I Archeological Investigations of New Bristow Village, Prince William County, Virginia	William M. Gardner, Kimberly A. Snyder, Gwen Hurst	TAA	2000	2000-2028
PW-238	Prince William	Phase I Archeological Investigations of a Circa 14 Acre Addition to New Bristow Village, Prince William County, Virginia	Kimberly A. Snyder, Gwen Hurst	TAA	2003	2000-2028

**Table B4
Cultural Resource Investigations**

DHR Report #	County	Report Title	Report Author	Author Affiliation	Report Year	DHR Project Review Number
PW-278	Prince William	A Phase I Archeological Survey of Two Segments Totaling 8 Acres within the Youth for Tomorrow Property Located on Linton Hall Road in Prince William County, Virginia	Phillip Hill, Cynthia Pfanstiehl, Michael Roller, Alan Greene, Michaela Blankfeld	ATCI	2002	courtesy
PW-283	Prince William	A Phase I Archaeological Survey of a 3-Acre Property at 11109, 11111, and 1113 Nokesville Road in Prince William County, Virginia	Phillip Hill, Kelly Cooper	ATCI	2005	courtesy
PW-287	Prince William	Results of a Cemetery Investigation Conducted on the University Station Property, Prince William County, Virginia	Kimberly A. Snyder	TAA	2003	courtesy
PW-323	Prince William	Phase I Archaeological Survey for the Proposed Extension of Runway 16L / 34R and Taxiway B, Manassas Regional Airport, City of Manassas, Prince William County, Virginia	Tery Harris	EACA	2009	2008-0919
PW-346	Prince William	A Phase I Archaeological Survey of the Linton Hall Road Cell Tower Study Area Located at 10149 Linton Hall Road in Bristow, Prince William County, Virginia	Ryun Papson	ATCI	2007	2008-0217
PW-347	Prince William	Letter Report, Phase I Archaeological Survey of the Location of Proposed T-Mobile Unmanned Wireless Communication Site, Site Number WAW263B: Youth for Tomorrow 10149 Linton Hall Road Brentsville, Prince William County, Virginia	Aaron Levinthal	AEC	2009	2008-0217
PW-394	Prince William	Cultural Resources Survey for Nokesville and Vint Hill Roads, Bristow, Prince William County, Virginia	Marie B. Morton, Allan Morton, Meg Greene Malvasi	PSA	2011	2011-0285

**Table B4
Cultural Resource Investigations**

DHR Report #	County	Report Title	Report Author	Author Affiliation	Report Year	DHR Project Review Number
PW-399	Prince William	A Phase I Archaeological Survey of the Vint Hill Assemblage (Aventdale): A 125-Acre+ Assemblage of Properties Located on Vint Hill Road (Route 215) in Prince William County, Virginia	Phillip Hill, Kelly Cooper, Mark Tweedie, Michael Roller	ATCI	2005	2012-0003
PW-415	Prince William	Phase I Archaeological and Architectural Survey of the Proposed Cannon Branch to Clover Hill 230kV Transmission Line, Prince William County, Virginia	Arthur Striker, Danielle Worthing	DUTTON	2012	2010-1959
PW-418	Prince William	Phase I Archaeological and Architectural Survey of the Proposed Cannon Branch Substation to Gainesville Junction 230kV Transmission Line, Prince William County, Virginia	David Dutton, Danielle Worthing, Arthur Striker	DUTTON	2013	2012-0198
PW-420	Prince William	A Cultural Resources Survey of the Proposed Virginia Rail Express Broad Run Parking Expansion Project, Prince William County, Virginia	Thomas F. Higgins, Mary Ruffin Hanbury	WMCAR	2013	2012-0391
PW-428	Prince William	Phase I Archeological Investigation Including Military Sites Survey of the ±40.7 acre Youth for Tomorrow Property, Prince William County, Virginia	Boyd Sipe	TAA	2011	courtesy
PW-430	Prince William	Phase I Cultural Resources Survey of Approximately 183 Acres at the Airport Gateway Property, Prince William County, Virginia	Matthew Laird Garrett Fesler	JRIA	2005	courtesy
PW-431	Prince William	Phase I Archeological Investigation Glen-Gery North Property, Prince William County, Virginia	John Mullen, Edward Johnson, Annie McQuillan	TAA	2012	2017-3681

**Table B4
Cultural Resource Investigations**

DHR Report #	County	Report Title	Report Author	Author Affiliation	Report Year	DHR Project Review Number
PW-447	Prince William	Phase I Archaeological Survey of the Linton Hall Tract, Prince William County, Virginia	Clifton A. Huston, Raymond D. Ezell	ECS	2005	courtesy
PW-552	Prince William	Addendum Phase IB Cultural Resources Survey of the Virginia Railway Express (VRE) Broad Run Expansion Project, Prince William County, Virginia	Mike Klein, D. Brad Hatch, Lenora Wiggs	DOVE	2018	2018-0132
PW-569	Prince William	A Phase I Investigation of a Circa 99.3 Acre Parcel at the Junction of Lucasville and Godwin Roads, Prince William County, Virginia	William M. Gardner, Kimberly A. Snyder, Gwen Hurst	TAA	2002	2004-0569
PW-581	Prince William	A Phase I Investigation of the Circa 24 Acre University Station Property, Prince William County, Virginia	William M. Gardner, Kimberly A. Snyder, Gwen J. Hurst	TAA	2002	2006-0209
PW-638	Prince William	Phase I Archaeological Identification Survey, Glen-Gery Wetlands Mitigation Tract	Douglas C. McLearn, Chris Egghart	VCUARC	1997	courtesy
PW-661	Prince William	Phase I Archaeological Study for the Proposed West Corporate Development and East Parcel Development at Manassas Regional Airport, City of Manassas, Prince William County, Virginia	Tery Harris	EACA	2017	2017-0348

APPENDIX C
PHOTOGRAPH LOG



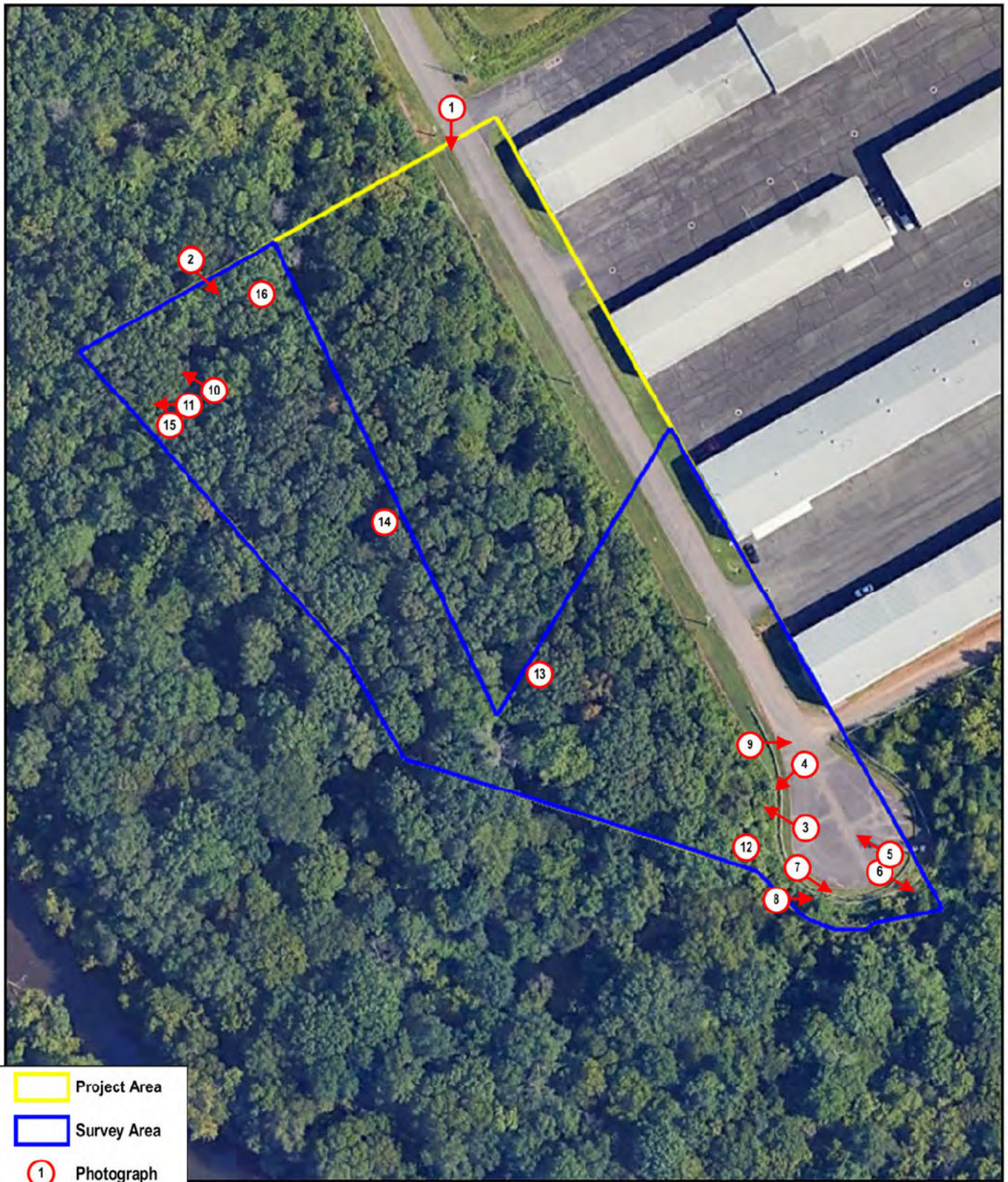


Figure C1
Photo Key





Photo 1: Overview of fenced in portion of Project Area, facing south.



Photo 2: Overview of Survey Area, facing southeast.



Photo 3: Overview of Survey Area, facing northwest.



Photo 4: Overview of Survey Area, facing southwest.



Photo 5: Top of slope at southeast corner of Survey Area, facing northwest.



Photo 6: Top of slope at southeast corner of Survey Area / fence, facing southeast.



Photo 7: Bottom of slope at southeast corner of Survey area, facing southeast.



Photo 8: Bottom of slope, facing east.



Photo 9: Slope on east side, facing east.



Photo 10: Creek bed, facing northwest.



Photo 11: Dry creek bed, facing west.



Photo 12: STP 2.



Photo 13: STP 8.



Photo 14: STP 14.



Photo 15: STP 20.



Photo 16: STP 23.

**APPENDIX D
CURRICULUM VITAE**



CURRICULUM VITAE
July 2024

Robert C. Chidester

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1. EDUCATION

Doctor of Philosophy

Doctoral Program in Anthropology and History

University of Michigan, August 2009

Dissertation: "Class, Community, and Materiality in a Blue-Collar Baltimore Neighborhood: An Archaeology of Hampden-Woodberry"

Advisor: Dr. Henry Wright

Master of Applied Anthropology (Historical Archaeology Track)

University of Maryland at College Park, May 2004

Master's Internship: "A Historic Context for the Archaeology of Industrial Labor in the State of Maryland"

Advisors: Dr. Mark Leone (University of Maryland) and Ms. Erika Martin Seibert (National Register of Historic Places)

Bachelor of Arts

Heidelberg College, Tiffin, Ohio, May 2002

Majors: Anthropology and English Literature

Senior Thesis: "Ft. Miamis and Ft. Meigs: A Comparative Analysis of Two Artifactual Assemblages"

Advisor: Dr. G. Michael Pratt

Research and Teaching Interests:

- Historical Archaeology
- Urban Archaeology
- Public/Community Archaeology
- Applied Anthropology
- Cultural Resource Management
- Labor History/Working-Class Studies
- Capitalism and Political Economy
- Great Lakes / Rust Belt Geographic Region

2. RESEARCH ACTIVITIES AND PROFESSIONAL EMPLOYMENT

Cultural Resources Service Director / Group Manager, The Mannik & Smith Group, Inc., Maumee, Ohio (August 2022-present)

- As Group Manager, responsible for managing a staff of cultural resource professionals within a professional services consulting firm. Duties include overseeing staff assignments, time management, business development, staff professional development, and coordination with Marketing, Business Development, and other operational groups within the company. As Senior Project Manager, duties include scoping and budgeting for contract proposals; liaising with current and potential clients, subcontractors, professional advisors, and government agency reviewers; building project teams and executing projects; and managing contracts for a broad range of Cultural Resource services.

Archaeology Team Leader, The Mannik & Smith Group, Inc., Maumee, Ohio (July 2009 - present; Project Manager, May 2012-August 2022)

- Principal Investigator and Project Manager for all phases of archaeological compliance projects. Duties include preparing project proposals, including budgets; liaising with current and potential clients, subcontractors, professional advisors, and government agency reviewers; preparing predictive modeling studies; directing field investigations and laboratory processing and analysis of artifacts; conducting artifact curation activities; archival research; composing historic contexts for National Register nominations; preparing technical reports of investigations; and managing Archaeology Team members.

Staff Historian/Archaeologist, Commonwealth Cultural Resources Group, Inc., Jackson, Michigan (August-December 2009)

- Served as project archaeologist for cultural resource sensitivity studies and a Phase I cell tower survey; conducted archival research and historic artifact analysis; prepared technical reports of investigations.

Co-Director, Hampden Community Archaeology Project, Baltimore, Maryland (2005-2009)

- Duties included organizing and directing archaeological investigations on domestic urban lots; instructing local youth in archaeological excavation methods; conducting ethnographic and archival research; writing grant proposals; and organizing and participating in various public outreach activities.

Faculty Research Assistant, Archaeology in Annapolis [Wye Island Project], University of Maryland at College Park (May-August 2004)

- Duties included initial surveying of site and drafting of site map; conducting a shovel test pit survey; supervising undergraduate field school students during excavations; and communicating research goals and findings to the private landowner.

Intern, Chesapeake and Ohio Canal National Historical Park, Hagerstown, Maryland (June 2003-February 2004)

- Conducted archival research on the Ferry Hill Plantation property, specifically focusing on slavery and changes in landscape use over time.

Cultural Resources Specialist I, The Mannik & Smith Group, Inc., Maumee, Ohio (June-July 2002)

- Archaeological technician on Phase I archaeological reconnaissance surveys.

Fieldwork and Laboratory Staff, Center for Historic and Military Archaeology, Heidelberg College, Tiffin, Ohio (2000-2002)

- Duties included participating in Phase I surveys of historic battlefield sites in Ohio and Michigan; conducting basic artifact curation activities and completing artifact analyses, as well as supervising other work-study students during artifact curation activities; conducting secondary historical research; ordering supplies for the lab; and supervising volunteers both in the field and the lab.

Intern, Department of Sociology, Anthropology and Archaeology and the Aboriginal and Torres Strait Islander Studies Unit [Gooreng Gooreng Cultural Heritage Project], University of Queensland, Brisbane, Australia (January-April 2001)

- Participated in the excavation of a Paleolithic cave shelter in east-central Queensland; conducted basic artifact curation activities on collections from a similar site in southern Queensland.

3. PUBLICATIONS

(* Indicates sole or senior author)

Refereed Journal Articles:

Re-Evaluating Colonization and Cultural Change During the Early Archaic Period in Northwestern Ohio. *Archaeology of Eastern North America* 39:109-130 (2011).

Heritage and “Those People”: Representing Working-Class Interests through Hampden’s Archaeology. *Historical Archaeology* 45(1):101-113 (with David A. Gadsby; 2011).
 § Reprinted in *Public Archaeology, From Outreach and Education to Critique and Global Justice*, ed. Christopher N. Matthews and Carol McDavid, pp. 379-392. Perspectives in Historical Archaeology. Society for Historical Archaeology, Germantown, MD (2016).

*One Neighborhood, Two Communities: The Public Archaeology of Class in a Gentrifying Urban Neighborhood. In "Labor History as Public History," edited by Thomas Miller Klubock and Paulo Fontes. *International Labor and Working Class History* 76:127-146 (with David A. Gadsby; 2009).

*Critical Landscape Analysis as a Tool for Public Interpretation: Reassessing Slavery at a Western Maryland Plantation. *CRM: The Journal of Heritage Stewardship* 6(1):34-54 (2009).

Book Chapters:

Class, Labour and the Public. In *The Oxford Handbook of Public Archaeology*, edited by John Carman, Carol McDavid and Robin Skeates, pp. 513-533. Oxford University Press, England (with David A. Gadsby; 2012).

What Does Public Engagement in Archaeology Really Mean? Is All Engagement Always Positive? In *The Contemporary Relevance of Archaeology*, edited by Marcy Rockman and Joe Flatman, pp. 65-76. Springer Press, New York (with Joe Flatman and David A. Gadsby; 2012).

*"Movement Archaeology": Promoting the Labor Movement in Maryland. In *Changing the World with Archaeology: Archaeology Activism*, edited by M. Jay Stottman, pp. 80-92. University of Alabama Press, Tuscaloosa (2010).

Heritage in Hampden: A Participatory Research Design for Public Archaeology in a Working-Class Neighborhood, Baltimore, Maryland. In *Archaeology as a Tool of Civic Engagement*, edited by Barbara J. Little and Paul A. Shackel, pp. 223-242. AltaMira Press, Lanham, MD (with David A. Gadsby; 2007).

Other Scholarly Publications:

*Unionism. In *Reforming America: A Thematic Encyclopedia and Document Collection of the Progressive Era*, Volume One, edited by Jeffrey A. Johnson, pp. 332-335. ABC-CLIO, Santa Barbara, CA (2017).

*Reconciling an Interdisciplinary Education and an Academic Career. *Anthropology News* 49(6):7-8 (2008).

Hampden Community Archaeology Project. *CRM: The Journal of Heritage Stewardship* 4(1):57-59 (with David A. Gadsby; 2007).

*Great Railroad Strike (1877). In *Encyclopedia of the Age of the Industrial Revolution, 1700-1920*, Volume One: A-N, edited by Christine Rider, pp. 192-193. Greenwood Press, Westport, CT (2007).

*The Inculcation and Maintenance of British Identity on the North American Frontier: An Example from Fort Miamis in Ohio. *Ohio Valley Historical Archaeology* 20:78-87 (2005).

*The Archaeological Heritage of Labor in Maryland. *Society for Historical Archaeology Newsletter* 37(1):26-27 (2004).

*Ft. Miamis at the Foot of the Rapids: An Analysis of an 18th-century Ceramic Assemblage. In *Minds at Work: The Journal of the Ninth Annual Student Research Conference*, edited by Sarah Fetty and Kristen Snyder, pp. 20-41. Heidelberg College, Tiffin, OH (2002).

Book Reviews:

Review of The Archaeology of American Childhood and Adolescence, by Jane Eva Baxter. *Midcontinental Journal of Archaeology* 47 (2022). Electronic document available at <https://www.midwestarchaeology.org/files/2022-BR01-Baxter.pdf>.

Review of Industrialization and the Transformation of American Life: A Brief Introduction, by Jonathan Rees. *H-SHGAPE*, October 2013. Electronic document available at <https://www.h-net.org/reviews/showpdf.php?id=37630>.

Review of The Archaeology of Class War: The Colorado Coalfield Strike of 1913-1914, edited by Karin Larkin and Randall H. McGuire. *Labor History* 54(3):346-348 (2013).

Review of Outdoor Sculpture in Baltimore: A Historical Guide to Public Art in the Monumental City, by Cindy Kelly and Edwin Harlan Remsberg. *Maryland Historical Magazine* 107(3):394-396 (2012).

- Review of The Archaeology of American Labor and Working-Class Life, by Paul A. Shackel. *Journal of Middle Atlantic Archaeology* 26:181-182 (2010).
- Review of John Smith's Chesapeake Voyages, 1607-1609, by Helen C. Rountree, Wayne E. Clark and Kent Mountford. *Maryland Historical Magazine* 103(3):320-322 (2008).
- Review of Culture in Practice: Selected Essays, by Marshall Sahlins. *Pioneer America Society Transactions (PAST)* 31:67-70 (2008).
- Review of Fighting Against the Odds: A History of Southern Labor Since World War II, by Timothy Minchin. *Southern Historian* 29:103-104 (2008).
- Review of Between Dirt and Discussion: Methods and Methodology in Historical Archaeology, edited by Steven Archer and Kevin Bartoy. *Historical Archaeology* 41(4):216-217. Available at www.sha.org/publications/book_reviews.htm (2007).
- Review of A Guide to Patapsco Valley Mill Sites: Our Valley's Contribution to Maryland's Industrial Revolution, by James Walter Peirce. *IA: The Journal of the Society for Industrial Archeology* 30(2):41-42 (2004).
- Review of Historic Bridges of Maryland, by Dixie Legler and Carol M. Highsmith. *IA: The Journal of the Society for Industrial Archeology* 29(2):73-74 (2003).

Technical Reports and Unpublished Documents:

- *Over 300 single- and co-authored technical reports for cultural resource desktop review / impact studies, predictive modeling studies, Section 106 reviews, archaeological monitoring, Phase I archaeology/cultural resource surveys, and Environmental Assessments for telecommunications, transportation, development, demolition, renewable energy, pipeline, power transmission, flood mitigation, landfill, environmental restoration, military base, and federal, state and municipal projects across 12 states.
- Preliminary Archaeological Investigations at the Papermill School (20MR844) in Territorial Park, Raisinville Township, Monroe County, Michigan.* Report submitted to the Monroe County Museum System, Monroe, MI by The Mannik & Smith Group, Inc., Maumee, OH (with Julia R. Joblinski, Daniel Hershberger, Kate J. Hayfield, and Athena Zissis; 2023).
- **Ground-Penetrating Radar Survey of a Portion of the Irishtown Bend Archaeological District in the City of Cleveland, Cuyahoga County, Ohio.* Report submitted to LAND Studio, Cleveland by The Mannik & Smith Group, Inc., Maumee, OH (with Maeve Marino, Kate J. Hayfield, and Adam R. Darkow; 2023).
- **Archaeological Monitoring and Data Recovery for Proposed Visitor Enhancements at the Fort Miamis National Historic Site in the City of Maumee, Lucas County, Ohio.* Report submitted to Metroparks Toledo by The Mannik & Smith Group, Inc., Maumee, OH (with Julia R. Joblinski, Phillip R. Bauschard, and Kate J. Hayfield; 2022).
- Phase I Archaeological Survey and Phase II Archaeological Testing for the Mariners Inn Expansion Project in the City of Detroit, Wayne County, Michigan.* Report submitted to PM Environmental, Inc., Lansing, MI by The Mannik & Smith Group, Inc., Detroit (with Athena Zissis and Meagan Bell; 2022).
- **Phase II Archaeological Evaluations of Five Pre-Contact Archaeological Sites (33ER0086, 33ER0696, 33HU0048, 33HU0678, and 33HU0831) for the Emerson Creek Wind Project, Erie and Huron Counties, Ohio.* Report submitted to Firelands Wind, LLC, Charlottesville, VA by The Mannik & Smith Group, Inc., Maumee, OH (with Athena

- Zissis, Kate J. Hayfield, Meagan Bell, and Adam Darkow; 2022).
- **Phase II Archaeological Evaluation of the Eagle Creek Site Cluster (33HK1008, 33HK1011, 33HK1012, 33HK1013, and 33HK1014) for the Hancock County Flood Risk Reduction Program, Phase 2: Eagle Creek Flood Basin in Eagle Township (Township 1 South, Range 10 East), Hancock County, Ohio.* Report submitted to Stantec Consulting Services, Inc., Toledo by The Mannik & Smith Group, Inc., Maumee, OH (with Ryan T. Botkin, Athena Zissis, and Kevin C. Nolan; 2022).
 - Phase II Archaeological Evaluations of Four Pre-Contact Archaeological Sites (33SA0703, 33SE0004, 33SE0894, and 33SE0978) for the Republic Wind Project, Sandusky and Seneca Counties, Ohio.* Report submitted to Republic Wind, LLC, Charlottesville, VA by The Mannik & Smith Group, Inc., Maumee, OH (with Athena Zissis, Meagan N. Bell, Kate J. Hayfield, and Adam R. Darkow; 2022).
 - **A Section 106 (Cultural Resources) Assessment of Effects for the Irishtown Bend Stabilization and Rehabilitation Project in the City of Cleveland, Cuyahoga County, Ohio.* Report submitted to the Cleveland-Cuyahoga County Port Authority by The Mannik & Smith Group, Inc., Shaker Heights, OH (with Christopher B. Owen; 2020).
 - **Unanticipated Discoveries Plan, 7850 E. Jefferson, Detroit, MI.* Document submitted to GDC-East Jefferson, LLC, Novi, MI by The Mannik & Smith Group, Inc., Detroit (with Jordan Shaffer; 2019).
 - **Geophysical Archaeological Investigation of Approximately 3 Acres of the Parade Grounds at Historic Fort Wayne in the City of Detroit, Wayne County, Michigan.* Report submitted to the City of Detroit Historic Designation Advisory Board by The Mannik & Smith Group, Inc., Detroit (with Kate Hayfield and Phillip R. Bauschard, with a contribution by Kevin C. Nolan and Matthew Purtill [Ball State University]; 2017).
 - **Phase I and II Archaeological Investigations of the Woodbridge IX Project Area in the City of Detroit, Wayne County, Michigan.* Report submitted to Woodbridge Estates IX LDHA, LLC, Bingham Farms, MI by The Mannik & Smith Group, Inc., Maumee, OH (with Phillip R. Bauschard, Daniel Hershberger, Colene E. Knaub, Kathryn E. Parker, and Lilian Bodley; 2017).
 - Documentation Report: Park Place Convention Hall, 300 East State Street, Traverse City, Michigan.* Report prepared for Park Place Hotel, Traverse City, MI by The Mannik & Smith Group, Inc., Maumee, OH (with Maura Johnson and Daniel Hershberger; 2017).
 - Historic Properties Management Plan: Ludington Pumped Storage Project (FERC No. 2680), Mason County, Michigan.* Prepared for Consumers Energy, Cadillac, MI by The Mannik & Smith Group, Inc., Maumee, OH (with Maura Johnson, 2017).
 - **“You Will Do Better in Toledo”: Phase III Data Recovery Excavations in the UpTown Neighborhood for the Clinic Consolidation to Improve Access to Care Project, City of Toledo, Lucas County, Ohio.* Report submitted to Neighborhood Health Association, Inc., Toledo, OH and the Health Resources Services Administration, Washington, D.C., by The Mannik & Smith Group, Inc., Maumee, OH (with Phillip R. Bauschard, Maura Johnson, Daniel Hershberger, Kate J. Hayfield, Erin L. Claussen, and Colene E. Knaub; 2016).
 - **Results of a Phase II Archaeological Evaluation of the Ritter No. 1 Site (33HY0167) for the New Maumee River Crossing Project (PID #22984), Harrison Township, Henry County, Ohio.* Revised version. Report submitted to the Henry County Transportation Improvement District, Napoleon, OH and the Ohio Department of Transportation,

- Columbus, OH by The Mannik & Smith Group, Inc., Maumee, OH (with Phillip R. Bauschard, Kate J. Hayfield and Bryan P. Agosti; 2016).
- Sunnyside Addition, Madison Township, Lenawee County, Michigan (HALS No. MI-5)*. Historic American Landscapes Survey Short Report (with Jennifer Ross, Maura Johnson and Ryan Schumaker; 2012).
- Marine City Water Works*. National Register of Historic Places nomination (with Maura Johnson, Carol Poh, and Amanda D. Davis; 2011).
- History from "The Bottom" Up: A Research Design for Participatory Archaeology in Hampden-Woodberry, Baltimore, MD*. Center for Heritage Resource Studies, Department of Anthropology, University of Maryland, College Park. Available at <http://www.heritage.umd.edu/CHRSTWeb/AssociatedProjects/Hampden.htm> (with David A. Gadsby; 2005).
- **Final Report on Historical Research, Ferry Hill Plantation*. Report submitted to the Chesapeake and Ohio Canal National Historical Park, Hagerstown, MD and Partners in Parks, Paonia, CO (2004).

Articles for Popular or General Audiences:

- *St. Helena: The Bygone Days [Industrialization in Southeast Baltimore]. *The St. Helena Red Rocket Review* 5(1):28 (2009).
- *Hampden Archaeology Folks Digging Their Work on Falls Road. *Historic Hampden Happenings*, July:9-10 (2007).
- *A Short History of Industrialization in Garrett County, Maryland. *Journal of the Alleghenies* 42:73-82 (2006).
- *The Potential for a Historical Archaeology of Industrial Labor in Cecil County. *Cecil Historical Journal* 6(1):2-10 (2006).
- *The Archaeology of the Working Class in Western Maryland's Industrial Region. *Journal of the Alleghenies* 41:24-41 (2005).
- *Industrial and Labor Heritage in Frederick County. *The Journal of the Historical Society of Frederick County, Maryland* Spring:4-49 (2005).
- *The History of Industry in Baltimore County. *History Trails of Baltimore County* 37(1-2):1-8 (2004).

4. CONFERENCE PARTICIPATION AND PRESENTATIONS

(* Indicates sole or senior organizer, author, or presenter)

Conference Sessions and Symposiums Organized or Chaired:

- **"From the Ground Up: Archaeology and Revitalization in Detroit." Session organized for the Annual Michigan Historic Preservation Network Conference, Detroit (with Krysta Ryzewski; 2016).
- **"Archaeologies of Class, Labor and Industrialization on the Middle Ground." Symposium organized for the 45th Annual Conference on Historical and Underwater Archaeology, Baltimore, MD (2012).
- **"Reconceptualizing 'Community,' Past and Present: Current Approaches in Historical and Public Archaeology." Symposium organized for the 42nd Annual Conference on Historical and Underwater Archaeology, Toronto (with Jolene L.U. Smith; 2009).

- *"Archaeology as Active History: Civic Engagement and Social Activism in Current Archaeological Practice." Symposium organized for the conference, "Active History: History for the Future," Glendon College, York University, Toronto (2008).
- *"The Archaeology of Nationalism." Symposium organized for the 51st Annual Meeting of the Midwest Archaeological Conference, Dayton, OH (with Jeremy B. Freeman; 2005).

Conference Papers:

- *Private Utilities and Public Resources: 19th-Century Capitalism and Local Governance in Northwest Ohio. Paper presented at the 57th Annual Conference on Historical and Underwater Archaeology, Oakland (2024).
- *The Armory Park Gasometer: Documenting Toledo's 19th-Century Utility Infrastructure. Paper presented at the 51st Annual Conference of the Society for Industrial Archeology, Grand Rapids, MI (with Daniel Hershberger and Meagan Bell; 2023).
- *British Empire on the North American Frontier: Fort Miamis in the Ohio Territory, 1794-1796. Paper presented at the 56th Annual Conference on Historical and Underwater Archaeology, Lisbon (2023).
- *You Will Do Better in Toledo: Urban Archaeology in the Glass City. Paper presented at the Fall Meeting of the Ohio Archaeological Council, Columbus (2022).
- *Anthropogenic Environmental Change and Cultural Resources Management: Documenting Landscapes of Environmental Damage. Paper presented at the 55th Annual Conference on Historical and Underwater Archaeology, Philadelphia (2022).
- *Mapping a Landscape of Lithic Exploitation: Pipe Creek Chert Quarries and Workshops in North-Central Ohio. Paper presented at the 64th Annual Midwest Archaeological Conference, East Lansing, MI (with Meagan Bell, Ryan Botkin, Adam Darkow, Elizabeth Hickie, Julia Joblinski, Danielle Julien, and Athena Zissis; 2021).
- *Landscapes of Economic Liberalism: Archaeological Survey along the Muskingum Improvement in Southeastern Ohio. Paper presented at the 53rd Annual Conference on Historical and Underwater Archaeology, Boston (2020).
- *"Dance with me to the Paradise beat": Archaeological Investigations in Detroit's Paradise Valley. Paper presented at the Annual Meeting of the Conference on Michigan Archaeology, Lansing (2019).
- *Section 106 Consultation, Public Education, and the Transportation Engineering Process: A Case Study from Henry County, Ohio. Paper presented at the Ohio Transportation Engineering Conference, Columbus (2018).
- *"They don't like Negroes, Jews, Catholics, the federal government or the 20th Century": Class, Race and Whiteness in a Post-Industrial Baltimore Neighborhood, ca. 1970-1990. Paper presented at the 23rd Annual Faculty Research Symposium, Heidelberg University, Tiffin, OH (2018).
- Local Tradition or Response to Hard Times? 20th-Century Urban Foodways in Toledo, Ohio. Paper presented at the 51st Annual Conference on Historical and Underwater Archaeology, New Orleans (with Colene Knaub; 2018).
- *Excavating the Motor City: Structural Racism and the "Archaeological Record" in Detroit. Paper presented at the 51st Annual Conference on Historical and Underwater Archaeology, New Orleans (2018).

- *The Deep History of a Modern Phenomenon: An Archaeological Perspective on Corporate Agriculture in Northwest Ohio. Paper presented at the 50th Annual Conference on Historical and Underwater Archaeology, Washington, D.C. (with Maura Johnson; 2017).
- *Structural Racism and the Formation of the Archaeological Record in Detroit. Paper presented at the 12th Annual Midwest Historical Archaeology Conference, Detroit (2016).
- *Archaeological Investigations of Detroit's Paradise Valley. Paper presented at the Neighborhoods in America's Cities: A Dialogue in Detroit conference, Detroit (2016).
- *"Dance with me to the Paradise beat": Archaeological Investigations of Detroit's Paradise Valley. Paper presented at the Annual Michigan Historic Preservation Network Conference, Detroit, MI (2016).
- *Structural Racism and Urban Archaeology in the Motor City. Paper presented at the 21st Annual Faculty Research Symposium, Heidelberg University, Tiffin, OH (2016).
- *Race and Alienation in Baltimore's Hampden. Paper presented at the 49th Annual Conference on Historical and Underwater Archaeology, Washington, D.C. (with David A. Gadsby; 2016).
- *The Sand Creek Sugarbush: Traces of an Extractive Agricultural Industry in Portage County, Ohio. Paper presented at the 48th Annual Conference on Historical and Underwater Archaeology, Seattle, WA (with Colene E. Knaub; 2015).
- *Landscapes of Clearance: Urban Sprawl, Land Acquisition and Abandonment in the Toledo Area Metroparks' Swan Creek Preserve. Paper presented at the 59th Annual Meeting of the Midwest Archaeological Conference, Columbus, OH (2013).
- *Predictive Modeling as a Planning Tool for the Blanchard River Flood Mitigation Studies in Northwest Ohio. Paper presented at the 79th Annual Meeting of the Eastern States Archaeological Federation, Perrysburg, OH (2012).
- *Class, Political Economy, and Material Culture in Baltimore, 1870-1920. Paper presented at the Annual Meeting of the Central States Anthropological Society, Toledo, OH (2012).
- Working-Class Community Archaeology in Baltimore's Hampden. Paper presented at the 45th Annual Conference on Historical and Underwater Archaeology, Baltimore, MD (with David A. Gadsby and Jolene L.U. Smith; 2012).
- *Archaeologies of Class, Labor and Industrialization in Maryland: An Introduction and Overview. Paper presented at the 45th Annual Conference on Historical and Underwater Archaeology, Baltimore, MD (2012).
- *Gentrification as Material Process: The Role of Urban Locality in the Political Economy of Late Capitalism. Paper presented at the 44th Annual Conference on Historical and Underwater Archaeology, Austin, TX (2011).
- *Political Economy, Urban Spatiality, and the Evolution of Working-Class Political Strategies from the Gilded Age to the Progressive Area. Paper presented at the 32nd Annual North American Labor History Conference, Detroit, MI (2010).
- *Class Consciousness and Materiality in a 19th-Century Textile Mill Village in Maryland. Paper presented at the 43rd Annual Conference on Historical and Underwater Archaeology, Amelia Island Plantation, FL (with David A. Gadsby; 2010).
- *From Theories of Culture to Theories of Community. Paper presented at the 42nd Annual Conference on Historical and Underwater Archaeology, Toronto (with Jolene L.U. Smith; 2009).

- *Confronting Gentrification through Archaeology: Exploring Economic and Social Change in a Post-Industrial Baltimore Neighborhood. Paper presented at the conference, "Active History: History for the Future," Glendon College, York University, Toronto (2008).
- *One Neighborhood, Two Communities: The Public Archeology of Class in a Gentrifying Urban Neighborhood. Paper presented at the conference, "Building Bridges in the City and Beyond: Languages, Communities & Cultures," University of Maryland, Baltimore County, Catonsville, MD (with David A. Gadsby; 2008).
- The Taphonomy of Late Capitalism in Baltimore. Paper presented at the 41st Annual Conference on Historical and Underwater Archaeology, Albuquerque, NM (with David A. Gadsby; 2008).
- *Archaeology and the Scales of Activism. Paper presented at the 106th Annual Meeting of the American Anthropological Association, Washington, D.C. (2007).
- *Freedom for All: Industrial Democracy versus Corporate Capitalism in a Baltimore Textile Community, 1916-1923. Paper presented at the 29th Annual North American Labor History Conference, Detroit, MI (2007).
- *Race and Local Citizenship in a Post-Industrial Baltimore Community. Paper presented at the Fourth Annual Conference in Citizenship Studies: Race and Citizenship, Wayne State University, Detroit, MI (2007).
- *Activist Archaeology and the Politics of "Insurgent Citizenship": A Case Study from Baltimore. Paper presented at the 40th Annual Conference on Historical and Underwater Archaeology, Williamsburg, VA (with David A. Gadsby; 2007).
- *Is the National Register Broken? A Case Study of the Clash of Scholarly Activism and the Conservatism of the Federal Historic Preservation System. Paper presented at the 104th Annual Meeting of the American Anthropological Association, Washington, D.C. (2005)
- *A Prospectus for the Archaeology of Nationalism. Paper presented at the 51st Annual Meeting of the Midwest Archaeological Conference, Dayton, OH (with Jeremy B. Freeman; 2005).
- *Nationalism and Ceramic Consumption Patterns: A Case Study from Northwest Ohio. Paper presented at the 51st Annual Meeting of the Midwest Archaeological Conference, Dayton, OH (2005).
- Heritage in Hampden: Participatory Research Design for Public Archaeology in a Working-Class Neighborhood, Baltimore, MD. Paper presented at the 65th Annual Meeting of the Society for Applied Anthropology, Santa Fe, NM (with David A. Gadsby; 2005).
- *The Grad Student and the Union President: Some Words of Caution. Paper presented at the 65th Annual Meeting of the Society for Applied Anthropology, Santa Fe, NM (2005).
- *Ceramic Tableware Style and British Identity on the Frontier: The Case from Ft. Miamis. Paper presented at the 23rd Annual Symposium on Ohio Valley Urban and Historic Archaeology, Carter Caves State Resort Park, KY (2005).
- *Changes in the Social Organization of Maryland's Industrial Communities: A Preliminary Analysis. Paper presented at the 26th Annual North American Labor History Conference, Detroit, MI (2004).
- *Ferry Hill: A Panoptic Plantation in Washington County, Maryland. Paper presented at the 34th Annual Middle Atlantic Archaeological Conference, Rehoboth Beach, DE (2004).
- *"A land without memories is a land without liberty": Using Archaeology to Change the Public Perception of Maryland's History. Paper presented at the 37th Annual Conference on Historical and Underwater Archaeology, St. Louis, MO (2004).

*Ft. Miamis at the Foot of the Rapids: An Analysis of an 18th-century Ceramic Assemblage. Paper presented at Minds at Work: The 9th Annual East Central Colleges Student Research Conference, Tiffin, OH (2002).

Conference Posters

The Armory Park Gasometer: An Investigation into Toledo's Early Manufactured Gas Utility. Poster presented at the 65th Annual Midwest Archaeological Conference, LaCrosse, WI (with Meagan N. Bell and Daniel Hershberger; 2022).

Using Electrolytic Cleaning to Assess Iron Artifacts from Two Light Industrial Enterprises in Findlay, OH. Poster presented at the 55th Annual Conference on Historical and Underwater Archaeology, Philadelphia (with Julia R. Joblinski; 2022).

Other Conference Participation

Forum Panelist, "What catalog system do you use?" Confronting the Philosophies that Prevent Standardization and Consensus in Archaeological Catalogs." Forum at the 52nd Annual Conference on Historical and Underwater Archaeology, St. Charles, MO (2019).

Panelist, "Identification, Evaluation, and Treatment of Lithic Scatters in Ohio: A Roundtable Discussion." Discussion panel at the Ohio Archaeological Council Spring Meeting, Galloway, OH (2014).

Forum Panelist, "Archaeologists as Activists: Moving Forward on a Practice of Activist Archaeology." Forum at the 44th Annual Conference on Historical and Underwater Archaeology, Austin, TX (2011).

Rap Session Leader (Gaining Employment in CRM), Forum of the Student Sub-Committee of the Academic and Professional Training Committee of the Society for Historical Archaeology. Forum at the 44th Annual Conference on Historical and Underwater Archaeology, Austin, TX (2011).

Professional Presentations (Non-Academic)

Co-Presenter, "New MDOT LAP Section 106 Review Process." Continuing Education session at the Michigan Department of Transportation – American Council of Engineering Companies Partnering Workshop, Lansing, MI (with Brian Grennell, Patty Jo Korzeniewski, Chris Owen, and Ryan Schumaker; 2023).

Public Education and Outreach:

*Rust Belt Archaeology: Urban Archaeology in Ohio. Invited Speaker at the Lakeside Chautauqua, Lakeside, OH (August 2023).

*Inscribing Inequality on the Urban Landscape: The Archaeology of Detroit's Paradise Valley. Featured speaker at Michigan Archaeology Day, Lansing (2022).

*Rust Belt Archaeology: Recent Urban Excavations in Toledo, Ohio. Invited Speaker for the annual Donald R. Laing, Jr. Lectureship of the Cleveland Chapter of the Archaeological Institute of America (October 2022).

- *Hidden Discoveries of the Fallen Timbers Battlefield. Invited Speaker at the 55th Annual Meeting of the Lucas County Soil & Water Conservation District, Waterville, OH (November 2019).
- *“Dance with me to the Paradise beat”: Archaeological Investigations in Detroit’s Paradise Valley. Presentation to the Detroit Chapter, Michigan Archaeological Society, Detroit, MI (March 2019).
- *The Ritter No. 1 Site (33HY0167): A Multi-Component Prehistoric Site in the Maumee River Valley in Henry County, Ohio. Presentation to the River Raisin Chapter, Michigan Archaeological Society, Monroe, MI (March 2019).
- *The Ritter No. 1 Site (33HY0167): A Multi-Component Prehistoric Site in the Mid-Maumee River Valley, Henry County, Ohio. Presentation to the Toledo Area Aboriginal Research Society, Toledo, OH (September 2018).
- *Tales from the Printer’s Privy: An Archaeological Biography from Detroit. Display prepared for Michigan Archaeology Day, Lansing (October 2017).
- *Sawing Logs and Saving Lives in the Upper Peninsula: An Archaeological Survey of Muskegon Lake State Park, Michigan. Presentation to the Toledo Area Aboriginal Research Society, Toledo, OH (May 2017).
- *Defiance and the Maumee Valley: Rivers of History. Presentation to the “Ecology and History of the Maumee Valley Watershed” class at Maumee Valley Country Day School, Toledo, OH (May 2017).
- *“You Will Do Better in Toledo”: Excavating the Glass City. Presentation to the Toledo Area Aboriginal Research Society, Toledo, OH (March 2017).
- *Urban Archaeology in the Glass City: Excavations in Toledo’s UpTown Neighborhood. Invited lecture for the University of Toledo Anthropological Society and the Black Swamp Chapter of the Archaeological Society of Ohio’s Four Fields Lecture Series, Toledo (March 2017).
- *Sawing Logs and Saving Lives: The Archaeology of Deer Park, Michigan. Display prepared for Michigan Archaeology Day, Lansing (October 2016).
- *Urban Archaeology in the Glass City. Display prepared for Ohio Archaeology Day, Columbus (October 2016).
- *The Archaeology of the Recent Past: Artifacts and Everyday Life in 20th Century Michigan. Display prepared for Michigan Archaeology Day, Lansing (October 2015).
- *“Dance with me to the Paradise beat”: The Archaeology of Detroit’s Paradise Valley. Presentation to the Toledo Area Aboriginal Research Society, Toledo, OH (September 2015).
- *Saving the Past, Promoting Progress: CRM Archaeology in Detroit. Display prepared for Michigan Archaeology Day, Lansing (with Kate J. Hayfield; October 2014).
- *Backyard Archaeology in Mt. Vernon: Excavations at the Cooper-Stamp-Day House. Presentation for the Public Library of Mt. Vernon and Knox County Brown Bag Lunch Series, Mt. Vernon, OH (October 2013).
- *The Archaeology of Nationalism: Ft. Miamis as a Case Study. Presentation to the Toledo Area Aboriginal Research Society, Toledo, OH (September 2013).
- *Current Approaches to Farmstead Archaeology in the Lower Great Lakes. Presentation to the Toledo Area Aboriginal Research Society, Toledo, OH (February 2013).

- *Class, Identity, and Material Culture in a Baltimore Textile Community, 1840-1930.
Presentation to the Toledo Area Aboriginal Research Society, Toledo, OH (November 2011).
- *Urban, Rural, WET! Results of a Recent Phase I Archaeological Survey in the Blanchard River Watershed, Hancock and Putnam Counties. Presentation to the Toledo Area Aboriginal Research Society, Toledo, OH, and the Blanchard River Archaeology Club, Findlay, OH (September and December 2010).
- *Interpreting the "Mildest Form of Slavery" in Western Maryland. Invited lecture at "Sifting Through Slavery: Archaeology and Interpretation of Agricultural and Industrial Slavery in the Mid-Atlantic," the 4th Annual Symposium on African-American History in the Mid-Atlantic, Towson, MD (March 2010).
- *Exploring Economic Change in a Deindustrialized Baltimore Neighborhood: The Hampden Community Archaeology Project. Presentation to the Toledo Area Aboriginal Research Society, Toledo, OH (February 2007).
- Hampden Dig Revisited. Presentation for Roland Park Place Lunch & Learn #19, Baltimore, MD (with David Gadsby; June 2006).
- The History of Hampden. Presentation for Roland Park Place Lunch & Learn #18, Baltimore, MD (with Jean Hare and David Gadsby; June 2005).
- *The Archaeological Heritage of Industry and Labor in the Northern Chesapeake. Presentation to the Northern Chesapeake Archeological Society, Bel Air, MD (April 2004).
- *The Archaeological Heritage of Industry and Labor in a Portion of Central Maryland. Presentation to the Monocacy Archaeological Society, Walkersville, MD (February 2004).
- *Ft. Miamis and Ft. Meigs: A Comparative Analysis of Two Artifactual Assemblages. Presentation to the Toledo Area Aboriginal Research Society, Maumee, OH (May 2002).
- *Grinding Groove Cave: Excavations at a Paleolithic Cave Shelter in Queensland, Australia. Presentation for the Public Library of Mt. Vernon and Knox County Brown Bag Lunch Series, Mt. Vernon, OH (July 2001).

5. TEACHING EXPERIENCE

Adjunct Instructor (Spring 2007-Summer 2010, Spring 2013-Spring 2023)
Department of Anthropology, Heidelberg University, Tiffin and Maumee, Ohio
Cultural Anthropology
Physical Anthropology

Adjunct Instructor (Fall 2013)
School of Criminal Justice and Social Sciences, Tiffin University, Tiffin, Ohio
Forensic Anthropology

Adjunct Faculty (Summer 2010 – Spring 2012)
Department of History, Siena Heights University, Adrian, Michigan
Museum Studies and Collections
The Cold War
Urban Influences in History
Labor History

War in History: The Spanish-American War

Adjunct Instructor (Fall 2009)

Science/Mathematics Division, Monroe County Community College, Monroe, Michigan
World Regional Geography (short-term substitute)

Adjunct Lecturer (Fall 2007)

Department of History and Philosophy, Eastern Michigan University, Ypsilanti
The United States, 1877 to the Present

Graduate Student Instructor (Winter 2007)

Department of Anthropology, University of Michigan, Ann Arbor
Frauds and Fantastic Claims in Archaeology

Graduate Student Instructor (Fall 2005-Winter 2006, Fall 2007)

Department of History, University of Michigan, Ann Arbor
The United States, 1865 to the Present
Religion in America
War and American Society in the 20th Century

Teaching Assistant (Fall 2002-Spring 2003)

Department of Anthropology, University of Maryland at College Park
Introduction to Archaeology

Awards and Recognition:

Graduate Teacher Certificate, Center for Research on Learning and Teaching, University of Michigan (2008)

Distinguished Teaching Assistant Award, Department of Anthropology, University of Maryland at College Park (2003)

6. FELLOWSHIPS, GRANTS AND AWARDS

Fellowships

- Rackham One-Term Dissertation Fellowship, University of Michigan (2009).
- Rackham Humanities Research Dissertation Fellowship, University of Michigan (2008-2009).

Grants

- Rackham Graduate Student Research Grant, University of Michigan. Awarded \$2,500 for dissertation research (2007).
- Sociological Initiatives Foundation Grant. Awarded \$15,000 for the Hampden Community Archaeology Project (2007).
- Arts of Citizenship Program Graduate Student Grant, University of Michigan. Awarded \$3,000 for the Hampden Community Archaeology Project (2005).

- Maryland Historical Trust IMPART Maryland Heritage Grant. Awarded \$2,500 for the project, "The Archaeological Heritage of Labor in Maryland" (2003).

Awards and Recognition

- Emerging Diversity Scholar Citation, National Center for Institutional Diversity, University of Michigan (2009).

7. PROFESSIONAL AND COMMUNITY SERVICE

Community Service

- **Member and Secretary**, Milan (Michigan) Public Library Board of Trustees (August 2012-present).
- **Secretary/Treasurer**, Milan (Michigan) Cub Scout Pack 491 (February 2017-present).
- **Treasurer**, Milan (Michigan) Boy Scout Troop 449 (October 2019-present).

University and Departmental Service:

- **Graduate Student Administrator**, Rackham Interdisciplinary Workshop Grant for "Trans/Formations of the Disciplines: Evaluating the Project of Anthropology and History." Doctoral Program in Anthropology and History, University of Michigan (2006-2008).
 - Responsibilities included maintaining the grant budget and working with event organizers to disburse funds; writing annual reports for the Rackham School of Graduate Studies; submitting annual renewal applications; and representing the Trans/Formations workshop at Rackham events.
- **Member, Arts of Citizenship Task Force**. University of Michigan (2006).
 - Attended meetings and contributed to formulating a revised mission and defining specific functions regarding graduate student involvement and project funding for the Arts of Citizenship program.

Professional Service:

- **Ad Hoc Committee on Federal Emergency Management Agency / Michigan State Historic Preservation Office Programmatic Agreement**. Conference on Michigan Archaeology (2023).
- **Trustee**. Conference on Michigan Archaeology (2022-present)
- **Awards Committee**. Conference on Michigan Archaeology (2021-present).
- **Grants Committee**. Ohio Archaeological Council (2021-2023).
- **Curation and Collections Committee**. Society for Historical Archaeology (2017-present).
- **Publications Committee**. Ohio Archaeological Council (2016-2018).
- **Committee on Continuing Professional Education**. Register of Professional Archaeologists (2013-2018).
- **Education Committee**. Ohio Archaeological Council (2013-2015; 2020-2021).
- **Professional Advisor**. Toledo Area Aboriginal Research Society (2010-2020).
- **Public Education and Interpretation Committee**. Society for Historical Archaeology (2009).

- **Committee on Labor Landmarks, Public History and Memory.** Labor and Working-Class History Association (2008-2009).
- **Peer Reviewer.** Multiple Academic Journals, including:
 - *Historical Archaeology*
 - *Journal of Field Archaeology*
 - *Southern Historian*
- **Peer Reviewer** for *Robert Poole, 1818-1903: Building Out America in the Golden Age of Iron* by Steven C. Swett, Bragg Hill Press, Hanover, NH (2018).

Editorial Activity:

- **Associate Editor,** *Journal of Ohio Archaeology* (2017-2018).
- **Contributing Book Review Editor** for the H-Urban Network, *H-Net: Humanities and Social Sciences Online* (2008-2013).
 - Responsible for assigning and editing book reviews in the fields of urban anthropology and archaeology and U.S. urban history.
- **Associate Editor/Senior Associate Editor** for Volumes 28-29, *Southern Historian* (2007-2008).
- **Copyeditor,** *Society for Industrial Archeology Newsletter* (2004-2008).

Current Professional Memberships and Affiliations:

- Center for Heritage Resource Studies, University of Maryland
- Conference on Michigan Archaeology
- Ohio Archaeological Council
- Register of Professional Archaeologists
- Society for Historical Archaeology

8. TRAINING AND CERTIFICATIONS

- Prequalified in Archaeology with the Indiana Department of Transportation, Michigan Department of Transportation, Ohio Department of Transportation, and West Virginia Department of Highways.
- Certificate of Completion, “Adult First Aid/CPR/AED,” American Red Cross Training Services (March 2021).
- Certificate of Completion, “GIS for Historical Archaeologists Workshop,” Society for Historical Archaeology (January 2019).
- Certificate of Completion, Ohio Department of Transportation Section 106 Training (September 2015).
- Certificate of Completion, Occupation Safety and Health Administration 40-hour Hazardous Materials Worksite Training (March 2014; 8-hour refresher course most recently completed May 2020).
- Certificate of Training, “Call Before You Dig: Ohio Utilities Protection Service,” Ohio Archaeological Council (May 2013).
- Certificate of Completion, Ohio Department of Transportation Section 4F/6F Training (April 2013).

Curriculum Vitae

Timothy J. Maze
(734) 775-8466
Timothy. J. Maze@gmail.com

EDUCATION

- 2024: M.S. Industrial Heritage and Archaeology, Michigan Technological University. Thesis: The Implications of Waste Streams at Camp Au Train. Advisor: LouAnn Wurst
- 2018: B.S. Anthropology, Eastern Michigan University.
- 2013-2018: Washtenaw Community College.

FIELD AND LAB EXPERIENCE

- 2024: **Field Director** for Chronicle Heritage. Dr. Emily Epstein (PI). Phase I Survey, Sterling Heights, MI. April
- 2023-2024: **Archaeological Lab Technician** for Mannik & Smith Group.
- 2023: **Field Archaeologist** for Mannik & Smith Group. Dr. Robert Chidester (PI). Phase I Survey. Grand Ledge, MI. August-September.
- 2023: **Field Archaeologist** for Mannik & Smith Group. Dr. Robert Chidester (PI). Phase I Survey. Bellevue, OH. July
- 2023: **Field Archaeologist** for Mannik & Smith Group. Dr. Robert Chidester (PI). Phase III; Hillside Stabilization, Irish Town Bend, Cleveland, OH. June-July.
- 2022-2023: **Oral History Interpreter** for Keweenaw Bay Indian Community, Keweenaw National Historical Park. Jo Holt, Carol MacLennan (Supervisors)
- 2022: **Field Archaeologist** for Gwynedd Archaeological Trust, Welsh Slate World Heritage Site, UNESCO. Bangor, U.K. Jane Kenney (PI). August
- 2019-2022: **Curation Assistant** for Hiawatha National Forest. Dr. LouAnn Wurst (Supervisor), Dr. Eric Drake (Supervisor). Houghton, MI.
- 2021: **Field Supervisor, Teaching Assistant** Hiawatha National Forest Passport In Time Program, MTU Archaeological Field School. Dr. LouAnn Wurst (PI), Dr. Eric Drake (NFS Supervisor). Au Train, MI.
- 2020-2021: **Field Supervisor** at Keweenaw National Historical Park, Copper Strike National Guard Encampment. Dr. LouAnn Wurst (PI), Jo Holt (Supervisor). National Park Service, Calumet, MI.
- 2021: **Lab Teaching Assistant** at Michigan Technological University. Houghton, MI. Dr. LouAnn Wurst (PI).
- 2020: **Field Archaeologist** for Mannik & Smith Group. Dr. Rober Chidester (PI). Phase I; reconnaissance and pedestrian survey. Pebble County, IN. August.

- 2020: **Cultural Resource Specialist** for American Conservation Experience internship through the Keweenaw National Historical Park. Jo Holt (Supervisor). Field survey and research report of narratives of indigenous copper mining in the Keweenaw Peninsula. Houghton, MI. June-September.
- 2020: **Field Archaeologist** for Mannik & Smith Group, Dr. Rober Chidester (PI). Phase 1; reconnaissance and pedestrian survey. Norwalk, OH. June.
- 2020: **Field Archaeologist** for Mannik & Smith Group, Dr. Rober Chidester (PI). Phase 1; reconnaissance and pedestrian survey. Bellevue, OH. January.
- 2019: **Crew Supervisor** for Hiawatha National Forest Passport In Time. LouAnn Wurst (PI). Phase 2 test excavations. August.
- 2019: **Field Archaeologist** for Mannik & Smith Group, Dr. Rober Chidester (PI). Phase 1; reconnaissance and pedestrian survey. Sandusky, OH. July
- 2019: **CRM-oriented volunteer Field Technician** for the Eastern Michigan University Archaeology Field School, Dr. Bradley E. Ensor (PI). Oakwoods Metropark, MI. Phase III excavations. June.
- 2019: **Field Archaeologist** for Mannik & Smith Group, Dr. Rober Chidester (PI). Phase 2; test excavations. Detroit, MI. April-July.
- 2018: **Field Archaeologist** for Mannik & Smith Group, Dr. Robert Chidester (PI). Phase I; reconnaissance and pedestrian survey. Ravenna, OH. October-November.
- 2018: **CRM-oriented volunteer Field Technician** for the Eastern Michigan University Archaeology Field School, Dr. Bradley E. Ensor (PI). Oakwoods Metropark, MI. Phase I; site survey. August.
- 2018: **CRM-oriented volunteer Field Technician** for the Eastern Michigan University Archaeology Field School, Dr. Bradley E. Ensor (PI). Oakwoods Metropark, MI. Phase III excavations. June.
- 2017: Volunteer lab work and analysis for the Castle Museum of Saginaw County History, Jeffrey Sommer (PI). Saginaw, MI. December.
- 2016: Artifact analysis and processing. Eastern Michigan University, Dr. Bradley Ensor (PI). Ypsilanti, MI. July.
- 2016: Advanced CRM-oriented field school. Eastern Michigan University Archaeology Field School, Dr. Bradley E. Ensor (PI). Willow and Oakwoods Metroparks, MI. Phase I, II, & III; reconnaissance and site survey, test unit excavations, and broad horizontal block excavations. June.
- 2014: Introductory CRM-oriented field school. Eastern Michigan University Archaeology Field School, Dr. Bradley E. Ensor (PI). Willow and Oakwoods Metroparks, MI. Phase I & II; reconnaissance and site survey, test unit excavations. June.

OTHER WORK EXPERIENCE

- 2019-2022: **Graduate Teaching Assistant/ Lecturer.** Michigan Technological University. Social Sciences Department.
- 2017-2023: **GSRP Teacher.** Dorothy's Discovery Daycare Center. 7265 Merritt Rd., Ypsilanti, MI 48197
- 2014-2021: **Assistant Site Coordinator.** Eastern Michigan University Bright Futures. 203 Boone Hall, Ypsilanti, MI 48197
- 2002-2012: **Peer Educator/ Assistant Substance Abuse Prevention Counselor.** Oakwood Taylor Teen Health Center. 26650 Eureka Rd. Taylor, MI 48180

AWARDS, GRANTS AND HONORS

- 2020: Travel Grant Award from the Michigan Technological University Graduate School Government. Society for Historical Archaeology Annual Conference, Boston, MA. Amount: \$150.00.
- 2020: Travel Grant Award from the Michigan Technological University Social Sciences department. Society for Industrial Archaeology Annual Conference, Bethlehem, PA. Amount: \$500.00

PUBLICATIONS

- 2024: *The Implications of Waste Streams Camp Au Train.* Graduate Thesis. Michigan Technological University
- 2023: *Penrhyn Quarry Railroad at Tyn Y Clwt.* Archaeological Report for the Gwynedd Archaeological Trust.
- 2024: (Pending) National Register of Historic Places nomination for Fiborn Quarry.
- 2020: *Echoes of Copper: Speaking Truth to The Power of Prehistoric Indigenous Copper Use on Lake Superior.* Research project for the Keweenaw National Park Service ACE internship. USNPS.

PRESENTATIONS AND INVITED LECTURES

- 2022: *Scalar Sustainability in UNESCO's Industrial Heritage*. Collaborative Research Project presented at The International Committee for the Conservation of Industrial Heritage (TICCIH). Montreal, Quebec. September.
- 2020: *Implications of Waste Streams at Camp Au Train*. Master's Thesis methodology project. Presented at the Students of Upper Michigan Anthropology Conference (SUMAC). Virtual conference due to Covid-19. April
- 2018: *Ceramics as Commodities: Market Access in Rural Southeastern Michigan*. Independent research and analysis project presented at Undergraduate Symposium 38 at Eastern Michigan University. Ypsilanti, MI. March.

REFERENCES

Dr. Robert Chidester
Principal Investigator at Mannik and Smith
rchidester@manniksmithgroup.com

Dr. Bradley E. Ensor
Professor of Anthropology at Eastern Michigan University
(734) 487-0012
bensor@emich.edu

Jo Urion Holt
Historian, Keweenaw National Historical Park
(906) 483-3038
jo_holt@nps.gov

Lynn Malinoff
Director of Eastern Michigan University Bright Futures
(734) 487-0372
lmalinoff@emich.edu

Dr. LouAnn Wurst
Professor of Industrial Heritage and Archaeology
Michigan Technological University
Lawurst@mtu.edu

From: [Stafford, Susan \(FAA\)](#)
To: [Alberts, David](#)
Subject: [External] FW: Manassas Regional Airport Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2025-3557) | e-Mail #03357
Date: Wednesday, April 16, 2025 8:20:41 AM

External Sender: Please use caution with links and attachments.

Dave,

Please see the DHR response below regarding the HEF ATCT Replacement project.

Thank you,

Susan B. Stafford
Beckley Airports Field Office
176 Airport Circle, Rm 101
Beaver, WV 25813
609-916-5793

From: Adrienne Birge-wilson <Adrienne.Birge-Wilson@dhr.virginia.gov>
Sent: Wednesday, April 16, 2025 8:09 AM
To: Stafford, Susan (FAA) <Susan.Stafford@faa.gov>
Subject: Manassas Regional Airport Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2025-3557) | e-Mail #03357

CAUTION: This email originated from outside of the Federal Aviation Administration (FAA). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Dear Susan Stafford,

Thank you for requesting comments from the Department of Historic Resources (DHR) on the referenced project. Based upon the documentation provided, it is our opinion that the historic properties within the Area of Potential Effects will not be adversely affected by the proposed undertaking.

The investigations and report generally meet applicable standards and guidelines and DHR accepts the report as a reasonable and good faith effort to identify historic properties. The Phase I archaeological survey of the 2.4 acres of the project Area of Potential Effects (APE) (dated October 2024) did not identify any archaeological sites; the remainder of the APE was surveyed in 2017 under DHR File No. 2017-0348) and no sites were identified during that investigation. The consultant recommends no further archaeological investigations for this undertaking and DHR concurs with this recommendation.

Implementation of the undertaking in accordance with the finding of *No Adverse Effect* as documented fulfills the Federal agency's responsibilities under Section 106 of the National Historic Preservation Act. If the scope of the undertaking changes or if the undertaking cannot be completed as proposed in the application submitted and reviewed by DHR, please contact our office for guidance on reinitiating consultation under Section 106.

If you have any questions or require any further assistance, please contact me.

Sincerely,

Adrienne Birge-Wilson, Architectural Historian
Department of Historic Resources
Review and Compliance Division
Phone: (804) 482-6092
Adrienne.Birge-Wilson@dhr.virginia.gov

Project Review Application Form

This application must be completed for all projects that will be federally funded, licensed, or permitted, or that are subject to state review. Please allow 30 days from receipt for the review of a project. All information must be completed before review of a project can begin and incomplete forms will be returned for completion.

I. GENERAL PROJECT INFORMATION

1. Has this project been previously reviewed by DHR? YES NO DHR File # 2024-3226
2. Project Name Environmental Assessment for a Replacement Air Traffic Control Tower (ATCT)
3. Project Location Manassas Prince William
City Town County
4. Specify Federal and State agencies involved in project (providing funding, assistance, license or permit). Refer to the list of agencies and abbreviations in the instructions.

Lead Federal Agency Federal Aviation Administration

Other Federal Agency _____

State Agency _____

5. Lead Agency Contact Information

Contact Person Susan Stafford

Mailing Address FAA Beckley Airports Office 176 Airport Circle, Room 101, Beaver, WV 25813

Phone Number 304-252-6216 Fax Number 304-253-8028

Email Address susan.stafford@faa.gov

6. Applicant Contact Information

Contact Person Juan Rivera, C.M., ACE, Airport Director

Mailing Address 10600 Harry J Parrish Blvd, Manassas, VA 20110

Phone Number 703-361-1882 Fax Number _____

Email Address jrivera@manasssva.gov

II. PROJECT LOCATION AND DESCRIPTION

7. USGS Quadrangle Name Nokesville
8. Number of acres included in the project 0.3-acre

MAIL COMPLETED FORM AND ATTACHMENTS TO:
Virginia Department of Historic Resources
Attention: Project Review
2801 Kensington Avenue, Richmond, VA 23221
www.dhr.virginia.gov

9. Have any architectural or archaeological surveys of the area been conducted? YES X
NO

If yes, list author, title, and date of report here. Indicate if a copy is on file at DHR.

See previous submittal

10. Are any structures 50 years old or older within or adjacent to the project area? YES
NO X

If yes, give date(s) of construction and provide photographs.

11. Does the project involve the rehabilitation, alteration, removal, or demolition of any structure, building, designed site (e.g. park, cemetery), or district that is 50 years or older? If yes, this must be explained fully in the project description. YES
NO X

12. Does the project involve any ground disturbance (e.g. excavating for footings, installing sewer or water lines or utilities, grading roads, etc.)? If yes, this must be explained fully in the project description. YES X
NO

13. DESCRIPTION: Attach a complete description of the project. Refer to the instructions for the required information. See FAA to VDHR letter, attached

To the best of my knowledge, I have accurately described the proposed project and its likely impacts.

Signature of Applicant/Agent

Date

The following information must be attached to this form:

- X* Completed DHR Archives search *(see previous submittal)
- X USGS map with APE shown
- X Complete project description
- X Any required photographs and plans

<p><u> </u> No historic properties affected <u> </u> No adverse effect</p> <p><u> </u> Additional information is needed in order to complete our review.</p> <p><u> </u> We have previously reviewed this project. A copy of our correspondence is attached.</p> <p>Comments: _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>Signature _____ Date _____</p> <p>Phone number _____ DHR File # _____</p> <p><i>This Space For Department Of Historic Resources Use Only</i></p>
--

MAIL COMPLETED FORM AND ATTACHMENTS TO:
Virginia Department of Historic Resources
Attention: Project Review
2801 Kensington Avenue, Richmond, VA 23221
www.dhr.virginia.gov



**U.S. Department
of Transportation**

Federal Aviation
Administration

Beckley Airports Field Office

176 Airport Circle, Room 101
Beaver, West Virginia 25813
Telephone: (609) 916-5790

January 08, 2026

Adrienne Birge-Wilson
Division of Review and Compliance
Virginia Department of Historic Resources
2801 Kensington Avenue
Richmond, VA 23221

RE: Section 106 Coordination and FAA Determination: Environmental Assessment for a Replacement Air Traffic Control Tower (ATCT), Manassas Regional Airport, Manassas, VA
DHR File No. 2024-3226

Dear Ms. Birge Wilson,

On April 16, 2025, the Virginia Department of Historic Resources (VDHR) submitted an email to the Federal Aviation Administration (FAA) regarding the Manassas Regional Airport Environmental Assessment (EA) for a Replacement ATCT (i.e., Undertaking).¹ The letter described a finding of No Adverse Effect for the proposed replacement ATCT.

Since that correspondence, the scope of the Proposed Undertaking has changed. The FAA Remote Transmitter/Receiver (RTR) that was initially to be atop the proposed replacement ATCT is now planned to be located on the ground within the Airport's property. **Attachment 1** shows an example of an FAA RTR facility, with towers approximately 70 feet tall. **Attachment 2** shows the location of the Proposed RTR towers (small yellow squares; approximately 9 feet x 9 feet) and an electrical support building (yellow rectangle; approximately 12 feet x 36 feet) on the north side of the Airport property.

FAA RTR Tower Direct APE

The Proposed RTR Tower site constitutes a 0.3-acre area located on Airport property, north of Runway 16R/34L and the existing access road and south of Observation Road (see **Attachment 3**). Fill material was used in the APE during the Airport's initial construction in the mid-1960s. This area was then graded during the construction of Observation Road in the mid-1980s and the north interior airport access road in 2008-2010, which included stormwater ditches and fencing.

Potential Direct Effects

The FAA RTR Tower 0.3-acre Direct APE, where the RTR Tower's and support building will result in direct impacts include soil and terrain that have been substantially disturbed by the construction of the Airport, Observation Road (a public road), the north interior airport access road, and the

¹ Manassas Regional Airport Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2025-3557) | e-Mail #03357

stormwater conveyance network. During the construction of the north interior airport access road, completed in 2010, fill material for the roads was graded and leveled. A large man-made drainage feature runs northeast-southwest through the direct APE. Existing elevations and surface conditions, as well as historical aerial photographs, indicate that this area was disturbed during construction before 1977.

The most recent archaeological survey adjacent to the FAA RTR Tower APE was the 2013 William and Mary Center for Archaeological Research (WMCAR) survey for the proposed Virginia Rail Express Broad Run Parking Expansion (Higgins and Hanbury 2013). This survey examined approximately 4 acres of the larger 13-acre APE, most of which was covered by existing paving. The survey included both subsurface testing and a metal detector survey. WMCAR identified four archaeological locations, no archaeological sites, and extensive disturbance of the survey area associated with the 1991 construction of the existing facilities. No further archaeological study was recommended.

The nearby Manassas Battlefield Park is already a significant archaeological site, but its boundaries do not include surrounding sites that may have directly or indirectly contributed to the battle itself, or the events that occurred before and after (Galke 2009; Martin et al. 1997). Despite the direct APE's proximity to the Bristoe Station Battlefield and associated resources, there is no specific evidence of military activity within the APE during the Civil War.

Archival research indicates that extensive previous archaeological testing had been conducted within the Airport and that it was determined to be free of potentially eligible archaeological resources. Additional areas were exempted from testing based on the sequence of historic aerial photographs of the area, available for review online or through the USGS, or on surface evidence of soil disturbance.

Alternative RTR Locations

Alternative RTR site locations were identified based on the following criteria for the current EA:

- Geographic: The site must be limited to existing Airport property.
- Line of Sight: Each potential location must ensure an unobstructed line of sight to the proposed replacement ATCT site.

Using this criterion, the Proposed Action RTR site and five alternative RTR sites (Sites 1-5) were identified and included in the EA (see ***Attachment 4***).

Alternative RTR Evaluation Criteria

The following evaluation criteria were applied to each proposed site selection evaluation criteria:

- Safety: The site must be safely situated away from aircraft operations; specifically, it must be located beyond potential jet engine blast areas.
- Compliance with ALP and Future Growth: The site must align with the current Airport Layout Plan (ALP) (i.e., not located in Federal Aviation Regulation Part 77 imaginary surfaces) and must not impede or restrict planned future airport development.
- Avoids 100-year Floodplain: The site must avoid development within the 100-year floodplain to comply with environmental regulations (i.e., Executive Order 11988, Floodplain Management).

Proposed Action (Proposed Undertaking)– The Proposed RTR site location meets all site selection criteria, including a clear line of sight to the proposed replacement ATCT, is fully compatible with the ALP, and avoids the 100-year floodplain. From a safety perspective, the site is appropriately situated away from jet blast.

Site 1 - Site 1 avoids the 100-year floodplain. However, it presents operational and long-term challenges: it is incompatible with the ALP because it restricts future development, and it poses safety risks from jet-engine blast. Compared to the Proposed Action, Site 1 was not considered further.

Site 2 - Site 2 is compatible with future development, as shown on the ALP. Additionally, the location is not near a jet engine blast area. However, Site 2 does not avoid the 100-year floodplain. Compared to the Proposed Action, Site 2 was not considered further.

Site 3 - While Site 3 is favorable by providing ALP compliance and jet blast avoidance, it does not avoid the 100-year floodplain. Compared to the Proposed Action, Site 3 was not considered further.

Site 4 - While Site 4 presents a conflict with long-term planning. The location successfully avoids 100-year floodplain effects; however, it is ultimately incompatible with future development on the ALP and is near a jet-engine blast area. Compared to the Proposed Action, Site 4 was not considered further.

Site 5 - Although Site 5 avoids the 100-year floodplain, it presents safety and planning concerns. The location is not safely situated for aircraft operations due to jet blast generated by aircraft turning north and south from Taxilanes C and D. Furthermore, Site 5 is incompatible with the ALP because its placement could restrict future airport development. Compared to the Proposed Action, Site 5 was not considered further.

Indirect APE (Visual, Atmospheric, and Auditory Effects)

A preliminary viewshed analysis using Google Earth was conducted to evaluate the potential visibility of the Proposed Undertaking RTR site from surrounding areas. As shown in **Attachment 5**, the green-shaded area is where the Proposed Action's RTR could be visible.

A refined visual effects analysis was then conducted to improve accuracy and to provide a secondary visual effects analysis. A 3D scene was set up with LiDAR data, terrain, matched cameras, and the previous model set up in 3Ds Max software. The RTR's dimensions (footprint and height) were used to determine whether it would be visible from the previously rendered views/locations (see **Attachment 6**). Due to the small scale of the RTR Tower, the terrain, and the height of trees in view, the Proposed Action RTR Tower Location would not be visible from Views 1-4.

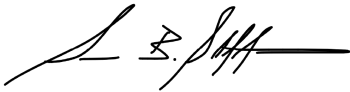
- View 1 – Bristoe Station Battlefield
- View 2 – Bristow Rd / Meadow Ln
- View 3 – Split Oak Ln
- View 4 – Bristow Rd / Centerville Sod

FAA Determination

Based on the results of the visual effects analysis, in accordance with 36 CFR 800.4(d)(1), it is the FAA's determination that no historic properties will be affected by the proposed RTR relocation.

The FAA respectfully requests your staff's review of this letter, Attachments 1 – 5, and concurrence with the FAA's determination. If you have any questions or need additional information regarding the Proposed Undertaking, please do not hesitate to contact me at susan.stafford@faa.gov or (609) 916-5793.

Sincerely,

A handwritten signature in black ink, appearing to read 'S. Stafford', with a horizontal line extending to the right.

Susan Stafford
Environmental Protection Specialist
Beckley Airports Field Office

Attachments

cc:

Juan Rivera, Manassas Regional Airport
Jolene Berry, Manassas Regional Airport
David Alberts, RS&H, Inc.

Attachment 1: Example FAA RTR Towers



Attachment 2: Proposed Action with FAA RTR Tower Location

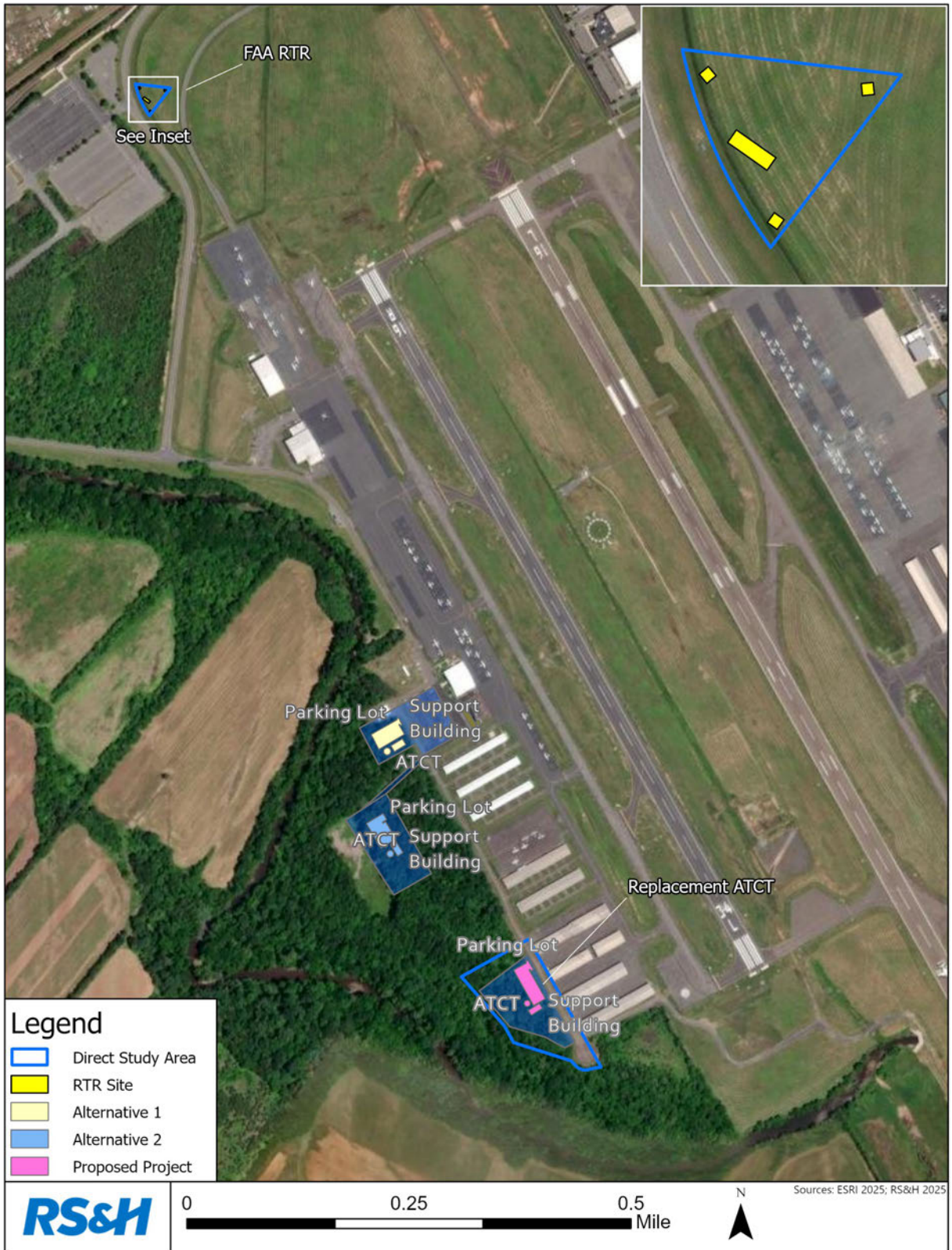
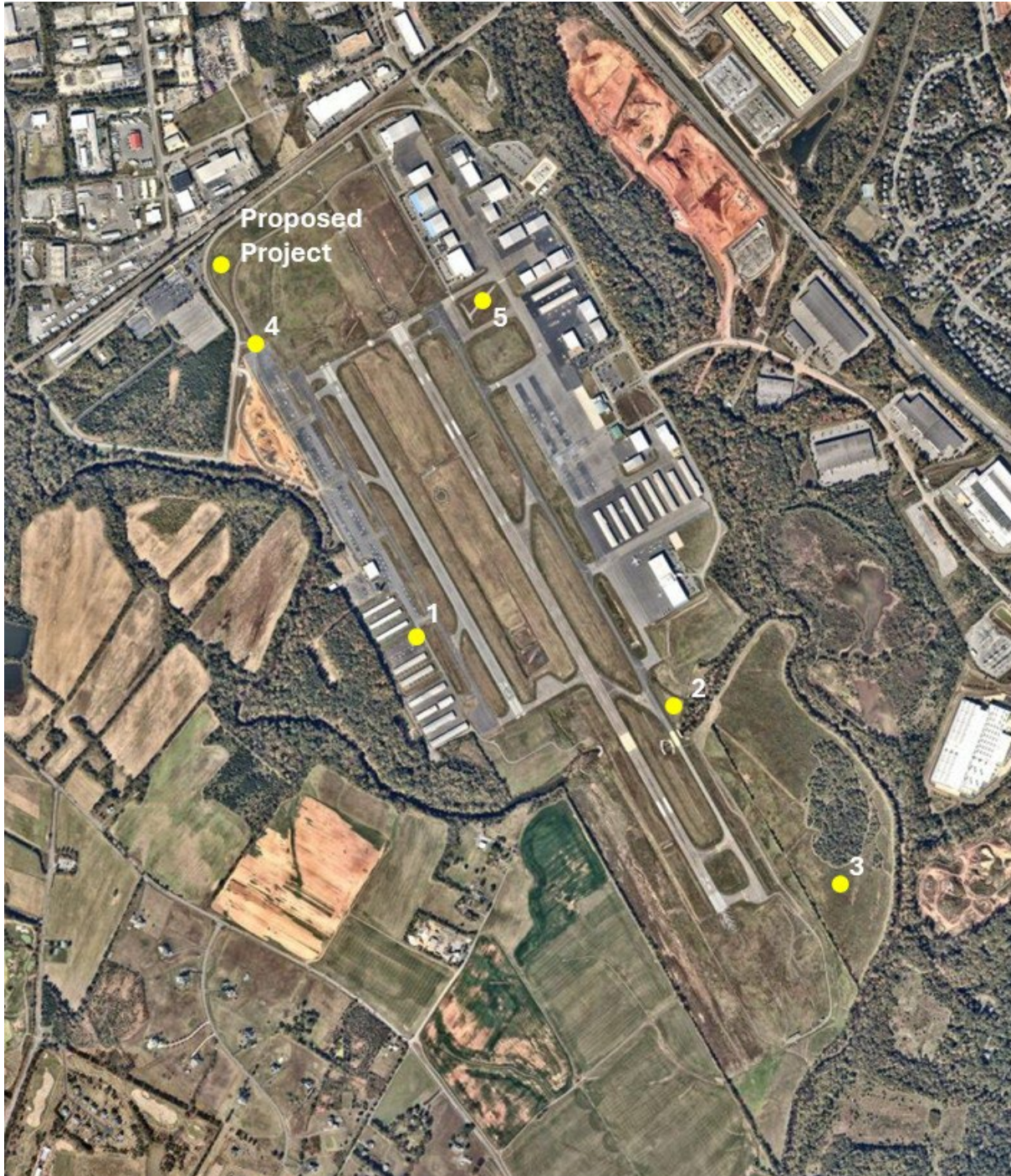


Figure 3: FAA RTR Tower APE Located on a USGS Map (7.5' Nokesville, VA, July 2024)



Proposed Action's FAA RTR Tower APE is shown as a blue triangle.

Attachment 4: Proposed Action RTR and Alternative RTR Locations



The yellow dot shows the proposed RTR tower alternative locations.

Attachment 6: Proposed Action's RTR Tower Viewshed Analysis with LiDAR Data



Not visible from Views 1-4:

- View 1 – Bristoe Station Battlefield
- View 2 – Bristow Rd / Meadow Ln
- View 3 – Split Oak Ln
- View 4 – Bristow Rd / Centerville Sod



[External] FW: Manassas Regional Airport (HEF) Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2024-3226) | e-Mail #03364

From Stafford, Susan (FAA) <Susan.Stafford@faa.gov>

Date Fri 1/30/2026 10:23 AM

To Alberts, David <David.Alberts@rsandh.com>

External Sender: Please use caution with links and attachments.

Dave,

Below is the response from VDHR for the HEF ATCT RTR Relocation.

Thank you,

Susan B. Stafford
Beckley Airports Field Office
176 Airport Circle, Rm 101
Beaver, WV 25813
609-916-5793

From: Adrienne Birge-wilson <Adrienne.Birge-Wilson@dhr.virginia.gov>

Sent: Friday, January 30, 2026 10:00 AM

To: Stafford, Susan (FAA) <Susan.Stafford@faa.gov>

Subject: Manassas Regional Airport (HEF) Replacement Air Traffic Control Tower (ATCT) (DHR File No. 2024-3226) | e-Mail #03364

CAUTION: This email originated from outside of the Federal Aviation Administration (FAA). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Susan

Thank you for requesting comments from the Department of Historic Resources (DHR) on the referenced project. Based upon the documentation provided, it is our opinion that no historic properties will be affected by the proposed undertaking.

Implementation of the undertaking in accordance with the finding of *No Historic Properties Affected* as documented fulfills the Federal agency's responsibilities under Section 106 of the National Historic Preservation Act. If the scope of the undertaking changes or if the undertaking cannot be completed as proposed in the application submitted and reviewed by DHR, please contact our office for guidance on reinitiating consultation under Section 106.

If you have any questions or require any further assistance at this time, please contact me.

Sincerely,

Adrienne Birge-Wilson, Architectural Historian
Department of Historic Resources

Review and Compliance Division

Phone: (804) 482-6092

Adrienne.Birge-Wilson@dhr.virginia.gov



APPENDIX E
VISUAL EFFECTS STUDY



Visual Effects Study
for the
Proposed Replacement Air Traffic Control
Tower (ATCT)
at
Manassas Regional Airport

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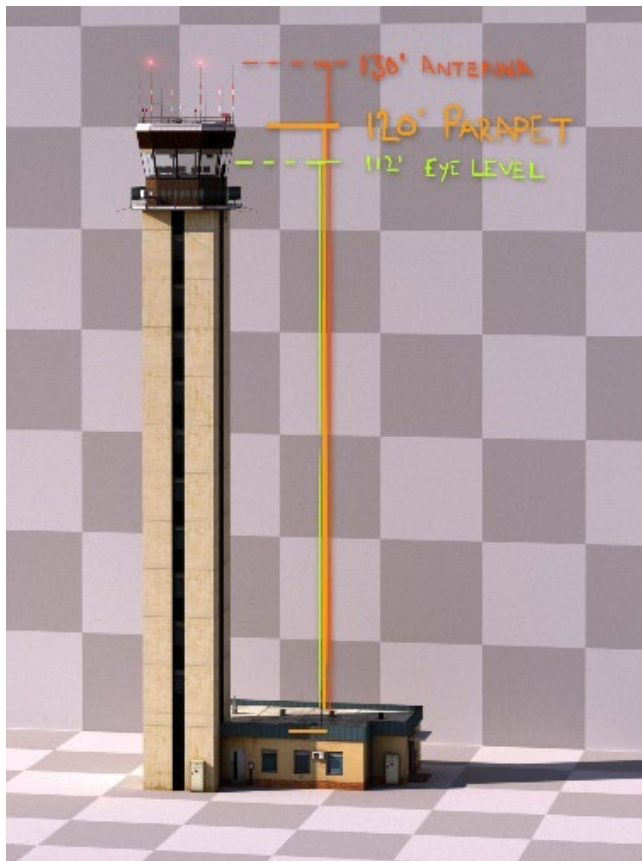
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1 Introduction

Visual simulations were conducted for the Manassas Regional Airport Replacement Air Traffic Control Tower (ATCT) Environmental Assessment. Daytime and nighttime ATCT photo simulations were developed west of the Airport, looking at the project from multiple locations. Viewpoints, primarily along Bristow Road, were coordinated with the RS&H Visualization team, Airport management, and the Federal Aviation Administration (FAA). For this visual effects study, a proposed replacement ATCT is shown in **Figure 1**.

Figure 1: Conceptual Replacement ATCT



Source: RS&H, 2024

This report describes the following:

- FAA Visual Effects Significance Threshold,
- Viewpoint Locations,
- Creating an Accurate Visual Representation Process, and
- Simulations.

2 FAA Visual Effects Significance Threshold

According to the FAA Order 1050.1F, Desk Reference, “visual effects deal broadly with the extent to which the proposed action or alternative(s) would either: 1) produce light emissions that create annoyance or interfere with activities; or 2) contrast with, or detract from, the visual resources and/or the visual character of the existing environment. Visual effects can be difficult to define and assess because they involve subjectivity.”

As described in FAA Order 1050.1F, Desk Reference, Section 13.3.3, The FAA has not established a significance threshold for visual effects in FAA Order 1050.1F; however, the FAA has identified factors to consider when evaluating the context and intensity of potential environmental impacts for visual effects include, but are not limited to.

- Light Emission Effects
 - The degree to which the action would have the potential to create annoyance or interfere with normal activities from light emissions; and
 - The degree to which the action would have the potential to affect the visual character of the area due to the light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resources.
- Visual Resources and Visual Character Effects
 - The degree to which the action would have the potential to affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources;
 - The degree to which the action would have the potential to contrast with the visual resources and/or visual character in the study area; and
 - The degree to which the action would have the potential to block or obstruct the views of visual resources, including whether these resources would still be viewable from other locations.

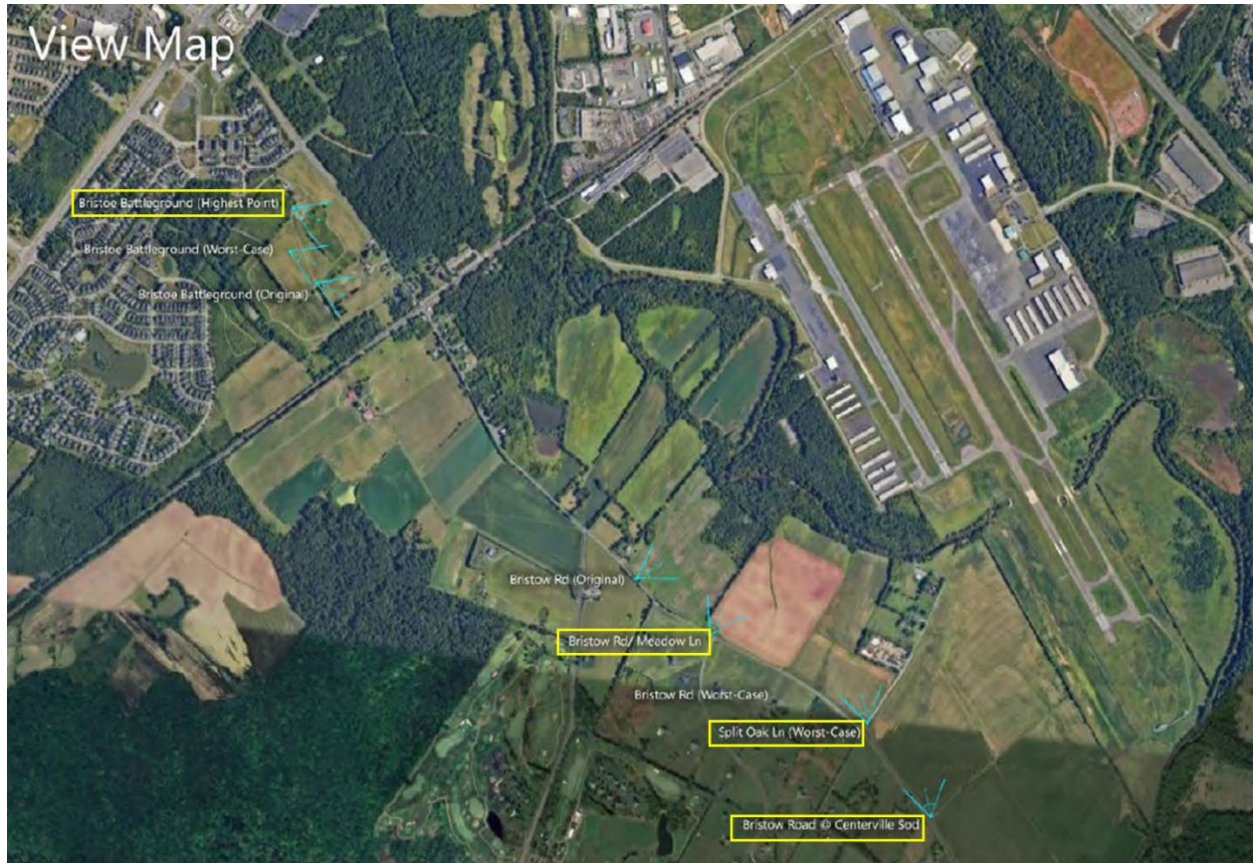
3 Viewpoint Locations

Multiple viewpoint locations were proposed early in the development of this study and coordinated among the RS&H Visualization team, Airport management, and the FAA.

Preliminary viewpoint locations are shown in **Figure 2** and labeled:

- Bristoe Station Battlefield Heritage Park (original)
- Bristoe Station Battlefield Heritage Park (worst-case)
- Bristoe Station Battlefield Heritage Park (highest point)
- Bristow Rd (original)
- Bristow Road (worst-case)
- Bristow Road/Meadow Lane
- Split Oak Lane (worst-case)
- Bristow Road/Centerville Sod

Figure 2: Preliminary Viewshed Locations and Selected Locations (yellow polygons)



Source: Google Earth, RS&H, 2024.

The RS&H Visualization team then acquired and overlaid 2012 LiDAR data (the most recent available) onto a Google Earth aerial photo. **Figure 3** shows the aerial photo west of the Airport with a green overlay representing where the expected visibility of the proposed replacement ATCT could occur from the ground.

RS&H coordinated the preliminary viewpoints with the FAA regarding the ground-level camera position. Based on their national experience, the FAA recommended approximately 20 feet from ground level to capture views from a maximum pedestrian visibility height on a second floor of a residential home to showcase the potential visual effect of the proposed 120-foot tower on the surrounding areas.

The preliminary view locations were then refined to be located within the green overlay area at an elevation of 20 feet, resulting in the best visibility (i.e., worst-case) views. Therefore, the following four locations were selected for the visual effects analysis of the proposed replacement ATCT (see **Figure 2**):

1. Bristoe Station Battlefield Heritage Park (highest point)
2. Bristow Rd/Meadow Lane
3. Split Oak Lane (worst case)
4. Bristow Road/Centerville Sod

Figure 3: Potential Areas Where the Replacement ATCT Could Be Seen from the Ground Level (Green)



Source: Google Earth Viewsheds, 2024.

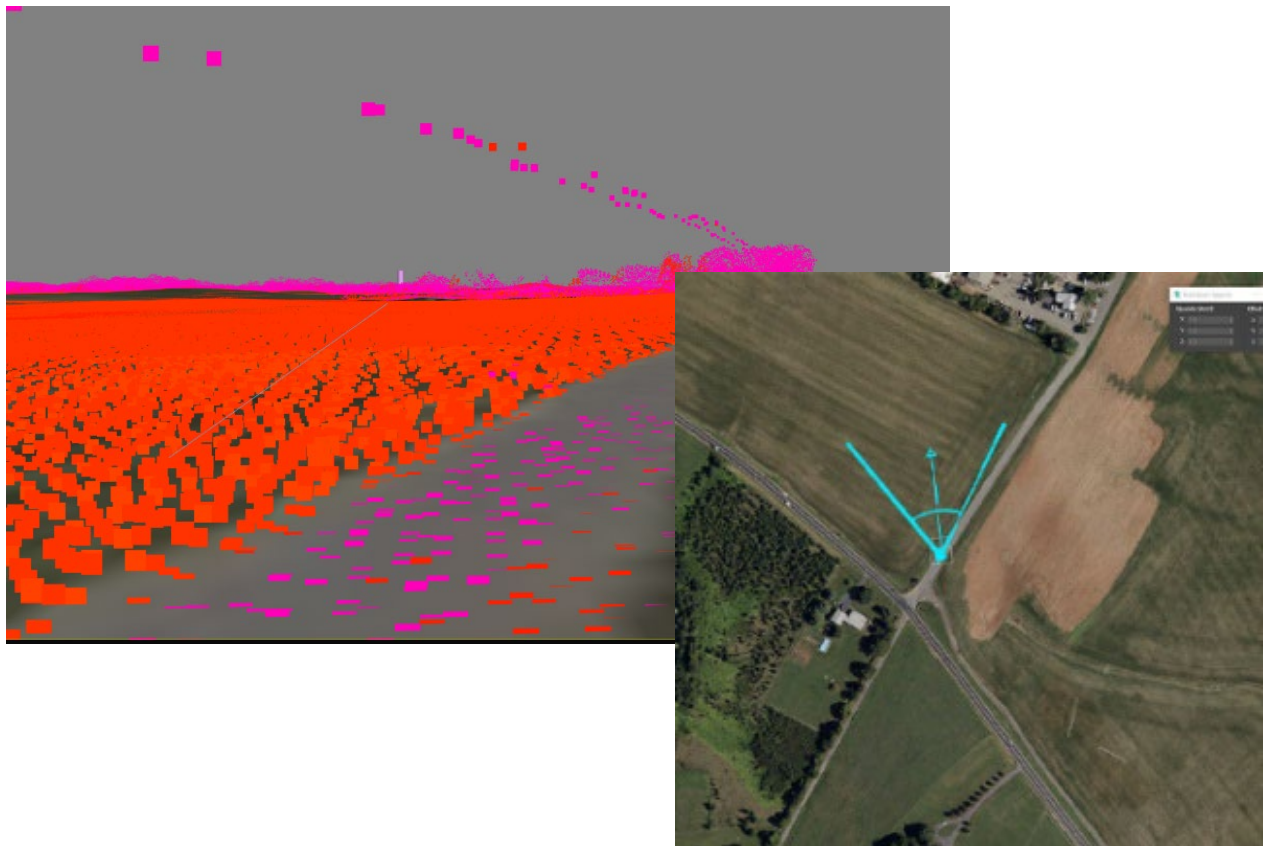
4 Creating an Accurate Visual Representation Process

Creating a Photo Simulation using 3D models and accurate lighting Data can be broken down into several stages, as described below.

4.1 Photo Locations Through Previz Software

Upon receiving initial information regarding potential camera locations and proposed design sites, the RS&H Visualization team first delivered Pre-Visualization drafts to preview visuals from each view. To achieve this, aerial data is obtained and imported into 3DS Max to create an accurate visual representation of the views. This involves configuring accurate camera settings and positions to mirror those of a real physical camera and ensuring the camera is at the desired height for capture. **Figure 4** shows LiDAR data¹ from a selected view location.

Figure 4: Example of LiDAR Data from a Selected View Location



Source: RS&H, 2024

¹ Light Detection and Ranging (LiDAR) is a remote sensing method that uses light as a pulsed laser to measure ranges (variable distances) to the Earth.

4.2 Photography

The RS&H Visualization team captured views from the viewpoint locations (see **Section 3**) during winter months (Feb 2024) to maximize visibility and show the worst-case visual effects the proposed replacement ATCT could have on the surrounding area, both during the day and at night. The approach involved capturing two images for each view: one during daylight hours and another after nightfall at each location. This allowed the RS&H Visualization team to visualize the potential environmental impact of the proposed replacement ATCT at night with existing area lighting.

Figure 5 shows the camera position at approximately twenty feet from ground level to capture views that simulate the view of local residents from a second-floor window, where the view location was adjacent to a residential area.

Figure 5: Daytime and Nighttime Photos at a Selected View Location



Source: RS&H, 2024.

4.3 3DS Max to align photo with Lidar (Camera Match)

The RS&H Visualization team used LiDAR data to accurately geo-locate the virtual camera in 3D space relative to the Proposed Project's location (see **Figure 6**).

Figure 6: RS&H Viewpoint Location Photo with LiDAR Data Overlay (Day and Night)



Source: RS&H, 2024.

4.4 3D Tower Model

A 3D model of a proposed replacement ATCT (see **Figure 1**) is positioned on a 2D Plan of the project, which is Geo-located relative to other references used to Verify 3D Camera Positions (i.e., LiDAR data). The proposed replacement ATCT is modeled at 120 feet above ground level to the parapet (see **Figure 7**).

Figure 7: Replacement ATCT Shown at a Selected View Location

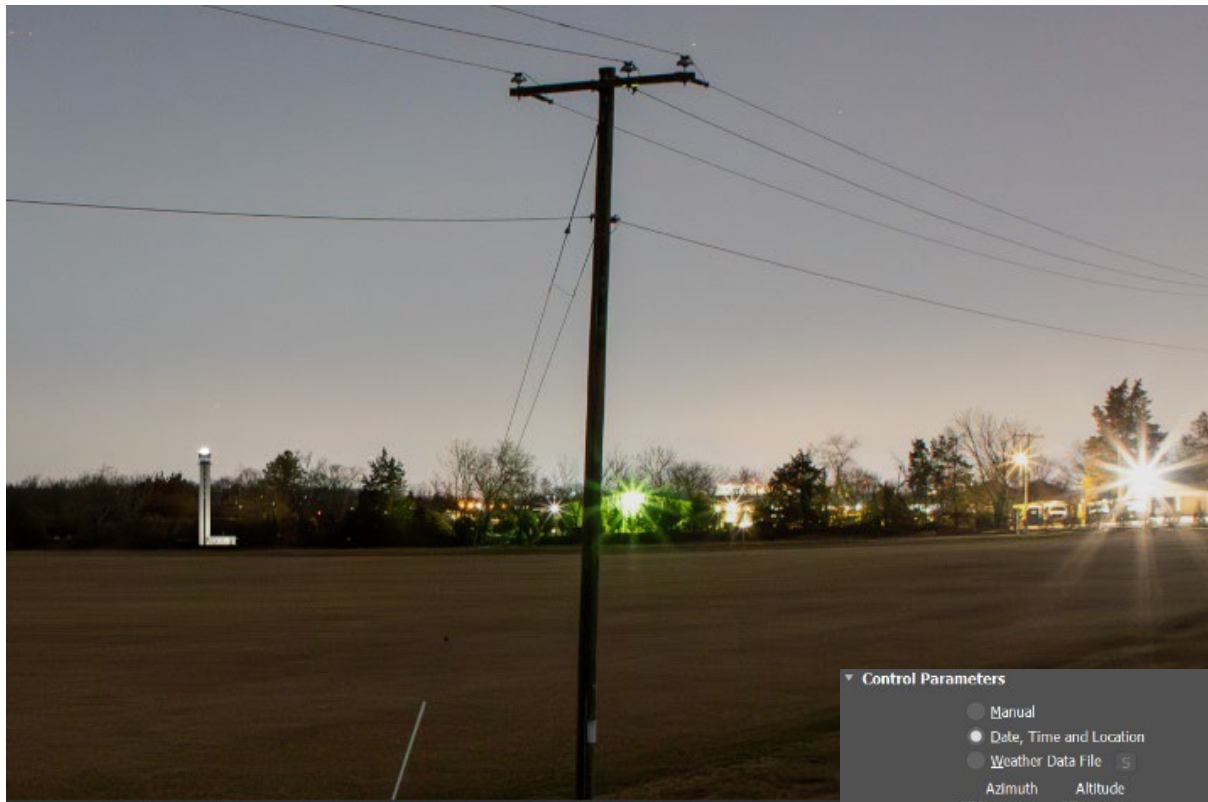


Source: RS&H, 2024.

4.5 Lighting

The RS&H Visualization team utilized accurate sun-sky simulations to match the lighting conditions for the time of day and date the photograph was taken. In addition, for the Nighttime Views, real-world lighting units were used to simulate artificial lighting on the proposed replacement ATCT. While this can be a little more challenging for night views, the team evaluated the surrounding lights in the photo and inferred the appropriate light intensity based on the size of the light, distance from the camera, and other visible light sources in the photo, to emulate light spill from the surrounding area to produce a visual representation with a reasonable level of accuracy (see **Figure 8**).

Figure 8: Sun-Sky Simulations Example



Source: RS&H, 2024

4.6 Postproduction

After rendering the views with V-Ray, the team utilized Photoshop to integrate the 3D render into the original photo. Masking is applied to remove any features (e.g., ATCT support building) not seen from the viewpoint location (see **Figure 9**).

Figure 9: 3D Render of Original Photo



Source: RS&H, 2024.

5 Simulations

The RS&H Visualization team repeated the accurate visual representation process for the four selected viewpoint locations. As shown in **Figure 10**, the Bristow Road / Meadow Lane viewpoint location during the daytime No Action and with the Proposed Project.

Figure 10: Bristow Road / Meadow Lane Visualization Simulation

No Action (Existing)



Proposed Project



Source: RS&H, 2024

Appendix A includes daytime and nighttime visual representations for the analyzed four viewpoint locations.

6 Conclusion

As a result of the visual simulations, the Manassas Regional Airport's proposed replacement ATCT would result in light emission effects to the degree to which the action would not:

- have the potential to create annoyance or interfere with normal activities from light emissions; or
- have the potential to affect the visual character of the area due to the light emissions, including the importance, uniqueness, and aesthetic value of the affected visual resources.

The proposed replacement ATCT would be designed to minimize light emissions to not cause annoyance or disrupt normal activities in the surrounding area. Additionally, the ATCT's lighting system would not compromise the character of the Bristoe Station Battlefield Heritage Park. The park's value and aesthetic appeal would not significantly be affected by the proposed replacement ATCT's light emissions.

The Manassas Airport's proposed replacement ATCT would result in visual resources and visual character effects to:

- change the viewshed but not affect the nature of the visual character of the area, including the importance, uniqueness, and aesthetic value of the affected visual resources.
- a degree of contrast with the visual resources and/or visual character of areas west of the Airport.
- not block or obstruct the views of visual resources.

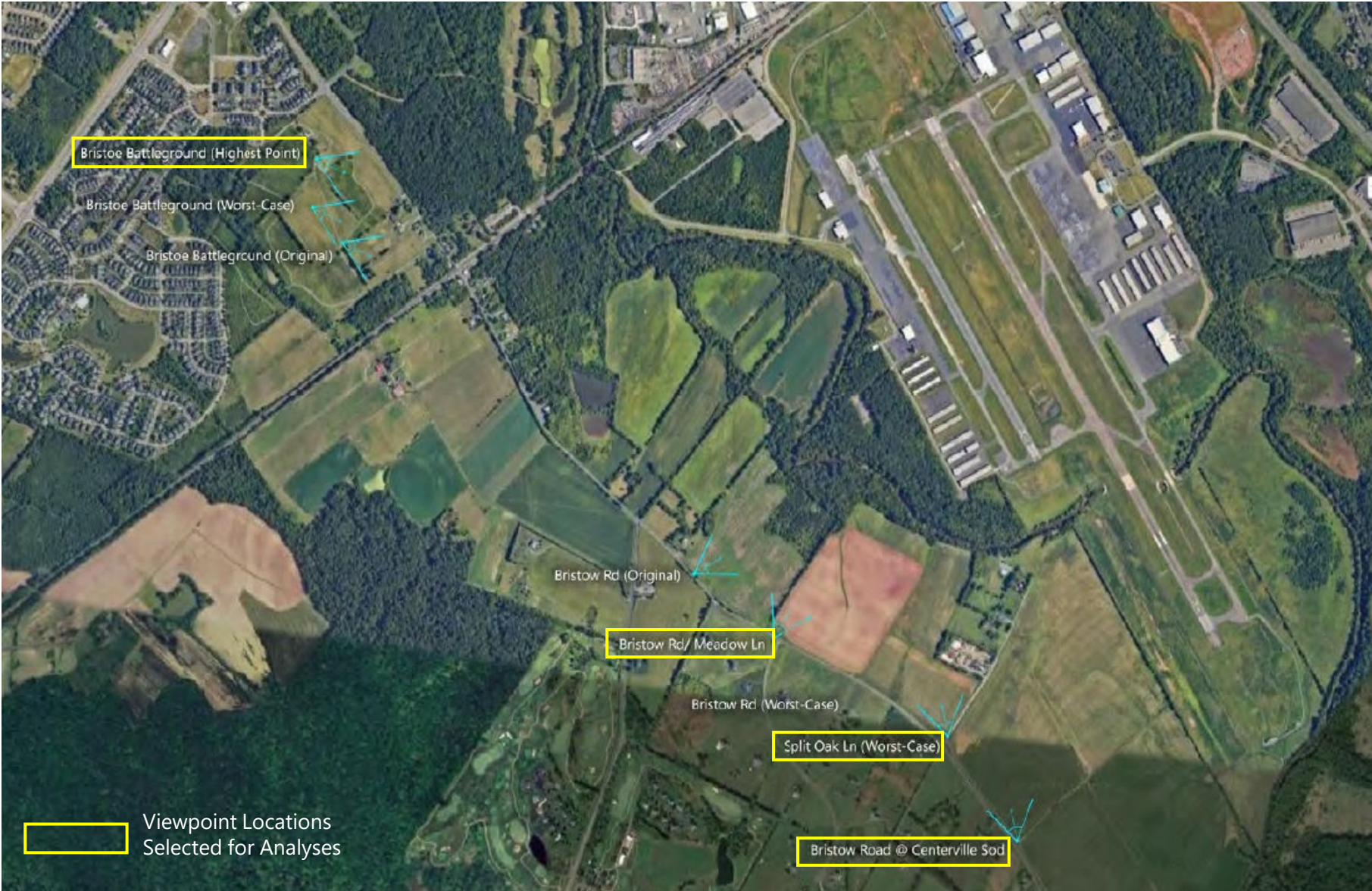
While the proposed replacement ATCT would not be seen from the Bristoe Station Battlefield Heritage Park, it could introduce a new visual element that may not seamlessly blend with the existing visual character of the surrounding areas, particularly those west of the Airport. A degree of contrast with visual resources and/or visual character of the areas west of the Airport would arise from factors such as the tower's height, design, and lighting, which might stand out against the backdrop of the surrounding landscape when compared to a No Action Alternative.

However, the proposed replacement ATCT would be designed to be visually compatible with the existing Airport facilities and the surrounding environment. Additionally, the lighting system would be designed to meet FAA standards but avoid excessive light pollution and minimize any potential subjective negative impact on the visual character of the area. Lighting designs could include shielding outdoor lighting fixtures to focus light emission on specific areas, using light-colored exteriors to reduce the amount of artificial light needed outdoors, or using light-emitting diode (LED) lights or lower color temperature interior lighting (i.e., warmer light).

Overall, while the proposed replacement ATCT may introduce some degree of visual change, the efforts to design and implement the project would consider the surrounding visual environment to minimize any negative impacts.

Appendix A: Daytime and Nighttime Simulations

Viewpoint Locations



Daytime Views

Bristoe Station Battlefield Heritage Park (highest point) - Existing



Viewing Area

Bristoe Station Battlefield Heritage Park (highest point) – Proposed Project



Viewing Area

Bristow Road / Meadow Lane – Existing



Bristow Road / Meadow Lane – Proposed Project



Split Oak Lane (worst-case) – Existing



Split Oak Lane (worst case) – Proposed Project



Viewing Area


Bristow Road / Centerville Sod – Existing



 Viewing Area

Bristow Road / Centerville Sod – Proposed Project



 Viewing Area

Nighttime Views

Bristoe Station Battlefield Heritage Park (highest point) - Existing



Viewing Area

Bristoe Station Battlefield Heritage Park (highest point) – Proposed Project



Viewing Area

Bristow Road / Meadow Lane – Existing



Viewing Area


Bristow Road / Meadow Lane – Proposed Project



Viewing Area

Split Oak Lane (worst-case) – Existing



 Viewing Area


Split Oak Lane (worst case) – Proposed Project



Viewing Area


Bristow Road / Centerville Sod – Existing



 Viewing Area

Bristow Road / Centerville Sod – Proposed Project



 Viewing Area

APPENDIX F
FLOODPLAINS ANALYSIS

MANASSAS REGIONAL AIRPORT

FLOODPLAIN
FINDINGS AND
ASSESSMENT
FOR
HEF REPLACEMENT
AIRPORT TRAFFIC
CONTROL TOWER
ENVIRONMENTAL
ASSESSMENT

NOVEMBER 2024



RS&H

*FLOODPLAIN FINDINGS
AND ASSESSMENT
FOR
HEF REPLACEMENT AIRPORT
AIR TRAFFIC CONTROL
TOWER ENVIRONMENTAL
ASSESSMENT*

November 2024

City of Manassas,
Prince William County,
Virginia

City of Manassas
P.O. # 240180

RS&H No.:
1054-1886-006

Prepared by RS&H, Inc. at the
direction of City of Manassas



RS&H

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1.1 PROPOSED PROJECT

The City of Manassas (City) proposes a replacement Air Traffic Control Tower (ATCT) at Manassas Regional Airport (HEF) including a support facility and employee parking lot. The City is seeking approval from the Federal Aviation Administration (FAA) to construct and operate the replacement ATCT at HEF (Proposed Project) within the surveyed area of the previous FAA-approved *Final EA for West Corporate Development and East Parcel Development*. The City has retained Reynolds, Smith and Hills, Inc. (RS&H, Inc.) to perform an Environmental Assessment (EA) in accordance with *FAA Order 1050.1F, Environmental Impacts: Policies and Procedures* and *FAA Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. HEF, the surrounding area, and area of potential effects (APE) are shown in **Figure 1**.

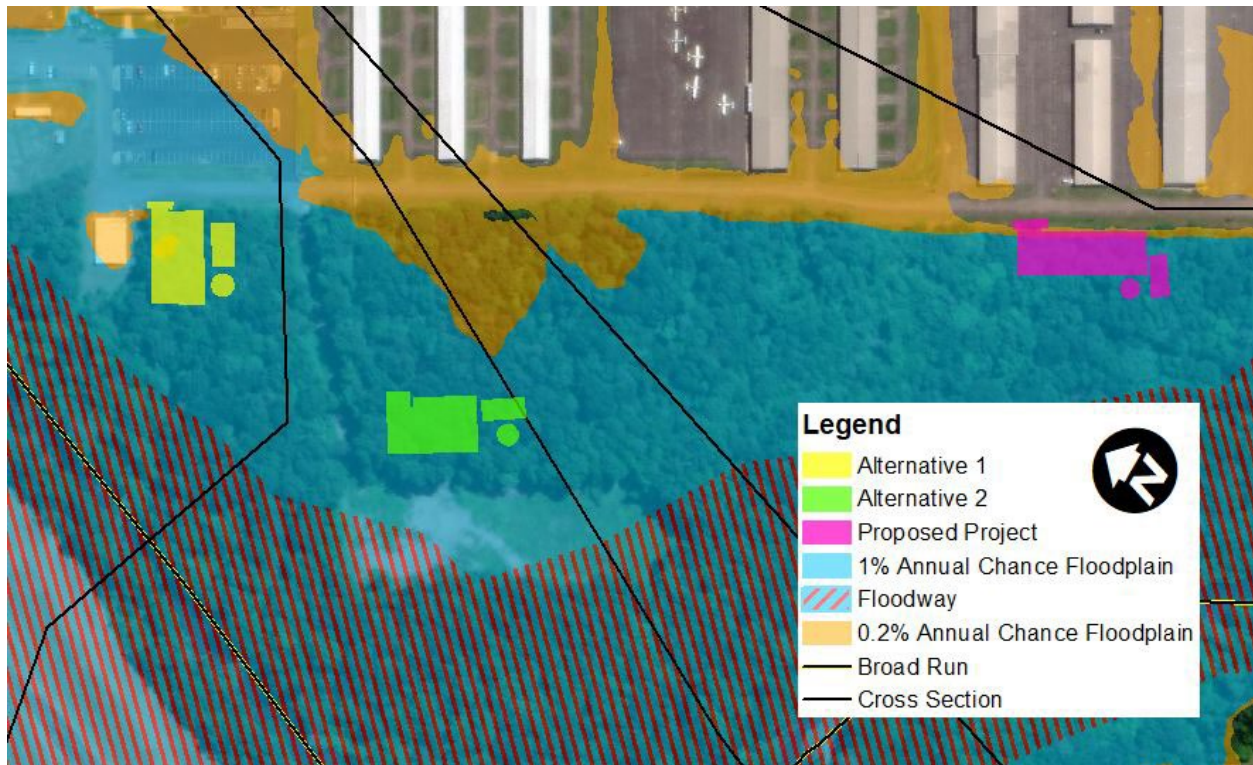
FIGURE 1:
AIRPORT LOCATION MAP



1.2 ALTERNATIVES

The EA will evaluate the proposed action and two alternative sites on the west side of HEF. Part or all of each site is located partially within the 1% annual chance Special Flood Hazard Area (SFHA), Zone AE. The siting of the Proposed Project and two alternatives took into consideration clearing an FAA recommended 2-acre site and avoiding the floodway, wetlands, and an archaeological site to the extent practicable. The Proposed Project and two alternative locations with SFHA boundaries are presented in **Figure 2**.

FIGURE 2: PROPOSED PROJECT ALTERNATIVES AND SFHA BOUNDARIES



1.3 PREVIOUS STUDIES

The City of Manassas and Prince William County have jurisdiction over the floodplain in the vicinity of HEF. FEMA has published Flood Insurance Study (FIS) report and FIRMS for Broad Run. FIRM Panels 0157D and 0159D cover the floodplain and floodway boundaries for Broad Run in the vicinity of HEF. FEMA developed the effective hydraulic model for Broad Run using the United States Army Corps of Engineers (USACE) HEC-RAS computer model. This model establishes the water surface elevations for 10-, 50-, 100-, 500-year floods and floodway.

The most recent Letter of Map Revision (LOMR) issued by FEMA is Case No. 18-03-1933P, effective April 25, 2019, reflecting the effects of placement of fill and excavation along Broad Run from the East Corporate Development at Manassas Regional Airport. The subject area is located just downstream of the Taxiway B bridge structure at the airport. This LOMR reflects widening and narrowing of the 1% and 0.2% annual chance floodplains and floodway on FIRM Panel 0157D.

A Conditional Letter of Map Revision (CLOMR) was issued recently by FEMA for the Observation Road Relocation just upstream and adjacent to the Proposed Project at HEF. FEMA Case No. 20-03-1427R, issued March 17, 2021, reflects the effects of placement of fill and excavation along Broad Run from the roadway relocation. The subject area is located from a point approximately 6,690 to a point approximately 2,940 feet downstream of the Norfolk Southern Railroad. This LOMR reflects decreases in 1 % annual chance water-surface elevations and widening and narrowing of the 1% and 0.2% annual chance floodplains on FIRM Panel 0157D.

1.4 HYDROLOGIC METHODOLOGY

No changes to the hydrologic methods from the effective study were performed during this analysis.

1.5 HYDRAULIC METHODOLOGY

1.5.1 Vertical Datum

Elevations for the project are based on the North American Vertical Datum of 1988 (NAVD88). The FEMA Flood Insurance Study for Prince William County, Virginia, the FEMA FIRM Map elevations, FEMA regulatory model and flood hazard comparison tables are based on the NGVD29 datum. The proposed project topographic data are based on the NAVD88 datum. In order to maintain vertical datum correlation, all proposed ground elevations incorporated into the modeling data have been adjusted by a correlation factor of +0.83 feet to obtain the corresponding NGVD29 datum elevation for modeling purposes. All results from the modeling software should therefore be adjusted by a factor of -0.83 feet to revert elevations to NAVD88 datum.

1.5.2 Effective and Existing Model

RS&H obtained a copy of the Broad Run HEC-RAS hydraulic model used for CLOMR Case No. 20-03-1427R. This model uses the hydraulic model, effective April 25, 2019, used as the basis for the issuance of LOMR 18-03-1933P. This effective HEC-RAS hydraulic model was created using USACE HEC-RAS version 5.0.5, dated June 2018. The model included data for the multiple profiles and floodway encroachment analyses. The effective model was updated to the latest USACE HEC-RAS software version 5.0.7, dated March 2019. A comparison of results from the FEMA model and updated model found that there were no differences in water surface elevation (WSELs).

The proposed condition model from CLOMR Case No. 20-03-1427R was used as the existing conditions for the HEF Replacement ATCT EA. The Observation Road Relocation project is currently under construction and will be completed prior to the construction of the Replacement ATCT. This model incorporates the floodplain compensation area from the Observation Road Relocation adjacent to ATCT Site Alternative 2. Cross Sections were added through each ATCT site location to determine the impacts of fill.

1.5.3 Proposed Project Model

The existing conditions HEC-RAS model was updated to reflect proposed conditions for each ATCT location alternative. Cross sections were updated with the preliminary grading for each site location and ineffective flow areas were placed as necessary. All remaining parameters in the HEC-RAS model computation remain the same as the existing model. No changes were made to the regulatory floodway stations.

1.6 ANALYSIS

1.6.1 Alternatives

As shown in **Table 1**, the Proposed Action and Alternatives have varying impact on the floodplain fringe area and base flood elevation (BFE) without mitigation. Based on the following analysis, it is anticipated that flood compensation can be achieved without utilizing the compensation area adjacent to Alternative 2.

**TABLE 1:
ALTERNATIVES FLOODPLAIN IMPACT COMPARISON**

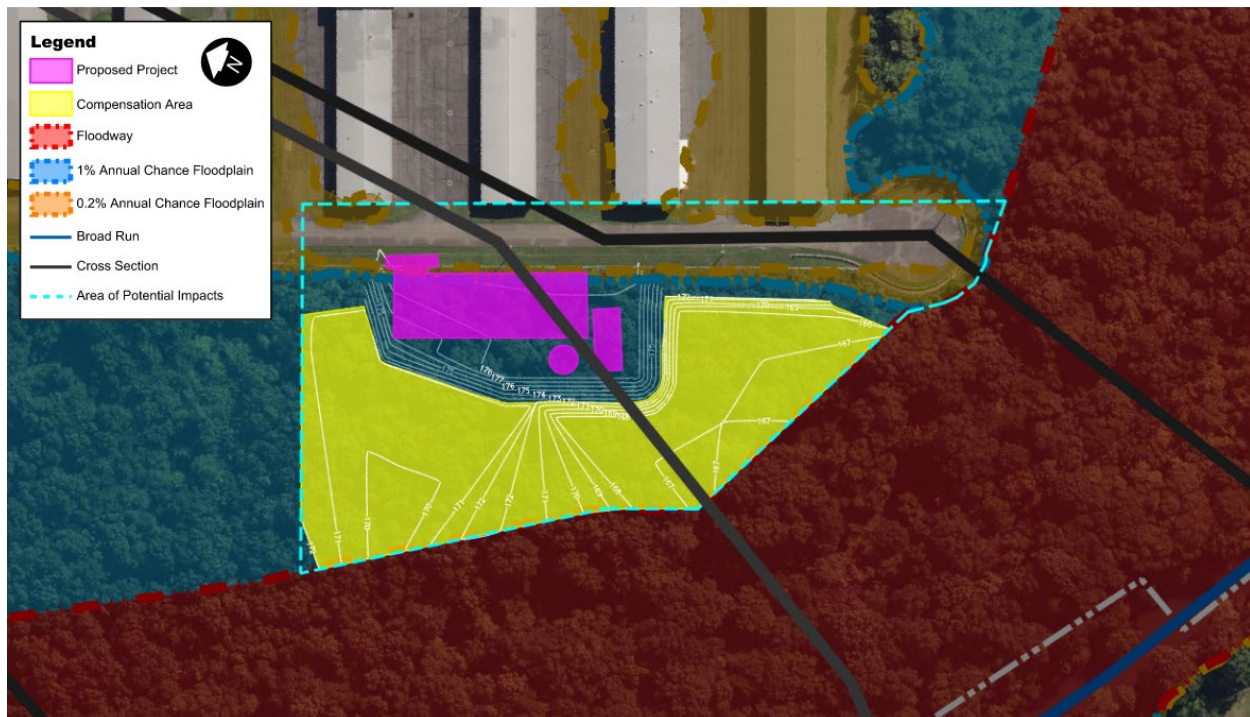
Location	BFE (FT NAVD88)	DFE (FT NAVD88)	Disturbed Floodplain Area (AC)	Fill Volume* (CY)	BFE Increase (FT)
Proposed Action	175.61	178.61	0.71	3,900	0.04
Alternative 1	178.31	181.31	1.04	3,400	0.00
Alternative 2	177.25	180.25	0.98	1,500	0.01

*Volume of fill (cubic yard) below the BFE

1.6.2 Floodplain Compensation

Floodplain compensation was evaluated within the APE boundary for the Proposed Action to determine if a no-rise condition could be achieved. The area between the proposed action fill platform and APE boundary was graded at approximately 0.5% to promote drainage while maximizing cut volume to the extent practical. The analysis resulted in approximately 4,600 cubic yards of floodplain compensation, exceeding the 3,900 cubic yards of fill placed for the Preferred ATCT site. Additionally, Cross Section 273.9 in the revised HEC-RAS model was updated with the compensation area elevations. The model results showed no increases in BFE and a maximum decrease of 0.02 feet from existing conditions meeting the requirements of no-rise condition. **Figure 3** shows the approximate limits of the flood compensation area within the APE.

FIGURE 3: FLOODPLAIN COMPENSATION AREA



1.7 REFERENCES

44 Code of Federal Regulations (CFR) Subchapter B – Insurance and Hazard Mitigation Parts 60, 65, 70, and 72

City of Manassas, Article 8 Storm Drainage System, Section 8-600 Flood Plain Policy

Federal Emergency Management Agency, Letter of Map Revision Determination Document Case NO. 18-03-1933P, City of Manassas, Prince William County, Virginia, December 10, 2018

Federal Emergency Management Agency, Flood Insurance Study, Prince William County, Virginia, August 3, 2015

Prince William County Sections 730 “Floodplain Management – Policy” and 731 “Floodplain Management – Planning and Design”

The US Army Corps of Engineers, Hydrologic Engineering Center, HEC-RAS River Analysis System, Version 5.0.7, March 2019

The US Department of Commerce, National Geodetic survey, Vertcon 2.1 program, Version 2.1, September 2003

HEF ATCT Replacement EA

NAVD = NGVD - 0.827

Alternative	NGVD	1% Annual Chance				0.2% Annual Chance		Design		Ex to PR Fill	EX to FP cut	FP to PR fill	Floodplain Fill	Surface Area	Surface Area
		BFE		Non-Critical	Critical	500-Year		Non-Critical	Critical						
		NAVD	BFE + 2'			BFE + 3'	NGVD								
20231211	1	179.14	178.31	180.31	181.31	181.83	181.00	180.31	181.31	3196.3	24.3	2007.1	1213.5	31142.98	0.71
	2	178.08	177.25	179.25	180.25	180.88	180.05	179.25	180.25	3170.2	0.0	1701.3	1468.9	42821.27	0.98
	Prop	176.44	175.61	177.61	178.61	179.11	178.28	177.61	178.61	6174.5	888.9	3165.1	3898.3	30821.83	0.71
20231220	1	179.14	178.31	180.31	181.31	181.83	181.00	180.31	181.31	5792.5	0.0	2394.5	3398.0	45409.84	1.04
										Comp	7.9	4654.2			

XS	BFE	
	NGVD	NAVD
314.4	179.37	178.54
300	179.14	178.31
285	178.08	177.25
280.55	177.90	177.07
270	176.44	175.61
264	175.88	175.05

APPENDIX G
INITIAL AGENCY COORDINATION

*AGENCY
COORDINATION*

[DATE]

<CONTACT NAME>

1234 Your Street, Suite ABC

City, State 12345

RE: Early Agency Coordination

Environmental Assessment for a Replacement Air Traffic Control Tower (ATCT)

Manassas Regional Airport

Manassas, VA

Dear <Mr./Ms. CONTACT LAST NAME>,

The City of Manassas (City) proposes the construction and operation of a replacement Air Traffic Control Tower (ATCT) at Manassas Regional Airport (HEF or Airport) (see **Figure 1**). The City proposes to construct a replacement ATCT at the Airport to improve the functional and operational capabilities of the service provided by the FAA ATCT personnel. The need to replace the ATCT is a combination of safety, operational, and infrastructure deficiencies.

The City will request the Federal Aviation Administration's (FAA) unconditional approval of the project as shown on the Airport's Airport Layout Plan as well as federal funding for the proposed replacement ATCT. This request is a Federal action, subject to the requirements of the National Environmental Policy Act (NEPA). In compliance with NEPA and under the direction of the FAA, the City through their consultant (RS&H, Inc.) is initiating preparation of an Environmental Assessment (EA). The EA will assess the potential environmental impacts of the replacement ATCT components at each site:

- » Clearing and grading activities and construction staging areas;
- » Construction of a replacement ATCT with support building;
- » Construction of ATCT employee parking lot; and
- » Demolition and disposal of the existing ATCT.

The Proposed Action, Alternative 1, Alternative 2, and the direct study area are within City of Manassas limits (see **Figure 2**). The EA will evaluate each of the three site locations (see **Figure 2**). The siting of the Proposed Action and two alternatives took into consideration clearing an FAA recommended 2-acre site and avoiding an existing floodway, wetlands, and an archaeological site.

In accordance with the NEPA and FAA Orders 1050.1F, *Policies and Procedures for Considering Environmental Impacts* and 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions of Airport Actions*, the EA will analyze the potential environmental effects of the Proposed Action. As part of the EA process, various field surveys will be conducted. These include a threatened and endangered species survey, floodplain analysis, and wetland delineation (including a jurisdictional determination).

On behalf of the City, we are sending you this early notification letter to:

1. Advise your agency of the preparation of the EA;
2. Request any relevant information that your agency may have regarding the project site or environs; and
3. Solicit early comments regarding potential environmental, social, and economic issues for consideration during the preparation of the EA.

You may send any information and comments to me via email at David.Alberts@rsandh.com or to the address provided at the top of this letter. We would appreciate your prompt response within 30 days.

On behalf of the City, we would like to thank you for your interest in this project and look forward to working with you as we prepare the EA. If you have any questions or need additional information regarding Proposed Action or EA, please do not hesitate to contact me at (904) 256-2469.

Sincerely,



David Alberts
Project Manager
RS&H, Inc.

Attachments

cc: Juan Rivera, Manassas Regional Airport
Jolene Berry, Manassas Regional Airport
Susan Stafford, Federal Aviation Administration
Scott Denny, Virginia Department of Aviation
Project File

Figure 1
Airport Location



Sources: ESRI 2023; RS&H 2023

0 1,000 2,000 Feet

Legend

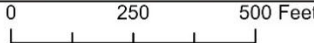
-  Airport Location
-  Jurisdictions



Figure 2
Proposed Action & Alternatives



Sources: ESRI 2023; RS&H 2023



Legend

- Direct Study Area
- Proposed Action
- Alternative 1
- Alternative 2



From: [dgif-ESS Projects \(DWR\)](#)
To: [Hamblin, Monica](#)
Subject: RE: Early Agency Coordination-HEF Airport Air Traffic Control Tower Replacement Environmental Assessment
Date: Friday, December 22, 2023 9:13:45 AM
Attachments: [image001.gif](#)
[image002.gif](#)
[image003.jpg](#)
[USFWS-tower-recommendations \(1\).pdf](#)

Ms. Hamblin,

Thank you for contacting us about your project in Manassas. Due to staffing limitations, we are unable to review and provide comments on projects that are not currently involved in one of the regulatory review processes for which we are a formal consulting agency (see <https://www.DWR.virginia.gov/environmental-programs/>). If your project becomes involved in one of these review processes, we will review the project at that time and provide our comments to the requesting agency.

We can, however, provide USFWS general recommendations to avoid adverse impacts on federally listed species, migratory birds, and other wildlife from communication tower development. You can access them via this link: <https://dwr.virginia.gov/wp-content/uploads/USFWS-tower-recommendations.pdf>. A copy of the document is also attached to this email.

In advance of your project entering regulatory review processes for which we are a formal consulting agency, we recommend that you conduct a preliminary desktop analysis to evaluate your project's potential impacts upon the Commonwealth's wildlife resources by accessing our online information system, the Virginia Fish and Wildlife Information Service (VAFWIS) and using the **Geographic Search** function to generate an **Initial Project Assessment** (IPA) report.

We recommend the following steps:

A. Access VAFWIS at this link: <https://vafwis.DWR.virginia.gov/fwis/>

If you are not already a VAFWIS subscriber, you should request to become one by emailing a request to VAFWIS_support@DWR.virginia.gov. VAFWIS Subscriptions are free of charge. As a subscriber, one is able to generate an IPA for the project area (project site plus a minimum 2-mile buffer) which generates a list of imperiled wildlife and designated wildlife resources known from the project area. You may also access VAFWIS as a visitor, but access to data and mapping at this user level is restricted.

Alternatively, you may contact our Geographic Information Systems (GIS) Coordinator, Jay Kapalczynski, at Jay.Kapalczynski@DWR.virginia.gov to request access to the Wildlife Mapping and Environmental Review Map Service (WERMS) which allows you to download GIS data into your own system.

B. Access information about the location of bat hibernacula and roosts from the following locations:

Northern Long-Eared Bats: <https://www.dwr.virginia.gov/wildlife/bats/northern-long-eared-bat->

[application/](#)

Little Brown Bats and Tricolored Bats: <https://www.dwr.virginia.gov/wildlife/bats/little-brown-bat-tri-colored-bat-winter-habitat-roosts-application/>

C. Access up to date information about the location and status of bald eagle nests in Virginia by accessing the Center for Conservation Biology’s Eagle Nest Locator at <https://ccbbirds.org/what-we-do/research/species-of-concern/virginia-eagles/nest-locator/>

D. Review the DWR information, guidance, and protocols available on our website at the bottom of [this page](#) in the “Additional Resources” section and implement, as appropriate.

E. Include the results of your desktop analysis with your project documents, applications, etc.

Thank you,
Nicole



From: Hamblin, Monica <Monica.Hamblin@rsandh.com>
Sent: Thursday, December 21, 2023 2:01 PM
To: dgif-ESS Projects (DWR) <ESSProjects@dwr.virginia.gov>
Subject: Early Agency Coordination-HEF Airport Air Traffic Control Tower Replacement Environmental Assessment

On behalf of the City of Manassas (City), I am pleased to provide the Early Agency Coordination Letter for the Environmental Assessment for a Replacement Air Traffic Control Tower (ATCT) at Manassas Regional Airport in Manassas, Virginia. Any comments and input you have regarding the attached and the Proposed Project is greatly appreciated.

If you have any questions, please let me know.

Best Regards,
Monica Hamblin

Monica Hamblin

Aviation Environmental Specialist
10748 Deerwood Park Blvd South, Jacksonville, FL 32256
904-256-2394

Monica.Hamblin@rsandh.com

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RECOMMENDATIONS TO AVOID ADVERSE IMPACTS TO MIGRATORY BIRDS, FEDERALLY LISTED SPECIES, AND OTHER WILDLIFE FROM COMMUNICATION TOWERS AND ANTENNAE

Guidance prepared by the U.S. Fish and Wildlife Service

Wireless communication towers and antennae have greatly increased in number in recent years. Cumulatively, communication towers have a potentially significant impact on wildlife, especially migratory birds. All communication towers and antennae requiring authorization from the Federal Communications Commission (FCC) are subject to the environmental review procedures required by Section 7 of the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) and by the National Environmental Policy Act (NEPA) of 1969 (83 Stat. 852; 42 U.S.C. 4321 *et seq.*). The U.S. Fish and Wildlife Service (Service) routinely reviews proposed communication projects and provides recommendations to project proponents and the FCC to avoid adverse impacts to federally listed or proposed endangered and threatened species, migratory birds, and other wildlife.

All native migratory birds (e.g., waterfowl, shorebirds, songbirds, hawks, owls, vultures, falcons) are afforded protection under the Migratory Bird Treaty Act (MBTA) of 1918 (40 Stat. 755; 16 U.S.C. 703-712). Migratory birds are a federal trust resource responsibility, and the Service considers migratory bird concentration areas environmentally significant. Bird concentration areas include traditional migratory flight corridors (e.g., ridges, shorelines, river valleys); rookeries and other bird breeding areas; stopover, staging, or resting areas (e.g., land bounding large bodies of water, wetlands, forests, and natural grasslands); wildlife preserves (e.g., National Wildlife Refuges; State Parks, Forests, Wildlife Management Areas, and Natural Areas; private sanctuaries); and seasonal flight paths (e.g., between feeding and nesting or roosting areas).

Communication towers pose a collision hazard to birds in flight, especially some 350 species of night-migrating birds. Cumulatively, communication towers kill an estimated four to five million birds per year nationwide (Manville 2000). The risk of bird collisions is related to tower height, design, lighting, and location relative to migratory bird concentration areas. Most documented bird kills at communication towers involve tall, lighted structures, and birds migrating at night during inclement weather. During these events, birds attracted by the lights congregate and circle around the tower, with mortality resulting from collisions with guy wires, other birds, and the ground, or from exhaustion. However, occurrences of bird collision mortality at communication towers have also been documented during daytime and fair-weather conditions.

The Service recommends the following steps to avoid or minimize adverse impacts to migratory birds, federally listed or proposed endangered and threatened species, and other wildlife from communication towers and antennae:

1. Collocate communication antennae and other equipment on existing structures whenever possible to avoid new tower construction. Antennae have been mounted on rooftops; flagpoles; bell, cross, and clock towers; road signs; silos; and water and power line towers. Where attachment to an existing non-tower structure is not feasible, collocate antennae on existing communication towers. Depending on tower load factors, multiple (6-10) providers may collocate on a single communication tower. Although usually a preferred option, collocation on certain structures may be

- restricted, such as historic sites, or silos on farms under State or county deed restriction for farm preservation, which may prohibit non-agricultural activities.
2. Construct new towers only if collocation is not feasible. Design new towers to allow for multiple transmitters to be collocated on a single new tower, no more than 199 feet above ground level (AGL), without lights or guy wires. (Towers taller than 199 feet are normally required by the Federal Aviation Administration [FAA] to employ aircraft warning lights.)
 3. Consider the impacts of new towers to migratory birds, federally listed species, and other wildlife, cumulatively as well as individually when siting and designing networks of towers and antennae.
 4. Site towers away from wetlands; areas with a known high incidence of fog, mist, and low cloud ceilings; and habitats supporting threatened or endangered species.
 5. Construct taller (>200 feet AGL) towers only if collocation and shorter towers are not viable options. Use the minimum amount of pilot warning and obstruction avoidance lighting required by the FAA. Use only white (preferable) or red strobe lights at night unless otherwise required by the FAA, and employ the minimum number, minimum intensity, and minimum number of flashes per minute (longest duration between flashes) permitted by the FAA. Avoid solid red or pulsating red warning lights at night. (Current research indicates that solid or pulsating (beacon) red lights attract night-migrating birds at a much higher rate than white strobe lights. Red strobe lights have not yet been studied.
 6. Construct guyed towers only if other tower designs (e.g., monopoles, lattice towers) are not viable options. Locate guyed towers away from known raptor and waterbird concentration areas and daily movement routes, and away from major diurnal migratory bird movement routes and stopover sites. If a guyed tower must be located in or near such an area, employ daytime visual markers on the wires. Do not use artificial lighting to increase visibility of the structure or guy wires; instead use reflective paint or materials, large balls, or other available technology. (For guidance on markers, see Avian Power Line Interaction Committee 1994 and 1996.)
 7. Avoid or minimize habitat loss within and adjacent to the "footprint" of new towers and associated facilities. (However, a larger tower footprint is preferable to the use of guy wires.) Minimize road access and fencing to reduce or prevent habitat fragmentation and disturbance, and to reduce above-ground obstacles to birds in flight.
 8. Avoid siting towers in or near known bird concentration areas (discussed on page 1); known bird migration or daily movement flyways; and areas known to be used habitually by significant numbers of breeding, feeding, or roosting birds. If such areas cannot be avoided, avoid construction during seasons of high bird activity.
 9. Design new towers structurally and electrically to accommodate the applicant's antennas and comparable antennas for at least two additional providers, for a

minimum of three providers for each tower, to reduce the number of towers needed in the future (unless such a design would require the addition of lights or guy wires to an otherwise unlighted and/or unguyed tower).

10. Down-shield security lighting for on-ground facilities and equipment to keep light within the boundaries of the site.
11. Allow Service personnel and affiliated researchers access to proposed and existing tower sites upon request to evaluate bird use; conduct dead-bird searches; place net catchments below the towers but above the ground; and place radar, Global Positioning System, infrared, thermal imagery, and acoustical monitoring equipment as necessary to assess and verify bird movements and to gain information on the impacts of various tower sizes, configurations, and lighting systems.
12. Provide for tower decommissioning, including removal, in any license application submitted to the FCC. Remove towers no longer in use or determined to be obsolete within 12 months of cessation of use.

LITERATURE CITED

- Avian Power Line Interaction Committee. 1994. Mitigating bird collisions with power lines: The state of the art in 1994. Edison Electric Institute, Washington, D.C. 78 pp.
- _____. 1996. Suggested practices for raptor protection on power lines. Edison Electric Institute/Raptor Research Foundation, Washington, D.C. 128 pp.
- Manville, A.M. II. 2000. The ABCs of avoiding bird collisions at communication towers: the next steps. Proceedings of the Avian Interactions Workshop. Electric Power Research Institute. 15 pp.

FURTHER INFORMATION

- Bibliography of bird kills: <http://migratorybirds.fws.gov/issues/towers/review>
- Federal Communications Commission, Wireless Telecommunication Branch - Siting Issues
<http://www.fcc.gov/wtb/siting>
- Federal Communications Commission Telecommunications Act of 1996
<http://www.fcc.gov/telecom.html>
- General Information: <http://migratorybirds.fws.gov/issues/towers/abcs.html>
- Ogden, L.J.E. 1996. Collision Course: The hazards of lighted structures and windows to migrating birds. World Wildlife Fund Canada and the Fatal Light Awareness Program. Toronto, Ontario, Canada. 46 pp.
- Towerkill.com. <http://www.towerkill.com>
- U.S. Fish and Wildlife Service Endangered Species Home Page. <http://endangered.fws.gov>
- U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Bird Issues.
<http://migratorybirds.fws.gov/issues/tblconthtml>
- U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Service Guidelines.
<http://migratorybirds.fws.gov/issues/towers/comtow.html>

From: [Denny, S. Scott \(DOAV\)](#)
To: [Alberts, David](#)
Subject: Re: HEF ATC EA
Date: Friday, December 22, 2023 9:05:29 AM

David

Sorry for the confusion. We would like the EA to disclose the need and identify the potential costs.

Scott

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From: Alberts, David <David.Alberts@rsandh.com>
Sent: Friday, December 22, 2023 8:59:18 AM
To: Denny, S. Scott (DOAV) <Scott.Denny@doav.virginia.gov>
Subject: RE: HEF ATC EA

Mr. Denny,

Thank you for your email. The EA will disclose the potential floodplain impacts and will engage the state and local floodplain coordinators.

I am not sure I understand the comment though. Would the VDOA like the EA to disclose the need for a CLOMAR and the estimated cost to change the CLOMAR? Or does the VDOA want the EA to discuss the need for the project? Any clarification would be appreciated.

Thank you and Happy Holidays,

Dave A

David E. Alberts

Aviation Senior Environmental Manager
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From: Denny, S. Scott (DOAV) <Scott.Denny@doav.virginia.gov>
Sent: Friday, December 22, 2023 8:47 AM
To: Alberts, David <David.Alberts@rsandh.com>
Subject: HEF ATC EA

Mr Alberts:

The Department of Aviation is in receipt of your December 21, 2023 early coordination letter regarding the Manassas Regional Airport's environmental assessment (EA) to replace the air traffic control tower. Following our review our only comment pertains to ensure the EA includes discussion on the need and estimated costs of the anticipated Conditional Letter of Map Revision (CLOMAR).

Please feel free to contact me if you have any additional questions or would like to discuss this matter further.

Sincerely
S. Scott Denny
Senior Aviation Planner
Virginia Department of Aviation

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Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

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www.deq.virginia.gov

Travis A. Voyles
Acting Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director
(804) 698-4020

December 22, 2023

Monica Hamblin
Aviation Environmental Specialist
RS&H, Inc.
Via email: Monica.Hamblin@rsandh.com

RE: NEPA Scoping Response – Environmental Assessment for a Replacement Air Traffic Control Tower (ATCT), Manassas Regional Airport, Manassas, VA

Dear Ms. Hamblin:

This letter is in response to the scoping request for the above-referenced project.

As you may know, the Department of Environmental Quality, through its Office of Environmental Impact Review (DEQ-OEIR), is responsible for coordinating Virginia's review of federal environmental documents prepared pursuant to the National Environmental Policy Act (NEPA) and responding to appropriate federal officials on behalf of the Commonwealth. Please note, DEQ does not serve as the state clearinghouse under E.O. 12372 and federal agency financial assistance programs to state or local governments are not listed in our federally approved Virginia Coastal Zone Management Program. Therefore, coordination under E.O. 12372 or Subpart F of the federal consistency regulations is not required.

DOCUMENT SUBMISSIONS

In order to ensure an effective coordinated review of the NEPA document, notification of the NEPA document documentation should be sent directly to OEIR. We request that you submit one electronic to eir@deq.virginia.gov (25 MB maximum) or make the documents available for download at a website, file transfer protocol (ftp) site or the VITA LFT file share system (Requires an "invitation" for access. An invitation request should be sent to eir@deq.virginia.gov).

The NEPA document should include U.S. Geological Survey topographic. We strongly encourage you to issue shape files with the NEPA document. In addition, project details should be adequately described for the benefit of the reviewers.

**ENVIRONMENTAL REVIEW UNDER THE NATIONAL ENVIRONMENTAL POLICY ACT:
PROJECT SCOPING AND AGENCY INVOLVEMENT**

As you may know, NEPA (PL 91-190, 1969) and its implementing regulations (Title 40, *Code of Federal Regulations*, Parts 1500-1508) requires a draft and final Environmental Impact Statement (EIS) for federal activities or undertakings that are federally licensed or federally funded which will or may give rise to significant impacts upon the human environment. An EIS carries more stringent public participation requirements than an Environmental Assessment (EA) and provides more time and detail for comments and public decision-making. The possibility that an EIS may be required for the proposed project should not be overlooked in your planning for this project. Accordingly, we refer to “NEPA document” in the remainder of this letter.

While this Office does not participate in scoping efforts beyond the advice given herein, other agencies are free to provide scoping comments concerning the preparation of the NEPA document. Accordingly, we are providing notice of your scoping request to several state agencies and those localities and Planning District Commissions, including but not limited to:

Department of Environmental Quality:

- DEQ Regional Office
- Air Division
- Office of Wetlands and Stream Protection
- Office of Local Government Programs
- Division of Land Protection and Revitalization
- Office of Stormwater Management

Department of Conservation and Recreation

Department of Health

Department of Agriculture and Consumer Services

Department of Wildlife Resources

Virginia Marine Resources Commission

Department of Historic Resources

Department of Mines, Minerals, and Energy (soon to be Virginia Energy)

Department of Forestry

Department of Transportation

DATA BASE ASSISTANCE

Below is a list of databases that may assist you in the preparation of a NEPA document:

- DEQ Online Database: Virginia Environmental Geographic Information Systems
Information on Permitted Solid Waste Management Facilities, Impaired Waters, Petroleum Releases, Registered Petroleum Facilities, Permitted Discharge (Virginia Pollution Discharge Elimination System Permits) Facilities, Resource Conservation and Recovery Act (RCRA) Sites, Water Monitoring Stations, National Wetlands Inventory:
 - www.deq.virginia.gov/ConnectWithDEQ/VEGIS.aspx
- DEQ Virginia Coastal Geospatial and Educational Mapping System (GEMS)
Virginia’s coastal resource data and maps; coastal laws and policies; facts on coastal resource values; and direct links to collaborating agencies responsible for current data:
 - <https://www.deq.virginia.gov/?splash=https%3a%2f%2fgaia.vcu.edu%2fportal%2fapps%2fsites%2f%23%2fgemsmaps&isexternal=true>

- MARCO Mid-Atlantic Ocean Data Portal
The Mid-Atlantic Ocean Data Portal is a publicly available online toolkit and resource center that consolidates available data and enables users to visualize and analyze ocean resources and human use information such as fishing grounds, recreational areas, shipping lanes, habitat areas, and energy sites, among others.
 - <http://portal.midatlanticocean.org/visualize/#x=-73.24&y=38.93&z=7&logo=true&controls=true&basemap=Ocean&tab=data&legends=false&layers=true>
- DHR Data Sharing System.
Survey records in the DHR inventory:
 - www.dhr.virginia.gov/archives/data_sharing_sys.htm
- DCR Natural Heritage Search
Produces lists of resources that occur in specific counties, watersheds or physiographic regions:
 - www.dcr.virginia.gov/natural_heritage/dbsearchtool.shtml
- Wetland Condition Assessment Tool (WetCAT)
 - <https://www.deq.virginia.gov/our-programs/water/wetlands-streams/wetcat>
- DWR Fish and Wildlife Information Service
Information about Virginia's Wildlife resources:
 - <http://vafwis.org/fwis/>
- Total Maximum Daily Loads Approved Reports
 - <https://www.deq.virginia.gov/programs/water/waterqualityinformationtmdls/tmdl/tmdldevelopment/approvedtmdlreports.aspx>
- Virginia Outdoors Foundation: Identify VOF-protected land
 - <http://vof.maps.arcgis.com/home/index.html>
- Environmental Protection Agency (EPA) Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) Database: Superfund Information Systems
Information on hazardous waste sites, potentially hazardous waste sites and remedial activities across the nation, including sites that are on the National Priorities List (NPL) or being considered for the NPL:
 - www.epa.gov/superfund/sites/cursites/index.htm
- EPA RCRAInfo Search
Information on hazardous waste facilities:
 - www.epa.gov/enviro/facts/rcrainfo/search.html
- Total Maximum Daily Loads Approved Reports
 - <https://www.deq.virginia.gov/our-programs/water/water-quality/tmdl-development/approved-tmdls>

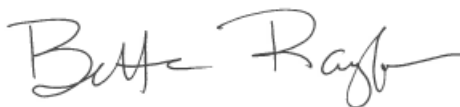
- EPA Envirofacts Database
EPA Environmental Information, including EPA-Regulated Facilities and Toxics Release Inventory Reports:
 - www.epa.gov/enviro/index.html

- EPA NEPAassist Database
Facilitates the environmental review process and project planning:
<http://nepaassisttool.epa.gov/nepaassist/entry.aspx>

If you have questions about the environmental review process, please feel free to contact me (telephone (804) 659-1915 or e-mail bettina.rayfield@deq.virginia.gov).

I hope this information is helpful to you.

Sincerely,

A handwritten signature in black ink that reads "Bettina Rayfield". The signature is written in a cursive style with a long horizontal flourish at the end.

Bettina Rayfield, Program Manager
Environmental Impact Review and
Long-Range Priorities

From: [Harper, John - FPAC-NRCS, VA](#)
To: [Alberts, David](#)
Cc: [Hamblin, Monica](#)
Subject: Early Agency Coordination-HEF Airport Air Traffic Control Tower Replacement Environmental Assessment
Date: Wednesday, December 27, 2023 7:20:27 AM
Attachments: [USDA_HEF_ATCT_Replacement_EA_Early_Coordination_Letter.pdf](#)

David and Monica,

This project is being developed in the City of Manassas which is considered Urban. This exempts it from Farmland Protection Policy Act (FPPA).

[Farmland Protection Policy Act | Natural Resources Conservation Service \(usda.gov\)](#)

Please follow local and state erosion control and sediment control ordinances during construction.

J. David Harper

State Soil Scientist

State Resource Inventory Coordinator

State Climate Smart POC

Farmland Protection Policy Act Coordinator

1606 Santa Rosa Road, Suite 209

Richmond, Virginia 23229

804-287-1647

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From: [Davis, Jamie](#)
To: [Alberts, David](#); [Hamblin, Monica](#)
Cc: [Witman, Timothy](#)
Subject: EPA comments on Replacement Air Traffic Control Tower (ATCT) at Manassas Regional Airport
Date: Tuesday, January 23, 2024 12:13:18 PM

Hello Mr. Alberts and Ms. Hamblin,

Thank you for providing the Early Agency Coordination Letter for the Environmental Assessment (EA) for a Replacement Air Traffic Control Tower (ATCT) at Manassas Regional Airport in Manassas, Virginia. The notice indicates that each of the three alternatives for the project will include the construction of the Air Traffic Control Tower, a support building, and associated parking.

Stormwater, Low Impact Development (LID), and Green Infrastructure:

EPA encourages examination of opportunities to add and enhance green infrastructure to reduce stormwater runoff where possible. Stormwater runoff is one of the leading sources of water pollution in the United States and high percentages of impervious surfaces are linked to aquatic resource degradation and impairment. The addition of green infrastructure or LID components could be beneficial for water quality in the watershed as well as provide a more aesthetically pleasing site. Where possible, we recommend reducing environmental footprint and improving building efficiently through consideration of opportunities to: protect or enhance native vegetation, avoid constructing additional impervious cover, preserve natural drainage patterns, avoid direct or indirect impacts to streams or wetlands, and/or mitigate existing impacts.

We recommend evaluating parking, sidewalks, and roadways for opportunities to incorporate green infrastructure enhancement and stormwater best management practices (BMPs) to reduce runoff volume and improve water quality. Guidance and resources for implementing green infrastructure practices and LID can be found at the following sites:

- www.epa.gov/greeninfrastructure
- www.epa.gov/nps/lid
- <http://www.bmpdatabase.org>

Sustainability/Energy Efficiency:

We recommend incorporating sustainability practices into the EA and looking for ways to reduce energy, water consumption and implement efficiency and recycling measures at the project site. The following resources may be useful for incorporating environmentally sustainable practices and energy efficiency:

- EPA Comparison Tool for Green Building Standards: EPA provides this list of model codes or rating systems that can be used to develop green building programs: <https://www.epa.gov/smartgrowth/green-building-standards>.

- Leadership in Energy and Environmental Design (LEED): The U.S. Green Building Council's rating systems to increase the environmental and health performance for the design, construction, and operation of buildings, sites, structures, and neighborhoods: <http://www.usgbc.org/leed>.
- The Sustainable SITES Initiative (SITES®): The Sustainable SITES Initiative provides a set of comprehensive, voluntary guidelines and rating system to assess the sustainable design, construction, and maintenance of landscapes: <http://www.sustainablesites.org>.

Climate Change

We recommend that potential impacts of climate change on the proposed facilities be identified, along with planning for adaptation and/or resiliency measures.

On January 9, 2023, Council on Environmental Quality (CEQ) published interim guidance to assist federal agencies in assessing and disclosing climate change impacts during environmental reviews.

<https://www.federalregister.gov/documents/2023/01/09/2023-00158/national-environmental-policy-act-guidance-on-consideration-of-greenhouse-gas-emissions-and-climate>

CEQ developed this guidance in response to EO 13990, Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis. CEQ indicated that agencies should use this interim guidance to inform the NEPA review for all new proposed actions and may use it for evaluations in process, as agencies deem appropriate, such as informing the consideration of alternatives or helping address comments raised through the public comment process. EPA recommends the NEPA documentation apply the interim guidance as appropriate, to ensure robust consideration of potential climate impacts, mitigation, and adaptation issues.

Environmental Justice:

We recommend that an assessment be conducted to identify whether areas of potential environmental justice (EJ) concern exist in the study area and whether communities with EJ concerns may be disproportionately impacted by any proposed activities including noise and traffic during construction and operation. EPA recommends the use of the EJSCREEN tool, a publicly accessible online mapping system that combines environmental and demographic data to enable analyses of populations who may experience adverse environmental impacts. In addition to data concerning communities of color and low-income populations, the tool provides demographic data regarding linguistic isolation, education, and age, all of which may enhance EJ-related analyses and outreach. EJSCREEN is available at: <https://www.epa.gov/ejscreen>.

EPA encourages community outreach for meaningful public engagement and participation. EPA encourages you to provide notices of public meetings, notices of informational events, and/or other related resources at frequently visited community locations.

EPA appreciates the opportunity to provide these scoping comments on the Replacement Air Traffic Control Tower (ATCT) at Manassas Regional Airport. We request that you share an electronic copy of the Environmental Assessment with EPA when it becomes available.

Please feel free to contact me if you have any questions regarding any of these comments. We look forward to working with you as this project moves forward.

Sincerely,

Jamie Davis

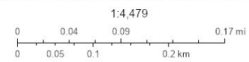
Jamie Davis
Office of Communities, Tribes & Environmental Assessment
National Environmental Policy Act (NEPA)
U.S. EPA Region III
4 Penn Center
Philadelphia, PA 19103
570-351-7192

Map



October 15, 2024

- Project 1
- Water Dischargers (NPDES)
- Air Pollution (ICIS-AIR)
- Search Result (point)



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Geographic coordinates:

POLYGON
 (38.718235,-77.518410,38.716607,-77.517149,38.716531,-77.517417,38.716632,-77.517680,38.716782,-77.518506,38.717025,-77.518689,38.717703,-77.519531,38.718235,-77.518410)
 with buffer 0 miles

Note: The information in the following reports is based on publicly available databases and web services. The National Report uses nationally available datasets and the State Reports use datasets available through the EPA Regions. Click on the hyperlinked question to view the data source and associated metadata.

National Report

Project Area	0.01 sq mi
Within an Ozone 1-hr (1979 standard) Non-Attainment/Maintenance Area?	yes
Within an Ozone 8-hr (1997 standard) Non-Attainment/Maintenance Area?	yes
Within an Ozone 8-hr (2008 standard) Non-Attainment/Maintenance Area?	yes
Within an Ozone 8-hr (2015 standard) Non-Attainment/Maintenance Area?	yes
Within a Lead (2008 standard) Non-Attainment/Maintenance Area?	no
Within a SO ₂ 1-hr (2010 standard) Non-Attainment/Maintenance Area?	no
Within a PM _{2.5} 24hr (2006 standard) Non-Attainment/Maintenance Area?	no
Within a PM _{2.5} Annual (1997 standard) Non-Attainment/Maintenance Area?	yes
Within a PM _{2.5} Annual (2012 standard) Non-Attainment/Maintenance Area?	no
Within a PM ₁₀ (1987 standard) Non-Attainment/Maintenance Area?	no
Within a CO Annual (1971 standard) Non-Attainment/Maintenance Area?	no
Within a NO ₂ Annual (1971 standard) Non-Attainment/Maintenance Area?	no
Within a Federal Land?	no
Within an impaired stream?	no
Within an impaired waterbody?	no
Within a waterbody?	no
Within a stream?	no
Within an NWI wetland?	click here May take several minutes

Within a Brownfields site?	no
Within a Superfund site?	no
Within a Toxic Release Inventory (TRI) site?	no
Within a water discharger (NPDES)?	no
Within a hazardous waste (RCRA) facility?	no
Within an air emission facility?	no
Within a school?	no
Within an airport?	no
Within a hospital?	no
Within a designated sole source aquifer?	no
Within a historic property on the National Register of Historic Places?	no
Within a Chemical Data Reporting (CDR) site?	no
Within a Land Cession Boundary?	no
Within a tribal area (lower 48 states)?	no
Within the service area of a mitigation or conservation bank?	yes
Within the service area of an In-Lieu-Fee Program?	yes
Within a Public Property Boundary of the Formerly Used Defense Sites?	no
Within a Munitions Response Site?	no
Within an Essential Fish Habitat (EFH)?	no
Within a Habitat Area of Particular Concern (HAPC)?	no
Within an EFH Area Protected from Fishing (EFHA)?	no
Within a Bureau of Land Management Area of Critical Environmental Concern?	no
Within an ESA-designated Critical Habitat Area per U.S. Fish & Wildlife Service?	no
Within an ESA-designated Critical Habitat river, stream or water feature per U.S. Fish & Wildlife Service?	no

Save to Excel Save as PDF

☐ **Virginia Report**

No data retrieved from EPA Region 3

☐ **Demographic Reports**

Note: The demographic reports are provided by EJSCREEN. The reports are generated based on your project area and buffer. For more information, visit the EJSCREEN website.

- 2018-2022 ACS Summary Report [EXIT NEPAAssist](#)
- Census 2010 Summary (SF1) [EXIT NEPAAssist](#)

☐ **USFWS IPaC Report**

This report is from the U.S. Fish and Wildlife Service Information, Planning and Conservation System (IPaC) tool and provides information about the natural resources for which the U.S. Fish and Wildlife Service has trust or regulatory responsibility. For more information, visit the IPaC website.

- IPaC Report [EXIT NEPAAssist](#)

Source:USEPA, NEPAAssist, <https://nepassisttool.epa.gov/nepassist/analysis.aspx>, 2024



April 30, 2024

David Alberts
Project Manager
RS&H, Inc.
10748 Deenwood Park Boulevard S
Jacksonville, Florida 32256

RE: Environmental Assessment (EA) for the replacement of the Air Traffic Control Tower (ATCT) at Manassas Regional Airport.

Dear Mr. Alberts:

Thank you for providing Prince William County the opportunity to provide early comments regarding the City of Manassas plan to construct a replacement Air Traffic Control Tower (ATCT) at the Manassas Regional Airport, located within the city limits. We understand you have contacted us to (1) advise the County on the future preparation of an Environmental Assessment (EA) as part of this project, (2) request information regarding the project site and environs, and (3) solicit early comments regarding potential environmental, social, and economic issues for consideration. The current tower is located adjacent to a parking lot accessed from Observation Road. We understand the planned location of the Proposed Action Alternative and Alternatives 1 and 2 are within the wooded area along the southwest side of Observation Road. Broad Run flows through the western and southern ends of the wooded area. Our comments provided below are intended to be both informative and analyze what we feel are the potential impacts to transportation, land use, environmental resources, and cultural resources.

Transportation

The locations of the Proposed Action Alternative and Alternatives 1 and 2 should have little to negligible impact upon traffic. Observation Road, a two-lane road which accommodates traffic around the western portion of the airport, provides access to the current ATCT. This road can also be used to access all three alternative sites. Because Observation Road has sufficient capacity to access the current ATCT, it should maintain sufficient capacity to accommodate any of the alternatives. We assume that the new ATCT will not generate significant new traffic. Should this not be the case, a traffic analysis should be conducted.

Land Use

Long Range County land use adjacent to the north, west, and south sides of the portion of Broad Run in the vicinity of the direct study area shown on Figure 2 in your letter is classified

as Industrial (Tech/flex). Typical Industrial (Tech/Flex) uses would be compatible with the proposed ATCT.

Environmental

The planned locations of Proposed Action Alternative and Alternatives 1 and 2 will have negligible to little impact to air quality and climate. The City of Manassas is undertaking the construction of a new ACTC to improve functional and operational capabilities for ATCT personnel. It is unlikely to result in significantly increased air traffic or air pollution. The alternatives are all located within the Environmental Protection Overlay District for Broad Run. Broad Run is considered a major watershed in Prince William County. Impact analysis should understand any effects of storm water runoff. While the location and proposed extent of parking facilities associated with the alternatives all appear buffered from the watershed by natural forestation, the size and scope of these parking facilities is a fraction of the size of the parking lot that accommodates the current ATCT located east of Observation Road. The reasons for a smaller parking facility should be justified in future planning. If a parking lot of the comparable size of the current parking lot is needed, there is a potential for impervious surface storm water runoff into Broad Run from Alternative 1, which is the closest alternative to Broad Run.

Cultural Resources

We believe that the proposed alternatives may have direct and indirect impacts on cultural resources. Although you state the siting of the Proposed Action and the two alternatives took into consideration avoiding archaeology sites, the location of Alternative 1 will directly impact archaeology site (44PW0729) (See Figure 1). The presence of Site 44PW0729, a prehistoric archaeology site, confirms the prehistoric potential of the Broad Run watershed, which is classified as a prehistoric archaeology sensitivity area. Because of the proximity of the locations of the Proposed Action Alternative and Alternatives 1 and 2 to Broad Run, there is a potential for direct impacts to potential archaeological resources within the vicinity of Broad Run.

The Proposed Action Alternative and Alternatives 1 and 2 will have indirect impacts to the Bristoe Station Battlefield. American Battlefield Protection Program (ABPP) surveys have identified undeveloped portions of the battlefield with intact integrity located within county lands immediately west of Broad Run. The locations of the proposed alternatives will all be closer to battlefield areas than the original ACTC. Although the proposed height of the ACTC was not disclosed in your request for comment letter, even a modest height of 50 feet may have indirect visual impacts upon the battlefield.

We thank you again for affording Prince William County the opportunity to provide early comments regarding the ATCT project. Given our preliminary comments above, we

April 30, 2024

EA for the replacement of the Air Traffic Control Tower at Manassas Regional Airport

Page 3 of 4

encourage you to more broadly define the area of potential effect (APE) to provide an analysis of indirect impacts to include an analysis of viewshed impacts to the Bristoe Station Battlefield. We also encourage you to provide more information on the height of the ATCT, parking capacity needs, and location of construction staging areas that will all further the understanding of potential impacts caused by the project. We look forward to providing further review and comments as part of the formal NEPA process once the planning project for the EA is initiated. If you have any questions, please contact Eric Griffiths by phone at 703-792-4544 or via email at egriffitts@pwcgov.org.

Sincerely,

Tanya Washington

Tanya M. Washington, AICP
Director of Planning

PRML - 0307

cc. Christopher Shorter, County Executive
Wade Hugh, Deputy County Executive
David McGettigan, AICP, Deputy Planning Director
Justin S. Patton, County Archaeologist/ Acting Long Range Planning Director
Eric Griffiths, Heritage Resources Specialist



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Street address: 629 East Main Street, Richmond, Virginia 23219
Mailing address: P.O. Box 1105, Richmond, Virginia 23218
Fax: 804-698-4019 - TDD (804) 698-4021
www.deq.virginia.gov

Molly Joseph Ward
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4020
1-800-592-5482

MEMORANDUM

TO: Janine Howard, DEQ Environmental Program Planner

FROM: Daniel Moore, DEQ Principal Environmental Planner

DATE: June 14, 2017

SUBJECT: DEQ #17-061F: Manassas Regional Airport Development, City of Manassas and Prince William County

We have reviewed the Consistency Certification application for the proposed Manassas Regional Airport West Corporate Development and East Parcel Development project in the City of Manassas and Prince William County and offer the following comments regarding consistency with the provisions of the *Chesapeake Bay Preservation Area Designation and Management Regulations* (Regulations):

The City of Manassas is not subject to the Chesapeake Bay Preservation Act or the Regulations. Our review of the submitted documentation shows that the proposed West Corporate Development project will occur solely within the confines of the city-owned airport property, and as such, the project is not subject to review for Bay Act compliance.

In Prince William County, the areas protected by the Chesapeake Bay Preservation Act, as locally implemented, require conformance with performance criteria. These areas include Resource Protection Areas (RPAs) and Resource Management Areas (RMAs) as designated by the local government. RPAs include tidal wetlands, certain non-tidal wetlands and tidal shores. RPAs also include a 100-foot vegetated buffer area located adjacent to and landward of these features and along both sides of any water body with perennial flow. RMAs, which require less stringent performance criteria, include all areas of the County not designated as RPA.

The proposed East Parcel Development project will occur on approximately 20 acres of land within Prince William County. The project calls for on-site roadway improvements and taxi lane extensions, construction of three surface parking lots and several airplane hangar buildings, stormwater drainage improvements and the installation of additional security fencing. The

APPENDIX H
DRAFT EA COORDINATION AND
DRAFT EA RESPONSES TO COMMENTS

*DRAFT EA COORDINATION
AND PUBLIC WORKSHOP*



Plans & Studies

We provide a comprehensive look at the long-term vision, development strategies, and operational improvements for Manassas Regional Airport. From the Airport Layout Plan and Master Plan Report to financial updates, environmental assessments, and redevelopment studies.

These resources outline how the airport is planning for future growth, safety, and efficiency. Each plan serves as a guide to ensure the airport continues to meet the needs of travelers, businesses, and the community.

- [Airport Layout Plan](#)
- [Environmental Assessment – West Corporate Development and East Parcel Development](#)
- [Environmental Assessment – Replacement Air Traffic Control Tower DRAFT](#)
- [Financial Plan](#)
- [Master Plan Report](#)
- [Strategic Plan](#)

The City of Manassas (City), in coordination with the Federal Aviation Administration (FAA), announces the

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Draft EA is being circulated for review and comment from the public and federal, state, and local agencies.

Comments on the Draft EA should focus on the Proposed Action's economic, social, and environmental effects. Electronic comments may be sent to [David Alberts](#).

The public comment period is 30 days and will begin on **2/19/26** and will close on **3/21/26**. Electronic and hand-delivered comments must be received before 5:00 pm Eastern Standard Time on **3/21/26**.

[Environmental Assessment - HEF Replacement ATCT DRAFT](#)

ABOUT

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Manassas Regional Airport (HEF)

📍 10600 Harry J Parrish Boulevard
Manassas, VA 20110

703-361-1882



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Home > Legals > Public Notices

NOTICE OF AVAILABILITY OF DRAFT ENVIRONMENTAL ASSESSMENT FOR AIR TRAFFIC CONTROL TOWER REPLACEMENT AT MANASSAS REGIONAL AIRPORT

Notice of Availability Of Draft Environmental Assessment For Air Traffic Control Tower Replacement at Manassas Regional Airport

US Department of Transportation
Federal Aviation Administration

Notice of Availability Of Draft Environmental Assessment For Air Traffic Control Tower Replacement at Manassas Regional Airport, Manassas, Virginia
FAA ID NO.: EAXX-021-12-ARP-1758268508

The City of Manassas (City), in coordination with the Federal Aviation Administration (FAA), announces the availability of the Draft Environmental Assessment (EA) for Air Traffic Control Tower (ATCT) Replacement at Manassas Regional Airport (HEF), in Prince William County, Virginia. Pursuant to Title 49, United States Code, § 47106(c)(1)(A) and Section 102(2)(c) of the National Environmental Policy Act (NEPA) of 1969, the Draft EA is being circulated for review and comment from the public and federal, state, and local agencies.

Comments from the federal, state, and local agencies and the public will be considered part of the Final EA. The Final EA will be submitted to the FAA for the agency's environmental determination.

Proposed Action: The City proposes the construction and operation of a replacement ATCT to improve the functional and operational capabilities of the service provided by replacing the existing ATCT. The Proposed ATCT would be up to 120 feet tall and provide improved line of sight, extended cab space, upgraded HVAC systems, enhanced security, better facilities, and improved structural integrity; these would ensure the continued safe and efficient air traffic management at the Airport. After construction of the replacement ATCT is complete

and the proper equipment is installed, tested, and operational, the existing ATCT would be demolished.

Summary of Impacts: A Draft EA has been prepared to disclose the potential economic, social, and environmental impacts of the Proposed Action. The EA discusses the Proposed Action, alternatives, and potential environmental effects in areas including Air Quality, Biological Resources, Climate, Coastal Resources, Section 4(f) of the Department of Transportation (DOT) Act and Section 6(f) of the Land and Water Conservation Fund Act, Farmlands, Hazardous Materials, Solid Waste, and Pollution Prevention, Natural Resources and Energy Supply, Noise and Noise-Compatible Land Use, Socioeconomics and Children's Health and Safety Risks, Visual Effects, and Water Resources. Although impacts were identified, the research and analysis provided in the EA resulted in no significant impacts. Potential impacts and mitigation measures are described in the Draft EA.

Pursuant to Section 7 of the Endangered Species Act (ESA), coordination was conducted with the U.S. Fish and Wildlife (USFWS) regarding the potential impacts on biological resources. The USFWS concluded the Proposed Action would have no effect or not likely to adversely affect any federally listed species or designated critical habitat protected by the ESA.

The FAA consulted with the Virginia Department of Historic Resources (DHR) in compliance with Section 106 of the National Historic Preservation Act. The Virginia DHR concurred with the FAA's no adverse effect determination on April 16, 2025, regarding the replacement ATCT site. The Virginia DHR concurred with the FAA's no historic properties affected determination on January 30, 2026, regarding the FAA Remote Transmitter/Receiver (RTR) site. This notice also fulfills the Section 106 consultation requirements.

A portion of the Proposed Action is within a 100-year floodplain. Pursuant to Executive Order 11988, Floodplain Management, notice is given that the Proposed Action constitutes an encroachment into the 100-year floodplain. The potential impacts and mitigation measures are described in the Draft EA. Draft EA Availability: The Draft EA is available for public review on the Airport's website <https://flyhef.com/about/plans->

projects/plans-studies and at the following locations:

Prince William County Public Library- Central Library
8601 Mathis Ave,
Manassas, VA 20110

Manassas Regional Airport
10600 Harry J Parrish Blvd
Manassas, VA 20110

How to Comment: Comments on the Draft EA should focus on the Proposed Action's economic, social, and environmental effects. Electronic comments may be sent to David Alberts (**David.Alberts@rsandh.com**). Written comments can be mailed to either of the recipients below:

RS&H, Inc. Manassas Regional Airport
Attn: Mr. David Alberts Attn: Mr. Juan Rivera, Airport Director
10748 Deerwood Park Boulevard South 10600 Harry J Parrish Blvd
Jacksonville, FL 32256 Manassas, VA 20110

The public comment period is 30 days and will begin on 2/19/26 and will close on 3/21/26. Electronic and hand-delivered comments must be received before 5:00 pm Eastern Standard Time on 3/21/26. Mailed comments must be postmarked no later than 3/21/26.

The City will host a Draft EA Public Meeting on 3/10/26 from 5 pm to 7 pm at Manassas Regional Airport. The Public Meeting will include exhibit boards, solicit comments regarding the Proposed Action, and discuss the potential environmental impacts with the City and its consultant (RS&H, Inc.). All Draft EA comments will be addressed in the Final EA.

Be advised that all comments can only be accepted with the full name and address of the individual commenting. All comments received, including personal identifying information, may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Post Date: 02/19 12:00 AM

Refcode: #L00118500 Print 

Similar Listings

Purpose and Need

Purpose: The “purpose” describes why the Airport wishes to solve the problem.

Airport Traffic Control Tower Replacement- Improve the ATCT functional and operational capabilities provided to the Airport.

Need: The “need” describes the problem an Airport is facing.

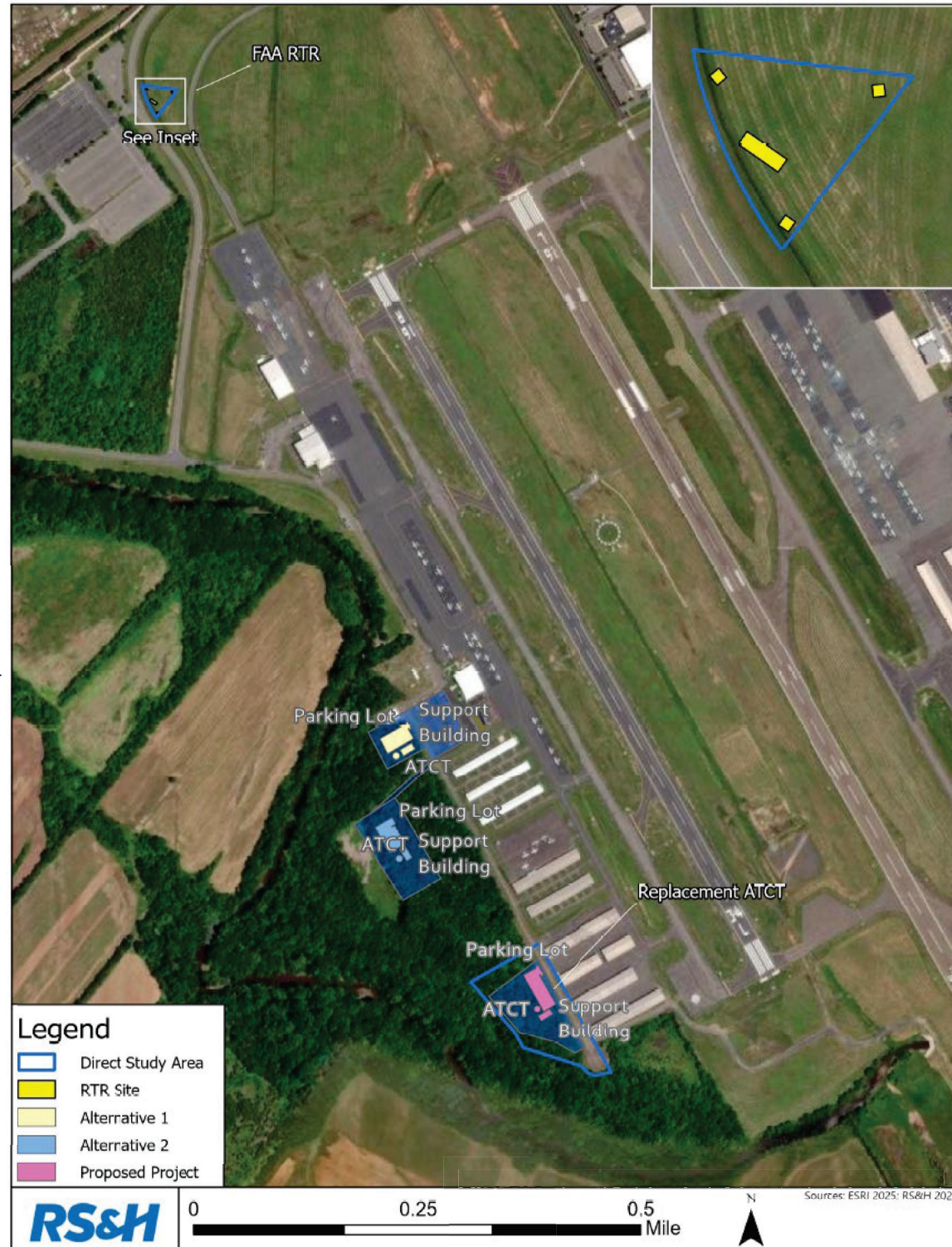
Airport Traffic Control Tower Replacement- Combination of safety, operational, and infrastructure deficiencies.

- » Inadequate height
- » Obstructed line of sight
- » Limited Space in the ATCT Cab
- » Escalating maintenance costs
- » Inadequate HVAC system
- » Security concerns
- » Inadequate facilities
- » Structural issues

Proposed Project & Alternatives

Proposed Project

- » Clearing and grubbing of Airport property containing vegetation and trees for Replacement ATCT.
- » Construction of operation of a minimum 2-acre site for replacement 111-120 feet ATCT and support facilities
 - » Approx. 130 feet to top of the antennas with 550 sq ft of cab space.
- » Construction of ATCT supporting facilities:
 - » 0.28- acre parking lot for the ATC staff working the ATCT
 - » 25 foot- long sidewalk to the replacement ATCT
 - » 100 sq ft utility pad
 - » Connection to utilities to service the replacement ATCT and link the replacement ATCT to the airfield lighting
 - » Construction of a security fence to secure and provide access to the replacement ATCT.
- » Construction of an FAA Remote Transmitter Receiver (FAA RTR)
- » Relocation of the rotating beacon to the top of the replacement ATCT
- » Demolition of the existing ATCT.



Project Study Areas / Environmental Impact Categories

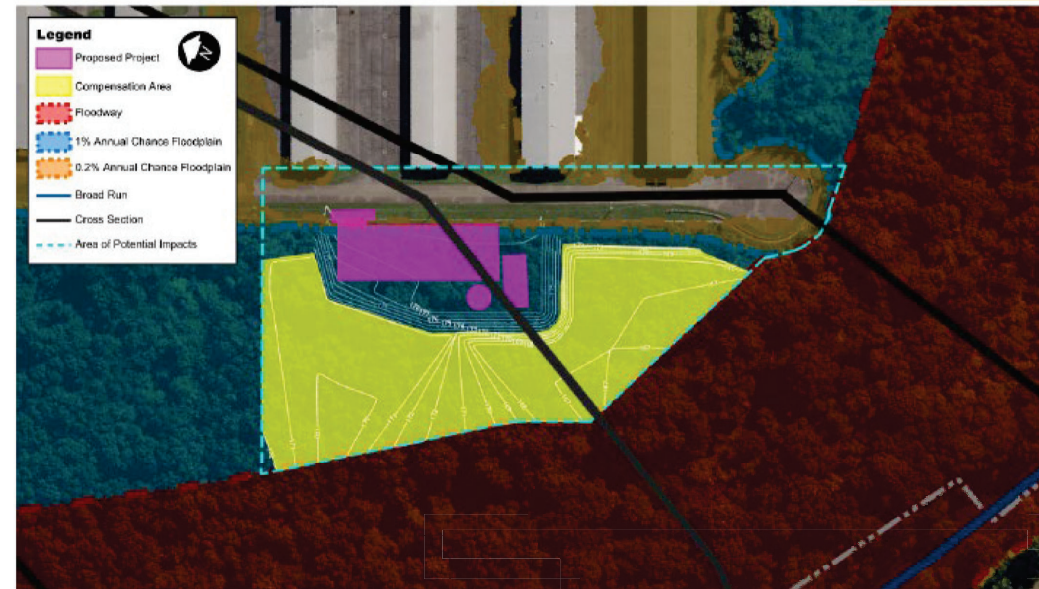
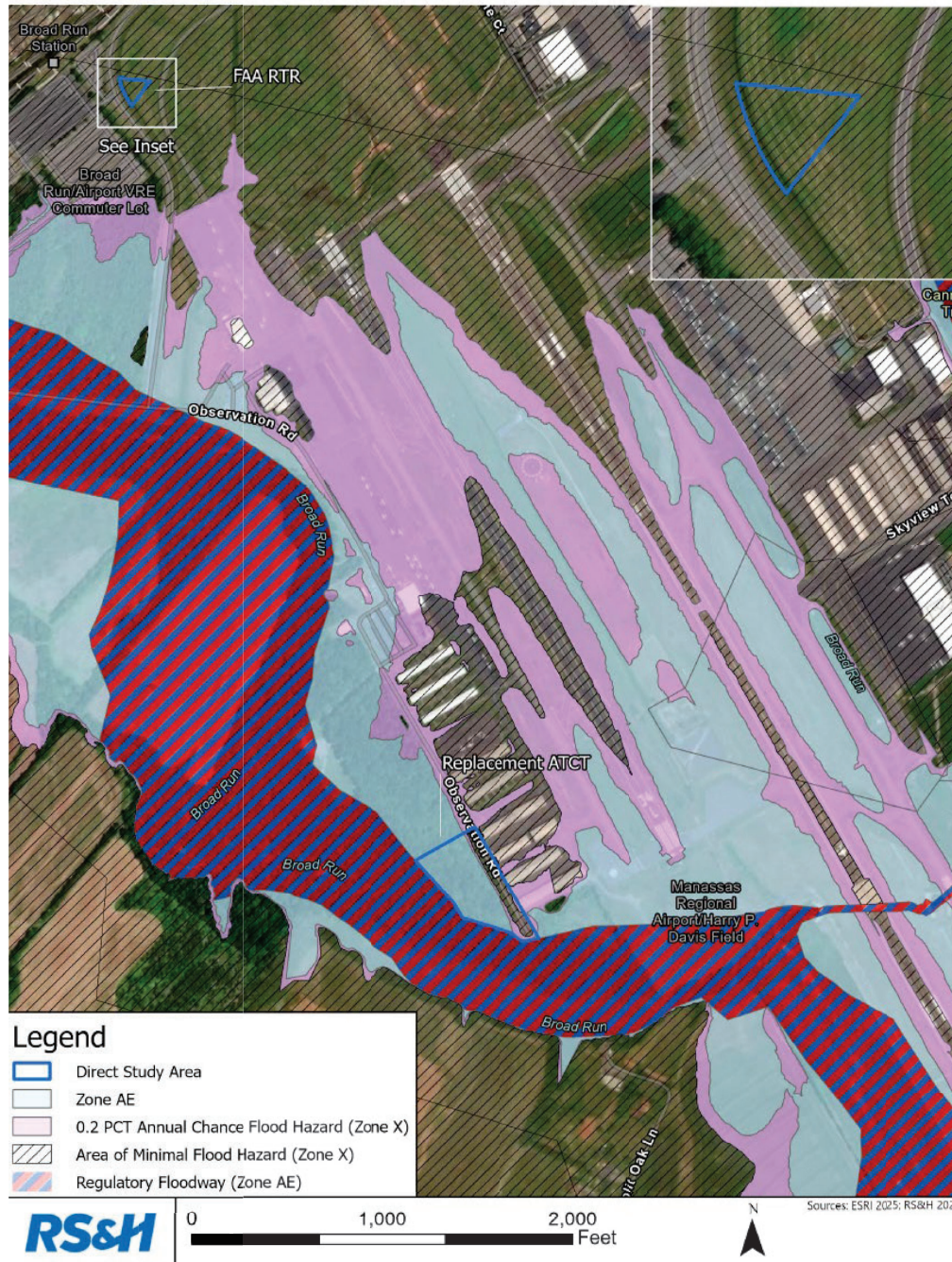


FAA Order 1050.1 Environmental Impact Categories

- » Air Quality
- » Biological Resources
- » Climate
- » Coastal Resources
- » Department of Transportation Section 4(f) Resources
- » Farmlands
- » Hazardous Materials, Solid Waste, Pollution Prevention
- » Historic, Architectural, Archaeological, and Cultural Resources
- » Natural Resources and Energy Supply
- » Noise and Noise-Compatible Land Use
- » Socioeconomics, and Children's Health and Safety Risks
- » Visual Effects (Visual and Light Emissions)
- » Water Resources (Floodplains, Surface Waters, Groundwater, Wetlands)

Water Resources - Floodplains

- » Web-based research of FEMA FIRM maps was conducted.
- » Hydrologic modeling was conducted
- » Result: The model results showed no increases in BFE and a maximum decrease of 0.02 feet from the No Action Alternative, which meets the requirements of a no-rise condition.
- » The Proposed Project would have no adverse effect on floodplains.
- » A Flood Hazard Use Permit would be obtained from PWC that would demonstrate no-net-rise to the floodplain.
- » The Proposed Project would be designed to meet the National Flood Insurance Program (NFIP) for new buildings in a Zone AE floodplain.



Visual Resources

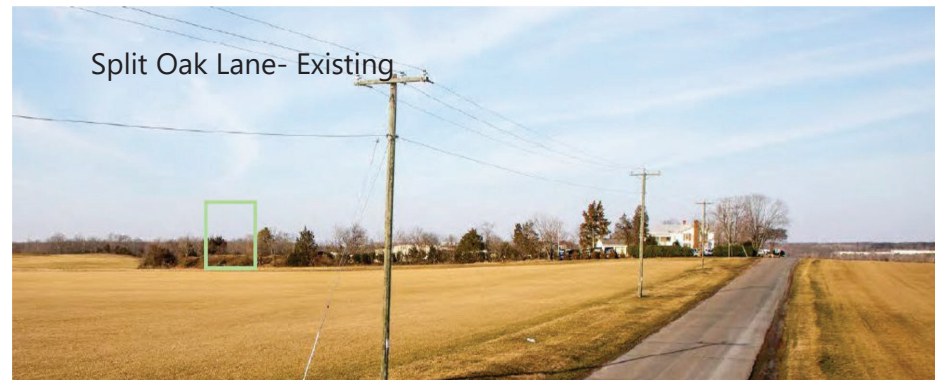
Bristow Road/Meadow Lane-Existing



Bristow Road/Meadow Lane- Proposed Project



Split Oak Lane- Existing



Split Oak Lane- Proposed Project



View Map



DRAFT EA RESPONSES TO COMMENTS

**Letter 1: Commonwealth of Virginia Department of Environmental Quality (DEQ)
(March 13, 2026)**



Commonwealth of Virginia
VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

www.deq.virginia.gov

David L. Bulova
Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director

March 13, 2026

RS&H, Inc.
Attn: Mr. David Alberts
10748 Deerwood Park Boulevard South
Jacksonville, FL 32256
Via email: David.Alberts@rsandh.com

RE: Comments on the Draft Environmental Assessment for the Air Traffic Control Tower Replacement at Manassas Regional Airport in the City of Manassas and Prince William County (DEQ 26-024F)

Dear Mr. Alberts:

The Commonwealth of Virginia has completed its review of the above-referenced document. The Department of Environmental Quality (DEQ) is responsible for coordinating Virginia's review of federal environmental documents submitted under the National Environmental Policy Act (NEPA) and responding to appropriate federal officials on behalf of the Commonwealth. This is in response to the Draft Environmental Assessment (EA) dated February 9, 2026 submitted by RS&H, Inc. on behalf of the Federal Aviation Administration (FAA) for the above referenced project. The following agencies and planning district commission (PDC) participated in the review of this proposal:

Department of Environmental Quality
Department of Conservation and Recreation (DCR)
Department of Historic Resources (DHR)
Department of Wildlife Resources (DWR)
Department of Health (VDH)
Northern Virginia Regional Commission (PDC)

In addition, the Department of Aviation (DOAV), Prince William County and the City of Manassas were invited to comment on the proposal.

PROJECT DESCRIPTION

The City of Manassas in coordination with the Federal Aviation Administration (FAA) proposes the construction and operation of a replacement Air Traffic Control Tower (ATCT) at Manassas Regional Airport (HEF) in the City of Manassas and Prince William County, Virginia (Proposed Action). The Airport encompasses about 743 acres within the City and about 136 acres in Prince William County and is owned and operated by the City of Manassas. The purpose of the project is to improve the functional and operational capabilities of the service provided by replacing the existing ATCT. The City is seeking funding from the FAA (e.g., Infrastructure Investment and Jobs Act (IIJA)) and state as well as the City to construct the proposed replacement facility. The Proposed ATCT would be up to 120 feet tall and provide improved line of sight, extended cab space, upgraded HVAC systems, enhanced security, better facilities, and improved structural integrity; these would ensure the continued safe and efficient air traffic management at the Airport. After construction of the replacement ATCT is complete and the proper equipment is installed, tested, and operational, the existing ATCT would be demolished.

ENVIRONMENTAL IMPACTS AND MITIGATION

1. Air Pollution. According to the Draft EA (page 3-10), construction of the Proposed Action would cause a minor increase in surface vehicles using area roadways to access the construction sites (i.e., approximately 8 construction-related vehicles and 45 construction employee-related vehicles). However, this would be temporary, lasting the duration of construction from 2026 to 2027. The action will not increase aircraft operations at the airport. The DEA concludes that the proposed action would not result in significant air quality effects. During construction fugitive dust would be minimized using control practices.

1(a) Agency Jurisdiction. The DEQ Air Division, on behalf of the State Air Pollution Control Board, is responsible for developing regulations that implement Virginia's Air Pollution Control Law (Virginia Code §10.1-1300 et seq.). DEQ is charged with carrying out mandates of the state law and related regulations as well as Virginia's federal obligations under the Clean Air Act as amended in 1990. The objective is to protect and enhance public health and quality of life through control and mitigation of air pollution. The division ensures the safety and quality of air in Virginia by monitoring and analyzing air quality data, regulating sources of air pollution, and working with local, state and federal agencies to plan and implement strategies to protect Virginia's air quality. The appropriate DEQ regional office is directly responsible for the issuance of necessary permits to construct and operate all stationary sources in the region as well as monitoring emissions from these sources for compliance. As a part of this mandate, environmental impact reviews (EIRs) of projects to be undertaken in the state are also reviewed. In the case of certain projects, additional evaluation and demonstration must be made under the general conformity provisions of state and federal law.

The Air Division regulates emissions of air pollutants from industries and facilities and implements programs designed to ensure that Virginia meets national air quality standards. The most common regulations associated with projects are:

- Open burning: 9 VAC 5-130 *et seq.*
- Fugitive dust control: 9 VAC 5-50-60 *et seq.*
- Permits for fuel-burning equipment: 9 VAC 5-80-1100 *et seq.*

1(b) Agency Findings. Prince William County and the City of Manassas is located in Northern VA/DC/MD 2015 Ozone Marginal Nonattainment Area and the Northern Virginia Emission Control Area (ECA) 9VAC5-20-206.1.a and 2.a for volatile organic compounds (VOCs) and oxides of nitrogen (NOx).

1(c) Requirements.

1

1(c)(i) Fugitive Dust. During land-disturbing activities, fugitive dust must be kept to a minimum by using control methods outlined in 9VAC5-50-60 *et seq.* of the Regulations for the Control and Abatement of Air Pollution. These precautions include, but are not limited to, the following:

- Use, where possible, of water or suitable chemicals for dust control during the proposed demolition and construction operations and from material stockpiles;
- Installation and use of hoods, fans and fabric filters to enclose and vent the handling of dusty materials;
- Covering of open equipment for conveying materials; and
- Prompt removal of spilled or tracked dirt or other materials from paved streets and removal of dried sediments resulting from soil erosion.

Follow this requirement to limit particulate matter and other air pollutants from construction equipment and vehicle operation and site grading on the project site.

2

1(c)(ii) Fuel-Burning Equipment. Fuel-burning equipment (boilers, generators, compressors, etc.) or any other air-pollution-emitting equipment may be subject to registration or permitting requirements under 9 VAC5-80, Article 6, Permits for New and Modified Sources. The regulation requires obtaining an air permit before commencing construction of, or operation of any new stationary source.

3

1(c)(iii) Open Burning. If project activities change to include open burning or the use of special incineration devices are employed in the disposal of land-clearing debris during demolition and construction, these activities must meet the requirements under 9VAC5-130 *et seq.* for open burning. Whereas, the regulation provides for, but does not require, the local adoption of a model ordinance concerning open burning, the Corps should contact the locality to determine what local requirements, if any, exist. Some applicable provisions of the regulation include, but are not limited to:

- Open burning or the use of special incineration devices for the destruction of clean burning waste and debris waste resulting from clearing operations is prohibited from May 1 through September 30.
- Open burning is permitted for forest management, agricultural practices, and highway construction and maintenance programs approved by the board shall be at least 1,000 feet

from any occupied building unless the occupants have given prior permission, other than a building located on the property on which the burning is conducted and the burning shall be attended at all times.

- Special attention should be directed to § [10.1-1142](#) of the Code of Virginia, which is enforced by the Department of Forestry.
- Special attention should also be directed to the regulations of the Virginia Waste Management Board.
- Follow the open burning prohibitions as outlined in 9VAC5-130-30

4

1(c)(iv) Asphalt Paving. A precaution, which typically applies to road construction and paving work (9 VAC 5-45-780 *et seq.*), places limitations on the use of “cut-back” (liquefied asphalt cement, blended with petroleum solvents), and may apply to the project. The asphalt must be “emulsified” (predominantly cement and water with a small amount of emulsifying agent) except when specified circumstances apply. Moreover, there are time-of-year restrictions on its use from April through October in VOC emission control areas.

5

Follow this requirement to limit VOCs and other air pollutants from any necessary asphalt paving operations on the project site.

1(d) Recommendation. Take precautions to restrict the emissions of VOCs and NO_x, principally by limiting the burning of fossil fuels.

6

2. Natural Heritage Resources. The Draft EA (page 3-13) notes the study area contains approximately one acre of cleared forest with remaining stumps and mulched branches/logs; two acres of forest habitat; 0.3-acre of mowed and maintained grass; and 0.9-acre of paved and/or graded surfaces associated with Observation Road, an existing parking lot, a dirt road, and a clearing to store equipment and materials. The project area is immediately adjacent to aircraft hangars, taxilanes, and parking lots along Runway 16R-34L and provides low habitat value to wildlife species sensitive to high levels of human activity.

2(a) Agency Jurisdiction.

2(a)(i) The Virginia Department of Conservation and Recreation’s (DCR) Division of Natural Heritage (DNH). DNH’s mission is conserving Virginia’s biodiversity through inventory, protection and stewardship. The Virginia Natural Area Preserves Act (Virginia Code §10.1-209 through 217), authorized DCR to maintain a statewide database for conservation planning and project review, protect land for the conservation of biodiversity, and the protect and ecologically manage the natural heritage resources of Virginia (the habitats of rare, threatened and endangered species, significant natural communities, geologic sites, and other natural features).

2(a)(ii) Virginia Department of Agriculture and Consumer Services (VDACS): The Endangered Plant and Insect Species Act of 1979 (Virginia Code Chapter 39 §3.1-1020 through 1030) authorizes VDACS to conserve, protect and manage endangered and threatened species of plants and insects. Under a Memorandum of Agreement established between VDACS and the DCR, DCR represents VDACS in comments regarding potential impacts on state-listed

threatened and endangered plant and insect species.

2(b) Agency Findings. DCR's Division of Natural Heritage (DNH) searched its Biotics Data System (Biotics) for occurrences of natural heritage resources from the area outlined on the submitted map and identified natural heritage resources in the vicinity. According to the information currently in Biotics, the Broad Run - Cannon Branch Stream Conservation Site (SCS) is located within the project area. The Broad Run - Cannon Branch SCS has been given a B-rank of B4, which represents a site of moderate significance. The natural heritage resource associated with this SCS is the Brook floater (*Alasmidonta varicosa*, G3/S1/NL/LE), a small freshwater mussel species.

7

According to an email from the BioSurvey Group dated October 30, 2025, a freshwater mussel survey was conducted for the Brook floater in accordance with the approved DWR survey plan and none were documented. DCR requests a copy of the freshwater mussel survey report.

8

2(b)(i) State-listed Plant and Insect Species. The current activity will not affect any documented state-listed plants or insects.

9

2(b)(ii) State Natural Area Preserves. There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

10

2(c) Recommendations. To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations. DCR also recommends maintaining as much forested buffer between the proposed development and the stream to protect water quality.

Contact DCR-DNH to secure updated information on natural heritage resources if the scope of the project changes and/or six months has passed before it is utilized. New and updated information is continually added to the Biotics Data System.

3. Public Water Supply. The Draft EA (page 3-59) notes that the project site is not located in a Sole Source Aquifer area. The study area does not contain any wetlands or surface waters and the Draft EA does not indicate that public water sources will be affected. The Draft EA (page 2-3) notes that the replacement ATCT will be connected to utilities (water, sewer, power, and communication).

3(a) Agency Jurisdiction. The Virginia Department of Health (VDH) Office of Drinking Water reviews projects for the potential to impact drinking water sources (groundwater wells, springs, and surface water intakes) serving waterworks. VDH administers the Virginia Waterworks Regulations (12VAC5-590) governing waterworks operation and construction, and has primacy for the National Primary Drinking Water Regulations (40 CFR § 141) and implements the National Secondary Drinking Water Regulations (40 CFR § 143).

3(b) Agency Findings. VDH ODW identified the following public groundwater wells within a 1-mile radius of the project site:

- PWSID 6153041, Prince William County, Bristow Manor Golf Club, Well
- PWSID 6153832, Prince William County, Valley View Park, Well #1
- PWSID 6153668, Prince William County, Transportation Area (Prince William County Schools), Well #2

There City of Manassas Lake Manassas Dam (PWS ID 6685100) surface water intake is located within a 5-mile radius of the project site.

The project is within the watershed of the Fairfax County Water Authority Occoquan Reservoir Intake (PWS ID 6059501).

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3(c) Recommendation. Utilize Best Management Practices (BMPs), including erosion and sedimentation controls and spill prevention controls and countermeasures on the project site.

Carefully manage materials on site and during transport to prevent impacts to nearby surface water.

4. Erosion and Sediment Control and Stormwater Management. According to the Draft EA (page 3-63) during construction, the selected contractor would implement stormwater, erosion, and sediment control BMPs in compliance with the stormwater pollution prevention plan (SWPPP) associated with the City's VPDES General Permit (VAR050985) to minimize or prevent pollutants from entering Broad Run and nearby wetlands along Broad Run. Following construction, all disturbed upland areas would be seeded with a seed mix containing species appropriate for the region.

4(a) Agency Jurisdiction. The DEQ Office of Stormwater Management (OSWM) administers the following laws and regulations governing construction activities:

- Virginia Erosion and Sediment Control Law (VESCL) (§ 62.1-44.15:51 *et seq.*);
- Virginia Stormwater Management Act (VSMA) (§ 62.1-44.15:24 *et seq.*);
- Virginia Erosion and Stormwater Management Regulation (9VAC25-875 *et seq.*) and
- 2024 General Virginia Pollutant Discharge Elimination System (VPDES) Permit for Discharges of Stormwater from Construction Activities (9VAC25-875 *et seq.*).

In addition, DEQ is responsible for VSMP General Permit for Stormwater Discharges from Construction Activities related to Municipal Separate Storm Sewer Systems (MS4s) and construction activities for the control of stormwater discharges from MS4s and land disturbing activities under the Virginia Stormwater Management Program (9VAC25-890-40).

4(b) Requirements.

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4(b)(i) Erosion and Sediment Control. The applicant is responsible for submitting a project-specific erosion and sediment control (ESC) plan to the locality in which the project is located for review and approval pursuant to the local ESC requirements, if the project involves a land-disturbing activity of $\geq 10,000$ square feet ($\geq 2,500$ square feet in a Chesapeake Bay Preservation Area). Depending on local requirements, the area of land disturbance requiring an ESC plan may

be less. The ESC plan must be approved by the locality prior to any land-disturbing activity at the project site. All regulated land-disturbing activities associated with the project, including on- and off-site access roads, staging areas, borrow areas, stockpiles, and soil intentionally transported from the project, must be covered by the project-specific ESC plan. Local ESC program requirements must be requested through the locality (Reference: *Virginia Erosion and Sediment Control Law* §62.1-44.15 *et seq.*; *Consolidated ESC/SWM Regs. 9VAC25-875-10 et seq.*).

4(b)(ii) Stormwater Management Plan. Depending on local requirements, a stormwater management (SWM) plan may be required. Local SWM program requirements must be requested through the locality (Reference: *Virginia Stormwater Management Act* §62.1-44.15 *et seq.*; *Consolidated ESC/SWM Regs. 9VAC25-875-10 et seq.*).

4(b)(iii) General Permit for Stormwater Discharges from Construction Activities (VAR10). DEQ is responsible for the issuance, denial, revocation, termination and enforcement of the Virginia Stormwater Management Program (VSMP) General Permit for Stormwater Discharges from Construction Activities related to municipal separate storm sewer systems (MS4s) and construction activities for the control of stormwater discharges from MS4s and land disturbing activities under the Virginia Stormwater Management Program. The operator or owner of a construction project involving land-disturbing activities ≥ 1 acre is required to register for coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project-specific stormwater pollution prevention plan (SWPPP). The SWPPP must be prepared prior to submission of the registration statement for coverage under the General Permit and the SWPPP must address water quality and quantity in accordance with the *VSMP Permit Regulations* (Ref: VSWML §62.1-44.15 *et seq.*; *Consolidated ESC/SWM Regs. 9VAC25-875-10 et seq.*).

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4(c) Recommendation. Non-point source pollution resulting from this project should be minimized by using effective erosion and sediment control practices and structures. Consideration should also be given to using permeable paving for parking areas and walkways where appropriate and denuded areas should be promptly revegetated following construction work.

5. Floodplain Management. According to the draft EA (page 3-13) approximately half of the airport property lies within the 100-year floodplain for Broad Run and a portion of the proposed action is within a 100-year floodplain.

A Flood Hazard Use Permit from Prince William County is required for all work within the floodplain and/or floodway (page 3-55).

5(a) Agency Jurisdiction. The Department of Conservation and Recreation (DCR) is the lead coordinating agency for the Commonwealth's floodplain management program and the National Flood Insurance Program (Code of Virginia § 10.1-602). Pursuant to §10.1-603 of the Virginia Code and in accordance with 44 CFR section 60.12 of the National Flood Insurance Program Regulations for Floodplain Management and Flood Hazard Identification, all construction or land-disturbing activities initiated by an agency of the Commonwealth, or by its contractor, in

floodplains shall be submitted to the locality and comply with the locally adopted floodplain management ordinance.

5(b) Agency Findings. The National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency (FEMA), and communities who elect to participate in this voluntary program manage and enforce the program on the local level through that community's local floodplain ordinance. Each local floodplain ordinance must comply with the minimum standards of the NFIP, outlined in 44 CFR 60.3; however, local communities may adopt more restrictive requirements in their local floodplain ordinance, such as regulating the 0.2% annual chance flood zone (shaded X Zone).

All development within a Special Flood Hazard Area (SFHA) or floodplain, as shown on the locality's Flood Insurance Rate Map (FIRM), must be permitted and comply with the requirements of the local floodplain ordinance.

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5(c) Requirement. Projects conducted by federal agencies within the SFHA must comply with Executive Order 11988: Floodplain Management.

The applicant/developer must contact the local floodplain administrator for an official floodplain determination, and if the project is located in the SFHA, this project must comply with the community's local floodplain ordinance, including receiving a local permit. Failure to comply with the local floodplain ordinance could result in enforcement action from the locality.

To find flood zone information, use the Virginia Flood Risk Information System (VFRIS):
www.dcr.virginia.gov/vfris

6. Solid and Hazardous Waste Management. According to the EA (page 3-31) no hazardous waste facilities are within the direct study area. Construction of the Proposed Action would increase temporary on-Airport hazardous materials. This would predominantly be diesel fuel, which is necessary to operate construction equipment. The selected contractor would use and manage construction-related hazardous materials in accordance with the Airport's Spill Prevention Control and Countermeasure (SPCC) plan and the amended SWPPP (including the Proposed Action) and store hazardous materials at the construction staging areas. The selected contractor would be responsible for disposing of hazardous waste in accordance with all federal, state, and local rules and regulations.

Construction of the Proposed Action would cause a short-term, temporary increase in the quantity of solid waste generated at the Airport throughout construction from 2026 to 2027 (page 3-33). Demolition of the existing ATCT would occur after the Proposed Action is fully operational. The Prince William County Landfill accepts limited construction and demolition debris.

The operation of the Proposed Action would not change the type or quantity of hazardous materials used or stored at the Airport.

6(a) Agency Jurisdiction. On behalf of the Virginia Waste Management Board, the DEQ

Division of Land Protection and Revitalization is responsible for carrying out the mandates of the Virginia Waste Management Act (Virginia Code §10.1-1400 et seq.), as well as meeting Virginia's federal obligations under the Resource Conservation and Recovery Act (RCRA) and the Comprehensive Environmental Response Compensation Liability Act, commonly known as Superfund. The DEQ Division of Land Protection and Revitalization also administers those laws and regulations on behalf of the State Water Control Board governing Petroleum Storage Tanks (Virginia Code §62.1-44.34:8 et seq.), including Aboveground Storage Tanks (9VAC25-91 et seq.) and Underground Storage Tanks (9VAC25-580 et seq. and 9VAC25-580-370 et seq.), also known as Virginia Tank Regulations, and § 62.1-44.34:14 et seq. which covers oil spills.

Virginia:

- Virginia Waste Management Act, Virginia Code § 10.1-1400 et seq.
- Virginia Solid Waste Management Regulations, 9VAC20-81
 - (9VAC20-81-620 applies to asbestos-containing materials)
- Virginia Hazardous Waste Management Regulations, 9VAC20-60
 - (9VAC20-60-261 applies to lead-based paints)
- Virginia Regulations for the Transportation of Hazardous Materials, 9VAC20-110.

Federal:

- Resource Conservation and Recovery Act (RCRA), 42 U.S. Code sections 6901 et seq.
- U.S. Department of Transportation Rules for Transportation of Hazardous Materials, 49 Code of Federal Regulations, Part 107
- Applicable rules contained in Title 40, Code of Federal Regulations.

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6(b) Agency Findings. The DEQ Division of Land Protection and Revitalization (DLPR) conducted a review of solid and hazardous waste databases including a search for petroleum releases within a 200-foot radius of the project site. The DLPR search did not identify any waste sites within the project area which might impact the project.

The DLPR notes that solid and hazardous waste issues and sites were addressed in the Draft EA.

6(c) Requirements.

6(c)(i) Waste Management. Any soil that is suspected of contamination or wastes that are generated during the action must be tested and disposed of in accordance with applicable federal, state, and local laws and regulations. All construction and demolition debris must be characterized in accordance with the *Virginia Hazardous Waste Management Regulations* prior to disposal at an appropriate facility. It is the generator's responsibility to determine if solid waste meets the criteria of hazardous waste and as a result be managed as such.

6(c)(ii) Petroleum Releases and Contaminated Soils. If evidence of a petroleum release is discovered during implementation of this project, it must be reported to DEQ, as authorized by Virginia Code § 62.1-44.34.8 through 9 and 9 VAC 25-580-10 *et seq.* Petroleum contaminated

soils generated during construction of this project must be characterized and disposed of properly.

6(c)(iii) **Asbestos-containing Material and Lead-based Paint.** Any structures being demolished, renovated or removed should be checked for asbestos-containing materials (ACM) and lead-based paint (LBP) prior to construction. If ACM or LBP are found, in addition to the federal waste-related regulations mentioned above, state regulations 9 VAC 20-80-640 for ACM and 9 VAC 20-60-261 for LBP must be followed.

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6(d) Agency Recommendation. DEQ encourages all projects to implement pollution prevention principles, including:

- the reduction, reuse and recycling of all solid wastes generated; and
- the minimization and proper handling of generated hazardous wastes.

7. Water Quality and Wetlands. The Draft EA (page 3-56) there are no wetlands or water resources within the footprint of the proposed action.

7(a) Agency Jurisdiction. The State Water Control Board promulgates Virginia's water regulations covering a variety of permits to include the [Virginia Pollutant Discharge Elimination System Permit](#) (VPDES) regulating point source discharges to surface waters, Virginia Pollution Abatement Permit regulating sewage sludge, storage and land application of biosolids, industrial wastes (sludge and wastewater), municipal wastewater, and animal wastes, the [Surface and Groundwater Withdrawal Permit](#), and the [Virginia Water Protection \(VWP\) Permit](#) regulating impacts to streams, wetlands, and other surface waters. The VWP permit is a state permit which governs activities in state surface waters including wetlands, and certain surface water withdrawals, diversion, and impoundments. It also may serve as Section 401 Water Quality Certification of the federal licenses and permits under the Clean Water Act. The VWP Permit Program is under the Office of Wetlands and Stream Protection, within the DEQ Division of Water Permitting. Six DEQ regional offices perform permit application reviews and issue permits or coverages for the covered activities.

- Clean Water Act Sections 404 and 401 (33 U.S.C. § 1251 *et seq.*);
- Section 404(b)(i) Guidelines Mitigation Memorandum of Agreement (2/90) (40 CFR Part 230);
- State Water Control Law, Chapter 3.1 of Title 62.1 of the Code of Virginia; and
- State Water Control Board regulations 9VAC25-210 *et seq.*; 9VAC25-660 *et seq.*; 9VAC25-670 *et seq.*; 9VAC25-680 *et seq.*; and 9VAC25-690 *et seq.*

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7(b) DEQ Findings. The project manager is reminded that a VWP permit from DEQ may be required should impacts to surface waters be necessary. A VWP permit may be required if construction activities will occur in or along any streams (perennial, intermittent, or ephemeral), open water or wetlands. The disturbance of surface waters or wetlands may require prior approval by DEQ and/or the U.S. Army Corps of Engineers (Corps). The Corps is the authority for an

official confirmation of whether there are federal jurisdictional waters, including wetlands, which may be impacted by the proposed project. DEQ may confirm additional waters as jurisdictional beyond those under federal authority. Review of National Wetland Inventory maps or topographic maps for locating wetlands or streams may not be sufficient; there may need to be a site-specific review of the site by a qualified professional.

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7(c) Agency Recommendation. The VWP program at the DEQ Northern Regional Office (NRO) recommends the avoidance and minimization of surface water impacts to the maximum extent practicable. Even if there will be no intentional placement of fill material in jurisdictional waters, potential water quality impacts resulting from construction site surface runoff must be minimized. This can be achieved by using Best Management Practices (BMPs).

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7(d) VPDES Requirements. A construction project may require coverage under the VPDES General Permit for Petroleum Contaminated Sites, Groundwater Remediation, and Hydrostatic Tests (VAG83) for any hydrostatics tests on any new piping installed, or for any potential dewatering during construction if petroleum contamination is encountered.

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8. Pesticides and Herbicides. DEQ recommends that the use of herbicides or pesticides for construction or landscape maintenance should be in accordance with the principles of integrated pest management. The least toxic pesticides that are effective in controlling the target species should be used to the extent feasible. Contact the Department of Agriculture and Consumer Services at (804) 786-3501 for more information.

9. Pollution Prevention. DEQ's [Office of Pollution of Prevention](#) hosts a number of programs and initiatives that serve for non-regulatory assistance to businesses, institutions, and communities including the Virginia Environmental Excellence Program and Virginia Green.

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9(a) Recommendations. We have several pollution prevention recommendations that may be helpful in facility operations, as applicable:

- Consider development of an effective Environmental Management System (EMS). An effective EMS will ensure that the proposed facility is committed to complying with environmental regulations, reducing risk, minimizing environmental impacts, setting environmental goals, and achieving improvements in its environmental performance. DEQ offers EMS development assistance and recognizes facilities with effective Environmental Management Systems through its Virginia Environmental Excellence Program (VEEP). VEEP provides recognition, annual permit fee discounts, and the possibility for alternative compliance methods.
- Consider environmental attributes when purchasing materials. For example, the extent of recycled material content, toxicity level, and amount of packaging should be considered and can be specified in purchasing contracts.
- Consider energy efficiency when choosing materials and products, like insulation, fixtures, and HVAC systems.

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Cont.

- Consider contractors' commitment to the environment when choosing contractors. Specifications regarding raw materials and construction practices can be included in contract documents and requests for proposals.
- Choose sustainable materials and practices for building construction and design.
- Integrate pollution prevention techniques into the facility maintenance and operation, to include inventory control for centralized storage of hazardous materials. Maintenance facilities should have sufficient and suitable space to allow for effective inventory control and preventive maintenance.

DEQ's Office of Pollution Prevention provides information and technical assistance relating to pollution prevention techniques and EMS. For more information, contact DEQ's Office of Pollution Prevention, Meghann Quinn at (804) 774-9076.

10. Historic and Archaeological Resources. The Draft EA (page 3-36) states based on the Phase I archaeological survey, the construction of the Replacement ATCT, including tree clearing activities already performed, would not have any impact on historic, architectural, archaeological, or cultural resources listed in or eligible for the National Register of Historic Places. No further investigations are recommended.

On January 8, 2026, the FAA submitted a Section 106 coordination letter and accompanying Project Review Application Form to the DHR. The letter and supporting materials described the addition to the Area of potential Effect (APE), the potential direct effects, alternative RTR locations and evaluation, and potential indirect effects (visual, atmospheric, and auditory). The FAA determined that the revised Proposed Action, with the RTR towers and electrical support building, would not affect historic resources.

10(a) Agency Jurisdiction. The Virginia [Department of Historic Resources \(DHR\)](#) conducts reviews of both federal and state projects to determine their effect on historic properties. Under the federal process, DHR is the State Historic Preservation Office, and ensures that federal undertakings - including licenses, permits, or funding - comply with Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulation at 36 CFR Part 800. Section 106 requires federal agencies to consider the effects of federal projects on properties that are listed or eligible for listing on the National Register of Historic Places. For state projects or activities on state lands, DHR is afforded an opportunity to review and comment on (1) the demolition of state property; (2) major state projects requiring an EIR; (3) archaeological investigations on state-controlled land; (4) projects that involve a landmark listed in the Virginia Landmarks Register; (5) the sale or lease of surplus state property; (6) exploration and recovery of underwater historic properties; and (7) excavation or removal of archaeological or historic features from caves. Please see DHR's website for more information about applicable state and federal laws and how to submit an application for review: <https://www.dhr.virginia.gov/programs/federal-state-review/>.

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10(b) Conclusion. DHR stated that the FAA consulted with DHR, and DHR concurred with their determination of No Adverse Effect to historic properties.

11. Wildlife Resources. The Draft EA (page 3-13) states that the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) provides information about potential impacts on federally listed species and critical habitats. The tool identified three federally endangered, proposed endangered, or proposed threatened species for the Direct Study Area (Tricolored bat, Dwarf wedgemussel, and Monarch butterfly). The Direct Study Area (FAA RTR) does not include any critical habitat or habitat that would support the identified threatened and endangered species. This area's habitat is limited to mowed and maintained grass (page 3-16).

11(a) Agency Jurisdiction. The Virginia Department of Wildlife Resources (DWR), as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state- or federally-listed endangered or threatened species, but excluding listed insects (Virginia Code, Title 29.1). DWR is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S. Code §661 et seq.) and provides environmental analysis of projects or permit applications coordinated through DEQ and several other state and federal agencies. DWR determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce or compensate for those impacts. For more information, see the DWR website at <https://dwr.virginia.gov/>.

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11(b) Agency Comment. DWR's Environmental Services Section is unable to review the proposed project. DWR is not providing comments at this time.

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11(c) Agency Recommendations. DWR encourages full consideration of protections for the Commonwealth's wildlife resources during the design, planning and construction phases of this project. For information on how to best avoid or minimize adverse impacts upon listed species and other wildlife resources under DWR's jurisdiction, DWR recommends a review (if not already completed) of the online tools, project review protocols, best management practices, wildlife survey guidance and species information that are available at <https://dwr.virginia.gov/wies/wies-additional-resources/>.

12. Chesapeake Bay Preservation Areas. The Draft EA (page 3-23) states that the construction and operation of the Proposed Action would not occur within a Resource Management Area or Resource Protection Area, noting that the City of Manassas is not subject to the Chesapeake Bay Preservation Area Designation and Management Regulations. The Draft EA notes that the study area is located within Prince William County's mapped Resource Protection Area of Broad Run and the Replacement ATCT is approximately 270 feet from Broad Run at its nearest point (i.e., more than 170 feet from Broad Run RPA).

12(a) Agency Jurisdiction. The DEQ Office of Local Government Programs administers the Chesapeake Bay Preservation Act (Virginia Code §62.1-44.15:67 et seq.) and Chesapeake Bay Preservation Area Designation and Management Regulations (9 VAC 25-830-10 et seq.). Each Tidewater locality must adopt a program based on the Chesapeake Bay Preservation Act and the Chesapeake Bay Preservation Area Designation and Management Regulations. The Act and regulations recognize local government responsibility for land use decisions and are designed to establish a framework for compliance without dictating precisely

what local programs must look like. Local governments have flexibility to develop water quality preservation programs that reflect unique local characteristics and embody other community goals. Such flexibility also facilitates innovative and creative approaches in achieving program objectives. The regulations address nonpoint source pollution by identifying and protecting certain lands called Chesapeake Bay Preservation Areas. The regulations use a resource-based approach that recognizes differences between various land forms and treats them differently.

12(b) Agency Findings. In Prince William County, the areas protected by the Chesapeake Bay Preservation Act (CBPA), as locally implemented, require conformance with performance criteria. These areas include Resource Protection Areas (RPAs) and Resource Management Areas (RMAs), as designated by each locality. RPAs include tidal wetlands, non-tidal wetlands connected by surface flow and contiguous to tidal wetlands or water bodies with perennial flow, and tidal shores. RPAs in the County also include a 100-foot vegetated buffer area located adjacent to and landward of these features and along both sides of any water body with perennial flow. RMAs, which require less stringent performance criteria than RPAs, includes all lands contiguous to the inland boundary of the RPA and which, if not properly managed, have a potential for degrading water quality or diminishing the functional value of the RPA. In Prince William County, the RMA includes all areas of the County not included in the RPAs.

The City of Manassas is not subject to the Chesapeake Bay Preservation Act or Regulations, and any portion of this project on City-owned land is not subject to review for CBPA compliance.

The project calls for the removal of the current Air Traffic Control Tower (ATCT) located on Observation Road within the Manassas Regional Airport property and the construction/installation of a new ATCT to be located south of the existing tower, on land located at the southwest corner of the airport property. The applicant indicates that 136 acres of the airport is located on land owned by Prince William County but does not provide a map showing the exact location of County-owned lands.

Figure 3-4: Prince William County Resource Protection Areas is an aerial photo showing the extent of RPA features and buffers in the vicinity of the proposed project. RPA buffer exists on either side of Broad Run where it effectively forms the western and southern boundaries of the airport lands. The photo shows extensive RPA throughout a wooded area between the Broad Run RPA buffer and airport facilities on the east side of Observation Road. The blue-lined area shown on Figure 3-4 is identified as the Direct Study Area, also referred to the Replacement ATCT on Figure 2-1: Proposed Action and Alternatives. Placement of the proposed Replacement ATCT, the Parking Lot and Support Building within the area shown shaded pink in Figure 3-4 means that those facilities would be located within the Prince William County RPA.

Any proposed development within the RPA would require a site-specific evaluation, per 9VAC25-830-110 of the Regulations and a Water Quality Impact Assessment (WQIA), per 9VAC25-830-140 6 of the Regulations. If the applicant were to move the proposed project area further to the south, outside of the mapped RPA lands, it is possible that the site-specific evaluation and the WQIA would not be necessary. Review of this project must include approval by Prince William County, as referenced below.

While the applicant did not specify the square footage of proposed land disturbance, it appears the project will likely disturb more than 2,500 square feet, as referenced in 9VAC256-830130 3 of the Regulations.

12(c) Requirement. Projects exceeding an area of 2,500 square feet of land disturbance must meet the requirements of the Virginia Stormwater Management Handbook and stormwater management criteria consistent with water quality protection provisions of the Virginia Erosion and Stormwater Management Regulations, 9VAC25-875-740 and 9VAC25-875-8- and -260 shall be satisfied.

9 VAC25-830-130 and 140 of the Regulations allows land development in the RPA, subject to approval by the local government, only if it (i) is water-dependent; (ii) constitutes redevelopment; (iii) constitutes development or redevelopment within a designated Intensely Developed Area (IDA); (iv) is a new use established pursuant to subdivision 4a of this section; (v) is a road or driveway crossing satisfying conditions set forth in subdivision 1d of this section.; or (vi) is a flood control or stormwater management facility satisfying conditions set forth in subdivision 1e of this section.

Any proposed development within the RPA would require a site-specific evaluation, per 9VAC25-830-110 of the Regulations and a Water Quality Impact Assessment (WQIA), per 9VAC25-830-140 6 of the Regulations. Review of this project must include approval by Prince William County

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12(d) Conclusion. Provided adherence to the above requirements, the proposed activity would be in accordance with the Chesapeake Bay Preservation Act and Regulations.

13. Local and Regional Comments.

13(a) Agency Jurisdiction. In accordance with the Virginia Code, §15.2-4207, planning district commissions encourage and facilitate local government cooperation and state-local cooperation in addressing, on a regional basis, problems of greater than local significance. The cooperation resulting from this is intended to facilitate the recognition and analysis of regional opportunities and take account of regional influences in planning and implementing public policies and services. Planning district commissions promote the orderly and efficient development of the physical, social and economic elements of the districts by planning, and encouraging and assisting localities to plan, for the future.

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13(b) Planning District Commission Comments. The Northern Virginia Regional Commission staff have reviewed the document described and have no comment on the proposed "Air Traffic Control Tower Replacement at Manassas Regional Airport" project in Prince William County.

REGULATORY AND COORDINATION NEEDS

1. Point Source Air Pollution. Activities associated with this project may be subject to air regulations administered by DEQ. The state air pollution regulation that may apply to the project are:

- fugitive dust and emissions control (9VAC5-50-60 *et seq.*);
- asphalt paving operations (9VAC5-45-760 *et seq.*);
- open burning (9VAC5-130 *et seq.*); and
- permits for fuel-burning equipment (9VAC5-80-1100 *et seq.*).

Coordinate with DEQ Northern Regional Office (NRO) (David Hartshorn, 571-408-1778) for guidance on minimizing emissions during construction and questions on air pollution requirements.

2. Natural Heritage Resources. Contact DCR-DNH, Rene Hypes at (804) 371-2708, to secure updated information on natural heritage resources if the scope of the project changes and/or six months has passed before the project is implemented, since new and updated information is continually added to the Biotics Data System.

Please submit a copy of the previously completed freshwater mussel survey report to DCR (Allison.Tillett@dcr.virginia.gov).

3. Public Water Supply. Potential impacts to public water distribution systems or sanitary sewage collection systems must be verified by the local utility (Prince William Water, 703-335-7900).

4. Erosion and Sediment Control and Stormwater Management. The applicant must submit a project-specific ESC plan to the locality if the project disturbs equal to or greater than 10,000 square feet (2,500 square feet in a Chesapeake Bay Preservation Area). Depending on local requirements, the area of land disturbance requiring an ESC plan may be less. This construction project must comply with Virginia Erosion and Sediment Control Law and Regulations (VESCL&R) (§62.1-44.15 *et seq.* and 9VAC25-875-10 *et seq.*) and the Virginia Stormwater Management Law and Regulations. Dependent on local requirements, a SWM plan may be required. Local ESC and SWM program requirements must be requested through the locality. This construction project must comply with the VSWML (§62.1-44.15 *et seq.*) and Consolidated ESC/SWM Regs. (9VAC25-875-10 *et seq.*) as locally administered. If necessary, contact DEQ (Tony Angueira at Antony.Angueira@deq.virginia.gov) for additional information.

5. General Permit for Stormwater Discharges from Construction Activities (VAR10). For projects involving land-disturbing activities equal to or greater than 1 acre, the owner or operator of construction activities is required to apply for registration coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project-specific SWPPP. The SWPPP must address water quality and quantity in accordance with the VSMP Permit Regulations.

Prince William County is the VSMP authority. For additional information, contact the DEQ Northern Regional Office (Mark Remsberg, 703-583-3874).

6. Floodplain Management. The project must be permitted in compliance with the local floodplain ordinance if it is located within the SFHA. Coordinate with the local floodplain administrator for an official floodplain determination of the project area and to ensure compliance with the local ordinance.

To find local floodplain administrator contact information, use DCR's Local Floodplain Management Directory: www.dcr.virginia.gov/dam-safety-and-floodplains/floodplain-directory.

7. Solid and Hazardous Wastes. All solid waste, hazardous waste, and hazardous materials must be managed in accordance with all applicable federal, state, and local environmental regulations. Contact DEQ NRO (Jim Datko, 571-866-6446) for information on the location and availability of suitable waste management facilities in the project area or if free product, discolored soils, or other evidence of contaminated soils are encountered.

7(a) Petroleum Releases/ Storage. If evidence of a petroleum release is discovered during construction, it must be reported to DEQ NRO (Jim Datko, 571-866-6446).

7(b) Asbestos-Containing Material. It is the responsibility of the owner or operator of a renovation or demolition activity, prior to the commencement of the renovation or demolition, to thoroughly inspect the affected part of the facility where the operation will occur for the presence of asbestos, including Category I and Category II nonfriable asbestos-containing material (as applicable). Upon classification as friable or non-friable, all asbestos-containing material shall be disposed of in accordance with the Virginia Solid Waste Management Regulations (9VAC20-81-640) and transported in accordance with the Virginia regulations governing Transportation of Hazardous Materials (9VAC20-110-10 et seq.). Contact the DEQ Division of Land Protection and Revitalization (Nikolas Churchill at 804-659-2663) and the Department of Labor and Industry (Richard Wiggins, 540-562-3580 Ext. 131) for additional information.

7(c) Lead-Based Paint. If applicable, this project must comply with the U.S. Department of Labor Occupational Safety and Health Administration (OSHA) regulations and with the Virginia Lead-Based Paint Activities Rules and Regulations. For additional information regarding these requirements, contact the Department of Professional and Occupational Regulation (804-367-8500).

8. VPDES Permit. Contact the DEQ NRO Water Permitting Program (Rebecca Johnson, 571-866-6500) for questions about the VAG83 permit applicability.

9. Wetlands. Contact DEQ NRO (Margaret Dannemann, VWP Permit Manager, 571-866-6485) to discuss VWP permitting and its applicability to this project, should impacts to wetlands become necessary.

10. Wildlife Resources. For specific questions and/or concerns about the project that may

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Draft EA
26-024F

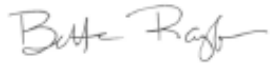
require further consideration, contact DWR at ESSProjects@dwr.virginia.gov and briefly summarize the project components, species and potential impacts that need further attention.

11. Chesapeake Bay Preservation Areas. The project must be conducted in a manner that is consistent with the Chesapeake Bay Preservation Act (Virginia Code 62.1-44.15 *et seq.*) and the Chesapeake Bay Preservation Area Designation and Management Regulations (9VAC25-830 *et seq.*). Any proposed development within the RPA would require a site-specific evaluation, per 9VAC25-830-110 of the Regulations and a Water Quality Impact Assessment (WQIA), per 9VAC25-830-140 6 of the Regulations. Review of this project must include approval by Prince William County. Contact Daniel Moore (804-774-9577) with questions.

CONCLUSION

Thank you for the opportunity to review and respond to the Draft Environmental Assessment for the Air Traffic Control Tower Replacement at Manassas Regional Airport in the City of Manassas. Detailed comments of reviewing agencies are attached for your review. Please contact me or Janine Howard at (804) 659-1916 for clarification of these comments.

Sincerely,



Bettina Rayfield, Manager
Office of Environmental Impact Review and Renewable Energy Programs
Virginia Department of Environmental Quality
804-659-1915
bettina.rayfield@DEQ.virginia.gov
Central Office
1111 E. Main Street, Suite 1400
Richmond, Virginia 23219
804-698-4000

Ec: Hannah Schul, DWR
Allison Tillett, DCR
Arlene Fields, VDH
Samantha Henderson, DHR
Stephen Smiley, DOAV
Robert Lazaro, Northern Virginia Regional Commission
Justin Patton, Prince William County
Monica Hamblin, RS&H, Inc.
Juan Rivera, Manassas Regional Airport

David L. Bulova
Secretary of Natural and Historic Resources

Nikki Rovner
Director

Sarah Spota
Deputy Director



COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

Frank N. Stovall
*Deputy Director
for Operations*

Darryl Glover
*Deputy Director for
Dam Safety,
Floodplain Management and
Soil and Water Conservation*

Laura Ellis
*Deputy Director for
Administration and Finance*

MEMORANDUM

DATE: March 6, 2026
TO: Janine Howard, DEQ
FROM: Allison Tillett, Environmental Impact Review Coordinator
SUBJECT: DEQ 26-024F, Air Traffic Control Tower Replacement at Manassas Regional Airport

Division of Planning and Recreation Resources

DCR's Division of Planning and Recreational Resources (DCR-PRR) administers the Virginia Scenic Rivers (Virginia Code § 10.1-200), state trails programs (Virginia Code §10.1-204), and the state park master planning process (Virginia Code §10.1-200.1). DCR-PRR develops the Virginia Outdoors Plan (VOP), the state's comprehensive outdoor recreation and open space plan (Virginia Code §10.1-200) and administers the state-assistance side of the Land and Water Conservation Fund (LWCF). The VOP recognizes the importance of scenery, natural landscapes, and access to recreational opportunities for Virginians.

Division of Natural Heritage

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information in our files, the Broad Run - Cannon Branch Stream Conservation Site (SCS) is located within the project area. SCSs encompass stream/river reaches, waterbodies, and terrestrial contributing areas containing or associated with aquatic or semi-aquatic resources, including upstream and downstream reaches and tributaries up to 3-km stream distance from the aquatic resources. The size and dimensions of a SCS are based on the hydrology of the waterway and surrounding landscape, taking into consideration dam locations and whether the waterway is tidal. SCSs are given a biodiversity significance ranking (B-rank) based on the rarity, quality, and number of element occurrences they contain. The Broad Run - Cannon Branch SCS has been given a B-rank of B4, which represents a site of moderate significance. The natural heritage resource associated with this SCS is the Brook floater (*Alasmodonta varicosa*, G3/S1/NL/LE)

The Brook floater, a small freshwater mussel species, is known from the northeastern United States primarily in the Atlantic Slope drainages (NatureServe, 2009). In Virginia, it is recorded from the Potomac River basin with a possible record from the James River. Of 14 documented records in Virginia, only two are thought to be viable. Population declines have been documented throughout its range (NatureServe, 2009). The Brook floater typically inhabits flowing-water habitats in and near riffles and rapids of smaller creeks with rocky or gravelly substrates

600 East Main Street, 24th Floor | Richmond, Virginia 23219 | 804-786-6124

*State Parks • Soil and Water Conservation • Planning and Recreation Resources
Natural Heritage • Dam Safety and Floodplain Management • Land Conservation*

(Nedeau et al., 2000 per NatureServe, 2009). Many facets of its life history are unknown including its fish host. Please note that this species is currently listed as endangered by the Virginia Department of Wildlife Resources (VDWR).

Considered good indicators of the health of aquatic ecosystems, freshwater mussels are dependent on good water quality, good physical habitat conditions, and an environment that will support populations of host fish species (Williams et al., 1993). Because mussels are sedentary organisms, they are sensitive to water quality degradation related to increased sedimentation and pollution. They are also sensitive to habitat destruction through dam construction, channelization, and dredging, and the invasion of exotic mollusk species. Threats to the Brook floater in particular include poor water quality as this species does not tolerate silt or nutrient pollution well (Stevenson and Bruenderman, 1995).

According to an email from the BioSurvey Group dated October 30, 2025, a freshwater mussel survey was conducted for the Brook floater in accordance with the approved VDWR survey plan and none were documented. DCR requests a copy of the freshwater mussel survey report.

To minimize adverse impacts to the aquatic ecosystem as a result of the proposed activities, DCR recommends the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations. DCR also recommends maintaining as much forested buffer between the proposed development and the stream to protect water quality.

There are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please re-submit project information and map for an update on this natural heritage information if the scope of the project changes and/or six months has passed before it is utilized.

The Virginia Department of Wildlife Resources (VDWR) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed at <https://services.dwr.virginia.gov/fwis/> or contact Susan Watson at Susan.Watson@dwr.virginia.gov.

Division of State Parks

DCR's Division of State Parks is responsible for acquiring and managing, state parks. Park development and master planning are managed by the Division of Planning and Recreation Resources. Master plans are required prior to a parks opening and are updated every ten years (Virginia Code § 10.1-200 *et seq.*).

Division of Dam Safety and Floodplain Management

Dam Safety Program:

The Dam Safety program was established to provide proper and safe design, construction, operation and maintenance of dams to protect public safety. Authority is bestowed upon the program according to *The Virginia Dam Safety Act*, Article 2, Chapter 6, Title 10.1 (10.1-604 *et seq.*) of the Code of Virginia and Dam Safety

Impounding Structure Regulations (Dam Safety Regulations), established and published by the Virginia Soil and Water Conservation Board (VSWCB).

Floodplain Management Program:

The National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency (FEMA), and communities who elect to participate in this voluntary program manage and enforce the program on the local level through that community's local floodplain ordinance. Each local floodplain ordinance must comply with the minimum standards of the NFIP, outlined in 44 CFR 60.3; however, local communities may adopt more restrictive requirements in their local floodplain ordinance, such as regulating the 0.2% annual chance flood zone (Shaded X Zone).

All development within a Special Flood Hazard Area (SFHA), as shown on the locality's Flood Insurance Rate Map (FIRM), must be permitted and comply with the requirements of the local floodplain ordinance.

State Agency Projects Only

All agencies and departments of the Commonwealth shall comply with the Code of Virginia [§ 10.1-603. State agency compliance.](#)

Federal Agency Projects Only

Projects conducted by federal agencies within the SFHA must comply with federal Executive Order 11988: Floodplain Management.

DCR's Floodplain Management Program does not have regulatory authority for projects in the SFHA. The applicant/developer must reach out to the local floodplain administrator for an official floodplain determination and comply with the community's local floodplain ordinance, including receiving a local permit. Failure to comply with the local floodplain ordinance could result in enforcement action from the locality. For state projects, DCR recommends that compliance documentation be provided prior to the project being funded. For federal projects, the applicant/developer is encouraged reach out to the local floodplain administrator and comply with the community's local floodplain ordinance.

To find flood zone information, use the Virginia Flood Risk Information System (VFRIS):

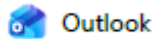
www.dcr.virginia.gov/vfris

To find community NFIP participation and local floodplain administrator contact information, use DCR's Local Floodplain Management Directory: www.dcr.virginia.gov/dam-safety-and-floodplains/floodplain-directory

The remaining DCR divisions have no comments regarding the scope of this project. Thank you for the opportunity to comment.

Literature Cited

- NatureServe. 2009. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://www.natureserve.org/explorer>. (Accessed: March 16, 2010).
- Neddeau, E.J., M.A. McCollough, and B.I. Swartz. 2000. The freshwater mussels of Maine. Maine Department of Inland Fisheries and Wildlife, Augusta, Maine. 118 pp.
- Stevenson, Phillip H. and Sue A. Bruenderman 1995. A Guide to Endangered and Threatened Species of Virginia. K. Terwilliger ed. The McDonald and Woodward Publishing Company, Blacksburg, Virginia. p. 74.
- Williams, J.D., M.L. Warren, Jr., K.S. Cummings, J.L. Harris, and R.J. Neves. 1993. Conservation status of freshwater mussels of the United States and Canada. *Fisheries* 18: 6-9.



RE: NEW PROJECT-EXPEDITED REVIEW-FAA Manassas Regional Airport ATCT Replacement, DEQ 26-024F- DHR File No. 2025-5047

From Birge-wilson, Adrienne (DHR) <Adrienne.Birge-Wilson@dhr.virginia.gov>
Date Thu 2/19/2026 9:28 AM
To Howard, Janine (DEQ) <Janine.Howard@deq.virginia.gov>

Janine- The FAA consulted with DHR, and we concurred with their determination of No Adverse Effect to historic properties.

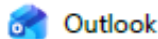
V/R,
Adrienne Birge-Wilson
Architectural Historian | Review and Compliance Division
Department of Historic Resources
Email adrienne.birge-wilson@dhr.virginia.gov
Phone 804-482-6092

From: Henderson, Samantha (DHR) <Samantha.Henderson@dhr.virginia.gov>
Sent: Wednesday, February 18, 2026 9:41 AM
To: Birge-wilson, Adrienne (DHR) <Adrienne.Birge-Wilson@dhr.virginia.gov>
Subject: FW: NEW PROJECT-EXPEDITED REVIEW-FAA Manassas Regional Airport ATCT Replacement, DEQ 26-024F

Samantha Henderson
Director of Review and Compliance
Department of Historic Resources
Email samantha.henderson@dhr.virginia.gov
Phone 804-482-6088

From: Fulcher, Valerie (DEQ) <Valerie.Fulcher@deq.virginia.gov>
Sent: Tuesday, February 17, 2026 4:13 PM
To: dgif-ESS Projects (DWR) <ESSProjects@dwr.virginia.gov>; DCR-PRR Environmental Review (DCR) <envreview@dcr.virginia.gov>; odwreview (VDH) <odwreview@vdh.virginia.gov>; Henderson, Samantha (DHR) <Samantha.Henderson@dhr.virginia.gov>; Teal, Sherry (DHR) <Sherry.Teal@dhr.virginia.gov>; Reid, Charde (DHR) <Charde.Reid@dhr.virginia.gov>; Smiley, Stephen (DOAV) <Stephen.Smiley@doav.virginia.gov>; cfifer@novaregion.org; jspatton@pwcgov.org; citymanager@ci.manassas.va.us; Churchill, Nikolas (DEQ) <Nikolas.Churchill@deq.virginia.gov>; Frantz, Allyson (DEQ) <Allyson.B.Frantz@deq.virginia.gov>; Lovain, Ava (DEQ) <Anna.Lovain@deq.virginia.gov>; Angueira, Antony (DEQ) <Antony.Angueira@deq.virginia.gov>; Moore, Daniel (DEQ) <Daniel.Moore@deq.virginia.gov>; Miller, Mark (DEQ) <Mark.Miller@deq.virginia.gov>
Cc: Howard, Janine (DEQ) <Janine.Howard@deq.virginia.gov>
Subject: NEW PROJECT-EXPEDITED REVIEW-FAA Manassas Regional Airport ATCT Replacement, DEQ 26-024F

Good afternoon- this is a new OEIR review request/project:



RE: NEW PROJECT-EXPEDITED REVIEW-FAA Manassas Regional Airport ATCT Replacement, DEQ 26-024F (ESSLog# 46762)

From dgif-ESS Projects (DWR) <ESSProjects@dwr.virginia.gov>
Date Thu 3/5/2026 9:13 AM
To Howard, Janine (DEQ) <Janine.Howard@deq.virginia.gov>
Cc Schul, Hannah (DWR) <Hannah.Schul@dwr.virginia.gov>

Good morning Janine,

Due to staffing limitations, DWR's Environmental Services Section (ESS) is unable to review the subject project. We are not providing comments at this time. This does not constitute an endorsement of the project or indicate a lack of concern regarding potential project impacts upon wildlife and their habitats. It simply means that DWR has not been able to respond to your request given our workload and other program responsibilities.

DWR encourages full consideration of protections for the Commonwealth's wildlife resources during the design, planning and construction phases of this project. For information on how to best avoid or minimize adverse impacts upon listed species and other wildlife resources under DWR's jurisdiction, DWR recommends a review (if not already completed) of the online tools, project review protocols, best management practices, wildlife survey guidance and species information that are available at <https://dwr.virginia.gov/wies/wies-additional-resources/>.

As this is a Draft EA, we will conduct our review once the final EA is coordinated. For specific questions and/or concerns about the project that may require further consideration prior to the final EA, contact DWR at [ESSProjects@dwr.virginia.gov%20]ESSProjects@dwr.virginia.gov and briefly summarize the project components, species and potential impacts that need further attention.

Thank you,
Nicole



Nicole Strawderman

(she/her)

Environmental Services Project Review Assistant

P 804-367-2211

Virginia Department of Wildlife Resources

A 7870 Villa Park Drive, P.O. Box 90778, Henrico, VA 23228

www.dwr.virginia.gov

From: Fulcher, Valerie (DEQ) <Valerie.Fulcher@deq.virginia.gov>
Sent: Tuesday, February 17, 2026 4:13 PM
To: dgif-ESS Projects (DWR) <ESSProjects@dwr.virginia.gov>; DCR-PRR Environmental Review (DCR) <envreview@dcr.virginia.gov>; odwreview (VDH) <odwreview@vdh.virginia.gov>; Henderson, Samantha (DHR) <Samantha.Henderson@dhr.virginia.gov>; Teal, Sherry (DHR) <Sherry.Teal@dhr.virginia.gov>; Reid, Charde (DHR) <Charde.Reid@dhr.virginia.gov>; Smiley, Stephen (DOAV) <Stephen.Smiley@doav.virginia.gov>; cfifer@novaregion.org; jspatton@pwcgov.org; citymanager@ci.manassas.va.us; Churchill, Nikolas (DEQ)



MEMORANDUM

TO: Janine Howard, DEQ/EIR Environmental Program Planner

FROM: Nikolas I. Churchill, Division of Land Protection & Revitalization Review Coordinator

DATE: February 17, 2026

COPIES: Sanjay Thirunagari, Division of Land Protection & Revitalization Review Manager; file

SUBJECT: Environmental Impact Review: 26-024F Air Traffic Control Tower Replacement at Manassas Regional Airport in Prince William County and the City of Manassas, Virginia.

The Division of Land Protection & Revitalization (DLPR) has completed its review of the Federal Aviation Administration's February 17, 2026 EIR for 26-024F Air Traffic Control Tower Replacement at Manassas Regional Airport in Prince William County and the City of Manassas, Virginia.

DLPR staff conducted a search (200 ft. radius) of the project area of solid and hazardous waste databases (including petroleum releases) to identify waste sites in close proximity to the project area. DLPR search did not identify any waste sites within the project area which might impact the project.

DLPR staff has reviewed the submittal and offers the following comments:

Hazardous Waste/RCRA Facilities – none in close proximity to the project area.

CERCLA Sites – none in close proximity to the project area.

Formerly Used Defense Sites (FUDS) – none in close proximity to the project area.

Solid Waste – none in close proximity to the project area.

Virginia Remediation Program (VRP) – none in close proximity to the project area.

Petroleum Releases – none in close proximity to the project area.

PROJECT SPECIFIC COMMENTS

Solid and hazardous waste issues and sites were addressed in the report.

GENERAL COMMENTS

Soil, Sediment, Groundwater, and Waste Management

Any soil, sediment or groundwater that is suspected of contamination or wastes that are generated must be tested and disposed of in accordance with applicable Federal, State, and local laws and regulations. Some of the applicable state laws and regulations are: Virginia Waste Management Act, Code of Virginia Section 10.1-1400 *et seq.*; Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC 20-60); Virginia Solid Waste Management Regulations (VSWMR) (9VAC 20-81); Virginia Regulations for the Transportation of Hazardous Materials (9VAC 20-110). Some of the applicable Federal laws and regulations are: the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 *et seq.*, and the applicable regulations contained in Title 40 of the Code of Federal Regulations; and the U.S. Department of Transportation Rules for Transportation of Hazardous Materials, 49 CFR Part 107.

Asbestos and/or Lead-based Paint

All structures being demolished/renovated/removed should be checked for asbestos-containing materials (ACM) and lead-based paint (LBP) prior to demolition. If ACM or LBP are found, in addition to the federal waste-related regulations mentioned above, State regulations 9VAC 20-81-620 for ACM and 9VAC 20-60-261 for LBP must be followed. Questions may be directed to the DEQ's Northern Regional Office at (703) 583-3800.

Pollution Prevention – Reuse - Recycling

Please note that DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.

If you have any questions or need further information, please contact Nikolas Churchill by phone at (804) 659-2663 or email nikolas.churchill@deq.virginia.gov.



Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

www.deq.virginia.gov

David L. Bulova
Secretary of Natural and Historic Resources

Michael S. Kolband, PE, PWD, PWS Emeritus
Director

MEMORANDUM

TO: Janine Howard, DEQ Office of Environmental Impact Review

FROM: Daniel Moore, DEQ Principal Environmental Planner

DATE: March 10, 2026

SUBJECT: DEQ #26-024F: FAA – Manassas Regional Airport ATCT Replacement Project, City of Manassas, Prince William County

We have reviewed the Draft Environmental Assessment (DEA) for the proposed project and offer the following comments regarding consistency with the provisions of the *Chesapeake Bay Preservation Area Designation and Management Regulations* (Regulations):

In Prince William County, the areas protected by the Chesapeake Bay Preservation Act (CBPA), as locally implemented, require conformance with performance criteria. These areas include Resource Protection Areas (RPAs) and Resource Management Areas (RMAs), as designated by each locality. RPAs include tidal wetlands, non-tidal wetlands connected by surface flow and contiguous to tidal wetlands or water bodies with perennial flow, and tidal shores. RPAs in the County also include a 100-foot vegetated buffer area located adjacent to and landward of these features and along both sides of any water body with perennial flow. RMAs, which require less stringent performance criteria than RPAs, includes all lands contiguous to the inland boundary of the RPA and which, if not properly managed, have a potential for degrading water quality or diminishing the functional value of the RPA. In Prince William County, the RMA includes all areas of the County not included in the RPAs.

The City of Manassas is not subject to the Chesapeake Bay Preservation Act or Regulations, and any portion of this project on City-owned land is not subject to review for CBPA compliance.

The project calls for the removal of the current Air Traffic Control Tower (ATCT) located on Observation Road within the Manassas Regional Airport (MRA) property and the construction/installation of a new ATCT to be located south of the existing tower, on land located at the southwest corner of the MRA property. The applicant indicates that 136 acres of the MRA

is located on land owned by Prince William County but does not provide a map showing the exact location of County-owned lands.

Figure 3-4: Prince William County Resource Protection Areas is an aerial photo showing the extent of RPA features and buffers in the vicinity of the proposed project. RPA buffer exists on either side of Broad Run where it effectively forms the western and southern boundaries of MRA lands. The photo shows extensive RPA throughout a wooded area between the Broad Run RPA buffer and airport facilities on the east side of Observation Road. The blue-lined area shown on Figure 3-4 is identified as the Direct Study Area, also referred to the Replacement ATCT on *Figure 2-1: Proposed Action and Alternatives*. Placement of the proposed Replacement ATCT, the Parking Lot and Support Building within the area shown shaded pink in Figure 3-4 means that those facilities would be located within the Prince William County RPA. Any proposed development within the RPA would require a site-specific evaluation, per 9VAC25-830-110 of the Regulations and a Water Quality Impact Assessment (WQIA), per 9VAC25-830-140 6 of the Regulations. If the applicant were to move the proposed project area further to the south, outside of the mapped RPA lands, it is possible that the site-specific evaluation and the WQIA would not be necessary. Review of this project must include approval by Prince William County, as referenced below.

While the applicant did not specify the square footage of proposed land disturbance, it appears the project will likely disturb more than 2,500 square feet, as referenced in 9VAC256-830130 3 of the Regulations. Projects exceeding an area of 2,500 square feet of land disturbance must meet the requirements of the *Virginia Stormwater Management Handbook* and stormwater management criteria consistent with water quality protection provisions of the *Virginia Erosion and Stormwater Management Regulations*, 9VAC25-875-740 and 9VAC25-875-8- and -260 shall be satisfied.

9 VAC25-830-130 and 140 of the Regulations allows land development in the RPA, subject to approval by the local government, only if it (i) is water-dependent; (ii) constitutes redevelopment; (iii) constitutes development or redevelopment within a designated Intensely Developed Area (IDA); (iv) is a new use established pursuant to subdivision 4a of this section; (v) is a road or driveway crossing satisfying conditions set forth in subdivision 1d of this section.; or (vi) is a flood control or stormwater management facility satisfying conditions set forth in subdivision 1e of this section.

Provided the above conditions are met, the proposed activity would be consistent with the Regulations and the *Chesapeake Bay Preservation Act*.



3040 Williams Drive | Suite 200 | Fairfax, VA 22031

www.novaregion.org

3/4/2026

Ms. Janine Howard
Department of Environmental Quality
Office of Environmental Impact Review
P.O. Box 1105
Richmond, VA 23218.

RE: NEW PROJECT-EXPEDITED REVIEW-FAA Manassas Regional Airport ATCT Replacement, DEQ 26-024F

Dear Ms. Howard,

The Northern Virginia Regional Commission staff have reviewed the document described and have no comment on the proposed "Air Traffic Control Tower Replacement at Manassas Regional Airport" project in Prince William County. A copy of this letter should be included with your submission to indicate that the review by this agency has been completed.

Thank you for this opportunity to participate in the intergovernmental review process.

Best,

Rebecca G Murphy

Rebecca Murphy
NVRC Coastal Program Manager

A regional council composed of Arlington, Fairfax, Loudoun, Prince William counties, the cities of Alexandria, Fairfax, Falls Church, Manassas, and Manassas Park, and the towns of Dumfries, Herndon, Leesburg, and Vienna

Fw: NEW PROJECT-EXPEDITED REVIEW-FAA Manassas Regional Airport ATCT Replacement, DEQ 26-024F

From Miller, Mark (DEQ) <Mark.Miller@deq.virginia.gov>
Date Wed 3/4/2026 1:06 PM
To Howard, Janine (DEQ) <Janine.Howard@deq.virginia.gov>

Northern Regional Office comments regarding the, *Manassas Regional Airport ATCT Replacement, DEQ 26-024F*, are as follows:

Land Protection Division – The project manager is reminded that if any solid or hazardous waste is generated/encountered during construction, the project manager would follow applicable federal, state, and local regulations for their disposal. For additional Land Protection/Waste questions, please contact the regional waste program manager Jim Datko at 571.866.6446 or james.datko@deq.virginia.gov.

Air Compliance/Permitting - The project manager is reminded that during the construction phases that occur with this project; the project is subject to the Fugitive Dust/Fugitive Emissions Rule 9 VAC 5-50-60 through 9 VAC 5-50-120. In addition, should any open burning or use of special incineration devices be employed in the disposal of land clearing debris during demolition and construction, the operation would be subject to the Open Burning Regulation 9 VAC 5-130-10 through 9 VAC 5-130-60 and 9 VAC 5-130-100. Additionally, the project manager is reminded, stationary air emissions sources constructed at this location may be subject to 9 VAC 5-80-1120. The regulation requires obtaining an air permit before starting actual construction of, or operation of any new stationary source. For additional air questions please contact the regional air compliance manager David Hartshorn at 571.408.1778 or r.david.hartshorn@deq.virginia.gov.

Virginia Water Protection Permit (VWPP) Program – The project manager is reminded that a VWP permit from DEQ may be required should impacts to surface waters be necessary. Measures should be taken to avoid and minimize impacts to surface waters and wetlands during construction activities. The disturbance of surface waters or wetlands may require prior approval by DEQ and/or the U.S. Army Corps of Engineers. The Army Corps of Engineers is the authority for an official confirmation of whether there are federal jurisdictional waters, including wetlands, which may be impacted by the proposed project. DEQ may confirm additional waters as jurisdictional beyond those under federal authority. Review of National Wetland Inventory maps or topographic maps for locating wetlands or streams may not be sufficient; there may need to be a site-specific review of the site by a qualified professional. Even if there will be no intentional placement of fill material in jurisdictional waters, potential water quality impacts resulting from construction site surface runoff must be minimized. This can be achieved by using Best Management Practices (BMPs). If construction activities will occur in or along any streams (perennial, intermittent, or ephemeral), open water or wetlands, the applicant should contact DEQ-NRO VWPP staff to determine the need for any permits prior to commencing work that could impact surface waters or wetlands. Upon receipt of a Joint Permit Application for the proposed surface water impacts, DEQ VWP Permit staff will review the proposed project in accordance with the VWP permit program regulations and current VWP permit program guidance. VWPP staff reserve the right to provide comment upon receipt of a permit application requesting authorization to impact state surface waters, and at such time that a wetland delineation has been conducted and associated jurisdiction determination made by the U.S. Army Corps of Engineers.

For additional air questions please contact the regional VWP compliance manager Margaret Dannemann at 571.866.6485 or margaret.dannemann@deq.virginia.gov.

Erosion and Sediment Control, Storm Water Management – DEQ has regulatory authority for the Virginia Pollutant Discharge Elimination System (VPDES) programs related to municipal separate storm sewer systems (MS4s) and construction activities. Erosion and sediment control measures are addressed in local ordinances and State regulations. Additional information is available at <http://www.deq.virginia.gov/Programs/Water/StormwaterManagement.aspx>. Non-point source pollution resulting from this project should be minimized by using effective erosion and sediment control practices and structures. Consideration should also be given to using permeable paving for parking areas and walkways where appropriate, and denuded areas should be promptly revegetated following construction work. If the total land disturbance exceeds 10,000 square feet, an erosion and sediment control plan will be required. Some localities also require an E&S plan for disturbances less than 10,000 square feet. A stormwater management plan may also be required. For any land disturbing activities equal to one acre or more, you are required to apply for coverage under the VPDES General Permit for Discharges of Storm Water from Construction Activities. The Virginia Stormwater Management Permit Authority may be DEQ or the locality. For additional storm water construction questions please contact the regional storm water program manager Mark Remsberg at 703.583.3874 or mark.remsberg@deq.virginia.gov.

Other VPDES Permitting – A construction project may require coverage under the VAG83 permit for discharges from petroleum contaminated sites, groundwater remediation, and hydrostatic tests for any hydrostatics tests on any new piping installed, or for any potential dewatering during construction if petroleum contamination is encountered. For additional water permitting/compliance questions please contact the regional water compliance manager Rebecca Johnson at 571.866.6500 or rebecca.johnson@deq.virginia.gov.



Mark Miller, Environmental Manager II
Pollution Response Program/EIR
[Virginia Department of Environmental Quality](http://www.deq.virginia.gov)
Northern Regional Office
13901 Crown Ct, Woodbridge, VA 22193
571.866.6487 (Mobile); 703.583.3800 (Main)
Email: mark.miller@deq.virginia.gov

From: Fulcher, Valerie (DEQ) <Valerie.Fulcher@deq.virginia.gov>
Sent: Tuesday, February 17, 2026 16:12
To: dgif-ESS Projects (DWR) <ESSProjects@dwr.virginia.gov>; DCR-PRR Environmental Review (DCR) <envreview@dcr.virginia.gov>; odwreview (VDH) <odwreview@vdh.virginia.gov>; Henderson, Samantha (DHR) <Samantha.Henderson@dhr.virginia.gov>; Teal, Sherry (DHR) <Sherry.Teal@dhr.virginia.gov>; Reid, Charde (DHR) <Charde.Reid@dhr.virginia.gov>; Smiley, Stephen (DOAV) <Stephen.Smiley@doav.virginia.gov>; cfifer@novaregion.org <cfifer@novaregion.org>; jspatton@pwcgov.org <jspatton@pwcgov.org>; citymanager@ci.manassas.va.us <citymanager@ci.manassas.va.us>; Churchill, Nikolas (DEQ) <Nikolas.Churchill@deq.virginia.gov>; Frantz, Allyson (DEQ) <Allyson.B.Frantz@deq.virginia.gov>; Lovain, Ava (DEQ) <Anna.Lovain@deq.virginia.gov>; Angueira, Antony (DEQ) <Antony.Angueira@deq.virginia.gov>; Moore, Daniel (DEQ) <Daniel.Moore@deq.virginia.gov>; Miller, Mark (DEQ) <Mark.Miller@deq.virginia.gov>
Cc: Howard, Janine (DEQ) <Janine.Howard@deq.virginia.gov>
Subject: NEW PROJECT-EXPEDITED REVIEW-FAA Manassas Regional Airport ATCT Replacement, DEQ 26-024F

RE: NEW PROJECT-EXPEDITED REVIEW-FAA Manassas Regional Airport ATCT Replacement, DEQ 26-024F

From Angueira, Antony (DEQ) <Antony.Angueira@deq.virginia.gov>
Date Wed 2/25/2026 11:06 AM
To Howard, Janine (DEQ) <Janine.Howard@deq.virginia.gov>
Cc DEQ-OSWM <StandardsAndSpecs@deq.virginia.gov>

Good morning Janine,

Here is the OSWM comment for 26-024F.

a.) Erosion and Sediment Control. The applicant is responsible for submitting a project-specific erosion and sediment control (ESC) plan to the locality in which the project is located for review and approval pursuant to the local ESC requirements, if the project involves a land-disturbing activity of $\geq 10,000$ square feet ($\geq 2,500$ square feet in a Chesapeake Bay Preservation Area). Depending on local requirements, the area of land disturbance requiring an ESC plan may be less. The ESC plan must be approved by the locality prior to any land-disturbing activity at the project site. All regulated land-disturbing activities associated with the project, including on- and off-site access roads, staging areas, borrow areas, stockpiles, and soil intentionally transported from the project, must be covered by the project-specific ESC plan. Local ESC program requirements must be requested through the locality (Reference: *Virginia Erosion and Sediment Control Law §62.1-44.15 et seq.*; *Consolidated ESC/SWM Regs. 9VAC25-875-10 et seq.*).

b.) Stormwater Management Plan. Depending on local requirements, a stormwater management (SWM) plan may be required. Local SWM program requirements must be requested through the locality (Reference: *Virginia Stormwater Management Act §62.1-44.15 et seq.*; *Consolidated ESC/SWM Regs. 9VAC25-875-10 et seq.*).

c.) General Permit for Stormwater Discharges from Construction Activities (VAR10). DEQ is responsible for the issuance, denial, revocation, termination and enforcement of the Virginia Stormwater Management Program (VSMP) General Permit for Stormwater Discharges from Construction Activities related to municipal separate storm sewer systems (MS4s) and construction activities for the control of stormwater discharges from MS4s and land disturbing activities under the Virginia Stormwater Management Program. The operator or owner of a construction project involving land-disturbing activities ≥ 1 acre is required to register for coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project-specific stormwater pollution prevention plan (SWPPP). The SWPPP must be prepared prior to submission of the registration statement for coverage under the General Permit and the SWPPP must address water quality and quantity in accordance with the *VSMP Permit Regulations* (Ref: *VSWML §62.1-44.15 et seq.*; *Consolidated ESC/SWM Regs. 9VAC25-875-10 et seq.*).

Thank you,
Tony



Tony Angueira
Stormwater Supervisor
Office of Stormwater Management
[Virginia Department of Environmental Quality](https://www.deq.virginia.gov/business-construction/environmental-impact-review/oeir-project-review-documents)
1111 E. Main St., Suite 1400
Richmond, VA 23219
(804) 584-6265

From: Fulcher, Valerie (DEQ) <Valerie.Fulcher@deq.virginia.gov>
Sent: Tuesday, February 17, 2026 4:13 PM
To: dgif-ESS Projects (DWR) <ESSProjects@dwr.virginia.gov>; DCR-PRR Environmental Review (DCR) <envreview@dcr.virginia.gov>; odwreview (VDH) <odwreview@vdh.virginia.gov>; Henderson, Samantha (DHR) <Samantha.Henderson@dhr.virginia.gov>; Teal, Sherry (DHR) <Sherry.Teal@dhr.virginia.gov>; Reid, Charde (DHR) <Charde.Reid@dhr.virginia.gov>; Smiley, Stephen (DOAV) <Stephen.Smiley@doav.virginia.gov>; cfifer@novaregion.org; jspatton@pwcgov.org; citymanager@ci.manassas.va.us; Churchill, Nikolas (DEQ) <Nikolas.Churchill@deq.virginia.gov>; Frantz, Allyson (DEQ) <Allyson.B.Frantz@deq.virginia.gov>; Lovain, Ava (DEQ) <Anna.Lovain@deq.virginia.gov>; Angueira, Antony (DEQ) <Antony.Angueira@deq.virginia.gov>; Moore, Daniel (DEQ) <Daniel.Moore@deq.virginia.gov>; Miller, Mark (DEQ) <Mark.Miller@deq.virginia.gov>
Cc: Howard, Janine (DEQ) <Janine.Howard@deq.virginia.gov>
Subject: NEW PROJECT-EXPEDITED REVIEW-FAA Manassas Regional Airport ATCT Replacement, DEQ 26-024F

Good afternoon- this is a **new** OEIR review request/project:

Document Type: Draft Environmental Assessment

Project Sponsor: Federal Aviation Administration

Project Title: Air Traffic Control Tower Replacement at Manassas Regional Airport

Location: Prince William County, City of Manassas

Project Number: DEQ #26-024F

The document is available at <https://www.deq.virginia.gov/business-construction/environmental-impact-review/oeir-project-review-documents>.

The due date for comments is **MARCH 5, 2026**. You can send your comments either directly to JANINE HOWARD by email (Janine.Howard@deq.virginia.gov), or you can send your comments by regular interagency/U.S. mail to the Department of Environmental Quality, Office of Environmental Impact Review, P.O. Box 1105, Richmond, VA 23218.

NOTES: This is an expedited review due to the federal agency deadline. If you cannot meet DEQ's deadline for comment, you may submit comments directly to the federal agency (see attached Notice of Availability for instructions). A portion of the proposed action is within a 100-year floodplain.

RE: NEW PROJECT-EXPEDITED REVIEW-FAA Manassas Regional Airport ATCT Replacement, DEQ 26-024F

From Fields, Arlene (VDH) <Arlene.Fields@vdh.virginia.gov>
Date Fri 2/20/2026 11:00 AM
To Howard, Janine (DEQ) <Janine.Howard@deq.virginia.gov>

Project: 26-024F
Project Name: FAA Air Traffic Control Tower Replacement at Manassas Regional Airport
UPC #: N/A
Location: Prince William County and City of Manassas

VDH – Office of Drinking Water has reviewed the above project. Below are our comments as they relate to proximity to public drinking water sources (groundwater wells, springs and surface water intakes). Potential impacts to public water distribution systems or sanitary sewage collection systems must be verified by the local utility.

The following public groundwater wells are located within a 1-mile radius of the project site:

PWS ID Number	City/County	System Name	Facility Name
6153041	PRINCE WILLIAM CO	BRISTOW MANOR GOLF CLUB	WELL
6153832	PRINCE WILLIAM CO	VALLEY VIEW PARK	WELL #1
6153668	PRINCE WILLIAM CO	TRANSPORTATION AREA (PR.WM.CO. SCHOOLS)	WELL #2

The following surface water intakes are located within a 5-mile radius of the project site:

PWS ID Number	System Name	Facility Name
6685100	MANASSAS, CITY OF	LAKE MANASSAS DAM

The project is within the watershed of the following public surface water sources:

PWS ID Number	System Name	Facility Name
6059501	FAIRFAX COUNTY WATER AUTHORITY	OCCOQUAN RESERVIOR INTAKE

Best Management Practices should be employed, including Erosion & Sedimentation Controls and Spill Prevention Controls & Countermeasures on the project site.

Materials should be managed while on site and during transport to prevent impacts to nearby surface water.

The Virginia Department of Health – Office of Drinking Water appreciates the opportunity to provide comments. If you have any questions, please let me know.

Best Regards,

Arlene Fields
GIS Program Support Technician
Mobile 686-203-3867 (office/cell/text)

**Responses to Letter 1: Commonwealth of Virginia Department of Environmental Quality (VDEQ)
(March 13, 2026)**

1. The VDEQ requirement for fugitive dust controls has been added to the Final EA Section 3.2.1.2.
2. The City acknowledges that regulations require obtaining an air permit before commencing construction of or operation of a new stationary source (e.g., generator). The final design of the replacement ATCT has not been completed. If an air permit is required under 9 VAC5-80, Article 6, the City will apply for and obtain one prior to construction. This information has been added to the Final EA Section 3.2.1.2.
3. The City acknowledges that open burning or the use of special incineration devised for the destruction of clean burning waste and debris waste resulting from clearing operations is prohibited from May 1 through September 30. Open burning is not anticipated as part of this Proposed Project as a resolution for handling waste and debris.
4. The City acknowledges the open burning prohibitions as outlined in 9VAC5-130-30. This information has been added to the Final EA Section 3.2.1.2.
5. The City acknowledges that when paving surfaces, the asphalt must be "emulsified" (predominantly cement and water with a small amount of emulsifying agent) except when specified circumstances apply. Moreover, there are time-of-year restrictions on its use from April through October in VOC emission control areas. This information has been added to the Final EA Section 3.2.1.2.
6. The City acknowledges that precautions would be taken to restrict the emissions of VOC's and NOx, principally by limiting the burning of fossil fuels. This information has been added to the Final EA Section 3.2.1.2.
7. This VDEQ comment describes a BioSurvey Group email dated 10/30/25 and a freshwater mussel survey conducted for the Brook floater in accordance with the approved DWR survey plan, in which none were documented. This survey was conducted for a separate project. A freshwater mussel survey was not needed or conducted for this EA. Therefore, DCR's request for a copy of the freshwater mussel survey report cannot be completed associated with this project.
8. The City acknowledges the VDEQ's statement that "the current activity will not affect any documented state-listed plant or insects."
9. The City acknowledges the VDEQ's comment that, "there are no State Natural Area Preserves under DCR's jurisdiction in the project vicinity."
10. The City acknowledges the Virginia Department of Conservation and Recreation (DCR) recommendation, "the implementation of and strict adherence to applicable state and local erosion and sediment control/storm water management laws and regulations. DCR also recommends maintaining as much forested buffer between the proposed development and the stream to protect water quality." See Final EA section 3.2.13.2.
11. The City acknowledges the VDEQ recommendation, " Utilize Best Management Practices (BMPs), including erosion and sedimentation controls and spill prevention controls and countermeasures

on the project site. Carefully manage materials on site and during transport to prevent impacts to nearby surface water." See Final EA Section 3.2.13.2.

12. The City acknowledges the VDEQ requirement, "The applicant is responsible for submitting a project-specific erosion and sediment control (ESC) plan to the locality in which the project is located for review and approval pursuant to the local ESC requirements, if the project involves a land-disturbing activity of $\geq 10,000$ square feet ($\geq 2,500$ square feet in a Chesapeake Bay Preservation Area)." This information has been added to the Final EA Section 3.2.13.2.
13. The City acknowledges the VDEQ recommendation. "Non-point source pollution resulting from this project should be minimized by using effective erosion and sediment control practices and structures. Consideration should also be given to using permeable paving for parking areas and walkways where appropriate, and denuded areas should be promptly revegetated following construction work." This information has been added to the Final EA Section 3.2.13.2.
14. The floodplain analysis that was conducted for the EA determined that the Proposed Action would not be an increase in base flood elevation, is not within a special flood hazard area, and would meet the County's requirements of no-rise conditions.
15. The City acknowledges the VDEQ's statement, "The DEQ Division of Land Protection and Revitalization (DLPR) conducted a review of solid and hazardous waste databases, including a search for petroleum releases within a 200-foot radius of the project site. The DLPR search did not identify any waste sites within the project area which might impact the project."

The DLPR notes that solid and hazardous waste issues and sites were addressed in the EA."

16. The City acknowledges the VDEQ recommendation encouraging "all projects to implement pollution prevention principles, including:

- the reduction, reuse, and recycling of all solid wastes generated; and
- the minimization and proper handling of generated hazardous wastes."

These VDEQ pollution prevention recommendations have been added to the Final EA Section 3.2.7.2.

17. VDEQ statement that a DEQ Virginia Water Protection (VWP) permit may be required should impacts to surface waters be necessary has been added to the Final EA Section 3.2.13.2.
18. The City acknowledges the VDEQ recommendation to avoid and minimize surface water impacts to the maximum extent practicable. As described in the EA, "Prior to construction, the City would provide notice to VDEQ of the Proposed Action and amend the Airport's existing SWPPP in compliance with the City's VDEPS General Permit (VAR050985). Specifically, the City would document in the SWPPP the methods used to determine the nutrient and sediment loadings and measures to meet the no net increase of stormwater nutrient and sediment load resulting from the Proposed Action. During construction, the selected contractor would implement stormwater, erosion, and sediment control BMPs in compliance with the amended SWPPP to minimize or prevent pollutants from entering Broad Run and nearby wetlands along Broad Run. Following construction, all disturbed upland areas would be seeded with a seed mix containing species appropriate for the region."

19. The City acknowledges VDEQ's comment if petroleum contamination is encountered. If encountered, the City will seek coverage under the VPDES General Permit for Petroleum Contaminated Sites, Groundwater Remediation and Hydrostatic Tests (VAG83).
20. The City acknowledges VDEQ's recommendation, "that the use of herbicides or pesticides for construction or landscape maintenance should be in accordance with the principles of integrated pest management."
21. The City acknowledges the VDEQ's pollution prevention recommendations.
22. The City acknowledges the VDEQ comment regarding the FAA consultation with DHR, and DHR's concurrence with their determinations of No Adverse Effect and No Historic Properties Affected to historic properties.
23. The City acknowledges the Virginia Department of Wildlife Resources (DWR)'s inability to review the proposed project and therefore is not providing comments.
24. The City acknowledges the DWR's recommendation of protections for the Commonwealth's wildlife resources during the design, planning, and construction phases of this project.
25. The City acknowledges VDEQ's comment that the project is in accordance with the Chesapeake Bay Preservation Act and Regulations as long as it adheres to project requirements stated in the DEQ letter.
26. The City acknowledges that the Northern Virginia Regional Commission reviewed the EA and has no comments.

The City acknowledges VDEQ's comments have been addressed within the responses above.

Letter 2: U.S. Environmental Protection Agency (USEPA) (March 9, 2026)

From: [Willson, Matthew](#)
To: [Frederick, Monica](#)
Subject: [External] RE: Notice of Availability- Draft Environmental Assessment. Manassas Regional Airport Air Traffic Control Tower Replacement
Date: Monday, March 9, 2026 1:33:43 PM

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1

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Good Afternoon,
The EPA has no comments on the Draft EA for the Manassas Regional Airport ATC Tower Replacement at this time.
Thank you for the opportunity to provide comments.

Matthew Willson

NEPA Specialist- NEPA & Technical Assistance Branch
[EPA Region 3](#) Philadelphia, PA
Phone: 215-814-5795
Email: willson.matthew@epa.gov
Cube: 20630

Please submit NEPA documents for EPA Region 3 review to R3NEPA@epa.gov

From: Willson, Matthew <Willson.Matthew@epa.gov>
Sent: Thursday, February 19, 2026 10:47 AM
To: Monica.Hamblin@rsandh.com
Subject: RE: Notice of Availability- Draft Environmental Assessment. Manassas Regional Airport Air Traffic Control Tower Replacement

Hi Monica,

I will start my review and coordinate any discussions or comments through you.

Matthew Willson

NEPA Specialist- NEPA & Technical Assistance Branch
[EPA Region 3](#) Philadelphia, PA
Phone: 215-814-5795
Email: willson.matthew@epa.gov
Cube: 20630

Please submit NEPA documents for EPA Region 3 review to R3NEPA@epa.gov

From: Witman, Timothy <witman.timothy@epa.gov>
Sent: Tuesday, February 17, 2026 3:42 PM
To: Hamblin, Monica <Monica.Hamblin@rsandh.com>
Cc: Willson, Matthew <Willson.Matthew@epa.gov>
Subject: RE: Notice of Availability- Draft Environmental Assessment. Manassas Regional Airport Air Traffic Control Tower Replacement

Hi Monica,
Thank you for providing the notice of availability of the Draft EA for the Manassas Regional Airport ATC Tower Replacement. If we have any comments, we will provide them before 3/21. I assigned this review to Matt Willson from my staff. He may reach out if he has any questions.
Thanks again,
Tim

From: Hamblin, Monica <Monica.Hamblin@rsandh.com>
Sent: Tuesday, February 17, 2026 1:53 PM
To: Witman, Timothy <witman.timothy@epa.gov>
Subject: Notice of Availability- Draft Environmental Assessment. Manassas Regional Airport Air Traffic Control Tower Replacement

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Caution: This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Mr. Witman,

On behalf of the City of Manassas (City), and in coordination with the Federal Aviation Administration (FAA), the City announces the availability of the Draft Environmental Assessment (Draft EA) for a Replacement Air Traffic Control Tower (ATCT) at Manassas Regional Airport.

You are receiving this email as part of the agency coordination for the Draft EA because you/ your agency replied to early agency coordination conducted for this EA in late 2023. Pursuant to Title 49, United States Code, § 47106(c)(1)(A) and Section 102(2)(c) of the *National Environmental Policy Act (NEPA) of 1969*, the Draft EA is being circulated for review and comment from the public and federal, state, and local agencies. Comments from the federal, state, and local agencies and the public will be considered part of the Final EA. The Final EA will be submitted to the FAA for their decision.

The Draft EA is available on the Airport's website to access, review, and comment:

<https://flyhef.com/about/plans-projects/plans-studies>

The Draft EA Notice of Availability (NOA) (see attached) describes the public comment period is 30 days and will begin on **2/19/26** and will close on **3/21/26**. Electronic and hand-delivered comments must be received before 5:00 pm Eastern Standard Time on **3/21/26**. Mailed comments must be postmarked no later than **3/21/26**. See the attached NOA for more information.

The City will host a Draft EA Public Meeting on **3/10/26** from 5 pm to 7 pm at Manassas Regional Airport. The Public Meeting will include exhibit boards, solicit comments regarding the Proposed Action, and discuss the potential environmental impacts with the City and its consultant (RS&H, Inc.). All Draft EA comments will be addressed in the Final EA.

Best Regards,
Monica Hamblin

Monica Hamblin

Planning Associate, Aviation Environmental
10748 Deerwood Park Blvd South, Jacksonville, FL 32256
904-256-2394
Monica.Hamblin@rsandh.com

Responses to Letter 2: U.S. Environmental Protection Agency (USEPA) (March 9, 2026)

1. The City acknowledges that the USEPA had no comments on the EA.

Letter 3: U.S. Department of Agriculture (USDA)(March 3, 2026)

3/4/26, 3:52 PM [External] Notice of Availability- Draft Environmental Assessment. Manassas Regional Airport Air Traffic Control Tower Replacement - ...

Outlook

[External] Notice of Availability- Draft Environmental Assessment. Manassas Regional Airport Air Traffic Control Tower Replacement

From Vega, Milton - FPAC-NRCS, NJ <milton.vega@usda.gov>
Date Tue 3/3/2026 10:02 AM
To Alberts, David <David.Alberts@rsandh.com>
Cc Martinez, Edwin - FPAC-NRCS, VA <edwin.martinez@usda.gov>; Anderson, Kathleen - FPAC-NRCS, VA <kathleenanderson@usda.gov>

You don't often get email from milton.vega@usda.gov. [Learn why this is important](#)

External Sender: Please use caution with links and attachments.
Greetings David,

1 USDA-NRCS Virginia received your correspondence concerning the proposed project at 10600 Harry J Parrish Blvd Manassas, VA 20110. Farmlands, Wetlands, are task areas I'm involved with at USDA-NRCS so I will comment about those in terms of this project.

Based on the location of the project and its alternative, the Farmland Protection Policy Act (FPPA) does not apply. Per 7 CFR 658.1, farmland means prime, unique, statewide important and/or local important farmland soils and does not include land already in or committed to urban development or water storage. Farmland already in urban development includes lands identified as "urbanized area" (UA) on the Census Bureau Map, or as urban area mapped with a "tint overprint" on the USGS topographical maps, or as "urban-built-up" on the USDA important Farmland Maps. Please see map below to observe that the proposed project sites fall within a current US Census Urban Area. If there were sites to be impacted outside of the gray area then there would need to be an assessment.



2 USDA-NRCS does not regulate wetlands so this project would not fall under NRCS jurisdiction in that regard. We do have wetland conservation provisions governing eligibility for USDA financial assistance, but as this project is not funded by USDA, that does not apply. Nearby wetlands are likely regulated both under Clean Water Act and the CT Inland Wetlands and Watercourses Act.

3 The project would also be subject to Section 106 of the National Historic Preservation Act (NHPA). USDA-NRCS is not responsible for NHPA reviews or consultations for this type of project

If you have any questions regarding the above, I'm happy to discuss with you.

Milton Vega
Acting-VA State Soil Scientist

3/4/26, 3:52 PM

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U.S. DEPARTMENT OF AGRICULTURE
Natural Resources Conservation Service
1606 Santa Rosa Road, Suite 209
Richmond, VA 23229
mobile: 809.571.7074

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Responses to Letter 3: USDA (March 3, 2026)

1. The City acknowledges that the USDA stated that, based on the location of the Proposed Action, the Farmland Policy Protection Act does not apply, as was stated in the EA.
2. Wetlands were addressed in the EA. See Final EA Section 3.2.13.
3. The City acknowledges that the USDA stated that the Proposed Project is subject to the Section 106 review of the National Historic Preservation Act. The Section 106 process was conducted for the Proposed Project and described in the EA. See Final EA Section 3.2.8.