

PLEASE PRINT OR TYPE ALL ANSWERS. If a question does not apply to your project, please print N/A (not applicable) in the space provided. *If additional space is needed, attach extra 8 1/2 x 11 inch sheets of paper.*

<b>CHECK ONE, if applicable:</b>	Pre-Construction Notification (PCN) <input checked="" type="checkbox"/> (For Nationwide Permits ONLY)	SPGP <input type="checkbox"/>
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**1. PROJECT LOCATION INFORMATION**  
(Attach a copy of a detailed map, such as a USGS topographic map or street map showing the site location and project boundary, so that it may be located for inspection. Include an arrow indicating the north direction.)

Address NASA WFF Building N-161, Code 228	City/County Wallops Island, VA 23337
Subdivision	Lot/Block/Parcel #
Name of water body(ies) within project boundaries and drainage area (acres or square miles) Chincoteague Inlet	
Tributary(ies) to: Atlantic Ocean Basin: _____ Subbasin: _____ (Example: Basin: James River Subbasin: Middle James River)	
Special Standards (based on DEQ Water Quality Standards 9VAC25-260 et seq.): _____	
Project type (check one) _____ Single user (private, non-commercial, residential) _____ <input checked="" type="checkbox"/> Multi-user (community, commercial, industrial, government)	
Latitude and longitude at center of project site: <u>37</u> - <u>53</u> - <u>05</u> / <u>75</u> - <u>26</u> - <u>16</u>	
USGS topographic map name: Chincoteague West	
8- digit USGS Hydrologic Unit Code (HUC) for your project site (See www.epa.gov/surf/): 02080110 If known, indicate the 10-digit and 12-digit USGS HUCs (see <a href="http://www.dcr.virginia.gov/soil &amp; water/hu.shtml">http://www.dcr.virginia.gov/soil &amp; water/hu.shtml</a> ): _____	
Name of your project (Example: Water Creek driveway crossing) NASA WFF UAS Airstrip on North Wallops Island	
Is there an access road to the project? <input checked="" type="checkbox"/> Yes ___ No. If yes, check all that apply: ___ public <input checked="" type="checkbox"/> private ___ improved ___ unimproved	
Provide driving directions to your site, giving distances from the best and nearest visible landmarks or major intersections: Route 13 North, turn right on route 175. Turn Right on Route 679. Turn left on Route 803.	
Does your project site cross boundaries of two or more localities (i.e. cities/counties/towns)? ___ Yes <input checked="" type="checkbox"/> No If so, name those localities:	

**FOR AGENCY USE ONLY**

	Notes:
JPA#	

**2. APPLICANT, AGENT, PROPERTY OWNER, AND CONTRACTOR INFORMATION**

The applicant(s) is/are the legal entity to which the permit may be issued. The applicant(s) can either be the property owner(s) or the person/people/company(ies) that intend(s) to undertake the activity. The agent is the person or company that is representing the applicant(s). If a company, please use the company name that is registered with the State Corporation Commission (SCC), or indicate no registration with the SCC.

Applicant(s) (For a company, use SCC-registered name) NASA WFF c/o Paul Bull, PE			Agent (if applicable) (For a company, use SCC-registered name) John Lowenthal, TEC Inc.		
Mailing address Building N- 161, Code 228			Mailing address 11817 Canon Blvd, Suite 300		
City Wallops Island	State VA	Zip Code 23337	City Newport News	State VA	Zip Code 23606
Phone number w/area code 757.824.1168	Fax 757.824.1876		Phone number w/area code 757-594-1465	Fax	
Mobile/pager 757.894.8321	E-mail paul.c.bull@nasa.gov		Mobile/pager 757-652-8710	E-mail jmlowenthal@tecinc.com	
State Corporation Commission ID number (if applicable)			State Corporation Commission ID number (if applicable)		

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

Property owner(s), if different from applicant (For a company, use SCC-registered name)			Contractor, if known (For a company, use SCC-registered name) N/A		
Mailing address Same as above			Mailing address		
City	State	Zip code	City	State	Zip code
Phone number w/area code	Fax		Phone number w/area code	Fax	
Mobile/pager	E-mail		Mobile/pager	E-mail	
State Corporation Commission ID number (if applicable)			State Corporation Commission ID number (if applicable)		

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

- The purpose must include any new development or expansion of an existing land use and/or proposed future use of residual land
- Describe the physical alteration of surface waters
- Include a description of alternatives considered to avoid or minimize impacts to surface waters, including wetlands, to the maximum extent practicable. Include factors such as, but not limited to, alternative construction technologies, alternative project layout and design, alternative locations, local land use regulations, and existing infrastructure
- For utility crossings, include both alternative routes and alternative construction methodologies considered
- For major surface water withdrawals, public surface water supply withdrawals, or projects that will alter instream flows, include the water supply issues that form the basis of the proposed project.

See Attached

### 3. PROVIDE A DESCRIPTION OF THE PROJECT (Continued)

Date of proposed commencement of work (MM/DD/YYYY)  
01/01/2014

Date of proposed completion of work (MM/DD/YYYY)  
01/01/2015

Are you submitting this application at the direction of any State, local, or Federal agency? \_\_\_\_ Yes  No

Has any work commenced or has any portion of the project for which you are seeking a permit been completed?  
\_\_\_\_ Yes  No

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

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

### 4. PREVIOUS SITE VISITS AND/OR PERMITS RELATED TO THE PROPOSED WORK (Include all Federal, State, and Local pre-application coordination or previous permits)

Agency	Activity	Permit/Project number, and explanation of non-reporting Nationwide permits previously used	Action taken ** and Date of Action	If denied, give reason for denial
USACE	Delineation Confirmation	NAO 2009-00939	Approved	
Corps/EPA	Pre-Application Meeting 2/24/11			

\*\* Issued, denied, site visit

### 5. PROJECT COSTS

Approximate cost of the entire project, including materials and labor: \$3,270,000

Approximate cost of only the portion of the project affecting State waters (below mean low water in tidal areas and below ordinary high water mark in nontidal areas): \$ n/a

**6. PUBLIC NOTIFICATION (Attach additional sheets if necessary)**

- Complete information for all property owners adjacent to the project site and across the waterway, if the waterway is less than 500 feet in width. If your project is located within a cove, you will need to provide names and mailing addresses for all property owners within the cove.
- If you own the adjacent lot, provide the requested information for the first adjacent parcel beyond your property line.

Property owner's name see attached	Mailing address	City	State	Zip code
No adjacent property owner				

Name of newspaper having general circulation in the area of the project: Eastern Shore News, PO Box 288 Tasley, VA 23441  
Address and phone number (including area code) of newspaper: 877-424-0148

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

**7. THREATENED AND ENDANGERED SPECIES INFORMATION**

Please provide any information concerning the potential for your project to impact state and/or federally threatened and endangered species (listed or proposed). Attach correspondence from agencies and/or reference materials that address potential impacts, such as database search results or your Corps' waters and wetlands delineation confirmation. Contact information for the Virginia Department of Game and Inland Fisheries and the Virginia Department of Conservation and Recreation, Division of Natural Heritage can be found on page 4 of this package.

**8. HISTORIC RESOURCES INFORMATION**

*Note: Historic properties include but are not limited to archeological sites, battlefields, Civil War earthworks, graveyards, buildings, bridges, canals, etc. Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the 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.*

Are any historic properties located within or adjacent to the project site?  Yes  No  
 Uncertain

If Yes, please provide a map showing the location of the historic property within or adjacent to the project site.

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

Is your project located within a historic district?  Yes  No  Uncertain  
If Yes, please indicate which district: \_\_\_\_\_

## 8. HISTORIC RESOURCES INFORMATION (Continued)

Has a survey to locate archeological sites and/or historic structures been carried out on the property?

Yes  No  Uncertain

If Yes, please provide the following information: Date of Survey: see attached correspondence with DHR

Name of firm: \_\_\_\_\_

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

Title of Cultural Resources Management (CRM) report: UAS Airstrip Cult. Res. Investig. DHR File: 2009-0696

Was any historic property located?  Yes  No  Uncertain

## 9. WETLANDS, WATERS, AND DUNES/BEACHES IMPACT INFORMATION

Report each impact site in a separate column. If needed, attach additional sheets using a similar table format. Please ensure that the associated project drawings clearly depict the location and footprint of each numbered impact site. For dredging, mining, and excavating projects, use Section 18.

	Impact site number 1	Impact site number 2	Impact site number 3
Impact description (use all that apply): F=fill EX=excavation S=Structure T=tidal NT=non-tidal TE=temporary PE=permanent PR=perennial IN=intermittent SB=subaqueous bottom DB=dune/beach IS=hydrologically isolated V=vegetated NV=non-vegetated MC=Mechanized Clearing of PFO	<i>Example: F, NT, PE, V</i>  see attached document		
Wetland/waters impact area (square feet)			
Dune/beach impact area (square feet)			
Stream dimensions at impact site (length and average width in linear feet, and area in sq. ft.)			
Volume of fill below Mean High Water or Ordinary High Water (cubic yards)			
Cowardin classification of impacted wetland/water or geomorphological classification of stream (Ex: PFO wetland; 'C' Channel Stream)			
Average stream flow at site (flow rate under normal rainfall conditions) (cubic feet per second)			
Contributing drainage area (acres or square miles)			

**9. WETLANDS/WATERS IMPACT INFORMATION (Continued)**

DEQ classification of impacted resource(s): Estuarine Class II Non-tidal waters Class III Mountainous zone waters Class IV Stockable trout waters Class V Natural trout waters Class VI Wetlands Class VII			
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For DEQ permitting purposes, also submit as part of this section a wetland and waters boundary delineation map<sup>(4)</sup> – see the Footnotes section in the form instructions.

For DEQ permitting purposes, also submit as part of this section a written disclosure of all wetlands, open water, or streams that are located within the proposed project or compensation areas that are also under a deed restriction, conservation easement, restrictive covenant, or other land-use protective instrument.

**10. APPLICANT, AGENT, OWNER, AND CONTRACTOR CERTIFICATIONS**

If the Applicant(s), Agent(s), Owner(s), or Contractor(s) is/are a company, please use the company name(s) that is/are registered with the State Corporation Commission (SCC).

**READ ALL OF THE FOLLOWING CAREFULLY BEFORE SIGNING**

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

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

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

Is/Are the Applicant(s) and Owner(s) the same?  Yes \_\_\_ No

Applicant's name & title (printed or typed) NASA WFF c/o Glenn D. Lilly	Second applicant's name & title, if applicable (printed or typed)
Applicant's signature	Second applicant's signature
Date	Date
<i>(Required for VMRC permit actions only)</i> Property owner's name, if different from Applicant	<i>(Required for VMRC permit actions only)</i> Second property owner's name, if applicable
Owner's signature, if different from Applicant	Second owner's signature
Date	Date

**10. APPLICANT, AGENT, OWNER, AND CONTRACTOR CERTIFICATIONS (Continued)**

If the Applicant(s), Agent(s), Owner(s), or Contractor(s) is/are a company, please use the company name(s) that is/are registered with the State Corporation Commission (SCC).

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

I (we), NASA WFF c/o Glenn D. Lilly (and) N/A  
 APPLICANT'S NAME(S) – complete the second blank if more than one Applicant

hereby certify that I (we) have authorized TEC- John Lowenthal (and) N/A  
 AGENT'S NAME(S) – complete the second blank if more than one Agent

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

Applicant's signature	Second applicant's signature, if applicable	
Date	Date	
Agent's signature and title <u>[Signature]</u> Senior Biologist	Second agent's signature and title, if applicable	
Date <u>10-12-11</u>	Date	

**CONTRACTOR ACKNOWLEDGEMENT (IF APPLICABLE)**

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

have contracted N/A (and) \_\_\_\_\_  
 CONTRACTOR'S NAME(S) – complete the second blank if more than one Contractor

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

I (we) will read and abide by all conditions as set forth in all Federal, State, and Local permits as required for this project. I (we) understand that failure to follow the conditions of the permits may constitute a violation of applicable Federal, State, and Local statutes and that we will be liable for any civil and/or criminal penalties imposed by these statutes.

In addition, I (we) agree to make available a copy of any permit to any regulatory representative visiting the project site to ensure permit compliance. If I (we) fail to provide the applicable permit upon request, I (we) understand that the representative will have the option of stopping our operation until it has been determined that we have a properly signed and executed permit and are in full compliance with all of the terms and conditions.

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



END OF GENERAL INFORMATION

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

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

Source and composition of fill material (percentage sand, silt, clay, rock): course aggregate and common earth

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

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

Creation of UAS Airstrip

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

UAS Airstrip will be placed on wetlands

Will the structure be placed on pilings? \_\_\_ Yes  No

Total area occupied by any structure.  
234,800 Square Feet

How far will the structure be placed channelward from the back edge of the dune? N/A feet

How far will the structure be placed channelward from the back edge of the beach? N/A feet

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

*If proposed activities are being conducted for the purposes of compensatory mitigation, please attach separate sheets of paper providing all information required by the most recent version of the stream assessment methodology approved by the Norfolk District of the U.S. Army Corps of Engineers and the Virginia Department of Environmental Quality, in lieu of completing the questions below. Required information outlined by the methodology can be found at: <http://155.78.20.211/Technical%20Services/Regulatory%20Branch/USM.asp> or <http://www.deq.virginia.gov/wetlands/mitigate.html>.*

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

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

Linear feet of stream impact: \_\_\_\_\_

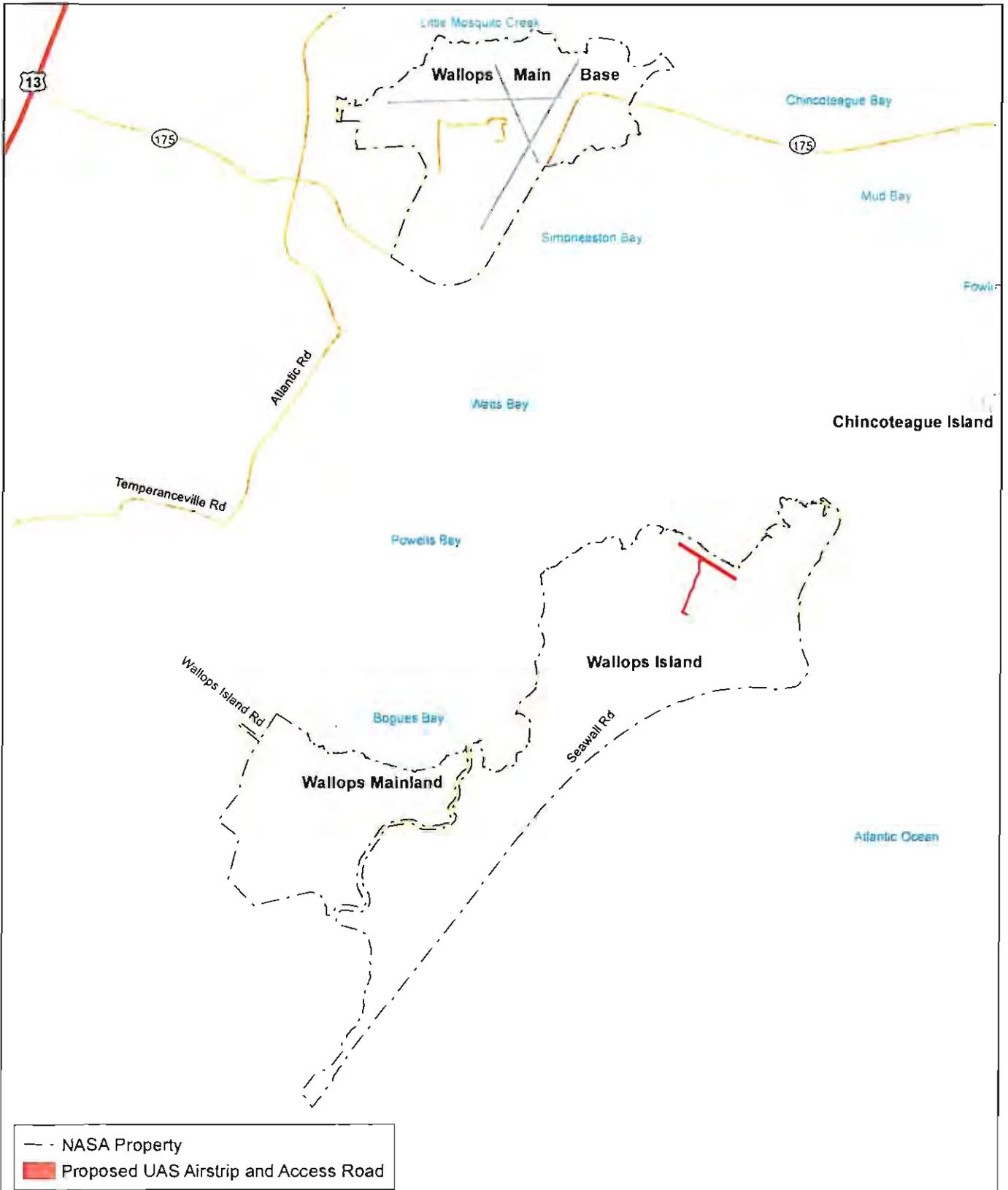
Contributing drainage area: \_\_\_\_\_ acres or \_\_\_\_\_ square miles

Existing average stream flow at site (flow rate under normal rainfall conditions): \_\_\_\_\_ cfs

Proposed average stream flow at site after modifications (flow rate under normal rainfall conditions): \_\_\_\_\_ cfs

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

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



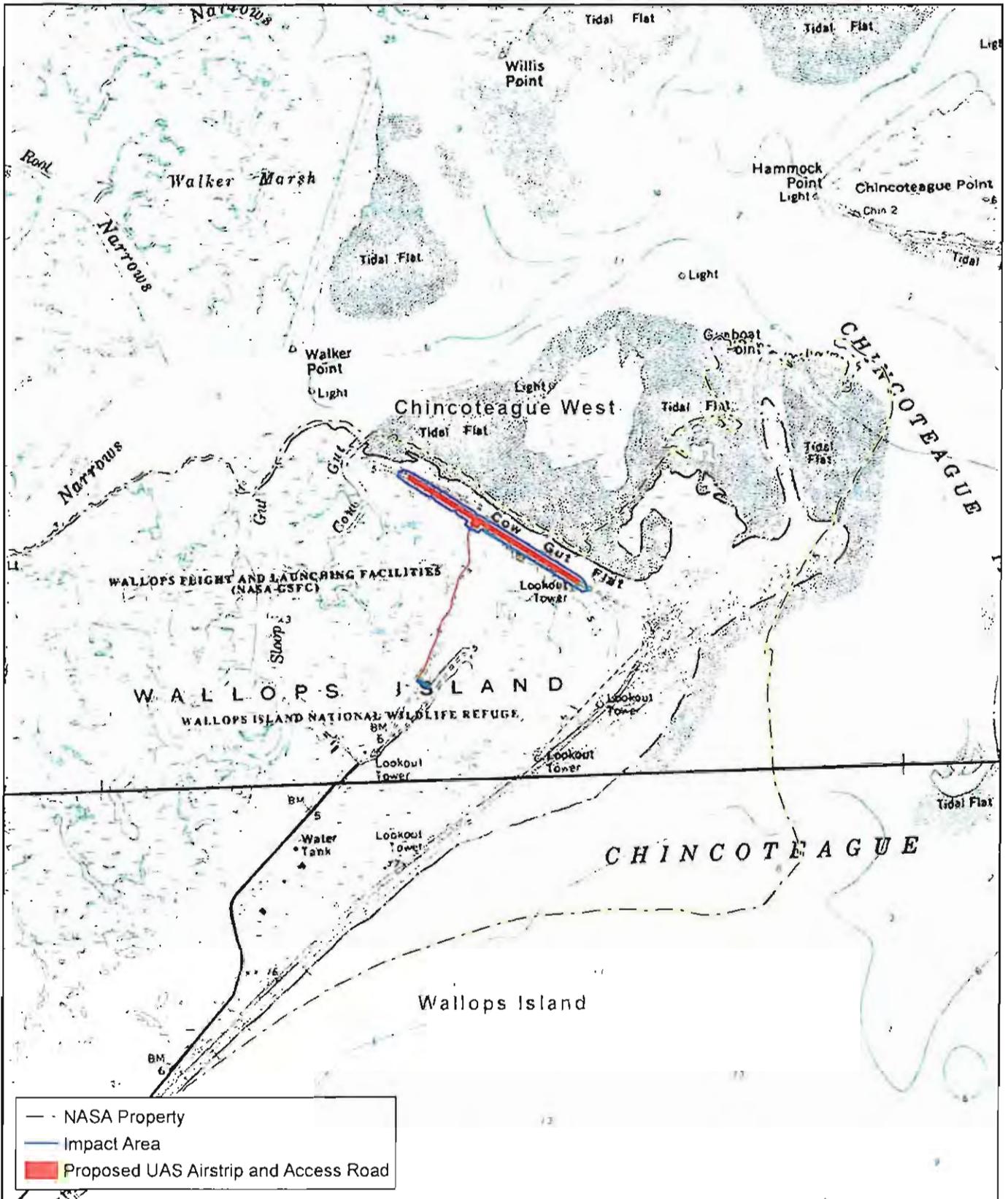
- - NASA Property  
 ■ Proposed UAS Airstrip and Access Road

Purpose: UAS Airstrip  
 App by: NASA  
 APO: N/A  
 Waterbody: Cow Gut flat  
 HUC: 02060010

Overall Location Map  
 TEC Inc.

City: Chincoteague  
 State: Virginia  
 Scale: 1 inch = 6,000 feet  
 Date: 6/20/2011  
 Sheet: 1 of 7

N  
  
 0 6,000 Feet



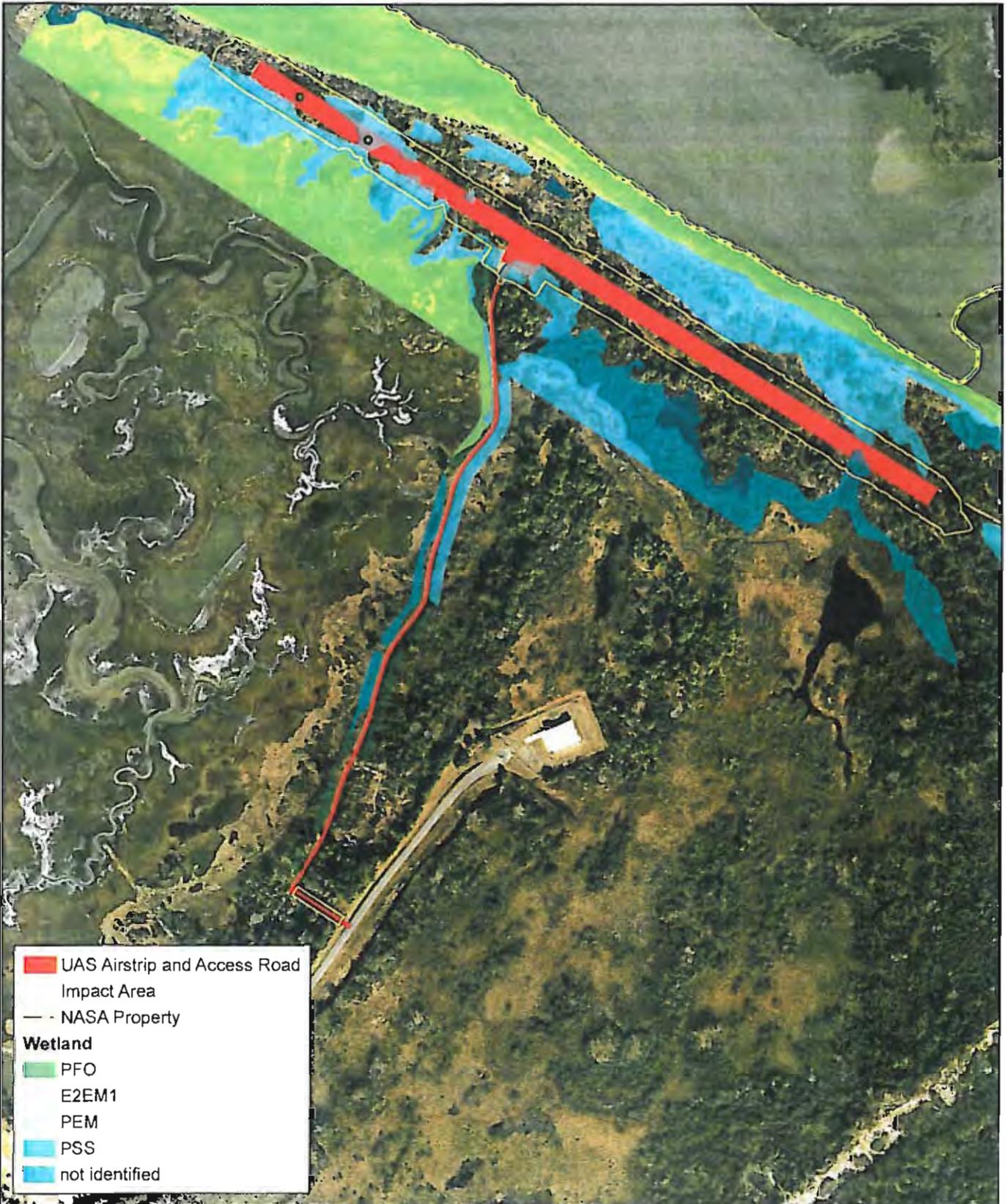
Purpose: UAS Airstrip  
 App by: NASA  
 APO: N/A  
 Waterbody: Cow Gut flat  
 HUC: 02060010

UAS Airstrip USGS Chincoteague and Wallops Island Quadrangle Location Map

TEC Inc.

City: Chincoteague  
 State: Virginia  
 Scale: 1 inch = 2,000 feet  
 Date: 6/20/2011  
 Sheet: 2 of 7

0 2,000 Feet



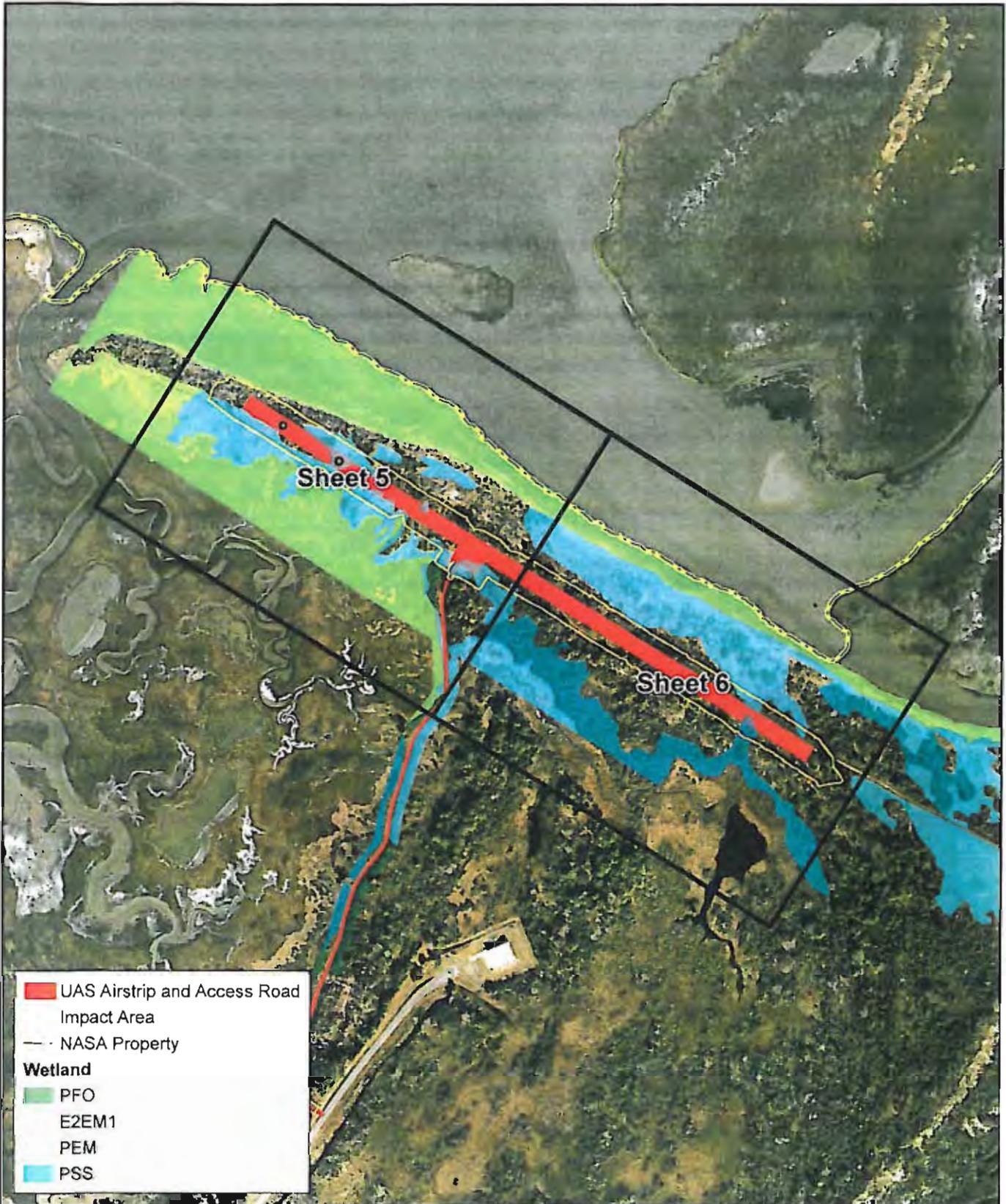
■ UAS Airstrip and Access Road  
 Impact Area  
 - - NASA Property  
**Wetland**  
■ PFO  
■ E2EM1  
■ PEM  
■ PSS  
■ not identified

Purpose: UAS Airstrip  
 App by: NASA  
 APO: N/A  
 Waterbody: Cow Gut flat  
 HUC: 02060010

UAS Airstrip Project Area  
  
 TEC Inc.

City: Chincoteague  
 State: Virginia  
 Scale: 1 inch = 500 feet  
 Date: 6/20/2011  
 Sheet: 3 of 7

N  
  
 0 500  
  
 Feet



	UAS Airstrip and Access Road
	Impact Area
	NASA Property
<b>Wetland</b>	
	PFO
	E2EM1
	PEM
	PSS

Purpose: UAS Airstrip  
 App by: NASA  
 APO: N/A  
 Waterbody: Cow Gut flat  
 HUC: 02060010

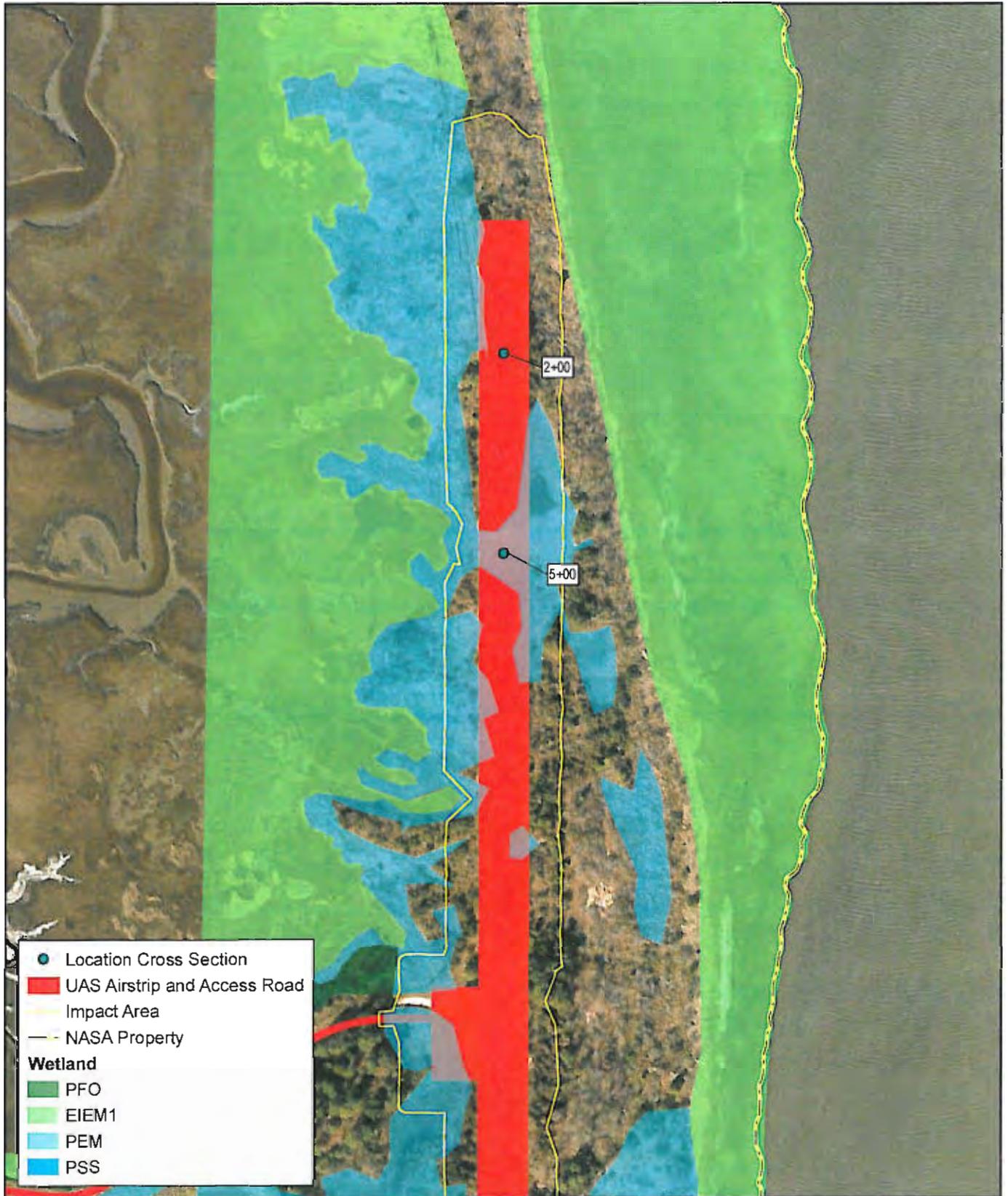
UAS Airstrip Wetland Impact Areas  
 Plan View

TEC Inc.

City: Chincoteague  
 State: Virginia  
 Scale: 1 inch = 600 feet  
 Date: 6/20/2011  
 Sheet: 4 of 7

0 600 Feet

N



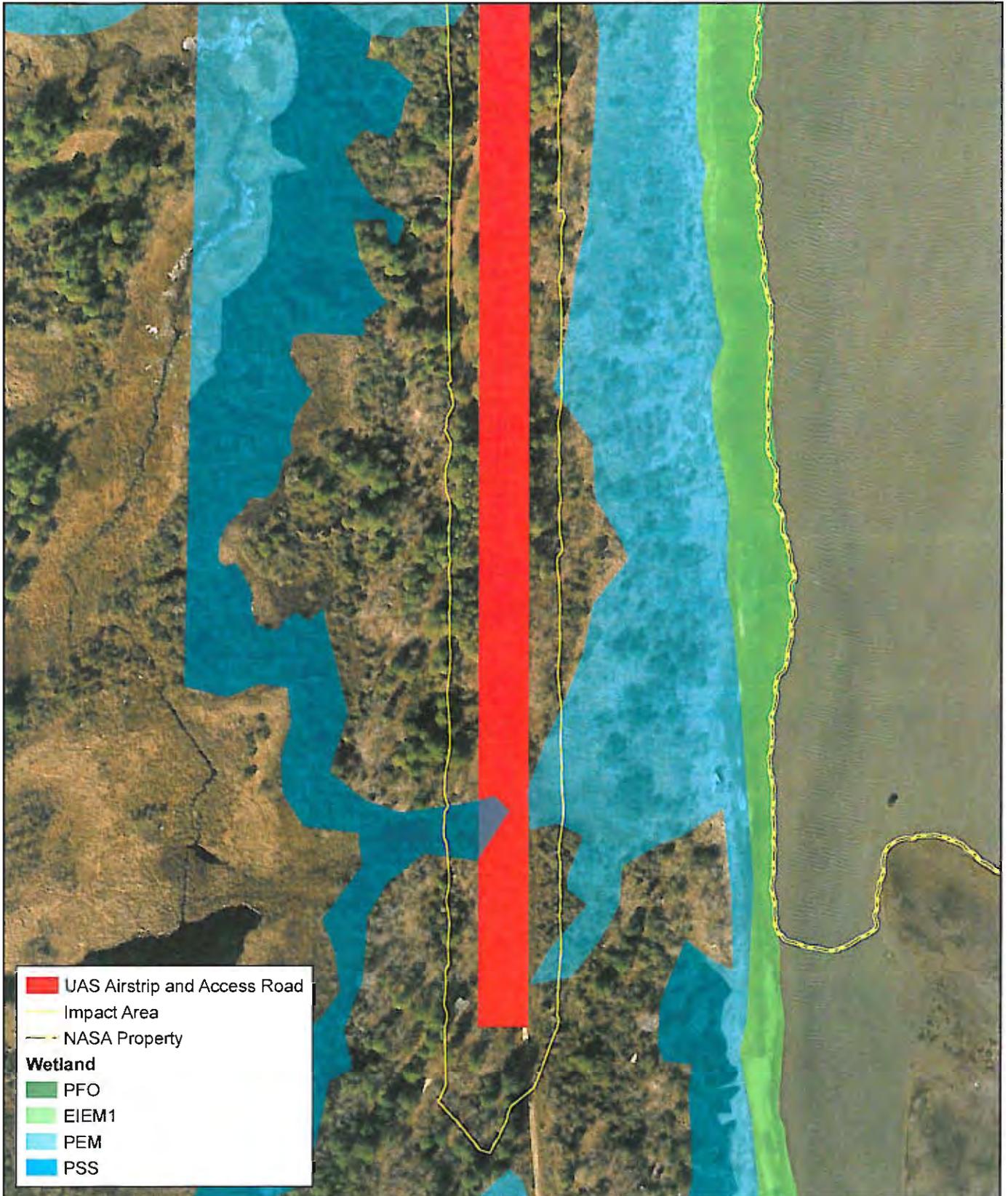
- Location Cross Section
  - UAS Airstrip and Access Road
  - - - Impact Area
  - - - NASA Property
- Wetland**
- PFO
  - EIEM1
  - PEM
  - PSS

Purpose: UAS Airstrip  
 App by: NASA  
 APO: N/A  
 Waterbody: Cow Gut flat  
 HUC: 02060010

UAS Airstrip Wetland Impact Areas  
 Plan View

TEC Inc.

City: Chincoteague  
 State: Virginia  
 Scale: 1 inch = 200 feet  
 Date: 7/14/2011  
 Sheet: 5 of 7



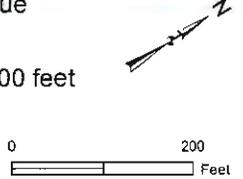
	UAS Airstrip and Access Road
	Impact Area
	NASA Property
<b>Wetland</b>	
	PFO
	EIEM1
	PEM
	PSS

Purpose: UAS Airstrip  
 App by: NASA  
 APO: N/A  
 Waterbody: Cow Gut flat  
 HUC: 02060010

UAS Airstrip Wetland Impact Areas  
 Plan View

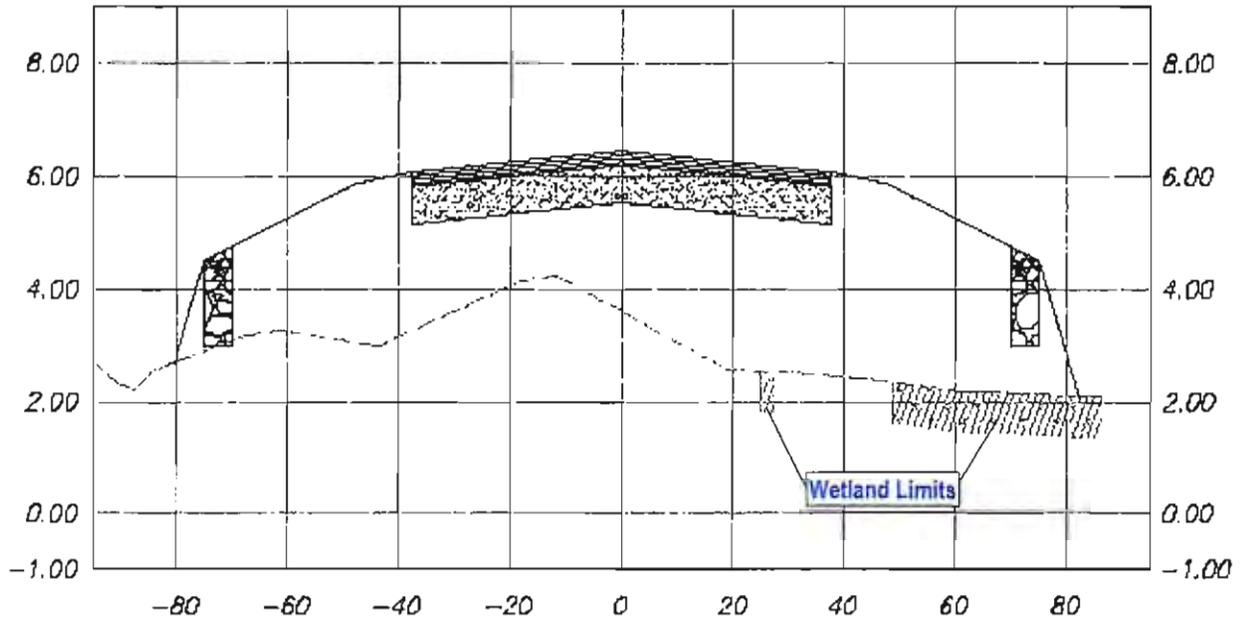
TEC Inc.

City: Chincoteague  
 State: Virginia  
 Scale: 1 inch = 200 feet  
 Date: 7/14/2011  
 Sheet: 6 of 7

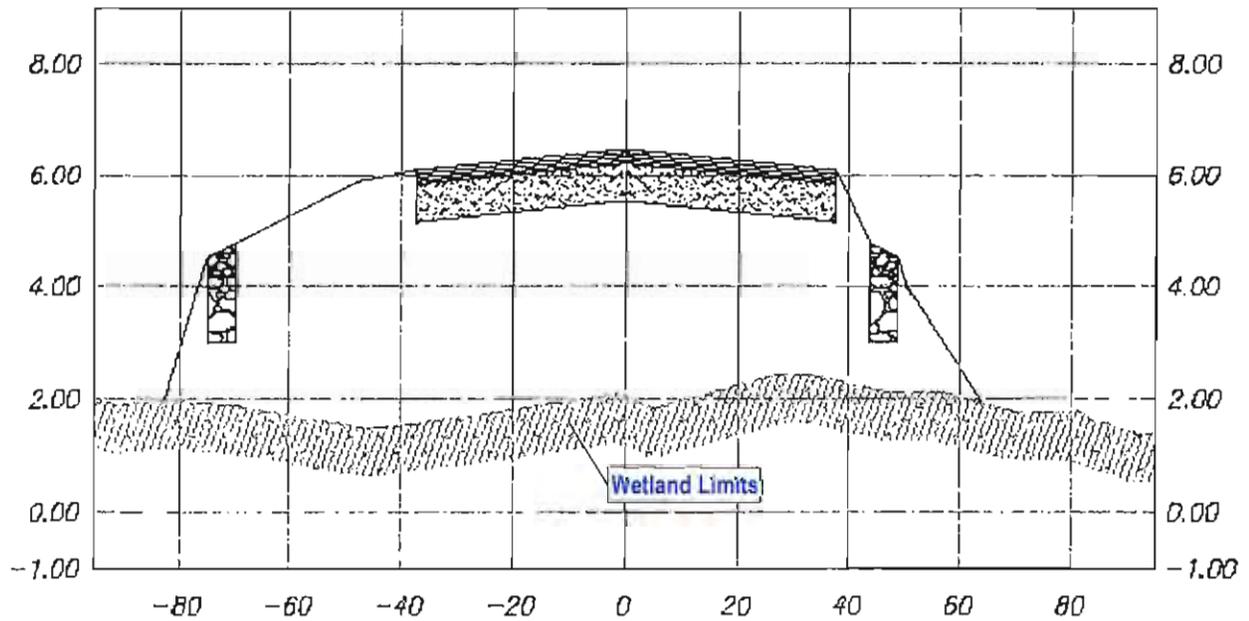


0 200 Feet

2+00



5+00

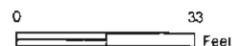


Purpose: UAS Airstrip  
App by: NASA  
APO: N/A  
Waterbody: Cow Gut flat  
HUC: 02060010

UAS Airstrip Wetland Impact Areas  
Cross Sections

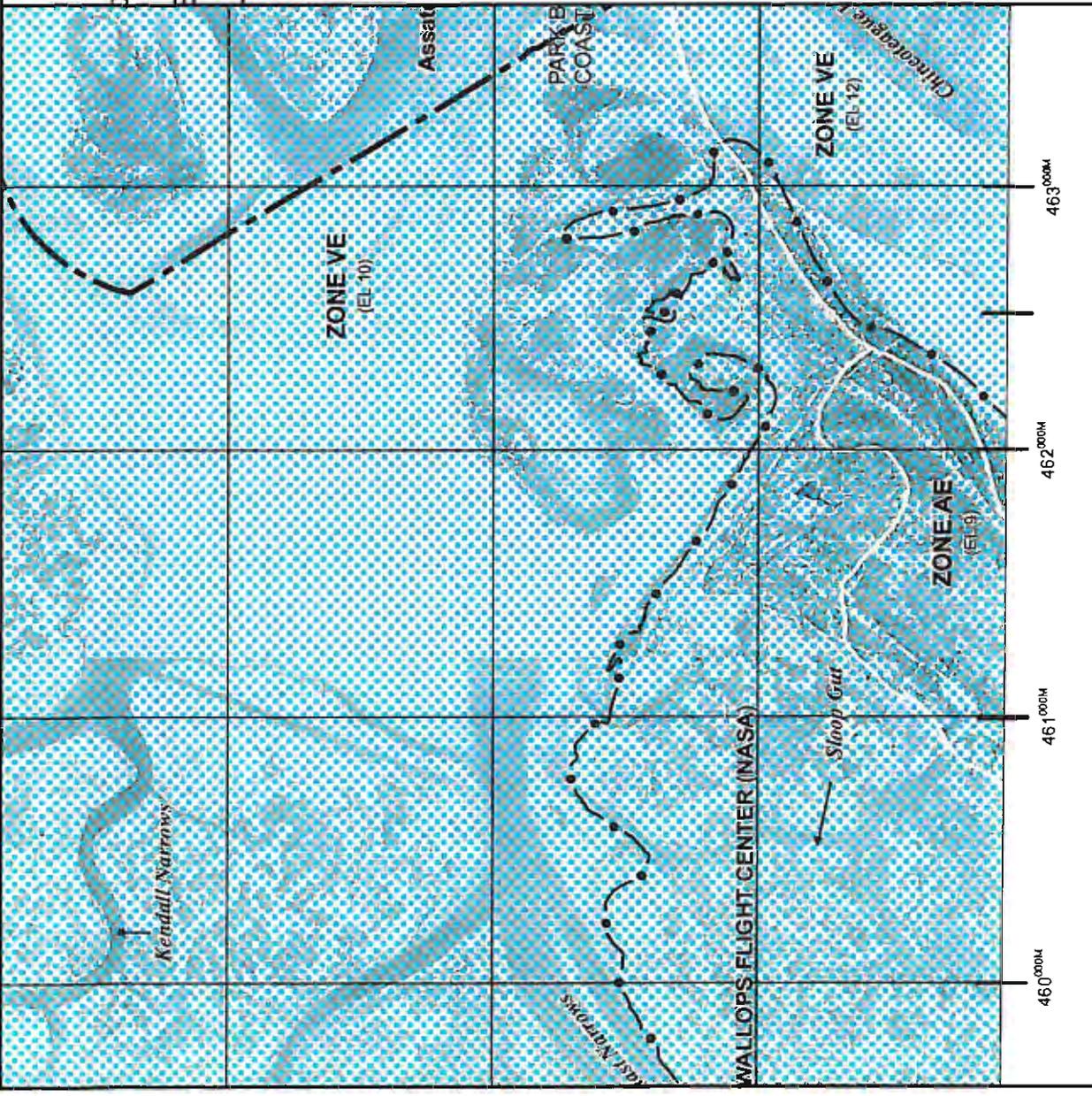
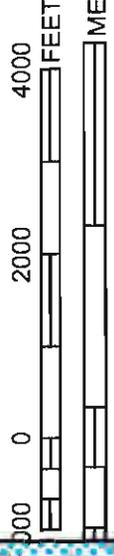
City: Chincoteague  
State: Virginia  
Scale: 1 inch = 33 feet  
Date: 6/20/2011  
Sheet: 7 of 7

TEC Inc.





MAP SCALE 1" = 2000'



**NATIONAL FLOOD INSURANCE PROGRAM**

**PANEL 0275F**

**FIRM**  
 FLOOD INSURANCE RATE MAP  
 ACCOMACK COUNTY,  
 VIRGINIA  
 AND INCORPORATED AREAS  
 PANEL 275 OF 905  
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS	COMMUNITY	NUMBER	PANEL	SUFFIX
ACCOMACK COUNTY UNINCORPORATED AREAS	510001	0275	F	F
CHINCOTEAGUE, TOWN OF	510002	0275	F	F

NOTE:  
 THIS MAP INCLUDES BOUNDARIES OF THE COASTAL BARRIER RESOURCES SYSTEM ESTABLISHED UNDER THE COASTAL ZONING ACT OF 1972 AND/OR SUBSEQUENT ENABLING LEGISLATION.  
 Notice to User: The Map Number shown below should be used when ordering map orders; the Community Number shown above should be used on insurance applications for the subject community.

**MAP NUMBER**  
51001C0275F

**EFFECTIVE DATE**  
MARCH 16, 2009



Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.msc.fema.gov](http://www.msc.fema.gov)

# LEGEND



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

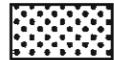
The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE,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

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



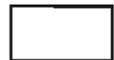
**FLOODWAY AREAS IN ZONE AE**

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



**OTHER FLOOD AREAS**

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



**OTHER AREAS**

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

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



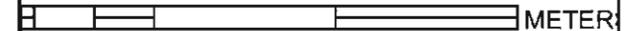
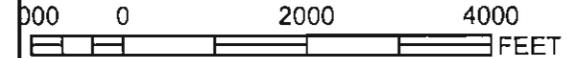
**COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**



**OTHERWISE PROTECTED AREAS (OPAs)**



**MAP SCALE 1" = 2000'**



NATIONAL FLOOD INSURANCE PROGRAM

**PANEL 0275F**

## FIRM

### FLOOD INSURANCE RATE MAP

### ACCOMACK COUNTY, VIRGINIA AND INCORPORATED AREAS

**PANEL 275 OF 905**

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

**CONTAINS:**

COMMUNITY	NUMBER	PANEL	SUFFIX
ACCOMACK COUNTY	510001	0275	F
UNINCORPORATED AREAS	510002	0275	F

-NOTE-  
THIS MAP INCLUDES BOUNDARIES OF THE COASTAL BARRIER RESOURCES SYSTEM ESTABLISHED UNDER THE COASTAL BARRIER RESOURCES ACT OF 1982 AND/OR SUBSEQUENT ENABLING LEGISLATION.

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

**MAP NUMBER**

**51001C0275F**

**EFFECTIVE DATE**

**MARCH 16, 2009**

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at [www.mac.fema.gov](http://www.mac.fema.gov)



National Aeronautics and  
Space Administration  
Goddard Space Flight Center  
Wallops Flight Facility  
Wallops Island, VA 23337

December 13, 2010

Amanda Lee  
Commonwealth of Virginia  
Department of Historic Resources  
2801 Kensington Avenue  
Richmond, Virginia 23221-0311

RE: UAS Airstrip Cultural Resources Investigations  
Wallops Flight Facility  
DHR File #2009-0696

Dear Ms. Lee:

As per your request in your letter of November 22, 2010, please find enclosed the additional information for the determination of eligibility for the 1952 North Observation Mound (DHR# 001-0027-0125). Included are a copy of the VDHR resource survey form, topographical maps, and a site sketch on acid-free paper. A set of black and white photographs (from digital) in Print File sleeves are included, as well as a CD with the digital photo files.

In addition, NASA has determined that the following options will be taken to preserve and protect the earthworks associated with the Revolutionary War Fort (44AC0089) during construction of the new UAS airstrip. Option 1 would establish a 25-foot buffer zone around the earthworks within which no clearing will be done and the site will be maintained and preserved in its current state.

Should it be determined that the vegetation must be removed from the site for safety concerns, trees and large vegetation will be hand-cleared from the site and 25-foot buffer zone. NASA will attempt to control excess foot traffic and inadvertent damage to the earthworks during clearing activities. The roots of trees and other vegetation will not be removed from the earthworks to minimize damage and the site will be reseeded with an approved, non-woody ground cover.

A long-term maintenance plan will be established that will outline procedures for yearly vegetation removal and that will monitor the state of the earthworks. The plan may include observations of erosion and/or other damage to the earthworks through photodocumentation and

include provisions for short and long term stabilization techniques and emergency stabilization in the event of natural disasters, including hurricanes. Long-term maintenance may include the erection of a permanent enclosure to guard against vandalism or inadvertent damage to the site.

If you have any questions or require additional information about the project, please contact Mr. Joel Mitchell at (757) 824-1127 or me at (757) 824-1309. Thank you for your attention to this request and we look forward to receiving your comments.

Sincerely,

A handwritten signature in black ink that reads "Randall M. Stanley". The signature is written in a cursive style with a large, looping initial 'R'.

Randall M. Stanley  
Facility Historic Preservation Officer

Enclosure

**Virginia Department of Historic Resources  
Intensive Level Survey**

**DHR ID#: 001-0027-0125**

**Other DHR ID#:**

**Resource Information**

*Resource Name(s):* North Observation Mound {Current}  
Man-made Mound {Descriptive}  
*Date of Construction:* ca 1952  
*Local Historic District :*

**Location of Resource**

*County/Independent City:* Accomack  
*Magisterial District:*  
*Town/Village/Hamlet:* Chincoteague  
*Tax Parcel:*  
*Zip Code:* 23337  
*Address(s):* Wallops Island, North end of {Current}  
*USGS Quadrangle Name:* CHINCOTEAGUE WEST  
*UTM Boundary Coordinates :*

	<u>NAD</u>	<u>Zone</u>	<u>Easting</u>	<u>Northing</u>
<i>UTM Center coordinates :</i>	1983	18	461685	4193063
<i>UTM Data Restricted?.</i>	No			

**National Register Eligibility Status**

Resource has not been evaluated.\*

This Resource is associated with the Wallops Island Flight Facility Historic District (NASA)

\* Resource has not been formally evaluated by DHR or eligibility information has not been documented in DSS at this time.

**Resource Description**

*Ownership Status:* Public - Federal  
*Government Agency Owner:* U.S. National Aeronautics & Space Administration  
*Acreage:* 0.11  
*Surrounding area:* Rural  
*Open to Public:* No  
*Site Description:*

July 2009: Situated on the north end of Wallops Island, the mound is located along the southwest side of an unnamed dirt and gravel road in a heavily wooded area.

*Secondary Resource Summary:*

July 2009: none

**Individual Resource Information**

<u>Count</u>	<u>Resource Types</u>	<u>Resource Status</u>
1	Landscape Feature,Man-Made	Contributing

**Individual Resource Detail Information**

<i>Resource Type.</i>	Landscape Feature,Man-Made	<i>Primary Resource?</i>	Yes
<i>Date of Construction:</i>	ca 1952 {Written Data}	<i>Accessed?</i>	Yes
<i>Architectural Style:</i>	No Discernable Style	<i>Number of Stories:</i>	2.0
<i>Form:</i>		<i>Condition:</i>	Ruinous
<i>Interior Plan Type:</i>		<i>Threats to Resource:</i>	Erosion Structural Failure Neglect Deterioration

**Virginia Department of Historic Resources**  
**Intensive Level Survey**

**DHR ID#: 001-0027-0125**

**Other DHR ID#:**

July 2009: This man-made dirt mound was constructed circa 1952. The oval mound measures approximately 18 x 25 meters (59 x 82 feet) and rises approximately 8 meters (26.25 feet) above natural grade. A stair-accessed wood deck/platform was placed atop the mound for the purpose of monitoring a target area for Naval ordnance testing.

A heavily deteriorated 10-step wood staircase leads from the southeastern end of the mound to a fallen-in wood landing. This landing previously spanned an area of approximately .9 x 1.2 meters (3 x 4 feet) and was supported by four circular wood posts. It leads to a northwestern-oriented set of 12 wood steps. This staircase, while less damaged than the previous, is also greatly deteriorated.

A rectangular wood deck is situated atop the mound, stretching from southeast to northwest. It measures approximately 2.4 x 4.9 meters (8 x 16 feet) and is supported by six wood circular posts. Ten rectangular wood posts line the southwestern, northwestern, and a portion of the northeastern perimeter of the deck. A wood railing sits atop these posts along the southwestern and northwestern perimeter, but the portion along the northeastern perimeter is now missing.

Electrical service was provided to the mound, as evidenced by two power outlets attached to two deck railing posts. A metal electrical power box which was most likely attached to the deck at one point was located atop the mound, immediately east of the deck. Near the base of the mound, remnants of an 11-pair power cable were detected.

**Primary Resource Exterior Component Description:**

<u>Component</u>	<u>Comp Type/Form</u>	<u>Material</u>	<u>Material Treatment</u>
Structural System	Structural System - Frame	Wood	other
Foundation	Foundation - Piers	Wood	other

*Historic Time Period(s):* S- The New Dominion (1946- Present)

*Historic Context(s):* Military/Defense  
Technology/Engineering

**Significance Statement**

July 2009: This man-made mound, constructed circa 1952, was built as part of the U.S. Navy's Naval Air Ordnance Test Station (NAOTS) on the north end of Wallops Island. The mound, built with a wood deck at its top, was constructed to give an elevated vantage point for the observance and photography of the target test range located southwest of the mound. While taller towers were erected for similar purposes on the island, this mound is believed to be the only man-made landscape form to be constructed as a vantage point. When constructed on the north end of Wallops Island, the land on which the mound was erected was owned by the National Advisory Committee on Aeronautics (NACA). NACA leased the north end of the island to the U.S. Navy for use as an ordnance testing range by NAOTS. The mound is located along the southwest side of an unnamed dirt and gravel road in a heavily wooded area.

The mound is representative of a secondary resource to a Military/Defense research facility built at the beginning of the New Dominion (1945 to present) period. In 1946, the U.S. Navy expanded the mission of the Chincoteague Naval Auxiliary Air Station (CNAAS) to include the NAOTS on Wallops Island. As a result of this new mission, NAOTS carried out bomb drops and firing on Wallops Island from 1948 to 1959. In 1951, CNAAS became a Naval Air Facility with primarily research-based focus that corresponded with the mission of NAOTS until the base was closed in 1959. The exact construction date of the mound is unknown; however, aerial photography and development plans from this period suggest the presence of the mound around 1952. Aerial photography dating to 1949 does not show the man-made land form, but an image of the mound is present on aerial photography from 1958. A development map of the island from 1952 describes structures and elements at the north end of the island such as the target center and the "Baker Instrument Tower" at the north shore, as well as a storage facility immediately northeast of the location of the mound. While the map lacks some detail in its description, a small mark near the location of the mound may indicate a topographic abnormality. It is also possible that the structure described as a storage facility may in fact be the mound instead.

In 1959, ownership of CNAAS and NAOTS was transferred to the National Aeronautics and Space Administration (NASA) and the Wallops Island facility was renamed Wallops Station. The mound has been unused and abandoned since that time.

A proposed historic district that would include this resource was previously examined, taking into consideration issues of integrity, significance and district boundaries. It was decided that the proposed district lacks integrity of design, setting, materials, feeling,

**Virginia Department of Historic Resources  
Intensive Level Survey**

**DHR ID#: 001-0027-0125**

**Other DHR ID#:**

association, and workmanship due to the removal of a majority of buildings and structures related to the proposed period of significance (1946 to 1959) and the construction of later buildings and structures. Thus, an historic district at this project location is not eligible under Criterion A, B, C, or D.

As an individual resource, the mound is not eligible for the National Register of Historic Places or the Virginia Landmarks Register under Criterion A, B, C, or D. The mound is not associated with a significant event or individual at the local, state, or national level; nor does it embody the distinctive characteristics of a type, period, or method of construction. The mound does not represent the work of a master, possess high artistic value, or represent a significant or distinguishable entity whose components may lack individual distinction. Furthermore, this resource does not have the potential for provided additional information in history of prehistory.

The mound has retained integrity of location. Despite maintaining its historic location, the resource's integrity of design, materials, and workmanship has greatly diminished due to deterioration and structural failure from neglect, vegetative overgrowth, and inhabiting wildlife. Integrity of the mound has also diminished in the area's of setting, association, and feeling not only from the damage caused by encroaching vegetation and wildlife, but also due to the demolition of NAOTS and CNAAS buildings and structures from the resource's period of significance. The disappearance of such buildings and structures, as well as the construction of later buildings and structures by NASA, had altered the historic character of the physical character of the resource and its historic context.

**National Register Eligibility Information (Intensive Level Survey):**

<u>NR Count</u>	<u>NR Resource Type</u>	<u>NR Resource Status</u>
1	Structure	Non-contributing
Non-Contributing: 1		

*National Register Criteria:*

*Period of Significance:* 1946-1959

*Level of Significance:* national

*NR Areas of Significance:* Engineering  
Military

<i>Property Retains Integrity of:</i>	1)Association	<b>No</b>	5)Material	<b>No</b>
	2)Design	<b>No</b>	6)Setting	<b>No</b>
	3)Feeling	<b>No</b>	7)Workmanship	<b>No</b>
	4)Location	<b>Yes</b>		

**Graphic Media Documentation**

<u>DHR Negative #</u>	<u>Photographic Media</u>	<u>Negative Repository</u>	<u>Photo Date</u>	<u>Photographer</u>
	Digital Images	NASA	July 20, 2009	New South Associates

**Bibliographic Documentation**

*Reference #: 1*

*Bibliographic RecordType:* Photograph/Hist  
*Author:* U.S. Army Corps of Engineers  
*DHR CRM Report Number:*

*Notes:*

U.S. Army Corps of Engineers, St. Louis District. "NASA-Wallops Flight Facility, Accomack, Virginia." Aerial Photograph. 1974.

*Reference #: 2*

*Bibliographic RecordType:* Map

**Virginia Department of Historic Resources  
Intensive Level Survey**

**DHR ID#: 001-0027-0125**

**Other DHR ID#:**

---

*Author:* Shore Station Development Board

*DHR CRM Report Number:*

*Notes:*

Shore Station Development Board, Naval Auxiliary Air Station/Naval Aviation Ordnance Test Station, Chincoteague, Virginia. "Wallops Island Development Map." 1952.

*Reference #: 3*

*Bibliographic RecordType:* Photograph/Hist

*Author:* U.S. Army Corps of Engineers

*DHR CRM Report Number:*

*Notes:*

U.S. Army Corps of Engineers, St. Louis District. "NASA-Wallops Flight Facility, Accomack, Virginia." Aerial Photograph. 1958.

*Reference #: 4*

*Bibliographic RecordType:* Photograph/Hist

*Author:* U.S. Army Corps of Engineers

*DHR CRM Report Number:*

*Notes:*

U.S. Army Corps of Engineers, St. Louis District. "NASA-Wallops Flight Facility, Accomack, Virginia." Aerial Photograph. 1949.

***Cultural Resource Management (CRM) Events***

*CRM Event # 1,*

*Cultural Resource Management Event:* Survey:Phase I/Reconnaissance

*Date of CRM Event:* July 20, 2009

*CRM Person:* New South Associates

*VDHR Project ID # Associated with Event:* 2009-0696

*CRM Event Notes or Comments:*

Resource recorded by:

Kristie Lockerman

New South Associates

6150 E Ponce de Leon Ave

Stone Mountain, Georgia 30083

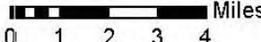
***Bridge Information***

***Cemetery Information***

***Ownership Information***

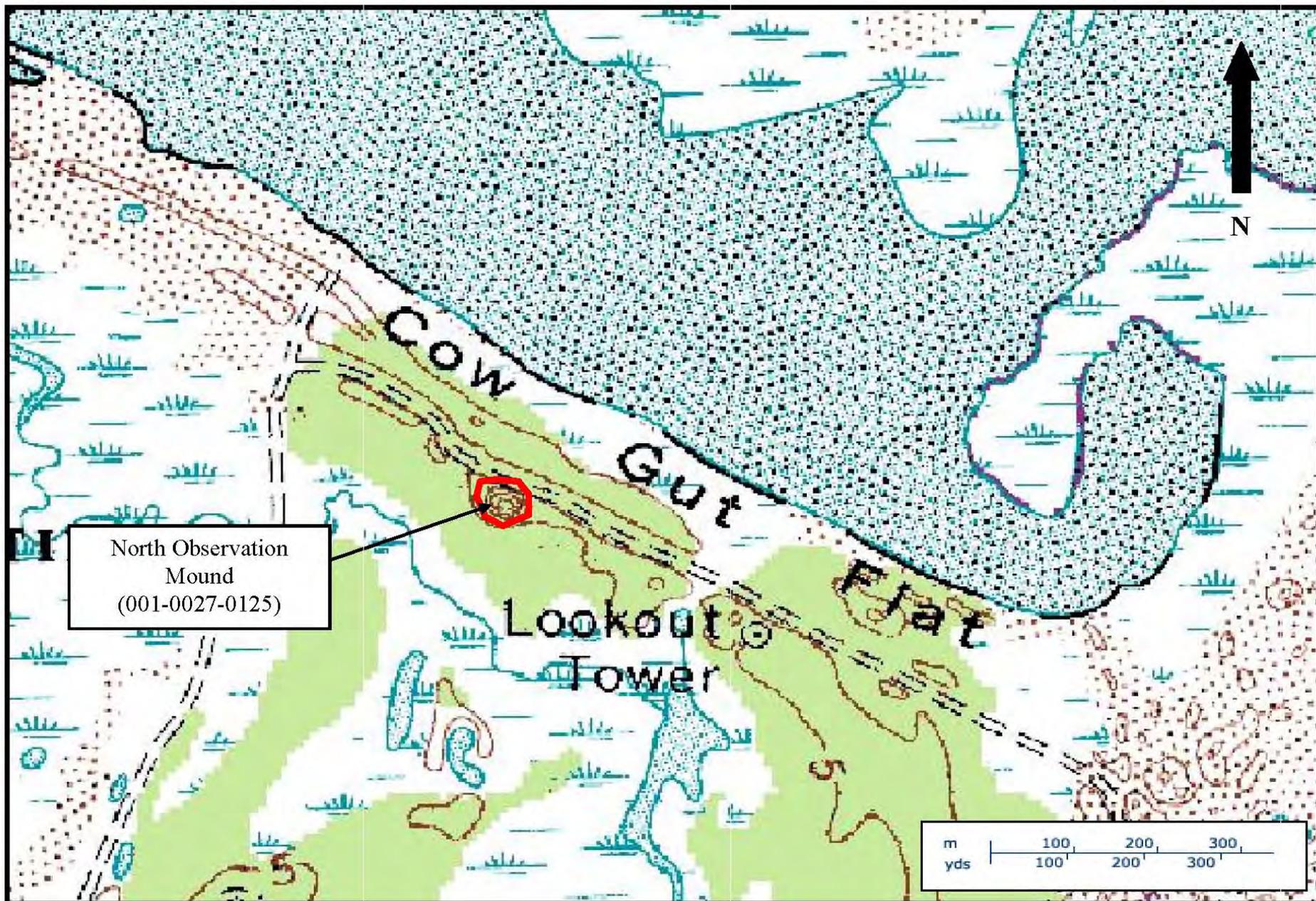


 Resource Location

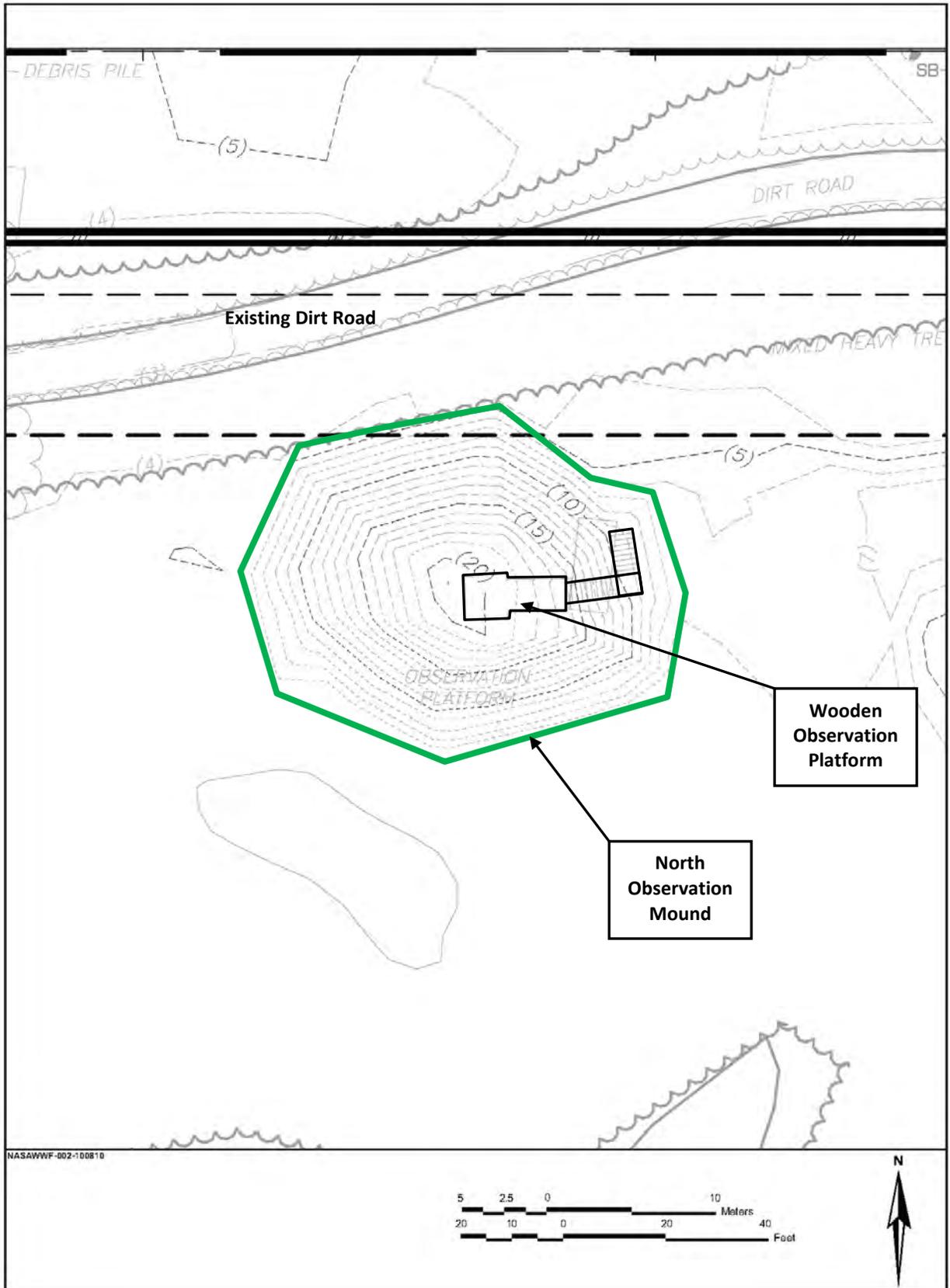
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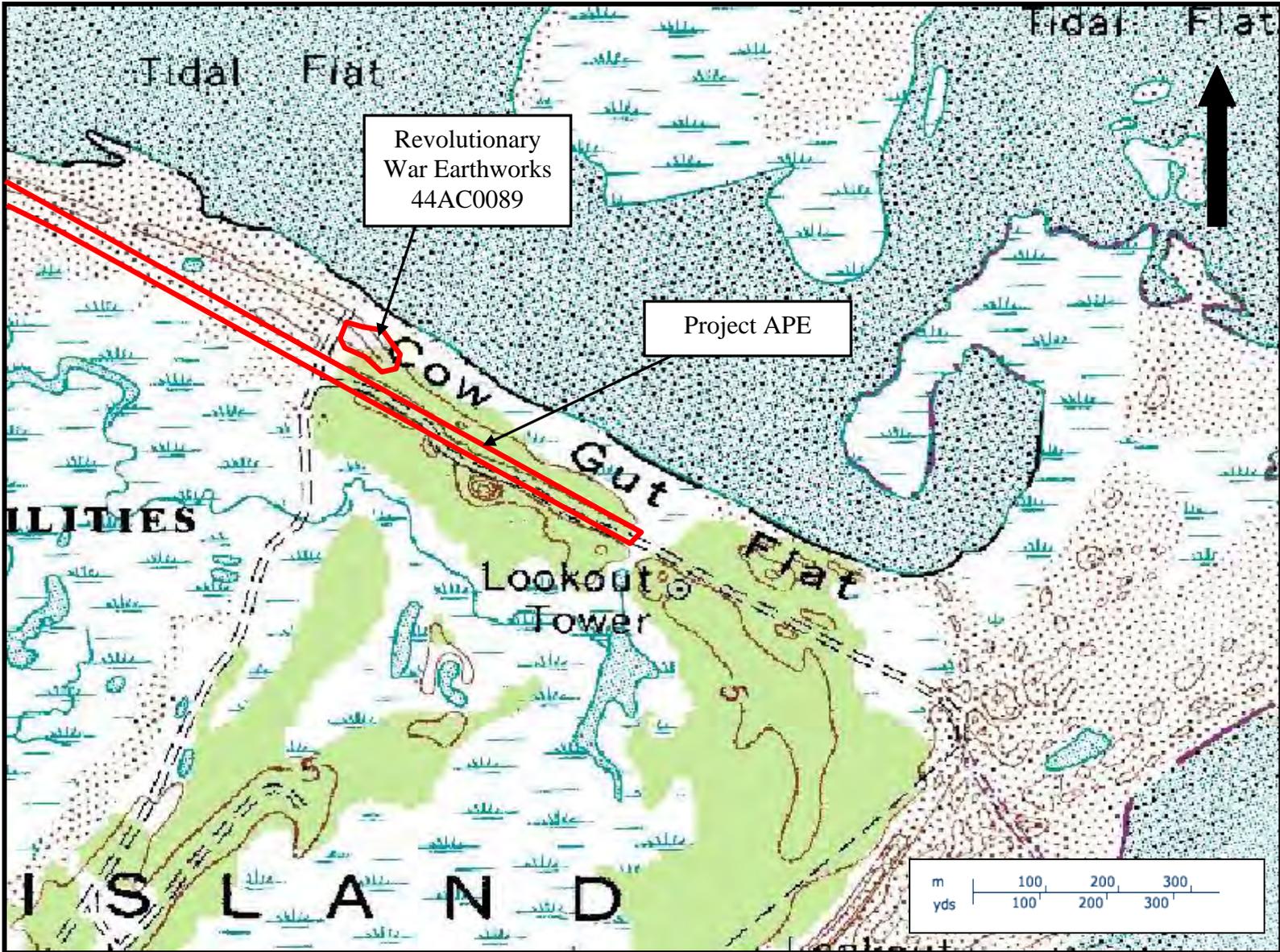
**Portion of Chincoteague West USGS Quadrangle Map Showing Location of North Observation Mound (DHR #001-0027-0125)**



Portion of Chincoteague West Quadrangle Map Showing Location of North Observation Mound (DHR #001-0027-0125)



**Sketch of North Observation Mound (DHR #001-0027-0125)**





# COMMONWEALTH of VIRGINIA

## Department of Historic Resources

Douglas W. Domenech  
*Secretary of Natural Resources*

2801 Kensington Avenue, Richmond, Virginia 23221

Kathleen S. Kilpatrick  
*Director*

Tel: (804) 367-2323  
Fax: (804) 367-2391  
TDD: (804) 367-2386  
[www.dhr.virginia.gov](http://www.dhr.virginia.gov)

January 10, 2011

Mr. Randall M. Stanley, Historic Preservation Officer  
NASA Goddard Space Flight Center  
Wallops Flight Facility (WFF)  
Building N-161, Room 127  
Wallops Island, Virginia 23337

Re: UAS Airstrip Cultural Resources Investigations  
Accomack County  
DHR File No. 2009-0696

Dear Mr. Stanley,

On December 14, 2010, the Virginia Department of Historic Resources (DHR) received additional information regarding the above referenced project for our review and comment pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended.

Based upon a review of the information provided regarding the ca. 1952 North Observation Mound (DHR ID# 001-0027-0125), DHR concurs that the resource is not eligible for inclusion in the National Register of Historic Places.

DHR understands that NASA WFF has determined that it will implement Option 1 regarding the treatment of the Revolutionary War Fort, archaeological site (44AC0089). NASA WFF will establish a 25-foot buffer zone around the earthworks within which no clearing will be done, and the site will be maintained and preserved in its current state. DHR recommends no adverse effect to 44AC0089 by this option.

Should you have any questions, I may be reached via email at [amanda.lee@dhr.virginia.gov](mailto:amanda.lee@dhr.virginia.gov) or by phone at 804-367-2323 Ext. 122.

Sincerely,

M. Amanda Lee, Historic Preservationist  
Office of Review and Compliance

Cc: Shari A. Silbert, NASA WFF

Administrative Services  
10 Courthouse Ave.  
Petersburg, VA 23803  
Tel: (804) 862-6416  
Fax: (804) 862-6196

Capital Region Office  
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Richmond, VA 23221  
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Tidewater Region Office  
14415 Old Courthouse Way 2<sup>nd</sup>  
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Newport News, VA 23608  
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Fax: (757) 886-2808

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Salem, VA 24153  
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PO Box 519  
Stephens City, VA 22655  
Tel: (540) 868-7031  
Fax: (540) 868-7033

**DEQ WATER PROTECTION INDIVIDUAL PERMIT  
USACE INDIVIDUAL PERMIT  
JOINT PERMIT APPLICATION**

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
WALLOPS FLIGHT FACILITY  
NORTH WALLOPS ISLAND  
UNMANNED AERIAL SYSTEMS AIRSTRIP  
WALLOPS ISLAND, VIRGINIA**

**Prepared by:**

NASA WFF  
Building N-161, Code 228  
Wallops Island, VA 23337

and

TEC Inc  
11817 Canon Blvd., Suite 300  
Newport News, VA 23606



**December 2011**

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# NORTH WALLOPS ISLAND UAS AIRSTRIP WETLAND PERMIT Project Narrative

## 1.0 Background

Wetland Delineation. A wetland delineation was completed by the Timmons Group and confirmed by the Corps of Engineers by letter dated April 30, 2009. The wetland flags were located by survey. Wetland acreages and habitat types were taken from the confirmed delineation.

Pre-Application Meeting. A pre-application meeting was conducted on February 24, 2011. It was hosted by Virginia Department of Environmental Quality (VDEQ) Tidewater Regional Office and was attended by the following:

- A. National Aeronautics and Space Administration (NASA): Josh Bundick, Paul Bull, Joe Mitchell, and Shari Silbert.
- B. Corps of Engineers: Steve Gibson.
- C. VDEQ: Sheri Kattan.
- D. Transystems: Mike Brown and Anthony Bream.
- E. U.S. Environmental Protection Agency: Alaina DeGeorgio and Carol Petro.
- F. National Oceanic and Atmospheric Administration/National Marine Fisheries Service: Dave O'Brien.
- G. U.S. Fish and Wildlife Service (USFWS): Mike Drummond and Kim Smith (by phone).
- H. TEC Inc.: Charee Hoffman, Dana Banwart, Matt Bartlett, and John Lowenthal.

## 2.0 Project Purpose and Need

The purpose of the Proposed Project is to provide an adequately-sized Unmanned Aerial Systems (UAS) airstrip that would be capable of supporting the testing and deployment of existing and future UAS and UAS-based scientific instruments at NASA Goddard Space Flight Center's (GSFC) Wallops Flight Facility (WFF). UAS test and UAS-based research opportunities form an important objective of WFF's Suborbital and Special Orbital Projects Directorate and as such, this type of mission requires an unencumbered operating environment. The new airstrip would measure approximately 3,000 feet (ft.) long (2,500 ft. plus an additional 500 ft. clear zone) by 75 ft. wide.

A new airstrip at north Wallops Island is needed to support WFF's ongoing and future UAS and UAS-based test research. Limitations on use of the existing UAS airstrip, as presented below, have inhibited opportunities for scientific testing and research at WFF.

1. The airstrip has a north/south orientation making it susceptible to (east/west) cross winds. Due to the small size and light weight of most UAS, strong east/west winds often preclude and/or limit UAS operations. Historical wind data for Wallops Island indicates that winds are generally from the west/northwest or east/southeast directions.
2. During storm events, the existing airstrip is often inundated with surf and sand. Severe beach erosion from hurricanes and nor'easters has virtually eliminated the beachfront and dunes that

provided protection in the past. Although, WFF is in the process of restoring the Wallops Island shoreline, the beach restoration project will not prevent storm driven flood waters from the back bays from inundating the existing UAS airstrip.

3. WFF's rocket launch program has expanded with the current construction of a new launch pad north of the UAS airstrip. Mandatory safety constraints from increased rocket launch activities at the nearby Mid-Atlantic Regional Spaceport (MARS) are anticipated to further reduce UAS research opportunities. The airstrip is inactivated prior to and immediately following rocket launch activities and static test firing of the rocket engines. Approximately 18 orbital launches, 60 sounding rockets, and 2 static test firing of rockets would occur each year. Each of these activities has the potential to reduce opportunities for UAS flight operations.
4. The existing airstrip (1,500 ft. long) would not be capable of supporting the next generation of UAS. The Viking 400-class UAS would require, at a minimum, a 2,500 ft. long airstrip for take-offs and landings; an additional 250 ft. clearance zone on each end would provide for safe operations.

Based on the limitations presented, the requirement to operate UAS in restricted airspace, and WFF's Suborbital and Special Orbital Projects Directorate's mission to provide the infrastructure and support services for scientific research and discovery, NASA has determined the need to construct a new UAS airstrip on the north end of Wallops Island.

### **3.0 Existing Conditions**

Within the project vicinity, the dominant habitat is tidal marsh. These tidal wetlands transition into smaller areas of non-tidal Palustrine forested, emergent, and scrub-shrub wetland habitat types. The forested areas are located on the highest elevations and they transition down to scrub shrub and then emergent habitats. The non-tidal emergent wetlands typically transition into the tidal emergent wetlands. The tidal wetland habitat vegetation was primarily comprised of smooth chordgrass (*Spartina alterniflora*) and salt meadow hay (*Spartina patens*). The non-tidal emergent wetland habitat vegetation is primarily comprised of common reed (*Phragmites australis*) on the eastern portion of the airstrip area and soft rush (*Juncus effusus*) and salt meadow hay on the western portion. The scrub shrub wetland vegetation was comprised of wax myrtle (*Myrica cerifera*), common reed, red bay (*Persea borbonia*) and poison ivy (*Toxicodendron radicans*). The forested wetland habitat vegetation was comprised of loblolly pine (*Pinus taeda*) and common greenbrier (*Smilax rotundifolia*). The upland areas are also comprised of forest and scrub shrub habitats with dominant vegetation comprised of loblolly pine, black cherry (*Prunus serotina*), red cedar (*Juniperus virginiana*), and American holly (*Ilex opaca*).

### **4.0 Description of Alternatives**

The analysis of alternatives was conducted included the following elements: Off-site Locations and On-site Locations.

#### **4.1 Off-Site Locations Considered**

Numerous off-site alternative locations were considered to determine their viability when examined using project criteria developed by WFF.

- A. NASA Langley Research Center and Langley Air Force Base, adjacent facilities, in Virginia do not possess the controlled/restricted airspace to support UAS test and UAS-based research operations.
- B. Kennedy Space Center in Florida possesses the services, equipment, facilities, and controlled/restricted airspace to support UAS test and UAS-based research; however, Kennedy Space Center is a different administrative entity from Goddard Space Flight Center WFF, the location is remote from WFF, and is not located in a mid-Atlantic region. As such, this location would not meet the needs of the GSFC UAS scientific community.
- C. Naval Air Station Patuxent River is a U.S. Naval Air Station located in St. Mary's County, Maryland approximately 200 miles from WFF. The Naval Air Station is the Navy's primary location for research, development, test, evaluation, engineering, and fleet support for naval aircraft and systems. Webster Field provides an airstrip and airspace for UAS operations. Overall, the installation would meet many requirements; however, the coastal zone/ocean research objectives would not be met.
- D. Accomack County Airport, located in Melfa, Virginia is approximately 35 miles from WFF. The airport has two 5,000 ft. long by 100 ft. wide north/south airstrips that would be capable of supporting aircraft of the size proposed at WFF and would meet the project requirements; however, this location was not considered further since it is not a NASA-supported Center, it does not meet the controlled/restricted airspace, and due to the proximity of business and residential areas within 1 mile of the airstrip, the location would fail to meet operational flight safety requirements.
- E. Purchase of off-site land parcels surrounding the entrance to Wallops Mainland and north towards the Main Base was considered; however, these off-site land parcels would be located outside of restricted airspace (R-)6604A/B. Additionally, UAS operating from WFF are permitted only to operate and fly over areas where people, vehicles, or homes and businesses would not be located and overflights of these areas would not occur.

#### 4.2 On-Site Locations Considered

Below is a discussion of the on-site locations considered for the location of the airstrip.

- A. Expansion of the Existing UAS airstrip on the south end of Wallops Island was considered. The north/south orientation of the airstrip makes it susceptible to east/west cross winds, the airstrip is often inundated with water and sand from storm events, and mandatory safety constraints from increased rocket launch activities at the nearby MARS would continue to reduce UAS test/research opportunities. Additionally, expansion of the existing airstrip to a length necessary to accommodate the next class of UAS, the Viking 400-class UAS, would place the south end unacceptably close to the Resource Conservation and Recovery Act permitted hazardous waste Treatment, Storage, and Disposal Facility.
- B. Causeway Road (Route 803) links Wallops Island to the Mainland. WFF considered using a section of the road south of the Causeway Bridge since the location, dimensions, and orientation of the road segment would meet the design requirement; however, the road does not present a flat, level surface required for safe operations. Additionally, UAS operations

- would require scheduled road closures, up to 3 days in a row in some cases, and extra roadway maintenance to ensure the road was clear of debris. Use of Causeway Road could place limitations and restrictions on other NASA mission areas. Furthermore, the proximity of the Mainland's occupied facilities would present an unacceptable risk to people.
- C. The Mainland is a thin strip of land adjacent to Wallops Island. The Mainland is the location for WFF's radar, optical, communications, and command transmitter facilities along with the Wallops Geophysical Observatory and the Atmospheric Sciences Research Laboratory. Due to the structures found on the Mainland, operation of a UAS airstrip would conflict with existing mission activities, present unnecessary hazards to persons on the ground, and would require UAS to fly over MARS to remain within R-6604/A/B and avoid populated areas to the north, south, and west of the Mainland. The Mainland would not provide suitable space to either construct an airstrip of the required length or orientation; would present an unacceptable risk to persons in the Mainland's occupied facilities; and would therefore fail to meet the needs of the scientific community.
- D. Expansion of R-6604 over the Main Base Airstrips was considered. In 2009, WFF submitted a proposal to the Federal Aviation Administration (FAA) for expansion of R-6604 to the west to encompass the airspace above NASA's property. The intent of the proposal was to meet the needs of ongoing and future UAS and UAS-based test research at a location void of constraints and limitations such as those presented at the existing UAS airstrip, and to ensure that non-participating aircraft would not be granted access while the restricted airspace was active. The expansion would have enveloped the airspace above all three airstrips of WFF's Research Airport and the entire Main Base area. UAS at WFF would have been permitted to take off from the Main Base airstrips, transit to an already established restricted area (i.e., R-6604A/B), and return to the Main Base airstrips for landing while under a Certificate of Authorization (COA). Expanding R-6604 over the Main Base would have given WFF the ability to effectively accommodate multiple flight platforms and move the current UAS operations away from the MARS, furthering WFF's support of the needs of the scientific community in development of research platforms for NASA and the nation. Under this proposal, UAS test aircraft (i.e., unproven/unreliable aircraft) operating under a COA would have required closure of Route 175 for takeoffs and landings; the result would have been road closure for 20-30 minutes for each takeoff and landing. Closure of Route 175 is undesirable to NASA as this road is the only means of vehicular ingress and egress to Chincoteague, Accomack County's largest town. Additionally, the Main Base runways are adjacent to the NASA and NOAA workforce as well as various high value assets (e.g., NASA telemetry assets and NOAA tracking assets). For UAS missions flown on the Main Base, significant flight restrictions would be required to protect people and property; some UAS would be denied because the risk is too great, even with restrictions. Likewise, several of the approach paths to the runways overfly housing developments, all within 0.8 km (0.5 mi) mile of the end of the respective runway. This places additional restriction on UAS take-off and landing options. FAA rejected the proposal for expansion of the restricted airspace, instead suggesting that WFF apply for a COA for each UAS vehicle configuration. Because many of the UAS flown from WFF are unproven aircraft that could pose potential hazards to persons

and property, WFF determined that UAS operations would need to occur under restricted airspace R-6604A/B to meet the needs of the UAS scientific and research community.

- E.** Alternative Location 1 was initially considered for placement of the proposed UAS airstrip. An existing road would provide access to the site, the location would be outside of the munitions and explosives of concern (MEC) hazard area, outside of areas modeled as having an increased sensitivity for potential archaeological resources, and would not encroach upon the bald eagles' nest situated to the northeast. The location of the airstrip would require UAS to operate over active piping plover nesting areas at altitudes near the airstrip of 500 ft. to 1000 ft. USFWS has requested that UAS not operate within 1000 ft. horizontally or vertically of sections of the beach on which piping plovers are known to nest during breeding season. Construction of an airstrip at Alternative Location 1 would have to cross over a wetland area potentially impacting 119,790 square feet (sf.) (2.75 acres [ac.]) of wetlands. Additionally, in 2010, WFF identified an area just south of Alternative Location 1, outside of wetland areas, for potential placement of a Rocket Motor Storage Building. The building would contain Class 1.1 explosives; a 1,250 ft. safety buffer (i.e., hazard arc) would surround the building and encompass the majority of Alternative Location 1, rendering it unusable for UAS operations. Given the placement of the Rocket Motor Storage Facility, Alternative Location 1 would not meet the project requirements.
- F.** Alternative Location 2 was also an initial consideration for placement of the proposed UAS airstrip. An existing road would provide access to the site, the location would be just outside of the MEC hazard area, outside of areas modeled as having an increased sensitivity for potential archaeological resources, it would not encroach upon the bald eagles' nest situated to the northeast, and the airstrip would have been oriented southeast-northwest. Construction of an airstrip at Alternative Location 2 would have potentially impacted 54,450 sf. (1.25 ac.) of wetlands. As would occur under Alternative Location 1, the location of the airstrip would require UAS to operate over piping plover nesting areas at altitudes near the airstrip of 500 ft. to 1000 ft. USFWS has requested that UAS not operate within 1000 ft. horizontally or vertically of sections of the beach on which piping plovers are actively nesting during breeding season. Additionally, the potential placement of the Rocket Motor Storage Facility south of the site would require a 1,250 ft. hazard arc around the building. The buffer would surround the building and would encompass the majority of the alternative site, rendering it unusable for UAS operations. Lastly, the airstrip would have to be extended onto the beach and into the water with the potential for significant adverse impacts to natural and biological resources. Alternative Location 2 was not considered a viable alternative since it would not meet the project requirements.

In conclusion, WFF determined that the north end of Wallops Island was the one location that would meet the overall purpose and need and would result in the least amount of potential environmental impacts for the UAS airstrip.

## **5.0 Avoidance and Minimization Measures**

Once the alternatives analysis was concluded and the preferred location of the airstrip was identified, additional avoidance and minimization measures were implemented.

## 5.1 Design Criteria

- A.** Reduced Airstrip Length. In 2009, WFF originally proposed to construct a 5,200 ft. long by 75 ft. wide UAS airstrip in the north end of Wallops Island at the location currently proposed.
- a) Construction would have affected approximately 1,481,040 sf. (34 ac.) of wetlands.
  - b) The southeast end of the airstrip would have encroached within the 660 ft. buffer around the bald eagle's nest.
  - c) The airstrip would have required UAS to operate over piping plover nesting areas at altitudes near the airstrip of 500 ft. to 1000 ft..
  - d) Additionally, essential fish habitat found in the tidal wetlands may have been adversely impacted from clearing and fill activities.
  - e) After careful consideration of the potential environmental impacts associated with an airstrip of that length in this location, WFF surveyed its UAS user community and determined that a shorter airstrip would satisfy the majority of the UAS missions expected to fly at WFF in the reasonably foreseeable future. As such, the airstrip length originally proposed has been reduced to 3,000 ft. while the width of the airstrip would remain at 75 ft.
- B.** Buffer Clearing. Clearing of additional areas for buffer were minimized to avoid additional wetland clearing.
- C.** Avoiding Tidal Wetland Impacts. To avoid 7,127 sf. (0.166 ac.) of impacts to emergent intertidal wetlands, two retaining walls are proposed along the south side of the airstrip at the western end.
- D.** Avoiding Forested Wetland Impacts. During the Pre-Application meeting, the question was presented regarding the location of the staging area and if it could be moved to a non-wetland location. During the meeting, it was initially agreed to move the staging area east, down the airstrip. When the new location was reviewed in greater detail it was determined to be not feasible for the following reasons.
- a) If the pad was moved to the east another 200 ft., all vehicular traffic would need to drive on the airstrip which has not being designed for vehicular traffic. The current location allows for vehicular traffic to stay on the staging area pad which is being constructed with concrete, whereas the airstrip itself is being constructed with asphalt. The maintenance and support vehicles are in a much greater weight class then the UASs and would significantly degrade the airstrip and require maintenance/construction sooner than locating it at the end of the access road.
  - b) Operations require that the pad be located in the center of the airstrip to allow the most flexibility with operations.
  - c) The staging area was re-configured to avoid the 1,292 sf. (0.029 ac.) of forested wetland located at the southwestern portion of the staging area.

## 5.2 Stormwater Management

- A. Multiple Ponds. Throughout the design process, the team evaluated various methods to meet the mandated stormwater management criteria. One alternative included multiple ponds to collect and release the stormwater. These ponds would all have an outfall structure releasing concentrated flows into nearby wetlands.
- B. Infiltration Trench. It was determined that the stormwater management system with the least potential to negatively impact adjacent areas was an infiltration trench around the entire perimeter of the airstrip. The infiltration trench would not include an outfall structure, but would release water along the entire perimeter of the airstrip, allowing the trench to act as one long discharge weir. This method, considered Low Impact Development, avoids the release of concentrated stormwater flows into wetlands.
- C. Pavement Design. The use of porous pavement was evaluated to minimize the need for the infiltration trench or to reduce the size of the trench. This would allow for a reduction in clearing and grading. It was determined that the site would be an unsuitable location for porous pavement due to the very high probability that the pore spaces would quickly fill with sand, compromising the pavement function.
- D. Airstrip Elevation. Constructing the airstrip at a lower elevation was evaluated to allow a reduction in the footprint of the project thereby further reducing wetland impacts. The project is proposed at the lowest possible elevation that still allows the airstrip to drain effectively and the infiltration trench to function as designed.

## 6.0 Summary of Avoidance and Minimization

NASA has avoided and minimized wetland encroachments to the maximum extent practicable as summarized below:

- 1. Reduced total wetland impacts by over 1,306,800 sf. (30 ac.).
- 2. Removed all tidal wetland impacts.
- 3. Removed all forested wetland impacts.
- 4. Reduced the potential for secondary impacts to protected species.
- 5. Reduced the potential for secondary impacts due to stormwater runoff.

## 7.0 Project Impacts

After completing the evaluation of alternatives and providing additional avoidance and minimization measures, the proposed necessary and warranted wetland encroachments total the following:

Emergent Wetlands	100,909 sf. (2.32 ac.)
Scrub Shrub Wetlands	6,505 sf. (0.15 ac.)
<b>Total</b>	<b>107,414 sf. (2.47 ac.)</b>

## 8.0 Project Compensation

NASA WFF proposes to provide compensation for the above identified wetland impacts by payment to The Nature Conservancy (TNC)/Virginia Aquatic Resources Trust Fund (VARTF) in the approximate amount of \$165,425 per the following calculations:

### Calculations

The VARTF amount for Non Tidal Wetlands in HUC 02080110 (Atlantic Ocean) is \$65,000/ac. (taken from February 24, 2011 Public Notice).

2.3 ac. at 1:1 times \$65,000/ac. =	\$150,800
0.15 ac. at 1.5:1=0.225 times \$65,000/ac. =	\$ 14,625
<b>Total</b>	<b>\$165,425</b>

NASA contacted TNC regarding potential mitigation/restoration sites on the eastern shore. Karen Johnson at TNC provided the following information via email on May 18, 2011.

“The Conservancy is actively pursuing a wetland restoration project in the Hydrologic Unit Codes (HUC) adjacent to the impacted watershed. This restoration project involves a 50 ac. property and activities which are expected to restore up to nine ac. of wetlands and enhance and preserve several additional ac. of existing wetlands. Although not considered in kind for the impacts at Wallops (to my knowledge non-tidal wetland impacts are expected at WFF), the Conservancy has also pursued and completed two Submerged Aquatic Vegetation restoration projects and an oyster restoration project within impact area HUC. All of the projects discussed above are examples of the type of work and restoration completed by the Trust Fund once adequate funds are available to fully implement a project.”

## 9.0 Impacts Summary Table

*Table 1. Summary of Impacts to Waters of the U.S.*

Impact Site	Impact Description*	Wetland/waters Impact Area ac. (sf.)	Stream Dimensions	Volume of Fill (cubic yards)***	Cowardin Classification	Average Stream Flow (cfs)*	VDEQ Classification**
1	F, NT, PE, V	2.32 (100,909)	N/A	11,212	PEM	N/A	VII
1	F, NT, PE, V	0.15 (6,505)	N/A	722	PSS	N/A	VII
<b>Total</b>		<b>2.47 (107,414)</b>					

Notes:

\* F=fill, NT=non-tidal, PE=permanent, V=vegetated, PEM=Palustrine emergent, PSS=Palustrine scrub shrub,

\*\*Wetlands Class VII

\*\*\* Fill volumes are approximate

## 10.0 Cultural Resources

The cultural resource investigation identified two resources within the project area: Virginia Department of Historic Resources (VDHR) ID#001-0027-0125 North Observation Mound and archaeological site 44AC0089 Revolutionary War Fort. VDHR concurred that the North Observation Mound is not eligible for inclusion in the National Register of Historic Places and that site 44AC0089 is being treated as eligible for listing in the National Register of Historic Places. WFF will establish a 25 ft. buffer around

the earthworks within which no mechanical clearing will be done and the site will be maintained and preserved in its current state. VDHR recommended no adverse effect to site 44AC0089 by this treatment (see attached letter January 10, 2011).

### 11.0 Threatened and Endangered Species

A Biological Assessment (BA) has been prepared to address potential impacts to federally threatened and endangered Species. The species evaluated and conclusions are summarized below.

The following table (Table 2 taken from BA, previously submitted to the USFWS) includes a list of Federally threatened and endangered species that are known to occur, or may potentially occur, within the action area. Note the table below, is an analysis of federally listed species that are terrestrial, but also includes marine species that may come ashore and nest on the nearby beaches of north Wallops Island. In general, this includes listed species that may be occupying habitats directly impacted by construction of the new UAS airstrip and associated facilities, as well as species that may be indirectly affected from lights, over flight UAS noise, and the visual disturbance from UAS suddenly appearing over the beach. As a Federal agency, NASA does not have an obligation to protect state-listed only species, but often consults with Virginia Department of Game and Inland Fisheries on species that are dually listed under the Federal Endangered Species Act (ESA) and state ESA. As the Proposed Action will not affect near shore or sub-tidal habitats, impacts to marine mammals, fish, and sea turtle species in the near shore open water environment will not occur.

Based on the evaluation presented in the BA, NASA with USFWS concurrence has made the following determination of effects on listed species and critical habitat from implementation of the Proposed Action within the action area (USFWS concurrence letter, dated September 22, 2011) is attached.

**Table 2. Federally Listed Threatened and Endangered Species Known to Occur in the Region**

Common Name	Scientific Name	Federal Listing Status	Likelihood of Occurrence	Seasonality of Occurrence	Required Habitat & Potential to Occur Onsite	USFWS Concurrence
<b>Plants</b>						
Seabeach Amaranth	<i>Amaranthus pumilus</i>	Threatened	Slight	Year-round	Restricted to open sandy portions of ocean beaches between the high tide line and the toe of the primary dune. Nearest known location in Virginia is Hog Island. Not known to occur on Wallops.	No Effect
<b>Invertebrates</b>						
Northeast Beach Tiger Beetle	<i>Cicindela d. dorsalis</i>	Threatened	Remote	Year-round	Present historically, from Cape Cod south through the Chesapeake Bay shorelines, but now believed extirpated from nearly this entire region. Normally occurs from about the fore-dune to the high tide line on ocean and bay beaches. Not known	No Effect

**Table 2. Federally Listed Threatened and Endangered Species Known to Occur in the Region**

Common Name	Scientific Name	Federal Listing Status	Likelihood of Occurrence	Seasonality of Occurrence	Required Habitat & Potential to Occur Onsite	USFWS Concurrence
					to occur on Wallops	
<b>Reptiles</b>						
Loggerhead Sea Turtle	<i>Caretta caretta</i>	Candidate	Known to Occur	Maturation & Migration May- November  Nesting April- September	The only sea turtle that nests as far north as Virginia. Nests in small numbers on sandy beaches along Virginia's coast late spring through summer, and found in Virginia's offshore coastal waters during winter and migration. Last nested on Wallops Island in 2010.	May affect, but not likely to adversely affect
<b>Birds</b>						
Red Knot	<i>Calidris Canutus</i>	Candidate	Known to Occur	Primarily late May	A locally common to abundant transient in late spring and early fall, and does not breed in Accomack County. Preferred habitats include tidal flats and sandy or pebbly beaches. Numbers declining, but several hundred observed in 2010 at North End Curve and North End Point on Wallops Island's ocean beaches.	Not Addressed due to status
Piping Plover	<i>Charadrius melodus</i>	Threatened	Known to Occur	late April- late July	Known to nest on Virginia's coastal beaches, dunes, and wash-over areas in late spring to mid-summer, with one brood raised per year. They feed on small invertebrates in intertidal surf zones, mud flats, tidal pool edges, barrier flats, and sand flats and along the ocean and barrier bays. Suitable nesting habitat occurs on the extreme southern and northern ends of Wallops Island, with three nesting events at north end in 2010, and one on south end in 2011.	May affect, but not likely to adversely affect
<b>Mammals</b>						
Delmarva Peninsula Fox Squirrel	<i>Sciurus niger cinereus</i>	Endangered	None	Year-round	Prefers mature forest of both hardwood and pine trees with minimal understory and ground cover. Feeds primarily on nuts from oak, hickory, sweet gum, walnut	No Effect

**Table 2. Federally Listed Threatened and Endangered Species Known to Occur in the Region**

Common Name	Scientific Name	Federal Listing Status	Likelihood of Occurrence	Seasonality of Occurrence	Required Habitat & Potential to Occur Onsite	USFWS Concurrence
					and loblolly pine. While within the historic range of the species, the only known location for it in Virginia is a trans-located population at Chincoteague National Wildlife Refuge. This species does not occur on Wallops Island.	



# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Ecological Services  
6669 Short Lane  
Gloucester, Virginia 23061



SEP 22 2011

Mr. Josh Bundick  
NASA Wallops Flight Facility  
Code 250.W  
Wallops Island, Virginia 23337

Re: Wallops Flight Facility -- Unmanned  
Aerial Systems Airstrip, Accomack  
County, Virginia, Project # 2010-I-  
0642

Dear Mr. Bundick:

This document transmits the U.S. Fish and Wildlife Service's (Service) the results of our review of the National Aeronautics and Space Administration's (NASA) referenced proposed project at the Wallops Flight Facility (WFF), in Accomack County, Virginia and its effects on the federally listed endangered green sea turtle (*Chelonia mydas*), leatherback sea turtle (*Dermochelys coriacea*), and Delmarva fox squirrel (*Sciurus niger cinereus*), and the threatened Atlantic coast population of the piping plover (*Charadrius melodius*), loggerhead turtle (*Caretta caretta*), seabeach amaranth (*Amaranthus pumilius*), and northeastern beach tiger beetle (*Cicindela dorsalis dorsalis*) in accordance with section 7 of the Endangered Species Act (16 U.S.C. 1531-1544, 87 Stat. 884), as amended (ESA).

Since 2003, unmanned aerial systems (UAS) have been operating from an airstrip on a then remote portion of south Wallops Island. In 2005, the airstrip was expanded to accommodate larger classes of UAS. The airstrip was lengthened to 1,500 feet (ft); two staging pads were also added. While this airstrip met an immediate and emerging need, the location has proven to be unsatisfactory for continued UAS flight operations. Storm events often inundate the runway with surf and sand, and the east/west orientation makes it susceptible to cross winds.

WFF has determined that a new airstrip is needed to provide an adequately-sized facility that will be capable of supporting the testing and deployment of existing and future UAS and UAS-based scientific instruments at WFF. UAS tests and UAS-based research opportunities form an important objective of NASA Goddard Space Flight Center's Suborbital and Special Orbital Projects Directorate and as such, this type of mission need requires an unencumbered operating environment. The new airstrip will have an asphalt surface and will measure approximately 3,000 ft long (2,500 ft plus an additional 500 ft clear zone) by 75 ft wide located at the northern portion of the island with an east-west orientation.

The federally listed species found on WFF inhabit the coastal beach zone of the island. The proposed runway site lies within the upland and marsh section of the island, well behind the coastal dune and shoreline side of the island. The Service agrees with NASA's determination that the proposed construction of the facility will have "no effect" on any of the federally listed species because construction activities will be limited to areas outside habitat that supports the listed species. However, the subsequent use of the runway and operation of UAS over the coastal zone associated with the construction of the runway as proposed has the potential to impact the federally listed species found within.

The candidate species red knot (*Calidris canutus rufa*) was included in NASA's June, 2011 biological assessment (BA). This species has not yet been proposed for listing and therefore will not be addressed further in this document; however, we appreciate NASA's consideration of this species and any conservation measures implemented to minimize or avoid threats to this species will contribute to its conservation. The Service would like to work with NASA to develop a candidate conservation agreement for the red knot.

The Service concurs with the NASA's determination that the proposed action will have "no effect" on the seabeach amaranth, Delmarva fox squirrel, and northeastern beach tiger beetle because these species are not found on Wallops Island.

The Service does not concur with NASA's determination of "no effect" on nesting sea turtles for the proposed project. NASA has proposed the following steps to reduce and minimize potential impacts to nesting sea turtles: (1) limit night flights for special circumstances like hurricane monitoring, (2) any safety lighting at the airstrip will be minimal intensity and downward-shielded, (3) over flying UAS will not use running lights, and (4) as directed by the WFF Threatened and Endangered Species Monitoring Program protocols, should WFF monitoring staff identify sea turtle nesting activity under UAS flight paths on the beach, UAS flights will be redirected or suspended until nesting activity has ceased or nestlings have completed their emergence. The avoidance and minimization measures proposed by NASA will be sufficient to prevent possible impacts to nesting sea turtles during normal UAS operations. However, during special circumstances (e.g., hurricane data collection missions) there may be a potential to affect nesting turtles. Based on the low number of nests at this site annually (between 1-4 nests per year), the low probability of hurricanes occurring during the nesting period here in Virginia, and the even lower probability that an emergency UAS flight would occur at night while turtles were nesting, the likelihood of disturbance resulting from UAS operations is low. Additionally, UAS operations and clearances from beach habitats will minimize the potential that UAS operations will affect sea turtles even if they do occur during nesting, and any effects are expected to be limited to temporary changes in behavior that will not reduce the likelihood of nesting. Consequently, these minor disturbances are considered to be insignificant and discountable, and the project as proposed, "may affect, but is not likely to adversely affect" nesting sea turtles.

The Service concurs with NASA's determination that the proposed action "may affect, but is not likely to adversely affect" piping plovers with the addition of avoidance and monitoring measures that NASA and the Service agreed to during a 19 August 2011 conference call. The

UAS flights may have the potential to disturb nesting plovers. NASA has proposed the following precautions to avoid and minimize disturbance of plovers: (1) UAS over-flights of the beach will be on average only four sorties each day (1,040 sorties maximum per year) and (2) UAS operators will be instructed to maintain a flight path both 1,000 ft vertically and horizontally away from nesting piping plovers. The Service has some concern regarding the 1,000 ft vertical and horizontal buffer proposed for UAS over flights adjacent to nesting piping plovers because this distance may not avoid all effects. Based on our review of available information on the effects of aircraft overflights on shorebirds, consultation with species experts, and past Service consultations on the effects of aircraft on nesting plovers, we recognized that the specific information on effects of aircraft is either limited to specific situations and/or aircraft types and no information was available that would allow evaluation of effects of small aircraft similar to those proposed. Current research that is being done is focusing primarily on larger and faster military aircraft types like the F-18 and the Osprey, and not the type of aircraft involved in this proposed action. Early results have shown that nesting plovers after such aircraft have flown over, are fast to return to normal behavior and there appears to be no adverse effects (Dr. Jim Fraser, Virginia Tech, pers. comm.).

The Service believes that conducting monitoring of the effects of UAS aircraft on plovers, in conjunction with an adaptive management type of approach, would be appropriate to ensure that any possible effects of these types of aircraft is addressed. On August 19, 2011, NASA and the Service held a conference call to discuss our concerns regarding what would be considered an appropriate buffer distance. NASA has agreed to work with the Service and other species experts to develop an approach to UAS operation and monitoring that would be compatible with NASA's needs and provide information on potential effects on shorebirds. NASA has agreed to monitor nesting plover behavior, through observation, video-recording, or even UAS-mounted cameras during aircraft operation to determine if plovers are affected. NASA may also attempt to establish disturbance thresholds and evaluate effects of other variables on likelihood of disturbance, including aircraft propulsion type, flight path relative to plovers, and others. The Service is confident that the monitoring program would provide good information on the response of plovers to UAS over-flights, and allow NASA to adopt appropriate modifications to avoidance buffers and flight paths if needed, and to reinstate consultation under section 7 if necessary. Based on the best currently available data, the Service believes that with the conservation measures and the 1,000 foot horizontal and vertical buffers, disturbances to nesting plovers are unlikely to occur, and will be limited to temporary changes in behavior that are similar to responses to potential predators in the vicinity of nesting plovers and are unlikely to result in flushing from nests. The Service believes that the level of disturbance will be insignificant and discountable, and birds will return to normal activities quickly following disturbance, and the proposed action is not likely adversely affect piping plovers. In addition, the proposed monitoring in conjunction with UAS operation has the potential to significantly improve future conservation efforts for plovers and other shorebirds.

The proposed airstrip location was modified to minimize encroachment on an existing bald eagle nest. The project is outside the 660 ft buffer required to protect active nests, and there are no

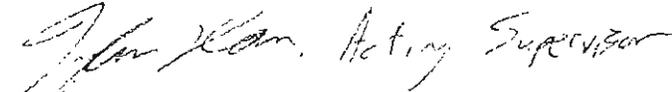
Mr. Bundick

Page 4

identified eagle concentration areas, thus the proposed action is not likely to disturb bald eagles, and consequently, no eagle act permit is required.

Should project plans change or if additional information on the distribution of listed species or critical habitat becomes available, this determination may be reconsidered. If you have any questions, please contact Mike Drummond of this office at (804) 693-6694, extension 122, or via email at [mike\\_drummond@fws.gov](mailto:mike_drummond@fws.gov).

Sincerely,

A handwritten signature in cursive script that reads "Cindy Schulz, Acting Supervisor".

Cindy Schulz  
Supervisor  
Virginia Field Office

cc: Chincoteague NWR, Chincoteague, VA (Lou Hinds)  
VDACS, Richmond, VA (Keith Tignor)  
VDCR, DNH, Richmond, VA (René Hypes)  
VDGIF, Richmond, VA (Amy Ewing)



# COMMONWEALTH of VIRGINIA

## *Marine Resources Commission*

2600 Washington Avenue

Third Floor

Newport News, Virginia 23607

Douglas W. Domenech  
Secretary of Natural Resources

Steven G. Bowman  
Commissioner

January 24, 2012

National Aeronautics and Space Administration  
Mr. Paul Bull, P.E.  
c/o TEC Inc., Mr. John Lowenthal  
11817 Canon Building, Suite 300  
Newport News, VA 23606

Re: VMRC #12-0076

Dear Mr. Bull:

You have inquired regarding a permit to construct a 3,000-foot long by 75-foot wide asphalt airstrip on the north end of Wallops Island in Accomack County. The airstrip will be used for unmanned aircraft takeoffs and landings.

Based on your application and drawings we have determined that the proposed project is above mean low water and will not require a permit from the Marine Resources Commission. A permit would, however, be required if any portion of your proposed project falls channelward of mean low water.

For your information you may need a permit from your local wetlands board, authorization from the U. S. Army Corps of Engineers, and/or the Department of Environmental Quality (DEQ). Your application is currently being processed by these agencies.

If I may be of further assistance, please do not hesitate to contact me at (757) 414-0710.

Sincerely,



George H. Badger III  
Environmental Engineer

GHB/lra  
HM

cc: Department of Environmental Quality #6  
Accomack County Wetlands Board  
U.S. Army Corps of Engineers  
Applicant

*An Agency of the Natural Resources Secretariat*

[www.mrc.virginia.gov](http://www.mrc.virginia.gov)

Telephone (757) 247-2200 (757) 247-2292 V/TDD Information and Emergency Hotline 1-800-541-4646 V/TDD



# COMMONWEALTH of VIRGINIA

## DEPARTMENT OF ENVIRONMENTAL QUALITY

TIDEWATER REGIONAL OFFICE

5636 Southern Boulevard, Virginia Beach, Virginia 23462

(757) 518-2000 Fax (757) 518-2009

[www.deq.virginia.gov](http://www.deq.virginia.gov)

Doug Domenech  
Secretary of Natural Resources

David K. Paylor  
Director

Maria R. Nold  
Regional Director

February 14, 2012

Mr. Paul Bull, P.E.  
NASA Wallops Flight Facility  
c/o Mr. John Lowenthal  
TEC, Inc.  
11817 Canon Boulevard, Suite 300  
Newport News, Virginia 23606

RE: **Additional Information and Application Processing Fee Request**  
Joint Permit Application #12-0076  
NASA Wallops Flight Facility - Unmanned Aerial Systems Airstrip  
Wallops Island

Dear Mr. Bull:

The Department of Environmental Quality (DEQ) received the above-referenced application on January 23, 2012. Based on our review, the following additional information is necessary to complete and evaluate your application:

1. The project drawings do not clearly depict the proposed project features and wetland impacts. The drawings depict the air strip footprint then show a yellow "impact area" line around the airstrip, but there are no details on impact activities are occurring within that yellow impact line. Also, there are other project features discussed in the project narrative, including a "clear zone" 250 feet on either end of the proposed air strip, an infiltration trench around the entire airstrip, and retaining walls in a couple of locations. The drawings must clearly depict these details in both plan view and cross sections and at scales that are easily measurable on 8.5" X 11" or 11" X 17" paper. Regarding project impacts, the JPA states that 2.47 acres of wetlands will be impacted by fill, yet the project narrative suggests that some wetland vegetation clearing or maintenance may still be part of the project scope. Please clarify the project impact methods and locations and if any wetland areas will be cleared only or maintained via vegetation management. This information must be clearly explained and depicted on the drawings. There are several drawings that were provided during the pre-application meeting on February 24, 2011, and contained within the EA, that more clearly depict some of these details. It may be helpful to include these drawings as part of the JPA. If any existing drawings are it be revised, please make sure they have revision dates on them.
2. Virginia Regulation 9 VAC 25-210-115.C requires that the applicant demonstrate that avoidance and minimization opportunities have been identified and applied to the proposed activity, that practicable alternatives, including design alternatives, have been evaluated for the proposed activity, and that the proposed activity, in terms of impacts to water quality and fish and wildlife resources, is the least damaging practicable alternative. Measures, such as reducing the size, scope, configuration or density of

Mr. Paul Bull, P.E.  
February 14, 2012  
Page 2 of 2

the proposed project, that would avoid or result in less adverse impacts to surface waters shall be considered to the maximum extent practicable. To assist in this demonstration, the application must provide justification for a 75-foot wide airstrip, especially when the largest wingspan on aircraft proposed to use this airstrip is 20 feet. Please also provide more documentation on the Viking 400-Class UAS and why it requires a 3,000-foot long runway. With regard to the staging pad, the JPA states that the pad can not be shifted slightly to avoid wetland impacts as this would require heavy vehicles to travel on the asphalt runway, thereby resulting in unacceptable damage to the runway. While this topic was discussed in some detail during our teleconference on February 9, please provide additional information on the heavier vehicles that will be using the pad area and why allowing them to drive on a small portion of the runway would result in unacceptable impacts to the runway and project. Finally, there were several on-site alternatives considered for the runway location. Some graphics were provided during the pre-application meeting depicting the details and location of these alternatives. It would be helpful if these graphics were submitted as part of the JPA to support information in the project narrative.

3. An acceptable compensation plan for the project's wetland impacts is required. You have proposed a donation to the Virginia Aquatic Resources Trust Fund; however, no credit availability letter from TNC has been issued. TNC has indicated they may not have credits available in the project HUC that they would be comfortable releasing for this project. Further, the Corps and EPA expressed concerns with TNC not having any viable sites in the project HUC or on Wallops Island that a donation could be used for. It was suggested during the February 9<sup>th</sup> teleconference that Wallops initiate a real estate search to attempt to identify possible sites for wetland restoration that TNC or Wallops could pursue for compensation. Please provide documentation of this search and the results to DEQ and any further coordination with TNC toward an acceptable compensation plan for this project.
4. DEQ has determined that the proposed activity qualifies for an individual VWP Permit with a designated fee of **\$3,500**. Please complete the enclosed Permit Application Fee Form and mail the form with the designated fee to the following address:

DEQ - Receipts Control  
Water Division  
P.O. Box 1104  
Richmond, Virginia 23218

**Checks or money orders should be made payable to the Treasurer of Virginia. Please do not send cash.**

If you have any questions, feel free to contact me at (757) 518-2156 or at [sheri.kattan@deq.virginia.gov](mailto:sheri.kattan@deq.virginia.gov). Thank you for your cooperation in this matter.

Sincerely,



Sheri Kattan  
Project Manger

Enclosure: Fee Form

cc: Steve Gibson, U.S. Army Corps of Engineers  
Hank Badger, Virginia Marine Resources Commission

DEPARTMENT OF ENVIRONMENTAL QUALITY  
WATER DIVISION  
PERMIT APPLICATION FEE FORM  
EFFECTIVE JANUARY 1, 2008

INSTRUCTIONS

Applicants for individual Virginia Pollutant Discharge Elimination System (VPDES), Virginia Pollution Abatement (VPA), Virginia Water Protection (VWP), Surface Water Withdrawal (SWW), and Ground Water Withdrawal (GWW) Permits are required to pay permit application fees, except farming operations engaged in production for market. Fees are also required for registration for coverage under General Permits except for the general permits for sewage treatment systems with discharges of 1,000 gallons per day (GPD) or less and for Corrective Action Plans for leaking underground storage tanks. Except for VWP permits, fees must be paid when applications for permit issuance, reissuance\* or modification are submitted. Applicants for VWP permits will be notified by the DEQ of the fee due. Applications will be considered incomplete if the proper fee is not paid and will not be processed until the fee is received. (\* - the reissuance fee does not apply to VPDES and VPA permits - see the fee schedule included with this form for details.)

The permit fee schedule is included with this form. Fees for permit issuance or reissuance and for permit modification are included. Once you have determined the fee for the type of application you are submitting, complete this form. The original copy of the form and your check or money order payable to "Treasurer of Virginia" should be mailed to:

Department of Environmental Quality  
Receipts Control  
P.O. Box 1104  
Richmond, VA 23218

A copy of the form and a copy of your check or money order should accompany the permit application. You should retain a copy for your records. Please direct any questions regarding this form or fee payment to the DEQ Office to which you are submitting your application.

APPLICANT NAME: NASA Wallops Flight Facility, Attn: Mr. Paul Bull

ADDRESS: Building N-161, Code 228  
Wallops Island, VA 23337

DAYTIME PHONE: (757) 824-1168  
Area Code

IRS Employer Identification Number (EIN):  
[aka Federal Tax Identification Number (FIN)]

FACILITY/ACTIVITY NAME: NASA WFF Un-Manned Aerial Systems Airstrip

LOCATION: Route 803 on North end of Wallops Island

TYPE OF PERMIT APPLIED FOR: VWP Individual Permit  
(from Fee Schedule - see back of form)

TYPE OF ACTION:  New Issuance  Reissuance  Modification

AMOUNT OF FEE SUBMITTED (from Fee Schedule): \$3,500.00

EXISTING PERMIT NUMBER (if applicable): 12-0076

DEQ OFFICE TO WHICH APPLICATION SUBMITTED (check one)

- |  |  |  |  |
|--|--|--|--|
| <input type="checkbox"/> Abingdon/SWRO | <input type="checkbox"/> Harrisonburg/VRO      | <input type="checkbox"/> Woodbridge/NVRO | <input type="checkbox"/> Lynchburg/BRRO-L              |
| <input type="checkbox"/> Richmond/PRO  | <input type="checkbox"/> Richmond/Headquarters | <input type="checkbox"/> Roanoke/BRRO-R  | <input checked="" type="checkbox"/> Virginia Beach/TRO |

FOR DEQ USE ONLY

Date: \_\_\_\_\_  
DC #: \_\_\_\_\_

Original Form and Check - DEQ Receipts Control, Richmond  
Copy of Form and Copy of Check - DEQ Regional Office or Permit  
Program Office

**FEE SCHEDULES**

**A. VPDES and VPA Permits.** Applications for issuance of new individual VPDES or VPA permits, and for permittee initiated major modifications that occur (and become effective) before the stated permit expiration date. (Flows listed are facility "design" flows. Land application rates listed are facility "design" rates.) [NOTE: VPDES and VPA permittees pay an Annual Permit Maintenance Fee (APMF) instead of a reapplication fee. The permittee is billed separately by DEQ for the APMF.]

TYPE OF PERMIT	ISSUANCE	MODIFICATION	LAND APP MOD*
VPDES Industrial Major	\$24,000	\$12,000	
VPDES Municipal Major	\$21,300	\$10,650	\$1,000
VPDES Industrial Minor / No Standard Limits	\$10,200	\$5,150	
VPDES Industrial Minor / Standard Limits	\$3,300	\$3,300	
VPDES Industrial Stormwater	\$7,200	\$3,600	
VPDES Municipal Minor / Greater Than 100,000 GPD	\$7,500	\$3,750	\$1,000
VPDES Municipal Minor / 10,001 GPD - 100,000 GPD	\$6,000	\$3,000	\$1,000
VPDES Municipal Minor / 1,001 GPD - 10,000 GPD	\$5,400	\$2,700	\$1,000
VPDES Municipal Minor / 1,000 GPD or Less	\$2,000	\$1,000	
VPDES Municipal Minor / 1,000 GPD or Less that includes authorization for land application or land disposal of sewage sludge	\$5,000	\$1,000	\$1,000
VPA Industrial Wastewater Operation / Land Application of 10 or More Inches Per Year	\$15,000	\$7,500	
VPA Industrial Wastewater Operation / Land Application of Less Than 10 Inches Per Year	\$10,500	\$5,250	
VPA Industrial Sludge Operation	\$7,500	\$3,750	
VPA Municipal Wastewater Operation	\$13,500	\$6,750	
VPA Municipal Sludge Operation	\$5,000	\$1,000	
All other VPA operations not specified above	\$750	\$375	

\* The fee for modification of a VPDES permit due to changes relating to authorization for land application or land disposal of sewage sludge shall be \$1,000.

**B. Virginia Water Protection (VWP) Permits.** Applications for issuance of new individual, and reissuance or major modification of existing individual VWP permits. Only one permit application fee will be assessed per application; for a permit application involving more than one of the operations described below, the governing fee shall be based upon the primary purpose of the proposed activity. (Withdrawal amounts shown are maximum daily withdrawals.)

TYPE OF PERMIT	ISSUANCE/REISSUANCE	MODIFICATION
VWP Individual / Surface Water Impacts (Wetlands, Streams and/or Open Water)	\$2,400 plus \$220 for each 4,356 sq. ft. (1/10 acre) (or portion thereof) of incremental impact over 87,120 sq. ft. (two acres) (\$60,000 maximum)	\$1,200 plus \$110 for each 4,356 sq. ft. (1/10 acre) (or portion thereof) of incremental impact over 87,120 sq. ft. (two acres) (\$30,000 maximum)
VWP Individual/Minimum Instream Flow - Withdrawals equal to or greater than 3,000,000 gallons on any day	\$25,000	\$5,000
VWP Individual / Minimum Instream Flow - Withdrawals between 2,000,000 and 2,999,999 gallons on any day	\$20,000	\$5,000
VWP Individual / Minimum Instream Flow - Withdrawals between 1,000,000 and 1,999,999 gallons on any day	\$15,000	\$5,000
VWP Individual / Minimum Instream Flow - Withdrawals < 1,000,000 gallons on any day that do not otherwise qualify for a general VWP permit for water withdrawals	\$10,000	\$5,000
VWP Individual / Reservoir - Major	\$35,000	\$12,500
VWP Individual / Reservoir - Minor	\$25,000	\$12,500
VWP Individual/Nonmetallic Mineral Mining	\$2,400 plus \$220 for each 4,356 sq. ft. (1/10 acre) (or portion thereof) of incremental impact over 87,120 sq. ft. (two acres) (\$7,500 maximum)	\$1,200 plus \$110 for each 4,356 sq. ft. (1/10 acre) (or portion thereof) of incremental impact over 87,120 sq. ft. (two acres) (\$3,750 maximum)

**C. Surface Water Withdrawal (SWW) and Ground Water Withdrawal (GWW) Permits.** Applications for issuance of new individual, and reissuance or major modification of existing individual SWW permits or GWW permits.

TYPE OF PERMIT	ISSUANCE/REISSUANCE	MODIFICATION
Surface Water Withdrawal	\$12,000	\$6,000
Ground Water Withdrawal / Initial Permit for an Existing Withdrawal Based Solely on Historic Withdrawals	\$1,200	\$600
Ground Water Withdrawal	\$6,000	\$3,000

**D. Registration Statements (VPDES and VPA permits) or Applications (VWP permits) for General Permit Coverage.**

1. Except as specified in 2, 3, and 4 below, the fee for registration for coverage under a general permit is \$600.
2. General VPDES Permit for Domestic Sewage Discharges of Less Than or Equal to 1,000 GPD (VAG40) = \$0.  
General VPDES Permit Regulation for Discharges From Petroleum Contaminated Sites (VAG83) = \$0.
3. VWP General Permit:

TYPE OF PERMIT	ISSUANCE
VWP General / Less Than 4,356 sq. ft. (1/10 acre) of Surface Water Impact (Wetlands, Streams and/or Open Water)	\$0
VWP General / 4,356 sq. ft. to 21,780 sq. ft. (1/10 acre to 1/2 acre) of Surface Water Impact (Wetlands, Streams and/or Open Water)	\$600
VWP General / 21,781 sq. ft. to 43,560 sq. ft. (greater than 1/2 acre to one acre) of Surface Water Impact (Wetlands, Streams and/or Open Water)	\$1,200
VWP General / 43,561 sq. ft. to 87,120 sq. ft. (greater than one acre to two acres) of Surface Water Impact (Wetlands, Streams and/or Open Water)	\$1,200 plus \$120 for each 4,356 sq. ft. (1/10 acre) (or portion thereof) of incremental impact over 43,560 sq. ft. (one acre) (\$2,400 maximum)
VWP General / Minimum Instream Flow / Reservoir - Water withdrawals and/or pond construction	\$2,400

4. General VPDES Permit for Industrial Activity Storm Water Discharges (VAR05) = \$500



**COUNTY OF ACCOMACK  
DEPARTMENT OF BUILDING AND ZONING**

23296 COURTHOUSE AVENUE, ROOM 105

Post Office Box 93

Accomac, Virginia 23301-0093

(757) 787-5721 (757) 824-5223

FAX (757) 787-8948

[building@co.accomack.va.us](mailto:building@co.accomack.va.us)

David A. Fluhart  
Director

Building/Fire Inspections  
Zoning and Wetlands

May 23, 2012

Mr. Paul Bull, P.E.  
C/o NASA  
Wallops Flight Facility  
Building N-161, Code 228  
Wallops Island, Virginia 23337

In Re: VMRC 2012-0076 UAS

Dear Mr. Bull:

This office is in receipt of your Joint Permit Application to construct a 3,000-foot X 75-foot asphalt airstrip on the north end of Wallops Island, County Parcel Number 57-A-1, Wallops Island, Virginia. The airstrip will be used for unmanned aircraft take-off and landings.

A review of your application reveals the proposed project will not impact tidal wetlands within the jurisdiction of the Accomack County Wetlands Board.

**Please be advised no authorization is required from the Accomack County Wetlands Board as this project appears to be out of their jurisdiction. However, this is a large project in very close proximity to tidal jurisdictional wetlands. As such, as this project begins, close attention should be paid to avoid impacts to jurisdictional wetlands and if it is determined jurisdictional wetlands will be impacted during construction, approval from the County of Accomack Wetlands Board will be required.**

These Federal and State authorities may require a permit before you begin work:

Virginia Marine Resources Commission  
Habitat Management Division  
2600 Washington Avenue, 3<sup>rd</sup> Floor  
Newport News, Virginia 23607

U. S. Army Corps of Engineers  
Mr. Robert Cole  
22545 Center Parkway  
Accomac, Virginia 23301

You may also be required to obtain an Erosion and Sediment Control Permit or approval through the Accomack County Planning Office. You should contact Mr. Norman Pitt at 757-787-5726 for additional information.

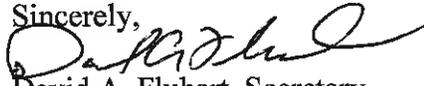
Mr. Paul Bull, P.E.

Page 2

May 23, 2012

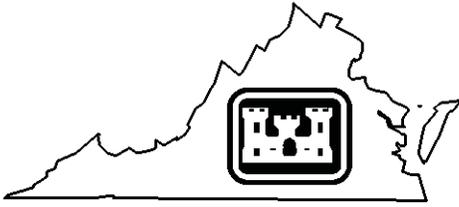
Please feel free to give me a call if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "D. Fluhart", written over a circular stamp or mark.

David A. Fluhart, Secretary  
Accomack County Wetlands Board

Copy to: Virginia Marine Resources Commission  
Department of Planning



# Public Notice

U.S. Army Corps of Engineers, Norfolk District

May 21, 2012

CENAO-WR-RE  
NAO-2011-0424

## FEDERAL PUBLIC NOTICE

The District Commander has received a joint application for Federal and State permits as described below:

### APPLICANT

National Aeronautics and Space Administration Wallops Flight Facility  
Mr. Paul Bull, P.E.  
NASA WFF, Building N-161, Code 228  
Wallops Island, Virginia 23337

WATERWAY AND LOCATION OF THE PROPOSED WORK: The project is located on the northern tip of Wallops Island, Virginia in the Atlantic Ocean basin.

### PROPOSED WORK AND PURPOSE:

The purpose of the proposed action is to provide an adequately-sized Unmanned Aerial Systems (UAS) airstrip that would be capable of supporting the testing and deployment of existing and future UAS and UAS-based scientific instruments at NASA Goddard Space Flight Center's (GSFC) Wallops Flight Facility (WFF). UAS test and UAS-based research opportunities form an important objective of WFF's Suborbital and Special Orbital Projects Directorate and as such, this type of mission requires an unencumbered operating environment. Under the Proposed Action, WFF would construct an asphalt airstrip measuring approximately 900 meters (m) (3,000 feet [ft] long [2,500 ft plus an additional 500-ft clear zone]), on north Wallops Island. The width of the airstrip would be 25 m (75 ft); additional width would be provided by a grass buffer and cleared areas as needed for a clear line of sight for UAS operators. UAS-based operations typically would be conducted year round during WFF's normal Air Traffic Control tower hours (Monday through Friday, 0600 to 1800). A maximum of 1,040 UAS sortie operations each year would be conducted from the new airstrip.

The original concept proposed the construction of a 5,200 foot long by 75 foot wide UAS airstrip. Construction of the original proposed airstrip would have affected approximately 34 acre of wetlands (tidal and non-tidal) from clearing and fill activities. After careful consideration of the potential environmental impacts, WFF determined that a shorter airstrip would satisfy the majority of the UAS missions expected to fly at WFF in the reasonably foreseeable future. As such, the airstrip length originally proposed was reduced by 2,200 feet to the proposed length of 3,000 feet (2,500 feet with 250 feet of clear zones on either end) while the width of the airstrip would remain at 75 feet. Two retaining walls will be constructed along the south side of the west end of the airstrip to avoid potential impacts to approximately 0.2 acre of emergent intertidal wetlands. Additionally, the airstrip staging area has been reconfigured and relocated to avoid all

associated wetland impacts (This avoidance measure reduces PEM wetland impacts to 2.28 acres, plan revision is underway) . Reduction of stormwater runoff and its potential to impact wetlands through concentrated runoff flows resulted in the addition of a low impact designed infiltration trench that will run along the entire perimeter of the airstrip. Vegetation clearing was reduced to the minimum necessary to construct the airstrip and to provide clear zones along the length and ends of the airstrip for safe UAS operations. In summary, reduced airstrip requirements and avoidance and minimization practices diminished the potential for wetland impacts by 30 acres, removed potential tidal wetland and forested wetland impacts, and decreased the potential for impacts due to stormwater runoff.

Impacts will consist of approximately 2.47 acres of palustrine emergent wetlands and 0.15 acres of palustrine scrub shrub wetlands. NASA WFF proposes to compensate for impacts by payment to The Virginia Aquatic Resources Trust Fund and/or on-site mitigation.

In addition to the required Department of the Army permit, the applicant must obtain a Virginia Water Protection Permit/401 certification from the Virginia Department of Environmental Quality assuring that applicable laws and regulations pertaining to water quality are not violated and a permit from the Accomack County Wetlands Board. Project drawings are attached.

AUTHORITY: Permits are required pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), Sections 401 and 404 of the Clean Water Act (Public Law 95-217) and Title 62.1 of the Code of Virginia.

FEDERAL EVALUATION OF APPLICATION: The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. The decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected from the proposal must be balanced against its reasonably foreseeable detriments. All of the proposal's relevant factors will be considered, including conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, flood plain values, land use classification, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership and, in general, the needs and welfare of the people. The Environmental Protection Agency's "Guidelines for Specification of Disposal Sites for Dredged or Fill Material" will also be applied (Section 404(b)(1) of the Clean Water Act).

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the direct, indirect, and cumulative impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity. Anyone may request a public hearing to consider this permit application by writing to the District Commander within 30 days of the date of this notice, stating specific reasons for holding the public hearing. The District Commander will then decide if a hearing should be held.

Preliminary review indicates that: (1) no environmental impact statement will be required

(2) no species of fish, wildlife, or plant (or their critical habitat) listed as endangered or threatened under the Endangered Species Act of 1973 (PL 93-205) will be adversely affected. Section 7 ESA Consultation - Loggerhead Sea Turtles – In a letter dated September 22, 2011, the USFWS stated that, “Based on the low number of nests at this site annually (between 1-4 nests per year), the low probability of hurricanes occurring during the nesting period here in Virginia, and the even lower probability that an emergency UAS flight would occur at night while turtles were nesting, the likelihood of disturbance resulting from UAS operations is low. Additionally, UAS operations and clearances from beach habitats will minimize the potential that UAS operations will affect sea turtles even if they do occur during nesting, and any effects are expected to be limited to temporary changes in behavior that will not reduce the likelihood of nesting. Consequently, these minor disturbances are considered to be insignificant and discountable and the project as proposed, “may affect, but is not likely to adversely affect” nesting sea turtles.”

Piping Plovers – “Based on the best currently available data, the Service believes that with the conservation measures and the 1,000 foot horizontal and vertical buffers, disturbances to nesting plovers are unlikely to occur, and will be limited to temporary changes in behavior that are similar to responses to potential predators in the vicinity of nesting plovers and are unlikely to result in flushing from nests. The Service believes that the level of disturbance will be insignificant and discountable, and birds will return to normal activities quickly following disturbance, and the proposed action is not likely (to) adversely affect piping plovers. In addition, the proposed monitoring in conjunction with UAS operation has the potential to significantly improve future conservation efforts for plovers and other shorebirds.”

(3) No known properties eligible for inclusion or included in the National Register of Historic Places are in or near the permit area, or would likely be affected by the proposal. Section 106 NHPA Consultation – In a letter dated January 10, 2011, the Virginia SHPO concurred with NASA’s eligibility determination for Site 44AC0089 and concluded that with implementation of the avoidance procedures proposed, no adverse effect to the resource would occur.

(4) CZMA Consistency – In a letter dated February 15, 2012, the Virginia Department of Environmental Quality concurred with NASA’s Federal Consistency Determination with Virginia’s Coastal Zone Management Policy. For compliance with the Coastal Zone Management Act of 1972, as amended, the applicant must certify that federally licensed or permitted activities affecting Virginia's coastal zone (Tidewater) will be conducted in a manner consistent with the Virginia Coastal Resources Management Program (VCP).

(5) National Park Service Consultation – NASA consulted with the NPS regarding the potential for UAS operations and noise from UAS overflights to affect the Assateague Beach Life-Saving Station. In a letter dated August 9, 2010, the NPS determined that the Proposed Action would not impact the Assateague Island National Seashore resources (i.e., Assateague Beach Life-Saving Station) or visitor experience on the Island since the flight lines would not cross over Assateague Island and noise from UAS would not exceed ambient noise levels on Assateague Island.

(6) Virginia Department of Conservation and Recreation Consultation – NASA is currently working on a Rare Plant Species and Communities Preservation Plan with DCR.

Additional information might change any of these findings.

COMMENT PERIOD: Comments on this project should be made in writing, addressed to the Norfolk District, Corps of Engineers (ATTN: CENAO-WR-R), 803 Front Street, Norfolk, Virginia 23510-1096, and should be received by the close of business on July 19, 2012.

**PRIVACY & CONFIDENTIALITY:** Comments and information, including the identity of the submitter, submitted in response to this Public Notice may be disclosed, reproduced, and distributed at the discretion of the U.S. Army Corps of Engineers. Information that is submitted in connection with this Public Notice cannot be maintained as confidential by the U.S. Army Corps of Engineers. Submissions should not include any information that the submitter seeks to preserve as confidential.

If you have any questions about this project or the permit process, contact Steven Gibson at [Steven.W.Gibson@USACE.Army.mil](mailto:Steven.W.Gibson@USACE.Army.mil)

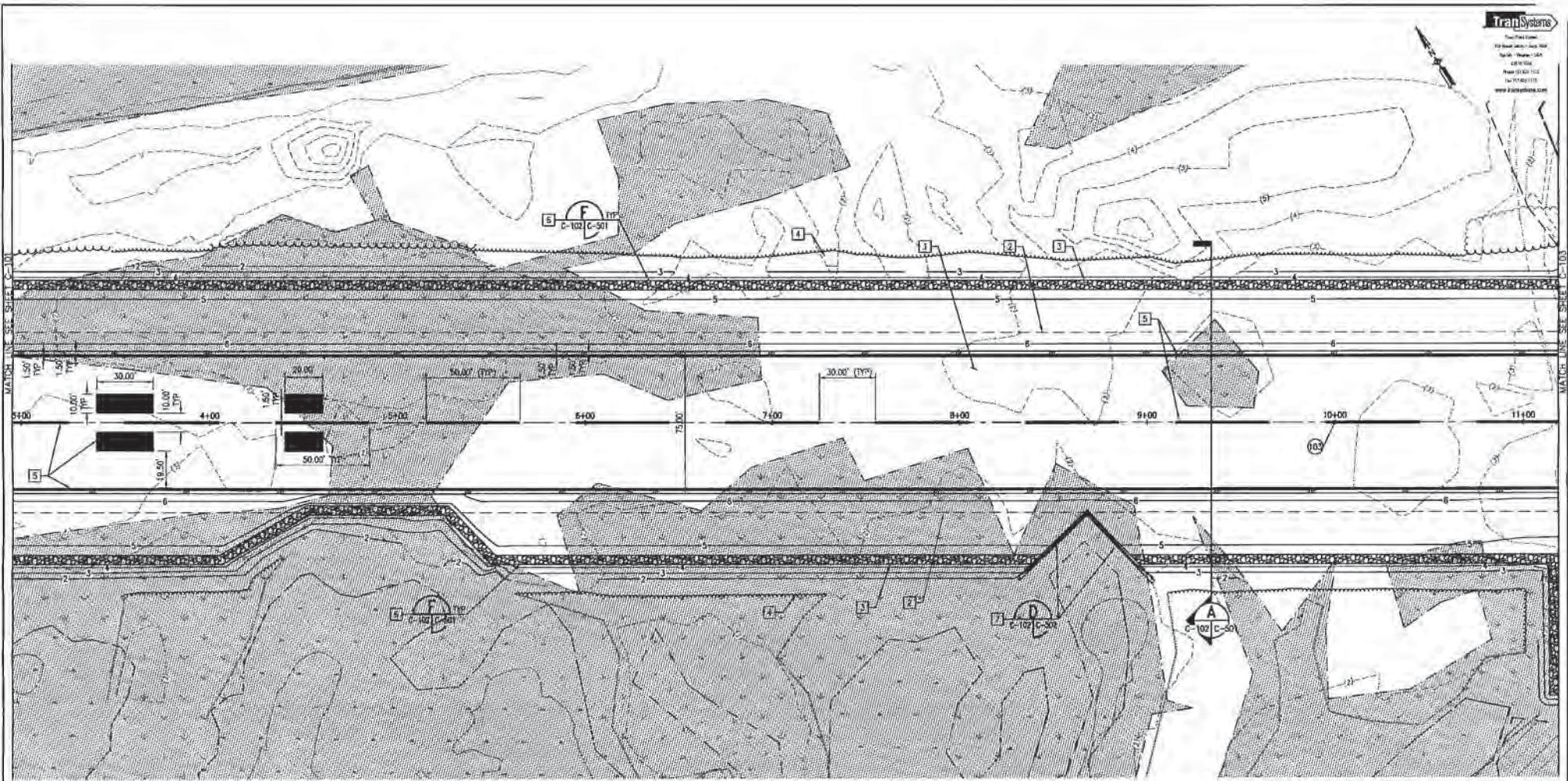
FOR THE DISTRICT COMMANDER:

Kimberly Prisco-Baggett  
Chief, Eastern Virginia  
Regulatory Section

Attachment: Drawings







**PLAN VIEW - AIRSTRIP**

SCALE: 1" = 25'

**SHEET NOTES:**

1. REFER TO SHEET C-001 FOR LEGEND, GENERAL NOTES AND ABBREVIATIONS.
2. REFER TO SHEET C-002 FOR EXISTING SURVEY CONTROL, KEY PLAN, SURVEY NOTES AND STRUCTURE DATA.
3. REFER TO SHEET B-101 FOR SITE GEOTECHNICAL INFORMATION.
4. REFER TO SHEETS E-001 THROUGH E-601 FOR ELECTRICAL UTILITY CONSTRUCTION.
5. REFER TO SHEET C-101 FOR CONSTRUCTION LAYOUT COORDINATE TABLE.

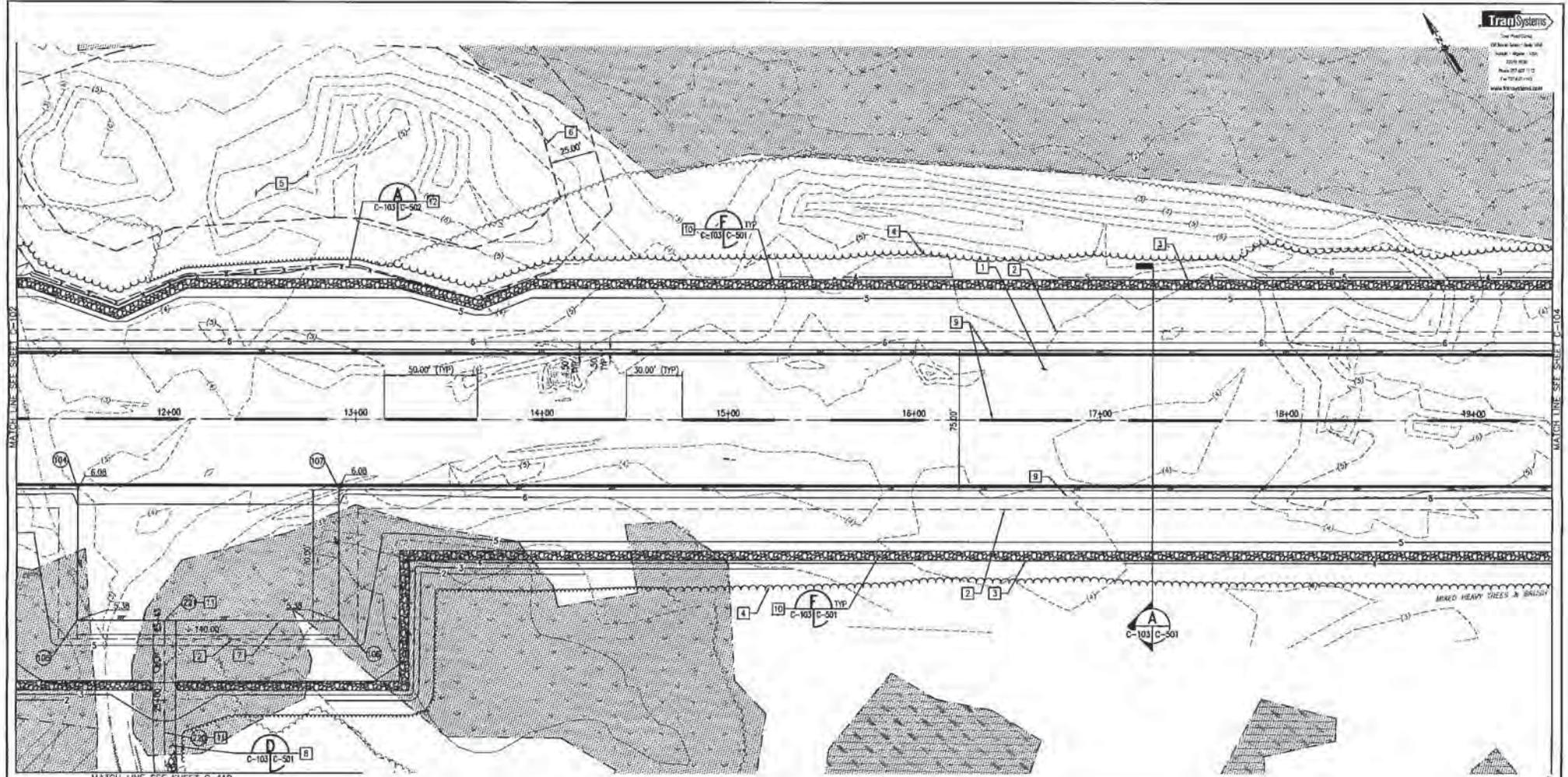
**KEY NOTES:**

- |  |   |
|--|---|
| 1 BITUMINOUS CONCRETE SURFACE COURSE - VDOT SM 9.5A - 3" THICK OVER 8" THICK AGGREGATE BASE COURSE - VDOT 21A. | 4 CLEARING LIMITS (WIDTH VARIES)          |
| 2 10' WIDE GRASS SHOULDER  | 5 WHITE PAINT PAVEMENT MARKINGS           |
| 3 150' WIDE RUNWAY SAFETY AREA/EDGE OF VEGETATIVE BUFFER   | 6 INFILTRATION TRENCH                     |
|  | 7 SEGMENTAL CONCRETE BLOCK RETAINING WALL |

**C-102**

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION GODDARD SPACE FLIGHT CENTER WALLOPS FLIGHT FACILITY WALLOPS ISLAND, VIRGINIA 22337		DATE	LET.	REVISIONS	CL. AP.	PROJECT ENGINEER	NASA SAFETY	CONSTRUCTION MANAGEMENT	ENGINEERING APPROVAL	GRAPHIC SCALE	<b>UAS AIRSTRIP</b> <b>PLAN VIEW - AIRSTRIP</b>
		SUBMITTED BY PROJECT MANAGER	DATE : DATE :	DATE : DATE :	DATE : DATE :	DATE : DATE :					

**16138**



**PLAN VIEW - AIRSTRIP**

SCALE: 1" = 25'

**SHEET NOTES:**

1. REFER TO SHEET C-001 FOR LEGEND, GENERAL NOTES AND ABBREVIATIONS.
2. REFER TO SHEET C-002 FOR EXISTING SURVEY CONTROL, KEY PLAN, SURVEY NOTES AND STRUCTURE DATA.
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4. REFER TO SHEETS E-001 THROUGH E-601 FOR ELECTRICAL UTILITY CONSTRUCTION.
5. REFER TO SHEET C-101 FOR CONSTRUCTION LAYOUT COORDINATE TABLE.

**KEY NOTES:**

- |  |  |  |   |
|--|--|--|---|
| <ul style="list-style-type: none"> <li>1 BITUMINOUS CONCRETE SURFACE COURSE - VDOT SM-9.5A - 3" THICK OVER 8" THICK AGGREGATE BASE COURSE - VDOT 21A</li> <li>2 10' WIDE GRASS SHOULDER</li> <li>3 150' WIDE RUNWAY SAFETY AREA/EDGE OF VEGETATIVE BUFFER</li> </ul> | <ul style="list-style-type: none"> <li>4 CLEARING LIMITS (WIDTH VARIES)</li> <li>5 ARCHEOLOGICAL SENSITIVE AREA</li> <li>6 25' BUFFER AROUND ARCHEOLOGICAL SENSITIVE AREA</li> <li>7 140' X 70' BITUMINOUS CONCRETE PAD, 3" THICK VDOT SM-9.5A OVER 8" THICK VDOT 21A AGGREGATE BASE COURSE</li> </ul> | <ul style="list-style-type: none"> <li>8 12' WIDE (BY 6" THICK AGGREGATE BASE COURSE - VDOT 21A</li> <li>9 WHITE PAINT PAVEMENT MARKINGS</li> <li>10 INFILTRATION TRENCH</li> <li>11 FOR POINT NUMBERS (22) AND (22), REFER TO ROADWAY CONSTRUCTION LAYOUT COORDINATE TABLE ON SHEET C-107.</li> </ul> | <ul style="list-style-type: none"> <li>12 6' HIGH CHAIN LINK FENCE</li> </ul> |
|--|--|--|---|

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
 GODDARD SPACE FLIGHT CENTER  
 WALLOPS FLIGHT FACILITY  
 WALLOPS ISLAND, VIRGINIA 23357



DATE	LET.	REVISIONS

PRJ. NO.	AP.	PROJECT OWNER

DATE	DATE	DATE

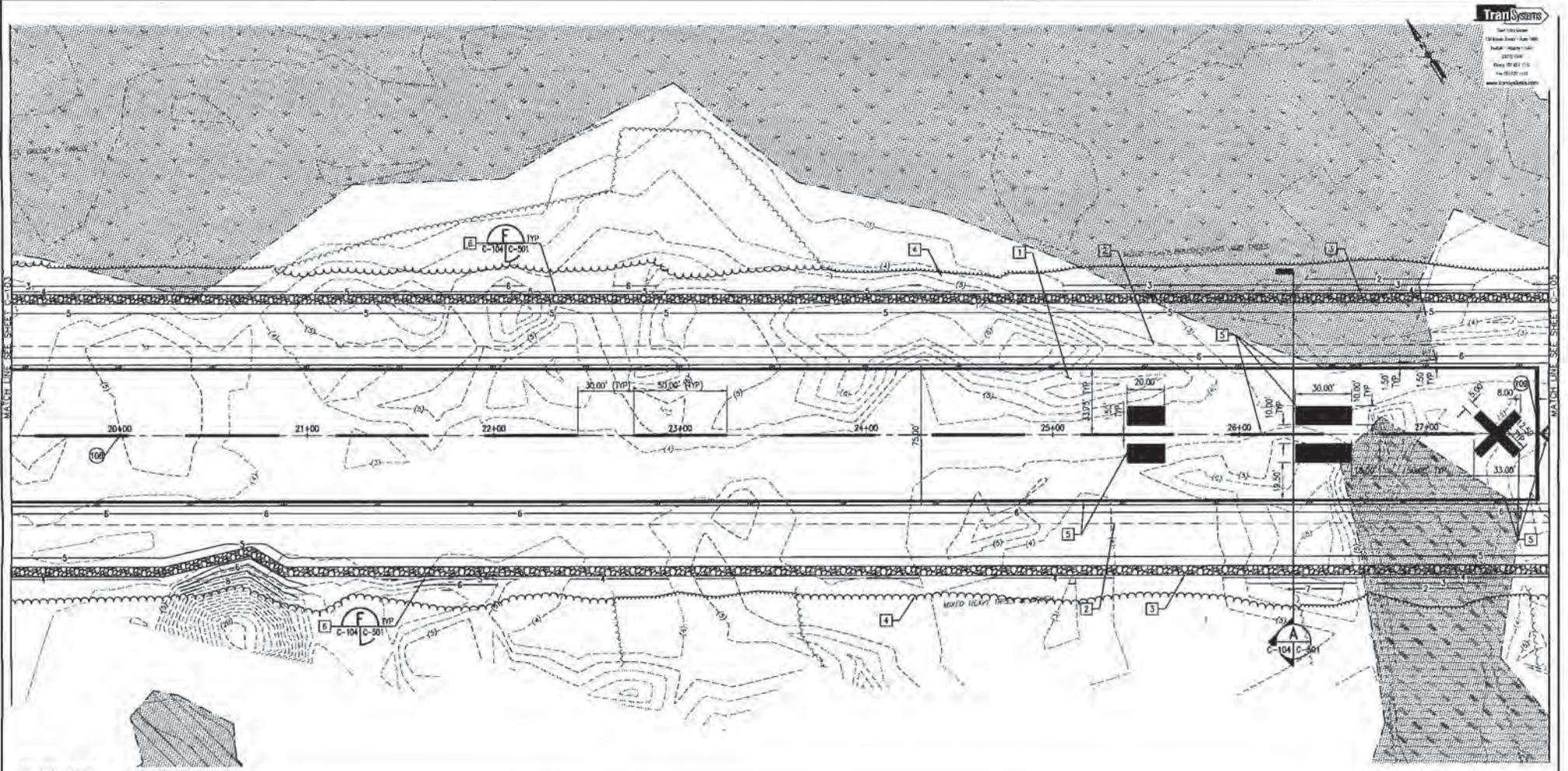
DATE	DATE	DATE

DATE	DATE	DATE

GRAPHIC SCALE	SCALE
1" = 25' 0"	SCALE 1"=25'

UAS AIRSTRIP	
PLAN VIEW - AIRSTRIP	
PROJECT NUMBER: P307100112	DRAWING NO. 161
DATE: MAY 8 2011	

C-103



**PLAN VIEW - AIRSTRIP**

SCALE: 1" = 25'

**SHEET NOTES:**

1. REFER TO SHEET C-001 FOR LEGEND, GENERAL NOTES AND ABBREVIATIONS.
2. REFER TO SHEET C-002 FOR EXISTING SURVEY CONTROL, KEY PLAN, SURVEY NOTES AND STRUCTURE DATA.
3. REFER TO SHEET B-101 FOR SITE GEOTECHNICAL INFORMATION.
4. REFER TO SHEETS E-001 THROUGH E-601 FOR ELECTRICAL UTILITY CONSTRUCTION.
5. REFER TO SHEET C-101 FOR CONSTRUCTION LAYOUT COORDINATE TABLE.

**KEY NOTES:**

- |   |                                  |
|---|----------------------------------|
| 1 BITUMINOUS CONCRETE SURFACE COURSE - VDOT SM-9.5A - 3" THICK OVER 8" THICK AGGREGATE BASE COURSE - VDOT 21A | 4 CLEARING LIMITS (WIDTH VARIES) |
| 2 10' WIDE GRASS SHOULDER   | 5 WHITE PAINT PAVEMENT MARKINGS  |
| 3 150' WIDE RUNWAY SAFETY AREA/EDGE OF VEGETATIVE BUFFER  | 6 INFILTRATION TRENCH            |

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
 GODDARD SPACE FLIGHT CENTER  
 Wallops Flight Facility  
 Wallops Island, Virginia 22357



DATE	LET.	REVISIONS	CHK.	APP.

PROJECT ENGINEER	DATE
SUBMITTED BY	DATE
PROJECT MANAGER	DATE

NASA SAFETY	DATE
FIRE PROTECTION	DATE

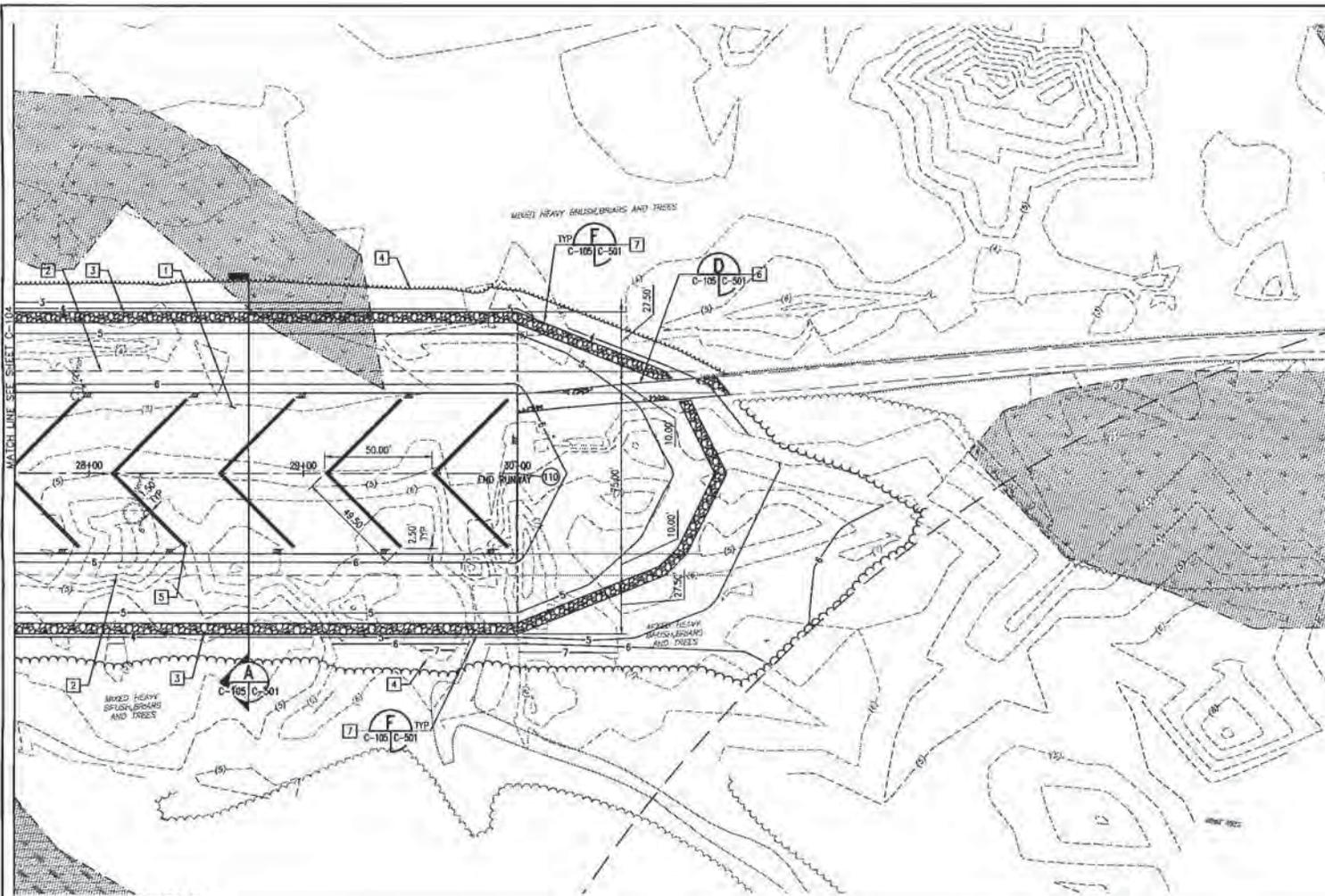
CONSTRUCTION MANAGER	DATE
	DATE
	DATE

ENGINEERING APPROVAL	DATE
ENGINEERING GROUP LEADER	DATE
SEALING APPROVAL	DATE
SEALING HEAD	DATE

GRAPHIC SCALE	1" = 25' 0" 25' 50'
AUTOCAD - RELEASE 2004	FILE NAME: 01175-104.DWG
SCALE	1"=25'
DATE	MAY 8 2011
SCALE	17.00

UAS AIRSTRIP	
PLAN VIEW - AIRSTRIP	
PROJECT NUMBER: P00790117	DRAWING NO. 16140
DATE: MAY 8 2011	REVISION:

C-104



**PLAN VIEW - AIRSTRIP**

SCALE: 1" = 25'

**SHEET NOTES:**

- REFER TO SHEET C-001 FOR LEGEND, GENERAL NOTES AND ABBREVIATIONS.
- REFER TO SHEET C-002 FOR EXISTING SURVEY CONTROL, KEY PLAN, SURVEY NOTES AND STRUCTURE DATA.
- REFER TO SHEET B-101 FOR SITE GEOTECHNICAL INFORMATION.
- REFER TO SHEETS E-001 THROUGH E-601 FOR ELECTRICAL UTILITY CONSTRUCTION.
- REFER TO SHEET C-101 FOR CONSTRUCTION LAYOUT COORDINATE TABLE.

**KEY NOTES:**

- BITUMINOUS CONCRETE SURFACE COURSE. VDOT SM-85A - 3" THICK OVER 8" THICK AGGREGATE BASE COURSE - VDOT 21A.
- 10' WIDE GRASS SHOULDER.
- 150' WIDE RUNWAY SAFETY AREA/EDGE OF VEGETATIVE BUFFER.
- CLEARING LIMITS (WIDTH VARIES).
- WHITE PAINT PAVEMENT MARKINGS.
- 12' WIDE 6" THICK AGGREGATE BASE COURSE - VDOT 21A.
- INFILTRATION TRENCH.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
 GODDARD SPACE FLIGHT CENTER  
 WALLOP'S FLIGHT FACILITY  
 WALLOP'S ISLAND, VIRGINIA 23337



DATE	LET.	REVISIONS	CHK.	APP.	PROJECT ENGINEER

DATE	PROJECT ENGINEER

DATE	NASA SAFETY

DATE	CONSTRUCTION MANAGEMENT

DATE	ENGINEERING APPROVAL

DATE	ENGINEERING GROUP LEADER

DATE	BRANCH APPROVAL

DATE	BRANCH HEAD

DATE	SCALE

DATE	PRODUCT NUMBER

DATE	DRIVING NO.

C-105

UAS AIRSTRIP  
 PLAN VIEW - AIRSTRIP  
 161