

FINAL ENVIRONMENTAL ASSESSMENT

SEPTEMBER 19, 2008



SPACE NETWORK EXPANSION GROUND SYSTEM-EAST

BLOSSOM POINT TRACKING FACILITY

NAVAL RESEARCH LABORATORY
AND
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

NAVAL FACILITIES ENGINEERING COMMAND
LANDIV, NORFOLK, VIRGINIA

[This page left intentionally blank]

SPACE NETWORK EXPANSION GROUND SYSTEM-EAST (SNEGS-E)

US NAVAL RESEARCH LABORATORY (NRL)
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
(NASA)
NAVFAC ATLANTIC NORFOLK, VIRGINIA

FINAL ENVIRONMENTAL ASSESSMENT

SEPTEMBER 19, 2008

BY

A. MORTON THOMAS AND ASSOCIATES, INC.
12750 TWINBROOK PARKWAY, ROCKVILLE, MARYLAND

EXECUTIVE SUMMARY

This Environmental Assessment (EA) has been prepared to address the effects of the Blossom Point Remote Station (BPRS) Space Network Expansion Ground System-East (SNEGS-E) project for the National Aeronautics and Space Administration (NASA). The BPRS would be built at the Blossom Point Tracking Facility (BPTF), which is operated by the Naval Research Laboratory (NRL) on the Blossom Point US Army Garrison (USAG) in Charles County, Maryland. The EA has been prepared in accordance with the following requirements: Chief of Naval Operations Instructions (OPNAVINST) 5090.1c Environmental and Natural Resources Program Manual; the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 *et seq.*); the Council on Environmental Quality regulations for implementing the procedural provisions of the National Environmental Policy Act (40 CFR §§ 1500-1508); Army Regulation (AR) 200-2, Environmental Effects of Army Actions; and, Environmental Analysis of Army Actions (32 CFR part 651). The analysis also addresses applicable State of Maryland and federal environmental laws and regulations and Executive Orders concerning the protection of wetlands and environmental justice.

Need and Purpose of the Proposed Action:

The purpose of the proposed action is to provide facilities for NASA's Tracking Data and Relay Satellite System (TDRSS) Tracking Operations Control Center (TOCC), which would operate with second generation Tracking Data and Relay Satellite (TDRS) (F8 thru F10) spacecraft. It consists of construction of NASA satellite ground communication terminal antenna facilities at Blossom Point USAG and BPTF, Charles County, Maryland. These operations would be housed in a new antenna support facility located at a renovated BPTF operations building (Building #13). Once completed, the proposed action would provide a communication link between remotely operated signal retrieval antennas at Blossom Point USAG and satellites stationed over the Atlantic Ocean.

NASA needs to service relay satellites from a new location. A relay satellite actually receives a signal and then re-transmits the signal. If a relay satellite receives a strong signal, it re-transmits a strong signal. If a relay satellite receives a weak signal, it re-transmits that weak signal. Good relay satellites receive a signal on one frequency and then re-transmit the signal on another frequency.

NASA's relay satellites are called "Tracking and Data Relay Satellites" (TDRS). These particular NASA satellites actually receive multiple (but individual) signals on selected frequencies and then re-transmit the received signals (bunched together in a frequency band) to a terminal on the earth. These satellites faithfully replicate the signals received, which is highly virtuous, and then re-transmit the received signals (bunched together in a frequency band) to an earth terminal. The antennas aboard a TDRS provide significant signal gain.

NASA has serviced thousands of transmitters (such as tropic weather monitors, particularly in this hemisphere) from TDRS satellites over relatively western portions of the Atlantic. These satellites are in locations that can be serviced from White Sands, New Mexico. However, White Sands is too far west to be within line-of-sight for satellites over the far eastern portion of the Atlantic. In order to provide similar services for weak transmitter signals from the African area, satellites would need to be located closer to Africa. A location on the east coast of the United States might just be barely within line-of-sight to TDRS satellites over the eastern part of the Atlantic. A good compromise solution would be a satellite location over that part of the Atlantic, providing good signal reception due to decreased range, together with an earth terminal location on the East Coast at an interference-free site, providing good signal reception in the absence of interfering signals. The BPRS site is a location that would satisfy NASA's requirements.

Proposed Action:

NASA proposes constructing a BPRS SNEGS-E for satellite signal retrieval and transmission. This BPRS project would consist of the following: new antennas (and antenna site), removal of vegetation that could obstruct signals in a “Line-of-Sight Zone” (LOS), access drive to antenna site, and support facilities that include renovation of BPTF Building #13 as an operations facility, expanded fire protection system, upgraded electrical power supply and stand-by electrical power from new generators.

Under the proposed action, the BPRS would be constructed at BPTF on an approximately 15.2 acre portion of the 1,600 acres of the Blossom Point USAG property. The proposed site would be close to the Potomac River and the southeast corner of the BPTF. This site is primarily forested and the proposed development is in the following locations: upland areas at the new antenna site; uplands, wetlands and open water within the “LOS Zone”, and in an existing BPTF building for the operations facilities. Under the Blossom Point USAG land use designation, a majority of the site is dedicated to BPTF activities, requiring acoustical isolation and building height restriction zones.

No-Action Alternative:

Under the no action alternative, the proposed BPRS would not be constructed and the satellite signal retrieval and retransmission would not be carried out by SNEGS-E as presently envisioned by NASA. If the proposed BPRS is not constructed, NASA would not be able to adequately communicate with orbiting customer platforms over the eastern Atlantic Ocean, including, for example, the Space Shuttle, the Hubble Space Telescope, and the International Space Station

ENVIRONMENTAL AND SOCIOECONOMIC CONSEQUENCES

The proposed action would involve construction of the BPRS at BPTF on the Blossom Point USAG property. Table ES-1 presents the alternatives: Proposed Action and No Action; and, their potential impacts to the natural and human environments. In summary, the BPRS would be expected to fulfill NASA’s needs for the SNEGS-E.

Expected impacts would include an increase in impervious surfaces, soil disturbance, increased stormwater runoff, impacts to wetlands, impacts on bald eagles (*Haliaeetus leucocephalus*) and their habitat, impacts on terrestrial and aquatic environment, and increased noise and traffic during construction. These impacts would each be addressed by applying best management practices during construction and completing construction in accordance with applicable laws and regulations.

Some impacts would occur to wetlands as a result of selectively removing vegetation in the “LOS Zone”. In some areas the forest would need to be clear cut and the land converted to open meadow. In other areas shrubs and smaller trees could be left in place and only medium and taller trees selectively removed. Portions of the site nearer to estuarine and forested riparian wetlands could be selectively cleared of overstory trees with less overall impact upon existing conditions than in areas closer to the antenna site. The Navy would obtain all necessary permits from the U.S. Army Corps of Engineers, Baltimore District (USACE), and would mitigate all unavoidable impacts to wetlands as required by the USACE. The Navy would also coordinate with Maryland Department of the Environment (MDE) regarding impacts to wetlands.

The U.S. Fish and Wildlife Service (FWS) and the Maryland Department of Natural Resources (MDDNR) were contacted regarding potential impacts to rare, threatened or endangered species (RTEs) and impacts to bald eagles. FWS and MDDNR had not responded to these requests for information at the time of this report. However, an environmental assessment that was conducted in 1990 for the

Blossom Point USAG did not encounter any evidence or records of any RTEs that might be located in the area of the BPRS or the BPTF.

The FWS has indicated that the eagles are not likely to be impacted by the proposed work if land disturbance and construction activities are all performed as quickly as possible, and during periods when Bald Eagles are not nesting (U.S. Fish and Wildlife Service 2008). The Blossom Point USAG and FWS met and agreed that there are eagle nests at the USAG and they are to be protected during construction. A letter and meeting notes are provided herein recording discussions held concerning the protection of the eagle nests.

Bald eagles have recently been delisted and are no longer afforded protection by the Federal Endangered Species Act. However, they are still protected by federal and state laws, including the Bald and Golden Eagle Protection Act of 1940 (16 U.S.C. 668-668d) and The Migratory Bird Treaty Act. All construction would be kept to minimum duration and executed during the non-nesting period (16 June to 14 December, with heavy timber operations in the fall, preferably 15 September to 30 November) to lessen the likelihood of impacts to the eagles. A buffer zone within approximately 330' of the nest would be protected from direct disturbance to the maximum extent practicable.

A letter was also submitted to the MDE, Wetlands and Waterways Program, Federal Consistency Coordinator, concerning coastal zone consistency of the proposed action. MDE is reviewing the project to determine if it is consistent with the enforceable policies of Maryland's Coastal Zone Management Program. The action must be consistent with those policies to the maximum extent practicable and permits may be required for facets of the proposed action. This correspondence is included in Section 7.0. At the time of this report a response letter from MDE had not been received. Discussions with MDE personnel confirmed that the State of Maryland would review the construction documents. Before permits could be issued, the actions would be evaluated for their potential impact on wetlands and other sensitive resources. Appropriate and adequate measures to mitigate these impacts would be required as a condition of these permits.

CONCLUSION

The proposed action would not have a significant impact on human environmental resources or socioeconomic conditions at Blossom Point USAG, BPTF, or surrounding areas. The largest amount of impact would be in the 3.7 acre antenna site. Upland forest would be cleared and grubbed, the site would be graded, and new structures and impervious surfaces would be created. In the 8.7 acre "LOS Zone" varying lesser amounts of disturbance would be required.

Site construction plans would be reviewed and applicable regulations for protecting resources and mitigating environmental impacts would be enforced as a condition of any permits. Potential impacts on wetland areas would be subject to a Section 404 Clean Water Act permit that would be obtained through the USACE. The actions would also be reviewed for consistency with State of Maryland laws and regulations, including the Non-Tidal Wetlands Protection Act of 1989 and the Maryland Tidal Wetlands Act of 1970. All work would be undertaken in compliance with these laws to the maximum extent practicable.

During construction, sediment and erosion controls would be installed to minimize sediment-laden runoff from leaving the construction site and impacts to surface waters. These practices would follow both State of Maryland and the Environmental Protection Agency's National Pollution Discharge Elimination System, Phase II regulations. The existing eagle nest buffer area would be maintained, along with the schedule restrictions for construction of the new antenna site and "LOS Zone."

The proposed action was chosen because the site meets the technical requirements of the needed facility, and can be built without causing significant impacts to the human environment or adversely affecting human health and safety. Although the proposed action would affect natural resources, including forests, wetlands, terrestrial and aquatic environment, the effects could be mitigated satisfactorily.

This Environmental Assessment supports a Finding of No Significant Impact (FONSI). The BPRS would fulfill the mission needs and purpose and its environmental impacts would not be significant. NASA's TDRSS TOCC would operate with second generation TDRS spacecraft and NASA ground communication terminal antenna facilities. The No Action Alternative would seriously compromise NASA's mission goal of having an operational SNEGS-E.

TABLE ES-1: SUMMARY OF IMPACTS

Resource Areas	Proposed Action	No Action Alternative
Hydrology and Water Resources (Ground Water, Wetlands, Coastal Zone and Surface Water)	Impacts would occur to wetlands, requiring a Section 404 Permit. Any unavoidable impacts to wetlands in the "Line-of-sight (LOS) Zone" would be minimized to the extent possible and mitigated as required. Minimal impacts to surrounding surface waters are possible from the proposed increase in impervious area and the resulting increase in runoff volume and velocity. MDE has been contacted concerning BPRS and a finding of consistency with the Coastal Zone Management Program will be required before the proposed action can be implemented. At the time of this report a confirmation letter from MDE had not been received. Site development would be in excess of one acre and would require stormwater management and sediment control plans and MDE permits as per applicable regulations. A National Pollution Discharge Elimination System Phase II permit and MD Chesapeake Bay Critical Areas Commission approval might be required.	No Impacts
Geology, Topography, and Soils	Minor impacts to topography would occur due to grading. In addition, soil profiles would be disturbed due to the turning of the soil associated with grading. There would be no impacts to geologic resources.	No Impacts
Biological Resources (Wildlife, Wildlife Habitat, Vegetation, Threatened and Endangered Species, Eagles, Terrestrial Environment, Essential Fish Habitat and Aquatic Environment)	Minor impacts would occur. More than 12 acres of undeveloped land would be affected. Some habitat would be lost or modified. The U.S. Fish and Wildlife Service (FWS) and Maryland Department of Natural Resources (MDDNR) have been contacted to determine whether there are any records of rare, threatened or endangered species (RTEs) for the site. At the time of this report a response had not been received. An environmental assessment at Blossom Point USAG in 1990 found that, except for a possible transient individual species, no RTEs are known to exist within the proposed action area. FWS has been contacted and BPTF has gotten a response regarding one eagle nest that is close to the proposed action area. FWS has indicated that they do not anticipate impacts to the eagles if their recommendations are followed.	No Impacts

	These recommendations include maintaining an undisturbed buffer zone, performing all work as quickly as possible and working outside of the eagles' nesting season.	
Land Use (Floodplain, Flood Zone)	Negligible impacts would occur. Development would be consistent with Blossom Point USAG land use goals as the land is designated for BPTF acoustical isolation and building height restriction zones. Development of the antenna site would not be in the 100-year floodplain, although some clearing for the LOS Zone would be. This clearing in the floodplain would not be expected to adversely affect floodplain functions and values.	No Impacts
Air Quality	Negligible impacts would occur. Area air quality meets standards for all air pollutants. Electrical generators would operate only for short periods in emergency situations. Short-term air quality effects, due to construction equipment exhaust, etc. would be minor.	No Impacts
Noise	Short-term impacts would occur during construction due to the operation of heavy equipment.	No Impacts
Solid Waste Handling and Hazardous Material Handling, Water Supply, Wastewater, Electrical Service	Negligible impacts would occur. There would be sufficient solid waste handling, electrical, water and wastewater service. No hazardous waste materials are to be handled. Fire suppression requirements would require an on-site water storage tank and fire pump. Electrical service would be upgraded and stand-by generators would be constructed. Fire service water mains and hydrants would be extended, along with a separate domestic service to the antenna site.	No Impacts
Human Health and Safety (Radio Frequency Radiation)	Negligible impacts would occur. Radio Frequency (RF) microwave radiation would be surveyed by the Naval Research Laboratory at BPRS once it is constructed. Proper screens and controls would be installed as required to achieve human health and safety standards for exposure.	No Impacts
Transportation, Cultural Resources, Socioeconomic (Environmental Justice and Protection of Children)	Negligible impacts would occur. Short-term traffic increases during construction would occur. Cultural resources and socioeconomic conditions would not be impacted.	No Impacts

TABLE OF CONTENTS**1.0 PURPOSE AND NEED**

- 1.1 Background
- 1.2 Scope of Document
- 1.3 Purpose and Need

2.0 ALTERNATIVES

- 2.1 Project Criteria
 - 2.1.1 Mission Requirements
 - 2.1.2 Site Location
 - 2.1.3 Needs Related to Antenna Physics
- 2.2 Alternative Sites at BPTF
- 2.3 Basis for BPTF Site Selection
 - 2.3.1 Description of the Proposed Action
 - 2.3.2 Site Selection Criteria
 - 2.3.2.a *Line-of-Sight Zone*
 - 2.3.2.b *Physical Security Assumptions*
 - 2.3.3 Seven Sites Review
- 2.4 Alternatives
 - 2.4.1 Proposed Action
 - 2.4.2 No-Action Alternative

3.0 AFFECTED ENVIRONMENT

- 3.1 General
 - 3.1.1 Transportation
 - 3.1.2 Cultural Resources Including Historic Structures and Archeological Resources
 - 3.1.3 Socioeconomic Resources
 - 3.1.4 Environmental Justice and Protection of Children
- 3.2 Climate and Weather
- 3.3 Geology and Soils
- 3.4 Hydrology and Water Resources
 - 3.4.1 Groundwater
 - 3.4.2 Wetlands
 - 3.4.3 Surface Water
- 3.5 Air Quality
- 3.6 Noise
- 3.7 Solid Waste and Hazardous Materials
- 3.8 Water Supply
- 3.9 Wastewater
- 3.10 Floodplain and Flood Zone
- 3.11 Terrestrial Environment
- 3.12 Aquatic Environment
- 3.13 Rare, Threatened, Endangered, and Sensitive Species
- 3.14 Land Use
- 3.15 Human Health and Safety, Radio Frequency Radiation (RFR)
- 3.16 Essential Fish Habitat
- 3.17 Coastal Zone Management Act Considerations
- 3.18 Electrical Service

4.0 ENVIRONMENTAL CONSEQUENCES OF PROPOSED ACTION

- 4.1 Geology and Soils
- 4.2 Hydrology and Water Resources
- 4.3 Air Quality
- 4.4 Noise
- 4.5 Solid Waste and Hazardous Materials
- 4.6 Water Supply
- 4.7 Wastewater
- 4.8 Floodplain and Flood Zone
- 4.9 Terrestrial Environment
- 4.10 Aquatic Environment
- 4.11 Rare, Threatened, Endangered, and Sensitive Species
- 4.12 Land Use
- 4.13 Human Health and Safety, Radio Frequency Radiation
- 4.14 Essential Fish Habitat
- 4.15 Coastal Zone Management Act Considerations
- 4.16 Electric Service

5.0 CUMULATIVE IMPACT**6.0 CONCLUSIONS****7.0 COORDINATION LETTERS, LIST OF AGENCIES CONTACTED****8.0 APPENDIX**

- 8.1 Public Law
- 8.2 Site Availability and Cost

9.0 REFERENCES**10.0 ABBREVIATIONS AND ACRONYMS****11.0 LIST OF PREPARERS****FIGURES**

- 1 SNEGS-EAST BLOSSOM POINT TRACKING FACILITY, MARYLAND LOCATION
- 2 MODEL ANTENNA SITE PLAN
- 3 LINE-OF-SIGHT ZONE
- 4A ANTENNA SITE LOCATIONS
- 4B BLOSSOM POINT REMOTE STATION LOCATION MAP
- 5 ARCHEOLOGICAL SITES
- 6 SOILS MAP
- 7 100 YEAR FLOODPLAIN MAP
- 8 WETLANDS AND CHESAPEAKE BAY CRITICAL AREA
- 9 BLOSSOM POINT REMOTE STATION TOPOGRAPHIC MAP
- 10 SIGHT LINE ELEVATIONS ABOVE EXISTING GROUND
- 11 LAND COVER WITHIN LINE-OF-SIGHT

TABLES

- ES-1 SUMMARY OF IMPACTS

1.0 PURPOSE AND NEED

1.1 Background

The U.S. Naval Research Laboratory (NRL) with the support of the National Aeronautics and Space Administration (NASA) has developed a program to provide and upgrade support services for satellite ground communications terminal facilities at the U.S. Army Garrison (USAG) Blossom Point Tracking Facility (BPTF) (see Figure 1). The NRL has a land use agreement with USAG to operate the existing BPTF, which was established to track missile tests in the 1950s. It is now operated as a long-range tracking station for various satellites. The land included in the agreement covers an area of approximately 41 acres with an additional 265 acres of wooded acoustical buffer on the BPTF over the 1,600-acre property.

The expansion of operations at the BPTF by NASA with new operations and facilities related to Blossom Point Remote Station (BPRS) is the subject of this Environmental Assessment (EA). New BPRS facilities are supporting Space Network Expansion Ground System–East (SNEGS–E), a NASA operated project. The facilities would accommodate an additional NASA Space-Ground Link Terminal (SGLT). Existing Building #13 at BPTF would be renovated and upgraded to house NASA equipment and operations personnel. New antenna facilities would be constructed outside of the existing secured BPTF development. An approximately 3.7 acre area would be required to build three new antennas and support facilities adjoining BPTF on the NRL property. Support facilities include an antenna “Line-of-Sight (LOS) Zone.” Vegetation within the LOS Zone that could obstruct communications signals would be removed. The proposed action includes the construction and operation of a satellite ground communications terminal and renovation/upgrades/expansion to the existing BPTF.

NASA would remotely control and monitor SNEGS–E from White Sands Complex (WSC) in Las Cruces, New Mexico. NASA would be using the present Tracking Data and Relay Satellite System (TDRSS) Tracking Operations Control Center (TOCC). SNEGS–E would operate with second generation Tracking Data and Relay Satellite (TDRS) (F8 through F10) spacecraft. The facilities would be operated and maintained by an on-site staff of managers, technicians, and support personnel.

1.2 Scope of Document

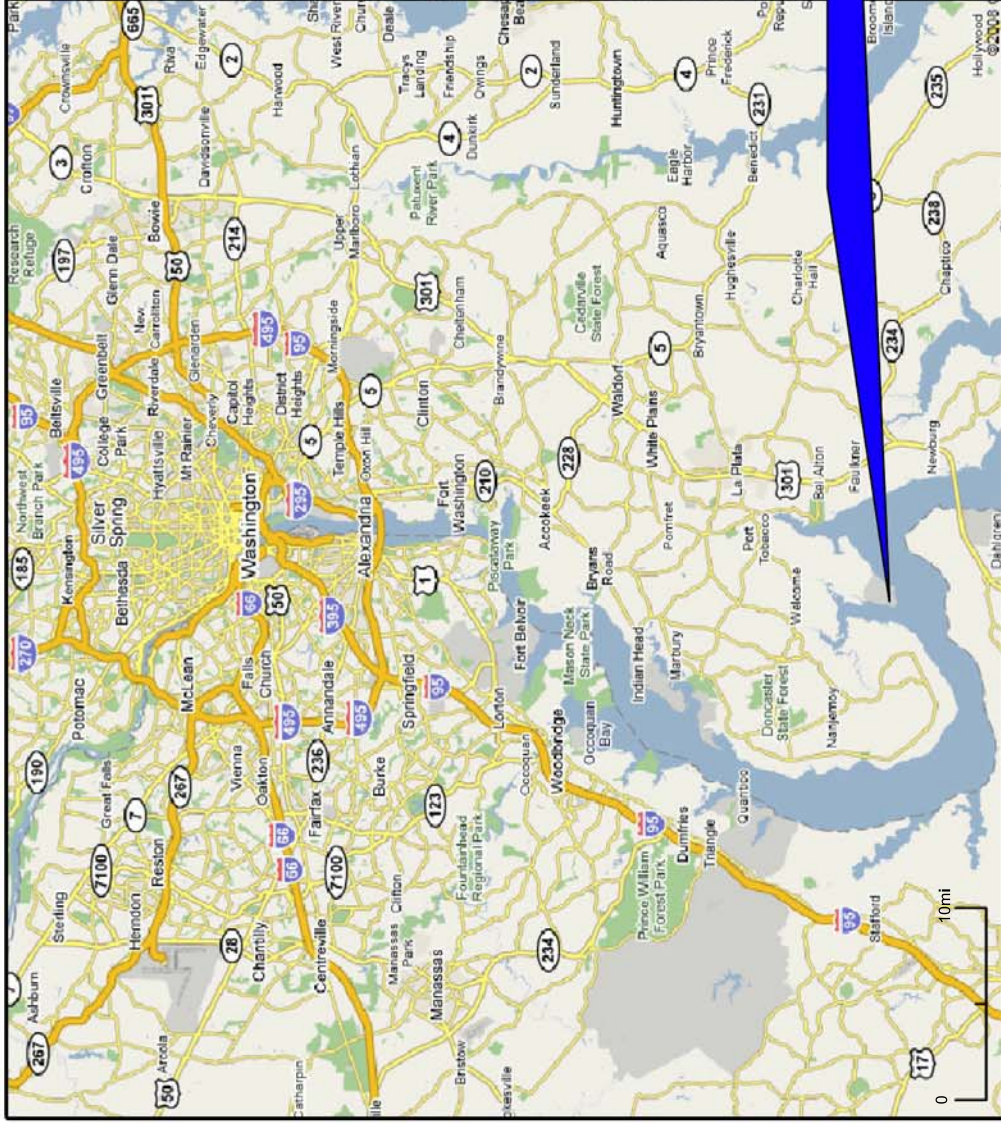
This EA has been prepared to address the effects of the SNEGS-E project at the BPTF located in Blossom Point, Maryland. BPTF is located southwest of La Plata, Maryland in Charles County on the Potomac River. The EA has been prepared in accordance with the following requirements: the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 *et seq.*); the Council on Environmental Quality regulations for implementing the procedural provisions of the National Environmental Policy Act (40 CFR §§ 1500-1508); Army Regulation (AR) 200-2, Environmental Effects of Army Actions; and Environmental Analysis of Army Actions (32 C.F.R. § 651). The analysis also addresses applicable State of Maryland and Federal environmental laws and regulations and Executive Orders concerning the protection of wetlands and environmental justice.

This EA summarizes the basis for the one (1) possible site analyzed for the development of the new SNEGS-E antenna site and support operations. The one (1) site and a No-Action alternative are analyzed for relative impacts. The environment of BPTF, surrounding natural environment and social/economic community of Charles County are reviewed for possible effects of the proposed action. This EA also evaluates whether the preferred alternative can be recommended for a Finding of No Significant Impact (FONSI) on the natural and social/economic environment.

1.3 Purpose and Need

The purpose of the SNEGS-E action is to provide facilities which would be used for expanding capabilities of the NASA TDRSS. The need and purpose of SNEGS-E facility would be part of the NASA Space Network (SN). The SN consists of a constellation of ground terminals at the WSC, the Guam Remote Station (GRS), and geosynchronous TDRS. Once completed, the SNEGS-E facility would fulfill the need to accommodate real-time forward and return data communication services between customer platforms and the associated Customer Data Interface (CDI) via an assigned TDRS. This new ground facility is needed to augment the capabilities of NASA's TDRSS to meet expanding customer needs. NASA has several SN customers with platforms, including the Space Shuttle, the Hubble Space Telescope, the International Space Station and others.

The SNEGS-E ground facility would provide needed uplink and downlink services to TDRS which, in turn, provide command and telemetry services to NASA and its customers. The project is considered to be in support of mission critical operations as part of the BPTF mission, which is provided by NASA operations for NASA use.



- Army Owned Land
- NRL Owned Blossom Point Tracking Facility (BPTF)

SNEGS - EAST BLOSSOM POINT TRACKING FACILITY, MARYLAND LOCATION

[This page left intentionally blank]

2.0 ALTERNATIVES

2.1 Project Criteria

The analysis of possible sites for location of the SNEGS-E facility has been structured in a tiered screening approach: mission requirements, site location, needs related to antennas physics, and alternative sites at BPTF. The site selection process used the physics of signal characteristics as the primary criteria for the selected site. The site is required to be on the furthest eastern U.S. location where interfering signals are minimized, received signal strength can be preserved, and the highest signal strength can be obtained. Signal strength is affected by rain attenuation and distance to satellites. These factors comprise the basic criteria for selection of a feasible satellite signal antenna site. The development of the proposed ground facility accommodates expanded communications services and would allow newly procured equipment to be used to replace aging equipment at other existing ground facilities.

The SNEGS-E facility would become part of the NASA Space Network (SN). The SN consists of a constellation of ground terminals at the WSC, the Guam Remote Station (GRS), and geosynchronous TDRS. Once completed, the SNEGS-E facility would accommodate real-time forward and return data communication services between the customer platform and the associated Customer Data Interface (CDI) via an assigned TDRS. This new ground facility is needed to augment the capabilities of NASA's TDRSS to meet expanding customer needs. NASA has several SN customers with platforms, including the Space Shuttle, the Hubble Space Telescope, the International Space Station and others.

The SNEGS-E ground facility would provide needed uplink and downlink services to TDRS which, in turn, provide command and telemetry services to NASA and its customers. The project supports mission critical operations for NASA and its customers.

The primary consideration for the SNEGS-E site location was the physics of antennas operations. Availability of access to satellite signals with little to no other signal interference is one of the main considerations for the site selection. The secondary consideration was public law that encourages selection of sites at existing government facilities, which is tabulated in the Appendix. The tertiary consideration was site availability and cost, also addressed in the Appendix.

A summary of the site selection process is described in the sections that follow. An existing east coast, governmentally controlled site is used as one of the bases for the site selection. This approach is desirable due to the accessibility to workforce, infrastructure services (power, water, etc.), engineering services, ground communications, as well as many other support operations factors. The facility operations concept of SNEGS-E is similar to that of SNEGS-West, as defined in NASA document 456-OCD-CNE, "Operations Concept for the Space Network Expansion Ground System." The SNEGS-E requirements are outlined in NASA document 456-(SRD-SNE-E) "System Requirements Document for the Space Network Expansion Ground System-East," original (CCB Review Draft) version dated May 2008.

The SNEGS-E Ground Terminal site selection process was established based on the criteria of available signal strength as well as minimal signal interference, availability of land for the new facilities, available buffer area, and close proximity to new NASA operations. The following is a description of a two tier screening process. The first tier examined various sites on the east coast for a suitable antenna location. As a result of this preliminary screening, BPTF has been selected as an Eastern U.S. facility to provide the only feasible site for the antenna's location. The second tier examined placement of the antenna on the BPTF grounds, resulting in only one viable site. Evaluation of that site and the no action alternative is the basis for this EA.

2.1.1 Mission Requirements

NASA must service relay satellites from a new location. A relay satellite actually receives a signal and then re-transmits the signal. If a relay satellite receives a strong signal, it re-transmits a strong signal. If a relay satellite receives a weak signal, it re-transmits that weak signal. Good relay satellites receive a signal on one frequency and then re-transmit the signal on another frequency.

NASA's relay satellites are called "Tracking and Data Relay Satellites" (TDRS). Those particular NASA satellites actually receive multiple (but individual) signals on selected frequencies and then re-transmit the received signals (bunched together in a frequency band) to a terminal on the earth. These satellites faithfully replicate the signals received, and then re-transmit the received signals (bunched together in a frequency band) to an earth terminal. The antennas aboard a TDRS provide significant signal gain, particularly through the use of parabolic dish antennas. The TDRS contain fairly large parabolic dish antennas, and the dish antennas can be pointed to the transmitter sending the signal needed. Communications with weather balloons will be used as an example of communications with customer platforms. A small transmitter can be lifted by a weather balloon, and the TDRS antennas have enough signal gain to receive and slightly amplify the signal coming from the weather balloon. If the TDRS antennas did not have good signal gain, then the weather balloon would need to emit a stronger signal with a stronger transmitter, bigger batteries, and so on, in order to compensate for poor signal gain on the satellite. However, the TDRS antennas do have good signal gain, which permits the use of weaker signals from the weather balloon, with a lighter transmitter and smaller batteries. The use of the lightweight transmitter and the smaller batteries permits the weather balloon to stay aloft longer, collect more weather data, and traverse greater distances. A TDRS has a gimbal-mounted antenna, which allows the antenna to be pointed to a weather balloon, during the travel of the weather balloon. A TDRS over the middle of the Atlantic could conceivably track a weather balloon in westerly winds aloft from one side of the Atlantic to the other. This could be an important asset during hurricane season. The use of larger parabolic antennas aboard the TDRS, with good signal gain, would permit the use of very lightweight transmitters and very small batteries on the weather balloons over the Atlantic. Thus, trade offs are made between the weight of a transmitter and payload weight for a new satellite or other customer platforms (i.e., the greater the weight needed for a transmitter, the less the weight available for scientific payloads).

The TDRS satellites replicate the signal received, and then re-transmit that signal to a ground station (called an "earth terminal"). If the signal received by the TDRS satellite is weak, then the downlink to the earth terminal faithfully forwards that weak signal. If there is zero radio frequency (RF) in the vicinity of the earth terminal, the received signal can be amplified greatly, to demodulate the desired signals from the composite signal (the "bunched together signals"). However, if there is a lot of radio frequency interference (RFI) in the vicinity of the earth terminal, causing electronic noise, then amplifying the down linked signal would also amplify the electronic noise. If very strong emitters exist on the surface of the earth within the vicinity of the earth terminal, the strong signals from the interfering emitters can drown out the desired signal. For existing orbiting platforms, like the Space Shuttle, the Hubble Space Telescope, the International Space Station and other existing satellites, locating the SNEGS-E Ground Terminal as far east as possible, in an area as free of RFI as possible, facilitates adequate communication with SN platforms over the eastern Atlantic Ocean.

2.1.2 Site Location

Important tradeoffs arise for this fleet of weather balloons. If strong emitters exist in the vicinity of the earth terminal, then a stronger signal must be transmitted by the transmitter carried aloft by the weather balloon. The stronger signal from the weather balloon can only be created by the use of a stronger transmitter and bigger, stronger batteries, which reduce the payload, the altitude, or the distance traversed and drive up the cost of the weather balloon, limiting the number of balloons that can be used to monitor the hurricane season. Conversely, if a location is found which has minimal or near-zero

interference in the very same frequency band as the down-linked signal, then very lightweight transmitters can be used on the weather balloons. Therefore, by choosing a site that has very little interference in the same frequency band as the down-linked TDRS signal, a large number of small scientific transmitters with weak signal emissions can be accommodated.

NASA has serviced satellites and thousands of weather transmitters (such as tropic weather monitors, particularly in this hemisphere) from TDRS satellites over relatively western portions of the Atlantic Ocean. These satellites are in locations that can be serviced from White Sands, New Mexico. However, White Sands is too far west to be within line-of-sight for satellites over the far eastern portion of the Atlantic. In order to provide similar services for weak weather monitor signals from the African area, satellites would need to be located closer to Africa. A location on the east coast of the United States might be barely within line-of-sight to TDRS satellites over the eastern part of the Atlantic. A good compromise would be a satellite location over that part of the Atlantic, providing good signal reception due to decreased range, together with an earth terminal location on the east coast at an interference-free site, providing good signal reception in the absence of interfering signals.

NASA has serviced thousands of scientific emitters with TDRS satellites over the western hemisphere, permitting research into moving-body relativity, general and special relativity, signal refraction, and support to launches from Cape Canaveral, etc. The TDRS satellites also provide good signal gain for signals transmitted from the Space Shuttle and International Space Station, permitting the use of smaller transmitters with less power aboard the Shuttle and Station. This permits weight savings and allows for more scientific payload aboard the Shuttle and Station.

2.1.3 Needs Related to Antenna Physics

Physics dictated much of the site selection. The signal used for the downlink from the TDRS satellite to the earth terminal was to be of a frequency range relatively unaffected by the atmosphere. The U.S. Government allocates a frequency range that is suitable for use with clear air atmospheric conditions to NASA for use as a downlink frequency. This frequency range works relatively well in clear air. However, signals in this frequency range are seriously attenuated (weakened) by rainfall. Thus, the site needed to be north of severe rainfall attenuation bands identified by the National Oceanic and Atmospheric Administration (NOAA) and other weather-related organizations. The rainfall attenuation in the frequency band needed was too severe south of Richmond, Virginia to consider those southerly sites.

The site also needed to be situated well away from other transmitters that generated signals in the same frequency band as the down-linked signal from the TDRS satellites. This was accomplished by using the curve of the earth to shield the site from the interfering signals. In other words, the site needed to be "over the horizon" from sources of interfering signals, such as Very Small Aperture Terminal (VSAT) networks, etc. An example of a VSAT is a vehicle mounted terminal used by television news agencies to provide live broadcast news coverage, which would create interference. Generally, there are more interfering transmitters in densely populated areas. This includes unintentional harmonics from older transmitters as well as unintended noise from electric motors with graphite brushes, electrical sparks (such as improperly maintained spark plugs, arc welders, etc.), and intentional transmissions from organizations permitted to use the down-linked frequency for other purposes (such as radars or other satellite-based networks like VSATs). One area which was found to be relatively shielded (by the curve of the earth) from interference was the Blossom Point locale.

Locations to the north of the Woodrow Wilson Bridge, in the Washington, D.C. metropolitan area, especially those locations within LOS from a satellite over the eastern Atlantic, were found to have relatively dense populations. For example, this included the Washington, D.C.-Baltimore-Philadelphia corridor, much of New England, where large population centers and numerous interfering transmitters exist due to the allocation of spectrum and spectrum authorization to many organizations or companies.

Thus, locations farther north became relatively unsuitable. In other words, the interference would be so strong that scientific and weather-related payloads would need to have very strong transmitters with very strong batteries, etc.

Other frequency authorizations were also known to be future sources of interference. These include additional VSAT terminals and the like. Future sources of interference were to be avoided, as well, to ensure long-term viability of the SNEGS-E facility.

Brief radio-frequency surveys were accomplished at multiple government-owned sites to find interference-free locations.

- Naval Research Laboratory's Midway Research Center, located in Stafford County, Virginia, was found to have interference from nearby transmitters, and further interference was projected due to frequency allocations provided to the types of businesses expected in the area. Also, the build-up of population nearby was expected to generate increasing radio-frequency noise from electric motors and other sources.
- Naval Support Facility, located in Indian Head, Maryland, was found to have interference from some nearby transmitters, and future interference was projected due to the population growth and the associated anticipated radio-frequency noise.
- Other prospective Navy sites north of Richmond, Virginia, and south of the Washington, DC metropolitan area were examined, including Naval Support Facility (NSF), Dahlgren, Virginia. The presence of munitions bunkers at NSF Dahlgren prevented further consideration and on-going munitions experimentation also posed risks. The projected fielding of naval radar and population growth along coastlines prevented consideration of any site along the eastern coast.
- Radio frequency surveys at the Blossom Point locale confirmed that the area was relatively free of interference in the appropriate frequency band, and also that the local county government was willing to work toward a land use mix that would keep the surrounding area free of radio-frequency interference sources far into the future.

Thus, the Blossom Point location was judged the best site in terms of physics.

2.2 Alternative Sites at BPTF

Given the restrictions related to RF spectrum allocation interfering emissions, rainfall attenuation, and TDRS eastern mid-Atlantic Ocean locations, the Blossom Point locale was established as one of the last feasible and suitable antenna locations on the east coast of the U.S. that is located on governmentally owned property. NASA, in its site selection was held by statute to examine underutilized or abandoned military facilities. This is the reason why Blossom Point and other Federal installations were investigated as possible sites.

The BPRF locale offers modest levels of interfering emissions along with infrastructure and suitable acreage in a rural setting. Existing BPTF ground facilities are available, as they have a limited service capacity that has been reached. Replacement and removal of dated facilities by the NRL would provide space for SNEGS-E operations.

2.3 Basis for BPTF Site Selection

2.3.1 Description of the Proposed Action

Under the proposed action, the BPTF improvements and the new SNEGS-E site would house the following major facilities:

- Two 18-meter Space-to-Ground Link (SGL) antennas, possibly housed in 96-foot diameter radomes.
- One 5-meter End-to-End Test (EET) antenna, possibly housed in a 30-foot diameter radome.
- An above ground Intra-Facility Link (IFL) passageway connecting the two Space-to-Ground Link (SGL) antennas.
- A Radio Frequency (RF) equipment room adjacent to the IFL to house High-Powered Amplifiers (HPAs) and other equipment serving the SGL antennas.
- A new Power Building housing an Uninterruptible Power Supply (UPS) system, UPS system batteries, diesel generators, and switchgear.
- New power and communication distribution systems to the Operations Center (OC) and antenna field.
- A fire water supply line from the two 100,000 gallon storage tanks to the new antenna site for fire hydrants and a water main from the existing domestic water system to the new antenna site for general maintenance use.
- Access drives (gravel and asphalt paved) to the antenna structures and associated paved areas would be provided around the antennas.
- Security gate and fence around antenna site perimeter.
- “LOS Zone” adjoining the antenna site for antenna line of sight.
- A logistics area including receiving, critical spare storage, general storage, conference room, and logistics office would be located on the first floor of the existing building.
- An Operations Control (OC) area including the electronic equipment room, operations room, system/sub-system equipment racks, library and a maintenance area would be located on the second floor of the existing building.
- Upgrade existing building support facilities including air conditioning units (units for both general building cooling and for computer room cooling), automatic sprinkler systems, gaseous clean agent fire suppression systems, air aspirating fire detection systems, upgraded fire alarm systems, and upgraded power and lighting systems. Expanded fire protection water storage tank, fire hydrants and the addition of another fire pump. Expand existing septic system to accommodate new personnel.
- Increase the total number of operational personnel associated with the SNEGS-E by 30 people distributed over the operational periods as two shifts on a 24-hour basis. There would be a total of 15 people working at the new SGLT-8 facilities during a shift period.

The SGL and EET antennas are to be oriented in a north–south direction, which provides the most efficient use of real estate when tracking geosynchronous orbit spacecraft. All antennas may be housed in radomes. The antenna reflector and possible radome assembly area with the fenced perimeter boundary shall meet all NASA physical security requirements. Figure 2 presents the model site plan used for the development of the SNEGS-E antenna area. The site plan shows two SGL antennas, one EET antenna, the IFL interconnecting the two SGL antennas, and the RF room placed equal distance between the SGL antennas. The associated typical “LOS Zone” boundary to the model site plan is shown on Figure 3.

The SNEGS-E remote station would implement an additional SN TDRSS ground system capability. The SNEGS-E would be a part of a system that introduces the eighth Space-to-Ground Link Terminal (SGLT-8) and associated support equipment. SGLT-8 would also provide full Tracking, Telemetry, and Command (TT&C) support capability for its assigned TDRS.

The SNEGS-E project would be located at BPTF as a combination of renovations to existing facilities at BPTF and expansion to include a new antenna site. Support infrastructure for BPTF would be extended to the new antenna site. Existing vegetation in the line of sight for the antennas or “LOS

Zone” would need to be removed to provide for the proper operation of the new antennas. The “LOS Zone” would cover approximately 8.7 acres on the east side of the new antenna site. The new antenna site requires security fencing and a gate with a cleared area along the fence. The site would also include an access drive, water and electrical services.

2.3.2 Site Selection Criteria

A study prepared by Honeywell Technology Solutions, “Space Network Expansion-East (SNE-E) – Antenna Site Selection” (Revision 1, July 11, 2008), encompasses the evaluation of seven potential sites at BPTF for the new antenna site. The basis of the site selection and project criteria contained in the evaluation of potential antenna sites was due to requirements established by NASA and NRL personnel. The criteria established are related to site conditions assessed by the Honeywell team during a field investigation at BPTF. Figure 4A shows the locations of the selected sites.

The selection of the seven sites around BPTF was based on existing site data for infrastructure and environmental conditions. The basis of the site selection took into consideration the established antenna operations, physical security requirements, environmental considerations, and facilities infrastructure requirements for SNEGS-E. The following is a list of the typical SNEGS-E site conditions used as the initial basis for establishing the sites selected:

- Model antenna site layout on the existing topography
- Antenna orientation north-south
- Layout of supporting infrastructure
- Vegetation removal and alteration in the “LOS Zone”
- Electrical power requirements
- Electrical power system configuration for underground service
- Grounding and lightning protection
- BPTF facilities and proximity
- Installation considerations for roadways, antenna/radome (possibly) assembly areas, crane use, and power distribution systems
- Physical security.

Based on the criteria for site comparative evaluations, the preferred site was selected.

The site selection process is based on general environmental/infrastructure conditions, availability for the “LOS Zone” area, and physical security. The seven sites were assessed by field observations and correlations with known site data. These findings are tabulated in the site selection report previously cited. The following is a list of criteria used to establish the comparative evaluation of the sites during the site selection process:

- Location: Establish at BPTF location.
- Ground Elevation & Above Floodplain: Site elevation in relation to the 100 year flood elevation at 8.0 feet above the National Vertical Geodetic Datum.
- Terrain (Ground Slope Outside Streams): Topographic site slope and ability to drain away from the site outside of stream channels and field assessed wet areas.
- Available (3.7-Acre Site Total): Suitable for SGL antenna facilities with 3.7 acres total area.
- Vegetation (Open to Forested): Type of vegetative growth on site ranging from open to dense forested. Open is the most acceptable.
- Line of Sight for Vegetation/Habitat & Satellite Drift: Vegetative cover and environmentally sensitive areas outside the antenna site used for siting the antenna “LOS Zone”. Vegetative cover ranging from open to forested, with open being acceptable. Environmentally sensitive areas relate to animal habitat in forested areas and are judged as possibly acceptable with

- modifications for development. Non acceptable sites are located in, or affect, natural habitat restricted areas. Suitable site is open to tracking satellite signal drift.
- Line of Sight for Structures & BPRS Signals: BPRS and other structures in conflict with the new antenna signal, and interference of exiting antenna signals make a site non acceptable.
 - Vehicle Access: Relatively long or short road access. The longer the route the less acceptable.
 - Site Soil & Wetlands: Existence of standing water, rock outcroppings and soft ground would be assessed as possibly acceptable to not acceptable. Hazardous Waste & Unexploded Ordnance (UXO) Sites: Potential for soil contamination from hazardous materials and petrochemicals, or buried UXO reduces the acceptability of a site.
 - Utilities (Water & Electric): Relative length of fire and domestic water supply mains and power conductor extension routes to the site. The longer the route the less acceptable.
 - BPTF Operations: Possible conflicts with operations of the existing BPTF and interference by existing facilities make a site less acceptable.

2.3.2.a Line-of Site Zone:

The recommended “LOS Zone” to be considered for the Environmental Assessment is based upon the technical needs of the SNEGS-E. The vegetation “LOS Zone” encompasses the maximum area in which vegetation would be altered or removed. The existing forest and vegetation description is based upon tree heights varying from 60 to 90 feet with varying understory. The actual heights and sizes of the antennas have not been determined at this time.

A more specific vegetation removal plan within the “LOS Zone” would be generated based upon the site topography and actual vegetation heights. The vegetation clearing specified in the EA involves the removal of stumps and root mat (grubbing) in and around the antenna site. In portions of the “LOS Zone,” taller trees and shrubs might be cut without removing stumps and grubbing roots. The height of the vegetation that would remain would depend upon the actual line-of-sight needed for the chosen antennas. The cut vegetation would be removed from the site. Access drives or access ways would be allowed to be constructed within the “LOS Zone” and around the zone to access the area during construction. The vegetation in the tidal wetlands in the “LOS Zone” consists primarily of low scrub/shrub and emergent vegetation, which would not need to be altered for the line-of-sight.

The “LOS Zone” covers an area on the east side of the proposed antenna field/disturbance area as shown on Figure 3. It is angled slightly to the south and is located east of the antenna site. The “LOS Zone” would be approximately 8.7 acres in area. The removal of vegetation for the “LOS Zone” will accommodate existing buffer boundary restriction lines for eagle nests.

There would be no need to routinely enter the “LOS Zone” area in the future other than to maintain the desired vegetation height. NASA has no intention of using or modifying these areas except to cut the height of vegetation.

2.3.2.b Physical Security Assumptions:

Perimeter security fencing at the new antenna site would be placed at least 50 feet from unoccupied buildings based on NASA Procedural Requirements (NPR) 8820.2, which is stricter than Unified Facilities Criteria (UFC) 4-010-01 for unoccupied buildings. Hence, security fencing must be located 50 feet from the power building, IFL radio frequency (RF) room, and drip lines of the antenna radomes, if they are used.

Security fencing is to be constructed of chain-link material used to create structural barriers, as this is the type most commonly used and recommended for security purposes at NASA Centers. The fence would enclose all designated security areas. The chain link fence would be 8 feet tall with one foot of

three-strand barbed wire on top. A security clear zone would be maintained up to 30 feet on both sides of the security fence (Ref. NASA NPR 8820.2). Clear zones must be maintained up to 33 feet from unoccupied buildings (Ref. UFC 4-010-01)

2.3.3 Seven Sites Review

Each of the potential seven antenna sites were relatively evaluated with the goal of identifying one or more alternative sites for a more detailed evaluation. Honeywell Technologies Solutions, Inc. in April of 2007 conducted a field evaluation of all seven sites. The conclusions of the field analysis are summarized below.

Additionally, information has been provided since the report was published indicating that, due to the curvature of the earth and spectrum interference from Washington, D.C., Baltimore, the Woodrow Wilson Bridge, etc., some sites have additional concerns associated with their location. Moving the antennas west of the installation at Sites 6 and 7 is not feasible due to the interference from, and to, the existing NRL antennas. This includes signal blockage or reflections due to the temporary metal structures on the south side of BPTF, that house Navy personnel offices and equipment. For these reasons Sites 6 and 7 are no longer included in the EA as alternatives.

- Site 1 (southeast): **acceptable** for further evaluation with concerns about disturbance of natural habitat in line of antenna sight (protection zone for eagle nest), long vehicle access and long extension of utilities service.
- Site 2 (east): **not acceptable** per request of BPTF due to potential interference with collimation tower operations, disturbance of natural habitat in line of antenna sight (protection zone for eagles nest), long vehicle access and long extension of utilities service.
- Site 3 (northeast): **not acceptable** because of concerns about terrain standing water, disturbance of natural habitat in line of antenna sight, line of antenna sight in conflict with structures, potential signal interference with eastern radio transmission signal antenna and collimation tower.
- Site 4 (near north): **not acceptable** because of concerns about a stream through the site (potential wetlands), disturbance of natural habitat in line of antenna sight, signal interference from vehicles on Blossom Point Road, and potential antenna signal interferences to the south.
- Site 5 (far north): **not acceptable** because of concerns about standing water, poor drainage, extensive earthwork required to establish suitable site conditions, signal interference from vehicles on Blossom Point Road, "LOS Zone" extending off BPTF property, distance from the centralized engineering support facility building, and long utilities extension.
- Site 6 (far west): **not acceptable** for further evaluation with concerns about natural habitat disturbance in line of antenna sight (protection zone for eagles nest), signal interference from vehicles on Blossom Point Road, and long utilities extension.
- Site 7 (near west): **not acceptable** for further evaluation with concerns about natural habitat disturbance in line of antenna sight (protection zone for eagles nest), signal interference from vehicles on Blossom Point Road, existing structures posing potential multi-path interference and potential for UXO.

2.4 Alternatives

The development of Site 1 for the new antennas has been selected as the Proposed Action alternative to be analyzed along with a No-Action alternative. Based on the site selection process and development of the proposed action, a more in-depth explanation of the proposed work's relative effect on the environment follows. The EA addresses the environmental concerns of the selected site and evaluates the potential to mitigate these concerns based on approaches established by the NRL and NASA.

2.4.1 Proposed Action

Site 1, the proposed action site, is located to the southeast of the BPTF operational cleared area. The ground elevation varies from 1 to 15 feet above the National Vertical Geodetic Datum (NVGD). The antenna site is located outside of the 100-year floodplain; however, portions of the "LOS Zone" are located within the 100-year floodplain. The site slopes to the east and is free of standing water. There are no major obstructions to the full development of the site.

There would be two access drives to the new antenna site. One drive would connect to the BPTF internal roadway system at the southeast corner of the Station fenced area. The other would be a drive outside of the fenced BPTF area. It would connect to a BPTF service drive and follow the outside of the north and east Station perimeter fence. A water main for fire protection and hydrants, and domestic water service would be extended to the new antenna site from BPTF. Power and communications lines would be extended from BPTF to the new facilities.

The land cover within the antenna site and access drives areas is varied. The "LOS Zone" has a mix of forested areas and open marsh wetlands. The antenna site and access drive upland forested area covers 3.7 acres. Underbrush was found to be thick with numerous fallen trees (hardwood and pine) in the forested areas. The "LOS Zone" contains 5.9 acres of upland forested area, forested wetlands cover 0.4 acre, and scrub/shrub and emergent intertidal/subtidal wetlands cover 2.4 acres. The intertidal/subtidal wetlands that are not forested would not be physically disturbed by the proposed action.

2.4.2 No-Action Alternative

The No-Action Alternative has been established to compare the effects of not developing the SNEGS-E. BPTF operational area and facilities would operate as they presently are commissioned by NRL. Under the No-Action Alternative, there would be no construction and operation of a new antenna facility, and no expansion/upgrade of the existing facilities at BPTF. Under the No-Action Alternative, aging equipment would not be replaced and the expanding needs for tracking and communications services would not be met. NASA and their customers would not be able to adequately communicate with platforms, including the Space Shuttle, the Hubble Space Telescope, the International Space Station and others when those platforms are over the eastern Atlantic Ocean. Vegetation that covers the new antenna site, "LOS Zone" and access drive areas would remain as it presently exists.

[This page left intentionally blank]

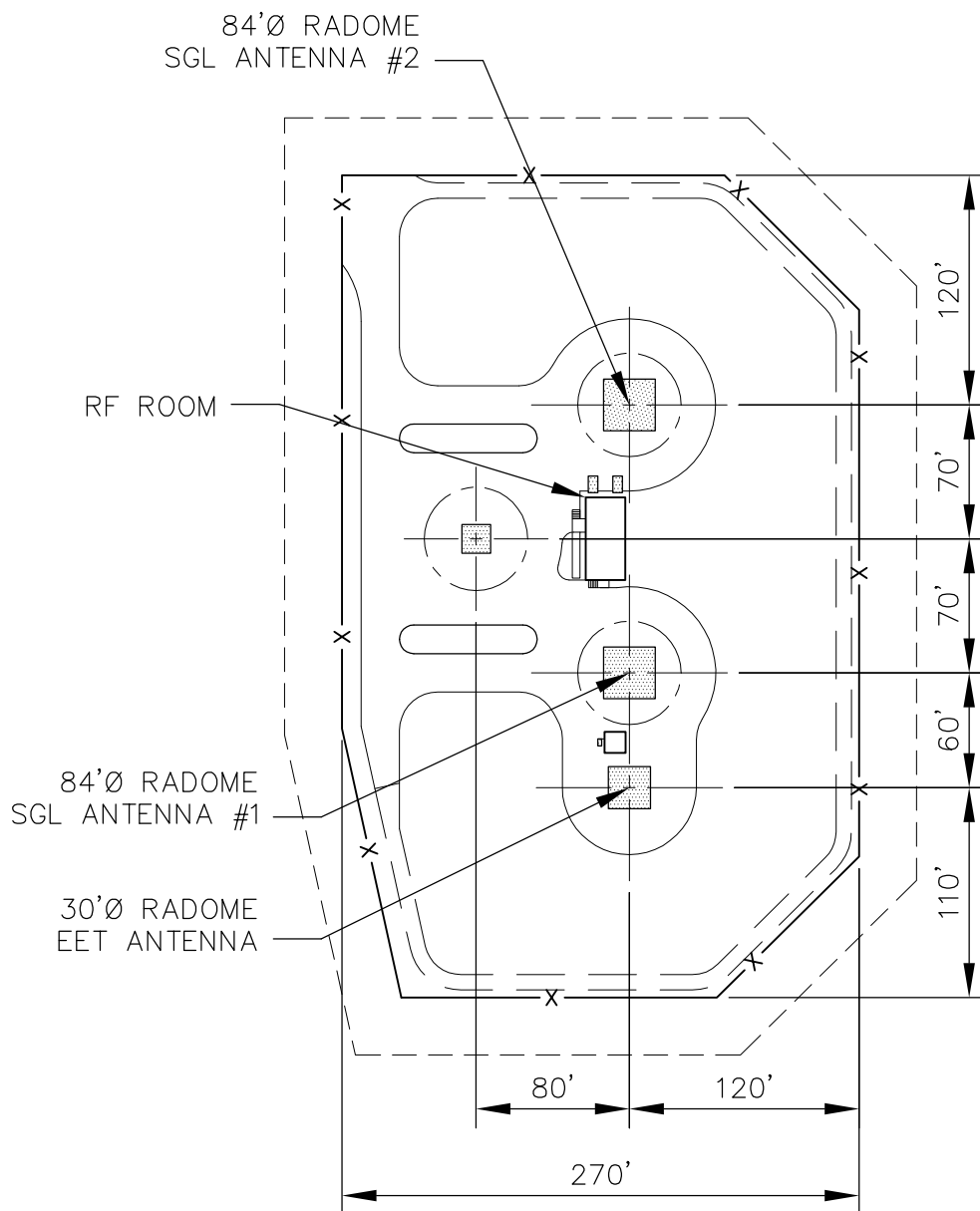
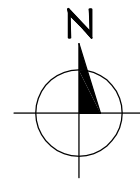
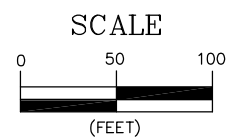
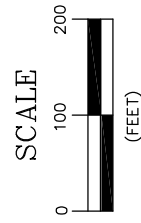
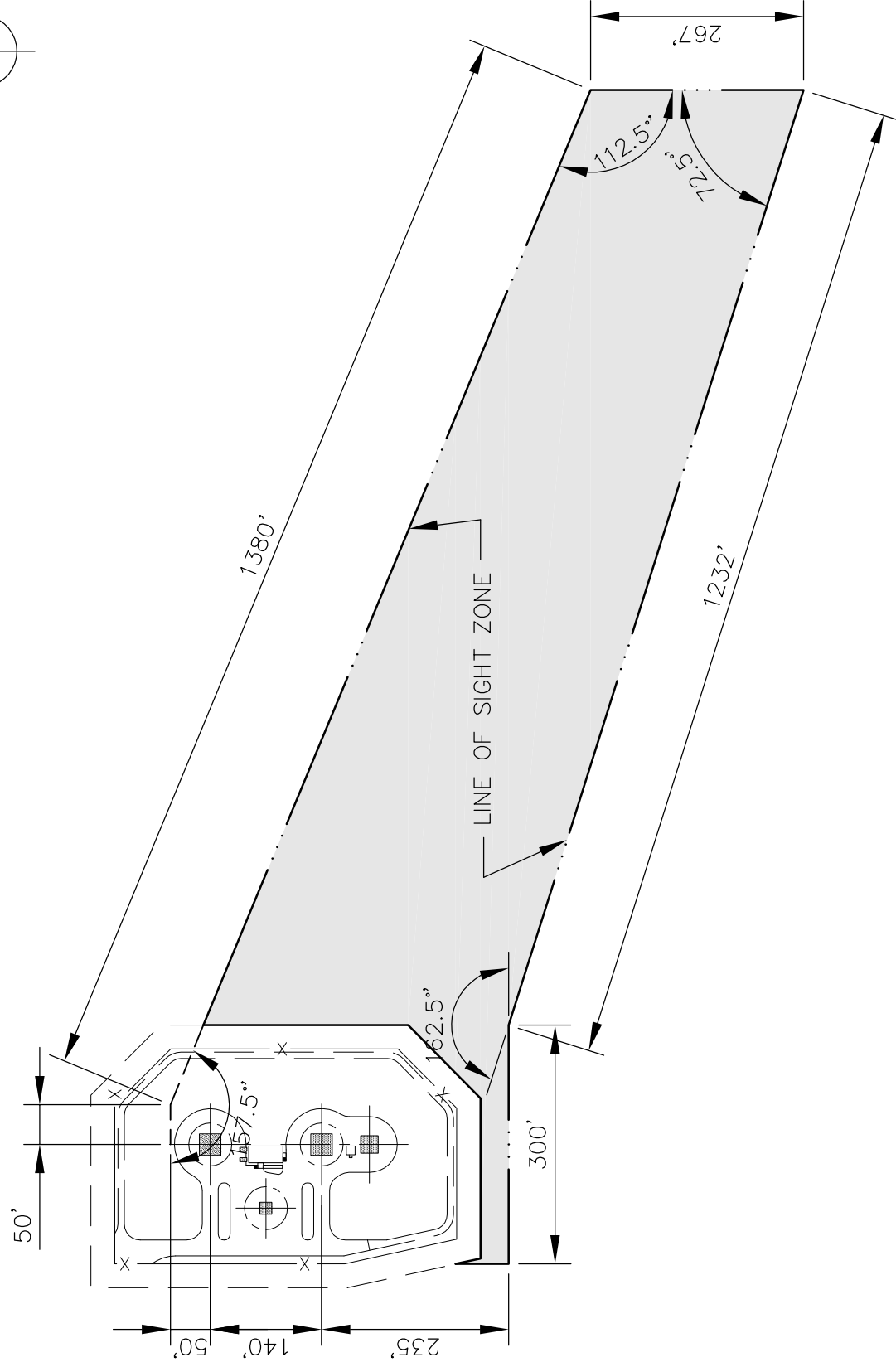
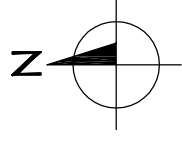


FIGURE 2

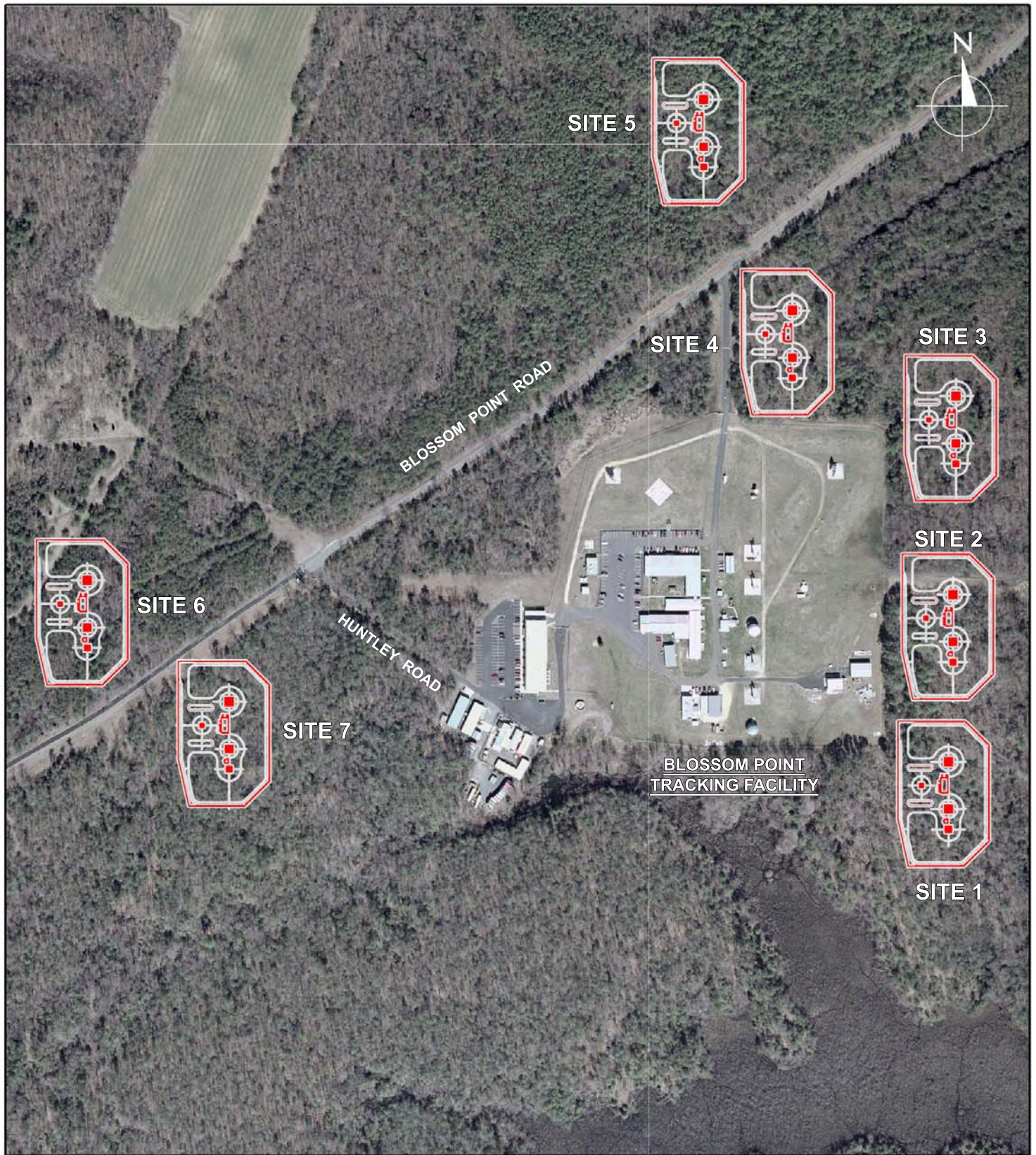
MODEL ANTENNA SITE PLAN





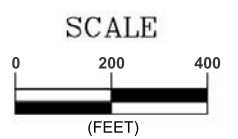
LINE OF SIGHT ZONE

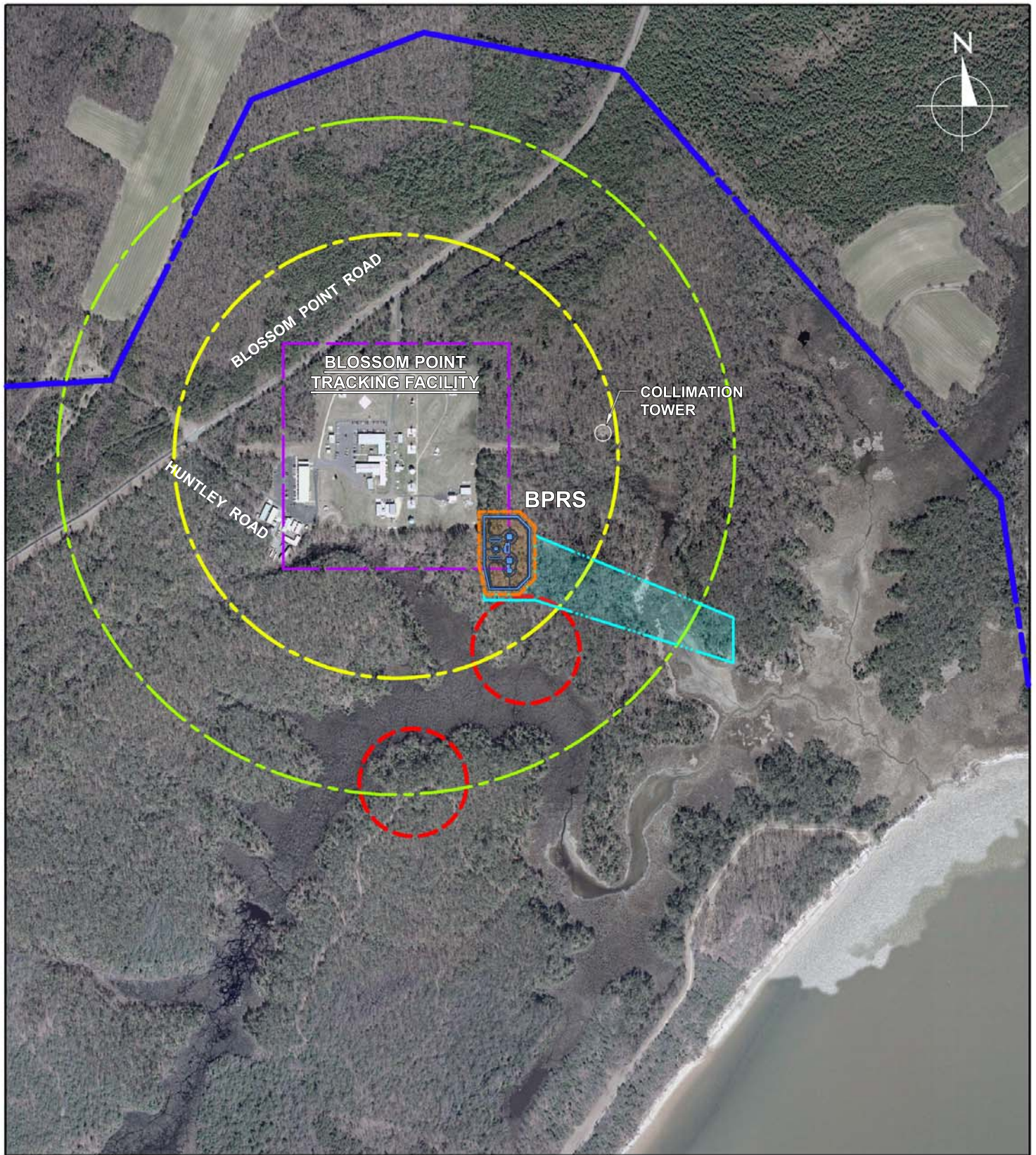
FIGURE 3



POTENTIAL ANTENNA SITE LOCATIONS

FIGURE 4A





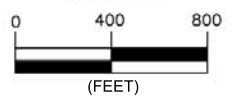
LEGEND

- ANTENNA SITE
- LINE OF SIGHT ZONE
- PROPERTY LINE
- STRUCTURE BUFFER ZONE
- ACOUSTIC ISOLATION ZONE
- NRL EASEMENT
- EAGLE NEST RESTRICTION ZONE

BLOSSOM POINT REMOTE STATION LOCATION MAP

FIGURE 4B

SCALE



3.0 AFFECTED ENVIRONMENT

3.1 General

Information in this Environmental Assessment is derived from both primary and secondary sources. Primary sources of information involved site visits and analysis by project personnel. Secondary information includes all the documents listed in Chapter 9, References.

This section describes the existing condition of environmental resources potentially affected by the proposed action, the SNEGS-E project known as the NASA BPRS at the NRL BPTF. Certain impacts associated with the project are site-specific and are contained entirely within the project boundaries. Other secondary impacts may occur outside of the identified project area.

The impacts of the proposed action are evaluated based on the following aspects, at a minimum:

- Model antenna site layout on the existing topography
- Antennas orientation
- Layout of supporting infrastructure
- Vegetation clear cutting for “LOS Zone”
- Natural resources such as groundwater, wetlands, geology, topography, soils, vegetation and wildlife
- BPTF facilities and proximity
- Land use compatibility
- Utilities and other infrastructure: water, wastewater, solid waste, transportation and hazardous materials handling
- Socioeconomics, transportation, cultural resources, protection of children and (social) environmental justice
- Physical security.

In accordance with 40 C.F.R. § 1502.2(b), certain issues were eliminated from further discussion in this EA due to their lack of application to the proposed action. These issues are described below and include: transportation, cultural resources, socioeconomic resources, environmental justice and protection of children.

3.1.1 Transportation:

Under the proposed action, the existing BPTF Building #13 would be renovated to provide work space for 30 employees under a two-person shift rule. This would add 30 new people to the total employment base for the BPTF over the technological life of the antennas. Although this action would add new employment to the NRL facility, it is expected that the overall USAG BP employment base would not be materially affected. The existing parking facilities and building are presently underused due to reduced activities assigned to Building #13. Therefore, no new occupied structures or parking related to new employees are anticipated. Any impacts to the transportation network from employment generated by the SNEGS-E development, the proposed action, would be minimal.

Short-term impacts would occur to the USAG BP transportation network during the construction of the proposed action. Site work would generate greater volumes of localized traffic due to workers arriving and departing the construction site. Periodic movement of the construction materials, equipment and waste hauling to and from the site would also minorly impact local traffic flows. These changes to local traffic volumes and flow would be minimal and cease at the completion of the construction period. Therefore, it was determined the construction activities would have a negligible effect to transportation function at BPTF and the general surrounding community.

3.1.2 Cultural Resources Including Historic Structures and Archeological Resources:

There are no historic buildings, based on information found in the “Integrated Cultural Resources Management Plan for US Army Adelphi Laboratory Center” (Blossom Point 2001) and “Environmental Assessment of the Adelphi Laboratory Center at Adelphi” (Blossom Point 1990) on or adjacent to the proposed sites that would be impacted by the implementation of the proposed action. This area of BPRS has been investigated by test pit or shovel test field investigation, which is recorded in the “Archeological Sites” report (May 22, 2000) by Astor Architects & Urban Demographers. The areas designated for the new antennas are described as having low to moderate prehistoric site potential. The ground surface is littered with fallen trees and furrows from past plowing activities throughout the proposed site. The investigation and previously performed archeological investigations at USAG BP did not yield any definable archeological sites at BPRS. No further archeological investigations were recommended.

The ground surface in some portions of the “LOS Zone” would be disturbed to remove stumps and root mat. No known archeological sites are known to be in the “LOS Zone” area based on surveys at the site. No new structures or paved surfaces are planned for the areas. Therefore, it was determined that the new antenna site and “LOS Zone” would have a negligible effect to prehistoric archeological artifacts.

In the event that unexpected cultural resources were found during site preparation, work by the contractor would be stopped and the findings coordinated with the Maryland State Historic Preservation Officer (SHPO) before proceeding further.

3.1.3 Socioeconomic Resources:

The development of BPRS would create minimal new employment at BPTF and USAG BP with 30 new employees projected. It would not be expected to alter regional and local existing socioeconomic conditions, such as unemployment and housing characteristics. The increase in personnel would not be expected to drive up demand for new housing and, for this reason, additional employment of construction workers would not be expected to impact the socioeconomics of the area. All socioeconomic factors (unemployment, housing, income, and population) are expected to remain unchanged once the action is implemented. Therefore, there would be negligible impacts to socioeconomic resources.

3.1.4 Environmental Justice and Protection of Children:

The proposed action is expected to have a negligible impact on socioeconomic factors and not create disproportionately high and adverse human health or environmental effects to minorities and low-income populations at the USAG BP and BPTF or in the surrounding communities. Based on a review of 2006 U.S. Census data, the percentage of minority population (36.8%) in Charles County is slightly higher than for Maryland as a whole (29.5%) and the U.S. as a whole (33.0%). The residents of Charles County have a lower percentage of population below the poverty level (7.2%) than the State of Maryland as a whole (9.2%) and the U.S. as a whole (12.7%).

These levels of minority population and poverty levels are below the standards set forth in the Council on Environmental Quality’s Environmental Justice Guidance. Furthermore, the proposed action would not be expected to significantly impact the environmental health and safety risks that might disproportionately affect children inside the surrounding community of the BPRS property. Restricted access at BPRS would ensure that children living outside of the USAG BP and BPTF would not be able to access the construction area, or any other activities at the BPTF that might pose a health and safety risk.

The following sections, 3.2 through 3.18, address environmental features that the proposed action would be likely to affect.

3.2 Climate and Weather:

USAG BP is characterized as being in the mid-latitude, humid, temperate climate belt. The west to east atmospheric weather patterns flows produce a continental climate with distinct seasons. In summer, prevailing winds from the south and southwest bring humid air into the region. Prevailing west and northwest winds in the winter move cold polar masses into the area.

Temperature and precipitation data are obtained from the National Weather Service Station in La Plata, Maryland. The average temperature in July is 89 degrees Fahrenheit and in January is 21 degrees Fahrenheit. Average annual rainfall is 47 inches with less than 10 inches of snowfall.

3.3 Geology and Soils:

The BPRS at the BPTF site, based on soils information in United States Department of Agriculture Natural Resources Conservation Service, "Web Soil Survey", <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>, is located within the Atlantic Coastal Plain physiographic province. This coastal plain province is largely characterized by unconsolidated sediment deposits that have been eroded over time from the mountains within the Blue Ridge and Piedmont Provinces to the north and west, respectively. The topography of the site ranges from nearly level shallow depressions to gradual slopes of up to 5 percent. It drains into the adjacent estuary and from there into the Potomac River. The mostly forested riparian shoreline of the marshy creek has steeper slopes that are in places approximately 20%. The length and width of the shoreline along the River are continually changing as a result of tidal erosive influences. The terraced lowland sedimentary deposits are found at depths of 0 to 40 feet. These deposits are encountered as surface soils in some areas. The BPTF property is located in close proximity to the coast, where planed-off terraces at various elevations are juxtaposed with deep stream valleys. BPTF is on the Cedar Point Neck Terrace, surrounded by the incised river valleys of the Potomac River and Nanjemoy Creek. Cedar Point Neck terrace averages 20 feet above NVGD.

Surface soils at the alternative new antenna site include the following soils series: Annemessex silt loam, Liverpool silt loam, Dodon fine sandy loam, Mispillion and Transquaking soils, and Nanticoke and Mannington soils. A soil map showing the location of soil series is shown in Figure 6. Soils in these series occur in stream and fluvio-marine terraces, which are described as nearly level in slope. These silty/sandy loam deposits belong to the recent and Pleistocene series. The soils are part of the Columbia Group, characterized as irregular yellow to orange sand, silt, gravel and clay mixtures. The soils are poorly to moderately well drained with the average water table depth between 10 and 40 inches.

The Atlantic Coastal Plain sediments that underlay the surface soils rest on crystalline (bedrock) from the Piedmont physiographic province. Based on information found in "Availability of Ground Water in Charles County, Maryland", Maryland Geological Society Bulletin 30,100 (1968) and "Final Technical Plan, Remedial Investigation, Blossom Point Field Test Activity, Volume 1, Sampling Design Plan", Ebasco Service, Inc. (1988), the thickness of consolidated sediment above bedrock at BPRS was encountered to a depth of 325 feet from the surface and consists of Nanjemoy, Aquia, Raritan and Patapsco geological units.

The Nanjemoy formation is present to depths of 10 to 70 feet below NVGD. The formation is relatively impermeable and acts as a confining layer that inhibits the vertical movement of groundwater.

The formation is characterized as gray, green and black fine sand with layers of silt, clay, glauconite (green-sand) and sea shells. Water bearing formations are found below the Nanjemoy formation.

The Raritan and Patapsco formations of the Upper Cretaceous series are found at depths of 250 to 325 feet below NVGD. These deposits are brown and sandy clays with inter-bedded yellow and white, medium to fine grained sand. Water wells at USAG BP and BPTF draw water from this formation. The static water level in the wells is approximately 60 feet below NVGD.

3.4 Hydrology and Water Resources

3.4.1 Groundwater:

At BPTF, the relatively impermeable Nanjemoy Formation functions mainly as a confining layer that inhibits the vertical movement of groundwater. Below the Nanjemoy, the Aquia Formation is composed of light to dark olive glauconite with inter-bedded very fine sand, silt, and clay at depths of 80 to 120 ft below MSL. The Aquia Formation is the predominant water bearing formation in southeastern Charles County. As stated above, USAG BP and BPTF have water supply wells in the Raritan and Patapsco Formations at depths of 250 to 325 feet below NVGD.

3.4.2 Wetlands:

The U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (EPA) define jurisdictional wetlands as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 C.F.R. § 328.3). USACE regulates the discharge of dredged or fill material in jurisdictional wetlands pursuant to Section 404 of the Clean Water Act and regulations contained in 33 C.F.R. §§ 320-330. Identification and delineation of jurisdictional wetlands is based on three parameters:

- Hydrophytic vegetation: the dominant vegetation consists of species capable of growing in water or on substrate that is at least periodically deficient in oxygen as a result of the presence of water.
- Hydric soils: soils are saturated, flooded or ponded for long enough during the growing season to develop anaerobic conditions that favor the growth of hydrophytic vegetation.
- Wetland hydrology: the area is inundated permanently or periodically, or the soil is saturated to the surface for at least 5% of the growing season, providing sufficient duration during the growing season to support the growth of hydrophytic vegetation.

Wetlands are of critical importance to the protection and maintenance of biological resources, and they provide essential breeding, spawning, nesting, and wintering habitats for many fish, birds, amphibians, and other wildlife species. Wetlands also enhance the quality of surface waters by impeding erosive forces of moving water, trapping waterborne sediment and associated pollutants, maintaining baseflow to surface waters through the gradual release of stored flood waters and groundwater, and providing a natural means of flood control and storm damage protection by absorbing and storing water during high-runoff periods.

All activities on Army installations that affect wetlands require an environmental analysis in accordance with requirements of AR 200-1 and AR 200-2 as well as applicable Federal and state laws and regulations. Under Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), permits must be obtained before beginning any work or building any structures in navigable waters of the United States. Section 404 of the Clean Water Act requires permits for the discharge of dredged or fill material into waters of the United States, including wetlands. The regulations established in Title 33 of the C.F.R. Parts 320 to 330, prescribe statutory authorities and general and special policies and procedures relevant

to the review of applications for USACE permits. Before beginning any new work in waters of the United States, the local USACE District must be contacted and a permit must be obtained, as appropriate.

Executive Order 11990 requires that Federal agencies minimize any significant action that contributes to the loss or degradation of wetlands and that action be initiated to enhance their natural value. Department of the Army policy is to avoid adverse impacts to existing aquatic resources and to offset those adverse impacts that are unavoidable. The Army also strives to achieve a goal of no net loss of values and functions to existing wetlands, and it allows no overall net loss of wetlands on Army-controlled lands. The USACE would also take a progressive approach toward protecting existing wetlands, rehabilitating degraded wetlands, restoring former wetlands, and creating wetlands in an effort to increase the quality and quantity of the nation's wetland resources.

The main goal for wetlands management at USAG BP is to continue to implement a program that is consistent with Department of Defense natural resources policy. The primary objective to achieve this goal would be maintaining a policy of no net loss of wetlands habitat at USAG BP. Activities occurring in or adjacent to wetlands that would negatively affect them would be avoided, when possible, in a manner consistent with mission objectives. Where impacts on wetlands cannot be avoided, any foreseeable damage would be mitigated to the extent practicable. In a manner consistent with Executive Order 11990, wetland management objectives at USAG BP would take a progressive approach toward protecting existing wetlands, rehabilitating degraded wetlands and, if applicable, restoring former wetlands.

Wetlands management measures have been recommended as follows:

- Maintain 100-foot management buffers around all jurisdictional wetlands. The buffer zone would be increased as necessary based on topography or where monitoring determines that current activities adjacent to a wetland are causing noticeable adverse impacts on the habitat. Activities within buffer zones should be limited to that which would cause little or no impact on or disturbance to the wetland.
- Restrict all ground disturbance activities within unique ecological communities by establishing a minimum 100-foot buffer zone. Monitor any activities in or near wetlands to ensure that no changes are occurring that could adversely affect the hydrology of the sites or limit the ability of shallow groundwater to percolate down-slope through the soil.

Healthy riparian or open water edge communities are essential in protecting water quality by filtering out sediment and other pollutants from non-point source runoff, stabilizing streambanks from erosion, and mitigating the effects of flooding by retaining storm water and recharging groundwater. Streamside vegetation and coarse woody debris also help moderate summer water temperatures and provide habitat and nutrients for aquatic organisms. Riparian areas and the associated interfaces with surrounding upland environments also provide important habitat for the breeding, foraging, and dispersal of terrestrial organisms, including endangered, threatened, and rare species. The primary goal for the management of riparian areas at USAG BP is to protect the functional integrity of riparian systems and thus sustain the suite of ecological values provided by these ecosystems. The primary objectives for achieving these goals are to maintain the biodiversity and extent of existing riparian areas, manage existing riparian habitat areas in sustainable fashion, and restore degraded riparian habitat, when possible.

BPTF area has been surveyed for the location of wetland areas. The boundaries have been surveyed on a preliminary basis. The USACE, Baltimore District, has jurisdiction over the final delineation of the wetland limits. USACE has not been involved with the delineation of the wetlands surveyed to date, but would be included during the permitting of the proposed action.

BPTF and BPRS are within the 1000 foot “Critical Area” described by the Chesapeake Bay Critical Area Act (Code of Maryland Regulations [COMAR], Title 27). This requires review of actions in the coastal zone for impacts on coastal resources and for consistency with Maryland’s Coastal Zone Management Program. Although military installations under exclusive Federal jurisdiction are excluded from the legal definition of coastal zone (11 U.S.C. 1451 *et seq.*), USAG BP will consult with the Maryland Department of the Environment regarding development in these areas which have been determined to affect the coastal zone. In Maryland, the Coastal Zone Management Program is managed by MDDNR’s Critical Area Commission.

Coastal Zone areas are considered by the State of Maryland to be critical areas where development is controlled to minimize adverse impacts to water quality associated with runoff from surrounding land. These controls foster sensitive development activities for shoreline areas that protect water quality and natural habitats pursuant to the Natural Resources Article, Subtitle 18 of the Annotated Code of Maryland, 27.01. Maryland Department of the Environment implements the regulations at COMAR, Title 27 and, along with the MDDNR Critical Area Commission, reviews and permits development plans for construction projects. The Navy, acting as the construction agent for the Army, will ensure consistency with the enforceable policies of Maryland’s Coastal Zone Management Program to the maximum extent practicable.

3.4.3 Surface Water:

The Potomac River off BPTF is classified as Class II – protected for shellfish harvesting, as well as protected for use as water for contact recreation; for fish, other aquatic life, and wildlife. The waters in the vicinity of BPTF generally meet water quality standards set by Maryland. Temperature and pH levels routinely meet the Class II standards. However, between late spring and early fall, dissolved oxygen values tend to drop below Class II standards, particularly at increasing depths.

3.5 Air Quality:

The EPA defines ambient air in 40 C.F.R. Part 50 as “that portion of the atmosphere, external to buildings, to which the general public has access.” In compliance with the 1970 Clean Air Act Amendments, the EPA has promulgated ambient air quality standards and regulations. The national Ambient Air Quality Standards were enacted for the protection of the public health and welfare, allowing for an adequate margin of safety. To date, the EPA has issued criteria of air quality standards levels of pollutants concentrations for the following six materials: carbon monoxide, sulfur dioxide, particles with the diameter less than or equal to a nominal 10 micrometers, ozone, nitrogen dioxide and lead. Air quality in areas that have pollutant levels above the established level of concentration are classified as “non-attainment” areas.

The BPRS at BPTF is located in Charles County, Maryland south of La Plata, in the Maryland Air Quality Control Area V. Area V is designated as in attainment for all criteria level of air pollutant concentrations, except for ozone. The current air quality of the Washington D.C./Maryland/Virginia region was determined to have ozone levels that are elevated, when compared with the U.S. and Maryland standards: the one-hour average is 0.12 parts per million (ppm) and the eight-hour average is 0.08 ppm.

To regulate the emission levels resulting from a project, Federal actions located in non-attainment areas are required to demonstrate compliance with the general conformity guidelines established in 40 C.F.R. Part 93 “Determining Conformity of Federal Actions to State or Federal Implementation Plans.” Ambient air quality is monitored in Charles County and has been recorded since 1985 (Metropolitan Washington Council on Governments [MWCOC] 1984). The monitor is located at Southern Maryland Correctional Camp in Hughesville, Maryland. On average, the monitor readings exceeded the standard

for ozone one time in 2000, 2001, 2002 and 2004. In 2006 there were four days that the monitor readings exceeded the standard.

BPTF does not have a fixed source of potential air pollution recorded at the site. Any recordable air pollution is related to the employees' use of vehicles to access the existing BPTF facilities. Building #13 is presently underutilized and the number of vehicle trips to the BPTF has been reduced from when the existing facilities were fully occupied.

3.6 Noise:

Noise is unwanted sound that can interfere with hearing, concentration, or sleep. The major source of noise includes transportation vehicles, heavy equipment, machinery and appliances. The Noise Control Act of 1972, 42 U.S.C. 4901 *et seq.* was enacted to establish noise control standards and to regulate noise emissions from commercial products such as transportation and construction equipment. The Noise Control Act exempts noise from military weapons or equipment designated for combat use.

The standard measurement unit for noise is the decibel (dB), which represents the acoustical energy present and is an indication of the loudness or noise intensity. Noise levels are measured in A-weighted decibels (dBA logarithmic scale), which approximate the sensitivity level of the human ear frequency spectrum. Therefore, the dBA accounts for the varying sensitivity of the human ear by measuring sounds the way a human ear would perceive it. The dBA measurement is used to indicate damage to hearing based on sound levels, and is the basis of Federal noise standards. A 3-dBA increase in noise is equivalent to doubling the sound pressure level, but is barely perceptible to the human ear. A 5-dBA change in sound is very noticeable. Sound level range is illustrated as follows:

- Sound normal safe levels, soft whisper to conversational speech (30 to 65 dBA)
- Sound levels may affect hearing in some individuals, highway traffic to pneumatic drill & auto horns (75 to 120 dBA)
- Sound levels may cause pain and hearing damage, jet plane or munitions blast (over 140 dBA).

Because noise is more objectionable at certain times, Day-Night Average Sound Levels (Ldn) have been developed. Ldn is a 24-hour average sound level recommendation. This measure is used to determine acceptable noise levels that are standardized by the EPA and the Department of Defense. The Ldn ranges of acceptability have been established as follows:

- Zone I: Acceptable sound level less than 65 dBA Ldn
- Zone II: Normally unacceptable sound levels 65 to 75 dBA Ldn
- Zone III: Unacceptable sound levels 75 dBA Ldn and greater.

The mission of USAG BP is to test munitions fuses that produce minor blast noises. The description of the noise associated with existing facilities operations for specific testing days is covered in the "Environmental Assessment of the Adelphi Laboratory Center at Adelphi" USAG BP (1990). Based on the findings of the EA, noise level impacts resulting from blast noise that would be classified as being in Zone III are confined to the test area, USAG BP and the Potomac River and Nanjemoy Creek. Noise levels considered normally unacceptable, Zone II, extend beyond the property into the Potomac River and Nanjemoy Creek adjoining the property and the BPTF. These sound levels only occur on the days of testing. Detonation operations normally occur during 20 randomly distributed days during the year.

Other sources of noise are USAG BP staff vehicles and facility maintenance equipment. Operations of the BPTF are considered contribute low level noise sources which are not audible at off-site receptor locations. Ambient noise levels during non-test days are characterized as being typical for sparsely populated rural areas. This level is typically 40 to 50 dBA during the daylight and 35 to 45 dBA at

night. The proposed action will produce noise levels similar to those produced in conjunction with the existing BPTF operations.

3.7 Solid Waste and Hazardous Materials:

Solid waste at USAG BP and BPTF is collected by the facilities personnel and deposited into dumpster collection units. A private contractor, licensed under State of Maryland and local regulations, handles the solid waste and removes it from government property. Solid waste that is reusable (marketable) material is handled by the Defense Reutilization Marketing Office. All solid waste is disposed of in a licensed waste disposal facility.

There are no hazardous waste materials used, stored or generated at the BPTF. Used motor oil from site utility and operations vehicles and diesel generator fuel are stored in secured tanks on-site. Removal of waste oil and delivery of diesel fuel are handled by licensed haulers contracted by the NRL operations personnel.

3.8 Water Supply:

BPTF water supply is pumped from a local well and stored in a water storage tank. The well water draw rate averages 30 gallons per minute. Water used for domestic purposes is pumped to a 500 gallon hydro-pneumatic pressurized tank. Static pressure averages 60 pounds per square inch. A 2" diameter service line distributes the water to the existing BPTF buildings.

A separate fire protection system is used at BPTF. Water is supplied from the same well as the domestic system. Water is stored in an 18,000 gallon water storage tank attached to a 500 gallon per minute, 40 horsepower fire pump. Water is distributed through 6-inch water mains to fire hydrants throughout BPTF. None of the existing buildings are protected with sprinkler systems. Renovations to Building #13 would install a fire sprinkler system. Two 100,000 gallon fire water storage tanks would be constructed. Initial filling of the fire water storage tanks would be accomplished via trucked in water. The well system would be used for markup water associated with maintenance testing.

The BPTF falls under Department of Defense requirements in regard to compliance with the Uniform Fire Code for site water flow demands for fire protection. The existing capacity of the storage tank is not in compliance with the "light hazard" classification. It has been estimated that a 102,000 to 180,000 gallon tank would be required as stated in the "SNEGS-East Facilities Preliminary Engineering Report" (January 2008). The proposed action does not affect this requirement and would require a sprinkler system in Building #13. An extension of the fire protection system is anticipated to be required to service the BPRS new antenna location, with a water main extension and the addition of fire hydrants.

USAG BP and BPTF do not plan to connect to the Charles County water supply system.

3.9 Wastewater:

BPTF wastewater is handled by a sanitary sewer treatment system. The system consists of a sewer pipe collection system, septic tank and sand mound drain field. The sand mound is required as the existing ground does not comply with the State of Maryland absorption rate for sanitary drain fields. The sanitary sewer treatment system is permitted by the State of Maryland. Sanitary sewer service for the renovation of Building #13 has an existing sewer connection to the system which would handle the new uses under the proposed action. The new antenna site and the new stand-by electrical power generators do not use the domestic water system, and therefore would not be connected to, nor affect, the existing sanitary sewer system. Expansion of the existing wastewater treatment system is not anticipated under

the proposed action. The number of plumbing fixtures and users would not increase enough to demand modification of the system.

3.10 Floodplain and Flood Zone:

Floodplains are described as areas likely to be inundated by a particular flood. For example, a flood that has a one percent chance of occurring in any one year is the 100-year flood. The 100-year floodplain includes some land areas that are flooded by small and often-dry watercourses. At the Federal level, Executive Order (EO) 11988, Floodplain Management, requires Federal agencies to "avoid direct or indirect support of floodplain development wherever there is a practicable alternative."

USAG BP is located next to the tidal Potomac River and its tributaries. Shorelines, wetlands, and estuarine portions of the BPTF are subject to daily fluctuations in surface water level. Exposed shorelines are also subject to wave action. The floodplain elevation in the Potomac River at Blossom Point is 8 feet above NVGD. Portions of the LOS Zone are below this elevation and within the 100-year floodplain.

3.11 Terrestrial Environment:

USAG-BP (Latitude 38 -24 -50"N, Longitude 77 5 -50"W) occupies 1,599 acres on Cedar Point Neck in southern Charles County, Maryland. It is an active installation. The closest town is La Plata, MD, approximately 9 miles northeast of the facility. The Potomac River and Nanjemoy Creek border BPTF on three sides. Upstream of BPTF, Port Tobacco River enters the Potomac, forming the eastern boundary of Cedar Point Neck.

The topography of the BPRS site ranges from nearly level shallow depressions to gradual slopes of up to 5 percent. Occasional steeper slopes up to 20% border a marshy creek and tidal and intertidal wetlands. The site drains into this estuary and from there into the Potomac River. Steep bluffs approximately 20 feet high are present at the edges of Cedar Point Neck along the Potomac River and Nanjemoy Creek. Wind and wave action along the steep bluffs and at the shoreline results in erosion. In addition, subsurface seepage is responsible for weakening the face of the bluffs and collapsing of the bank.

The area surrounding Blossom Point USGA is presently zoned for a mixture of agricultural and rural residential uses. Most of the land north of the facility has been designated as an "Agricultural Conservation District". This allows a density of one residential dwelling per five acres. This low density designation is intended to preserve the existing farmland resource and the agricultural economy of the County. The shoreline along Cedar Point Neck, not including the portion on the BPTF, is designated as a "Resource Protection District." This land use classification carries restrictions on new development at one residential dwelling per 20 acres. This area was classified in compliance with the State of Maryland's Chesapeake Bay Critical Area Law.

USAG BP has a relatively small amount (14.7 acres) of land classified as improved grounds due to the field activity nature of its mission. The improved grounds areas surround the occupied buildings and contain a mixture of Kentucky bluegrass and tall fescue. Semi-improved grounds (616.1 acres) include impact areas and test ranges. These areas are dominated by a mixture of tall fescue, white clover, and annual and perennial weeds. By far the largest portion of the facility is classified as unimproved grounds (968.2 acres). Distinct forest types existing on the installation include Virginia pine, loblolly pine, southern red oak and white oak. Grass species in this area include broomsedge (*Andropogon* spp.), panicgrass (*Panicum* spp.) and giant cordgrass (*Spartina cynosuroides*).

A significant portion of the terrestrial habitat is dissected by or adjacent to wetlands. A wetlands survey of Blossom USAG conducted in 1994 identified 236.5 acres of jurisdictional wetlands or other

waters of the United States as defined by the 1987 USACE Wetlands Delineation Manual. Major wetland categories include: estuarine subtidal (E1); estuarine inter-tidal (E2); palustrine emergent (PEM1) and; palustrine, forested (PF01). The USAG BP shoreline is characterized by inter-tidal beaches and emergent wetlands at the base of the steep bluffs.

This combination of features represents a diverse terrestrial environment at USAG BP. Pursuant to AR 200-3, an Integrated Natural Resources Management Plan for USAG BP has been developed. AR 200-3 requires that habitat management efforts conserve and enhance biological diversity while being consistent with and supporting the military mission. The regulation also requires that primary consideration be given to the management of environmentally sensitive areas and areas of special management concern. Overall habitat management goals at USAG BP focus on the protection and enhancement of natural systems in a manner that promotes healthy, sustainable ecological communities.

The Integrated Natural Resources Management Plan recommends an overlap of similar management measures for different resource areas, which reflects the interdependence and relationship between the various ecosystems present at USAG BP.

The need for integrated natural resources management is evident by the ecological complexity of these relationships.

For example, the condition and health of terrestrial habitats often directly influence the stability of soils and the potential for soil erosion that may result in subsequent impacts to water quality, aquatic communities and sensitive habitats such as wetlands. Managing terrestrial communities using an ecosystem approach would maintain, protect, and enhance other natural resources and would enhance the overall biodiversity of USAG BP. Furthermore, while soil stabilization and restoration projects may focus on improving ecological conditions on a small scale, these projects are ultimately more far reaching than the particular area in which they are performed. Projects to conserve soil resources stop erosion; decrease sediment loads to streams, ponds, and wetlands; and protect the biological integrity of aquatic communities and riparian areas.

Some of the goals and management measures the Integrated Natural Resources Management Plan for USAG BP recommends are:

- Seek to maintain or increase the level of biodiversity of the present ecosystems.
- Protect soil resources from disturbances and erosion using BMPs; this measure would also help prevent the degradation of water quality, protect aquatic and riparian habitats from sedimentation and nonpoint source runoff, and sustain the ecological productivity of terrestrial habitats.
- Establish and maintain vegetated riparian buffer zones (with a minimum width of 150 feet for perennial streams) for all activities that could cause soil erosion or otherwise affect aquatic habitat.
- Maintain abundant mast resources in forest stands to benefit wildlife.
- Maintain and enhance wildlife habitat by retaining snags, den trees, and coarse woody debris within forest stands consistent with other natural resources objectives and the military mission. Create or enhance such habitat during forest management operations where it does not currently exist.
- Maintain coarse woody debris on the forest floor to provide wildlife habitat and promote healthy nutrient cycling within forest ecosystems, except where loadings of coarse fuels would pose an unacceptable risk for wildfire or insect or disease outbreaks.

- Protect plant and animal species identified as state or locally rare, but without legal protection status, to the extent practical without restrictions on operations.¹
- Implement the ESMP for the bald eagle to protect the species and conserve its habitat at USAG BP.²
- Use timber harvests and conduct timber stand improvements to enhance both timber quality and wildlife values.

USAG BP has a Forest Management Plan that supports the goals and objectives of the INRMP. It states, “The objective of forest management for BPRF is for an optimum combination of uses (multiple-use management) including: (1) wildlife habitat preservation and enhancement; (2) wetland, watershed and groundwater protection; (3) timber production; (4) protection of the shoreline in support of the Department of the Army's Chesapeake Bay Initiative; and (5) preservation of existing historical and cultural resources.”

Two forest inventories have been conducted at BPRF. The first was performed in 1981 by a certified professional forester, John Houser (hereafter referred to as the Houser survey). The second was performed in 1997 by John Tingle, a forest ecologist, from the U.S. Army Corps of Engineers' Waterways Experiment Station. The 1997 survey was used to develop the goals and objectives of the current Forest Management Plan.

3.12 Aquatic Environment:

As described in previous sections, the Potomac River and Nanjemoy Creek border USAG BP on three sides. Downstream of USAG BP, Port Tobacco River enters the Potomac, forming the eastern boundary of Cedar Point Neck. Also, as previously described, a significant portion of the terrestrial habitat is dissected by or adjacent to wetlands. A wetlands survey of USAG BP conducted in 1994 identified 236.5 acres of jurisdictional wetlands or other waters of the United States as defined by the 1987 USACE Wetlands Delineation Manual. Major wetland categories include: estuarine subtidal (E1); estuarine intertidal (E2); palustrine emergent (PEM1) and; palustrine forested (PF01). The USAG BP shoreline is characterized by intertidal beaches and emergent wetlands at the base of the steep bluffs.

AR 200-1 and AR 200-3 promote the maintenance of healthy water body systems at USAG BP. The Integrated Natural Resources Management Plan states that the primary goal of water resources management is to protect the integrity of surface and groundwater resources at the installation. Management measures for aquatic habitat can be sorted into three categories: 1) open water and streams; 2) wetlands; and, 3) riparian areas. Objectives for meeting this goal include (1) identifying and restoring aquatic habitats, (2) protecting high quality aquatic, wetland and riparian habitats, and (3) preventing degradation of open water quality in USAG BP streams and water bodies.

General management measures to reach the goal include:

- Establish and maintain vegetated buffers around water bodies to maintain stream bank and shoreline vegetation, reduce adverse impacts on water quality, and protect aquatic habitat. Maintain a continuous tree canopy over streams in forested habitats to regulate mean summer stream temperatures and to provide a source of organic matter for aquatic biota.

¹ BPTF contains suitable habitat for the Federally-threatened small whorled pogonia (*Isotria medeoloides*). It has not been sighted and is believed to be locally extirpated. However, personnel have been trained to report any suspected sightings.

² The Bald Eagle has been delisted as a Federal endangered species. However, it is still protected by the Bald and Golden Eagle Protection Act and BPTF continues to use management practices that avoid or minimize disturbance to the resident breeding eagle population and its preferred habitat.

- Limit timber harvesting and other silvicultural activities within riparian buffer zones for streams and other water bodies. Whenever possible, avoid stream crossings during logging operations and limit activities within buffer zones to those that would cause little or no impact on water quality and aquatic habitats.
- Employ BMPs to prevent erosion and sedimentation when maintaining existing roads, culverts, drainage ditches, and other water control structures.
- Monitor the performance of BMPs in protecting aquatic habitats. Adjust work plans, project designs, and activities as necessary using principles of adaptive management to meet changing conditions or provide additional protective measures.

3.13 Rare, Threatened, Endangered, and Sensitive Species:

There are no records of rare, threatened or endangered species for USAG BP. There are several resident breeding pairs of bald eagles at USAG BP. Bald eagles (*Haliaeetus leucocephalus*) have recently been de-listed as a species afforded protection by the Federal Endangered Species Act. However, they are still protected by laws, including the Federal Bald and Golden Eagle Protection Act of 1940 and the Migratory Bird Treaty Act. The Bald and Golden Eagle Protection Act prohibits anyone, without a permit, from “taking” bald eagles. As defined in the Act, “taking” includes, among other things, pursuing, shooting, capturing, molesting or disturbing the eagles. Disturb means “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based upon the best scientific information available, 1) injury to an eagle, 2) a decrease in its productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding feeding or sheltering behavior.” Among the recommended practices considered beneficial to bald eagles is to “Protect and preserve potential roost and nest sites by retaining mature trees and old growth stands, particularly within ½ mile from water.”¹

3.14 Land Use:

BPRS does not affect the existing land use and planned growth in population, housing and general development in the immediate vicinity of the USAG BP in Charles County. Agricultural land uses on the Blossom Point as part of Cedar Point Neck have been maintained since the USAG BP was opened in 1942. The BPRS is relatively isolated from residents and farmland located in the immediate vicinity given the location at the end of the Cedar point Neck peninsula. BPRS is located in a forested area that buffers it from adjoining land uses.

USAG BP present operations have been historically compatible with adjoining land use activities based on USAG BP recording of complaints. No complaints have been recorded for noise, or interference with radio, television or telephone signal services. The BPTF is primarily a receiver of RF waves rather than a signal transmitter. BPTF signal transmissions are low power density levels on assigned Navy RF channels. A 2,000 feet radius building height restriction zone has been established around BPTF to minimize signal interference with RF received by satellite antenna radio receivers.

The Charles County Comprehensive Plan shows that the area adjoining USAG BP as remaining designated as low density rural residential and agricultural land uses. The infrastructure for the area is structured to accommodate only low density development in the Blossom Point area. Charles County Plans show USAG BP to continue as a government installation. Therefore the County does not anticipate expanding the infrastructure in the area of the USAG. County infrastructure items include: parks, recreational facilities, sewer and water system extension, roadway upgrades, public service/safety facilities, and schools.

¹ National Bald Eagle Management Guidelines, U.S. Fish And Wildlife Service, May 2007

3.15 Human Health and Safety, Radio Frequency Radiation (RFR):

USAG BP conducts fuse testing using low power density level of RFR with appropriate shielding measures to minimize health risks to test personnel. The exposure to RFR does not exceed the permissible exposure limit of 0.4 w/kg whole body specific absorption rate (SAR) established by American National Standards Institute (ANSI) C95.1 and implemented by Uniformed Services Environmental Health (USEHA) guidelines.

NRL has made a microwave radiation survey of the existing antennas and other sources of RFR at the BPTF. The survey indicated that there are no microwave radiation hazards to personnel at the facility. All measurements made showed the RFR to be below the ANSI standard C95.1 and NRL Instructions 5100.14F requirements. This assessment is based on the transmitting times of two minutes, accumulating less than one hour per day. Also the antenna units are aimed well above the horizon when transmitting.

3.16 Essential Fish Habitat:

Since 1961, the Maryland Department of Natural Resources (MDDNR) has been performing fish surveys in the Potomac River off Blossom Point for their Estuarine Finfish Recruitment Survey. The sampling station offshore of BPRF has been one of the most productive sites along the Potomac for juvenile striped bass and white perch. These open water areas have also been identified as historic waterfowl staging and concentration areas by MDDNR. Groups of diving ducks and geese congregate in these areas along the Potomac River in proximity to food sources and nesting habitats. The forested shorelines nearby provide important habitat to local bird and waterfowl species.

Several open bodies of water exist along the tidal open water areas, which are shallow, warm, and slightly brackish. Their irregular shape and location within the wetlands enhance the survivability of fish species. The shallow shore and grassy areas provide excellent cover for minnows and juveniles trying to escape predation from adult fish, birds, and other wildlife. The tidal pool on USAG BP's southern shore is also shallow, warm and brackish. Surrounded by anaerobic wetland soil and vegetation, it serves as excellent spawning and nursery grounds for species arriving directly from the Potomac River.

Recommended management measures for tidal areas of USAG BP are listed as follows:

- Maintain and enhance habitats for aquatic and amphibian communities by protecting water quality and habitats of exceptional biological value, establishing protective buffers, and providing for healthy, diverse riparian zones.
- Maintain and enhance wetlands to benefit nongame species by providing breeding habitat for amphibians and mammals, protecting water quality, and promoting landscape diversity.
- Coordinate as appropriate with other organizations and partnerships such as the Partners in Amphibians and Reptile Conservation (PARC) for technical assistance with management and conservation of herpetofauna.

3.17 Coastal Zone Management Act Considerations:

The Coastal Zone Management Act of 1972 (11 U.S.C. 1451 *et seq.*), as amended through the Coastal Zone Protection Act of 1996, requires review of actions in the coastal zone for impacts on coastal resources and for consistency with Maryland Coastal Zone Management Program.

Although military installations under exclusive Federal jurisdiction are excluded from the legal definition of coastal zone, USAG BP and NRL consults with the Maryland Department of the Environment regarding the construction of the of facilities that might affect the coastal zone area.

Maryland Department of the Environment has been contacted concerning the proposed BPRS action. In Maryland, the coastal zone is based on Federal laws, such as Section 404 of the Clean Water Act. This program also takes into account existing state laws and authorities, such as the Chesapeake Bay Critical Area Program, the Tidal Wetlands Act of 1970, the Non-Tidal Wetlands Protection Act of 1989, and the state's authority under Section 401 of the Clean Water Act of 1977. Compliance with relevant state and Federal regulatory programs constitutes consistency with the policies of Maryland. The Navy, acting as construction agent for the Army, will ensure that the project is consistent with these policies to the maximum extent practicable.

3.18 Electrical Service:

Electrical service to the BPTF is provided by overhead single supply 7.2 kilovolt-ampere (KVA) electrical conductors maintained and owned by the Southern Maryland Electrical Cooperative.

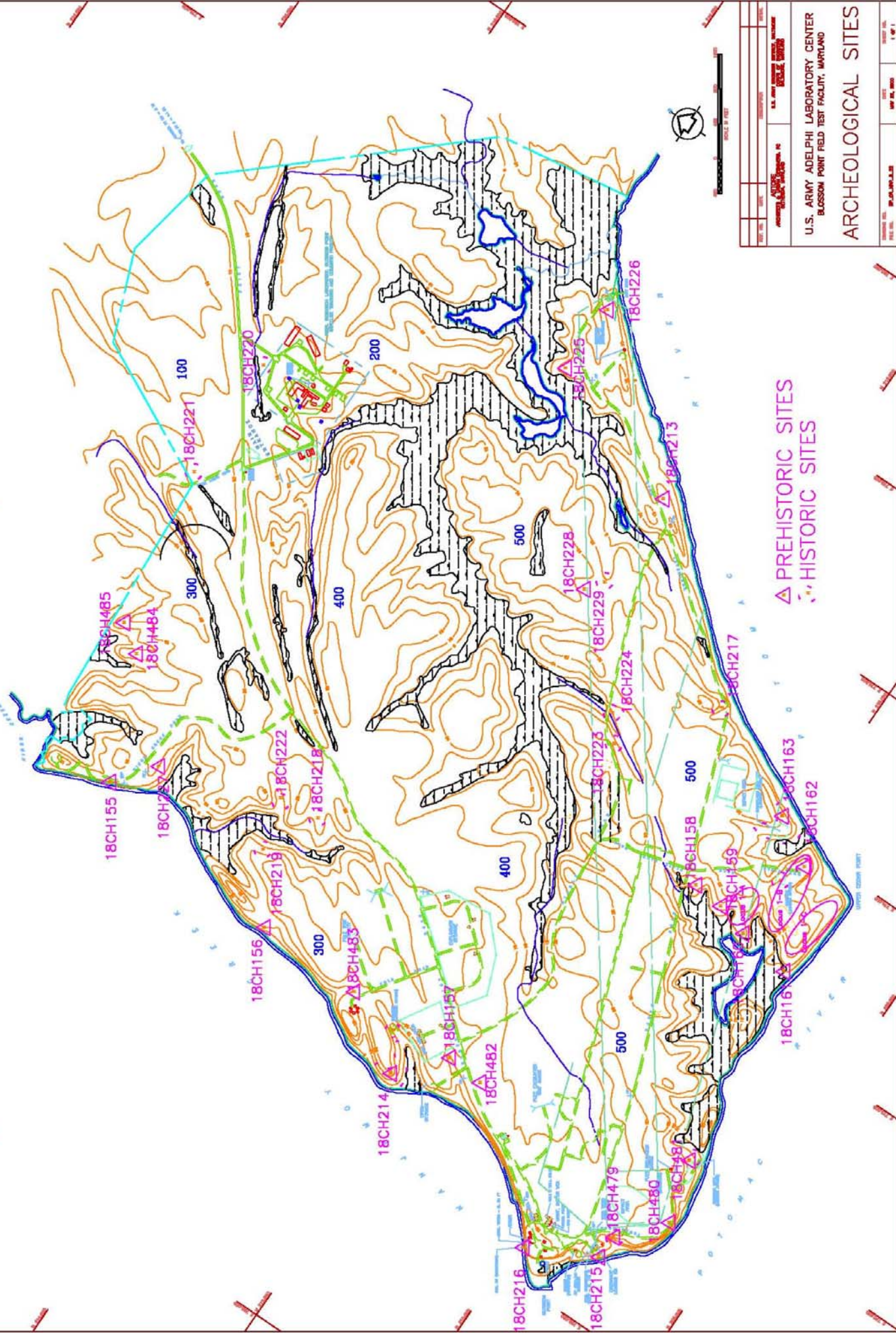


FIGURE 5

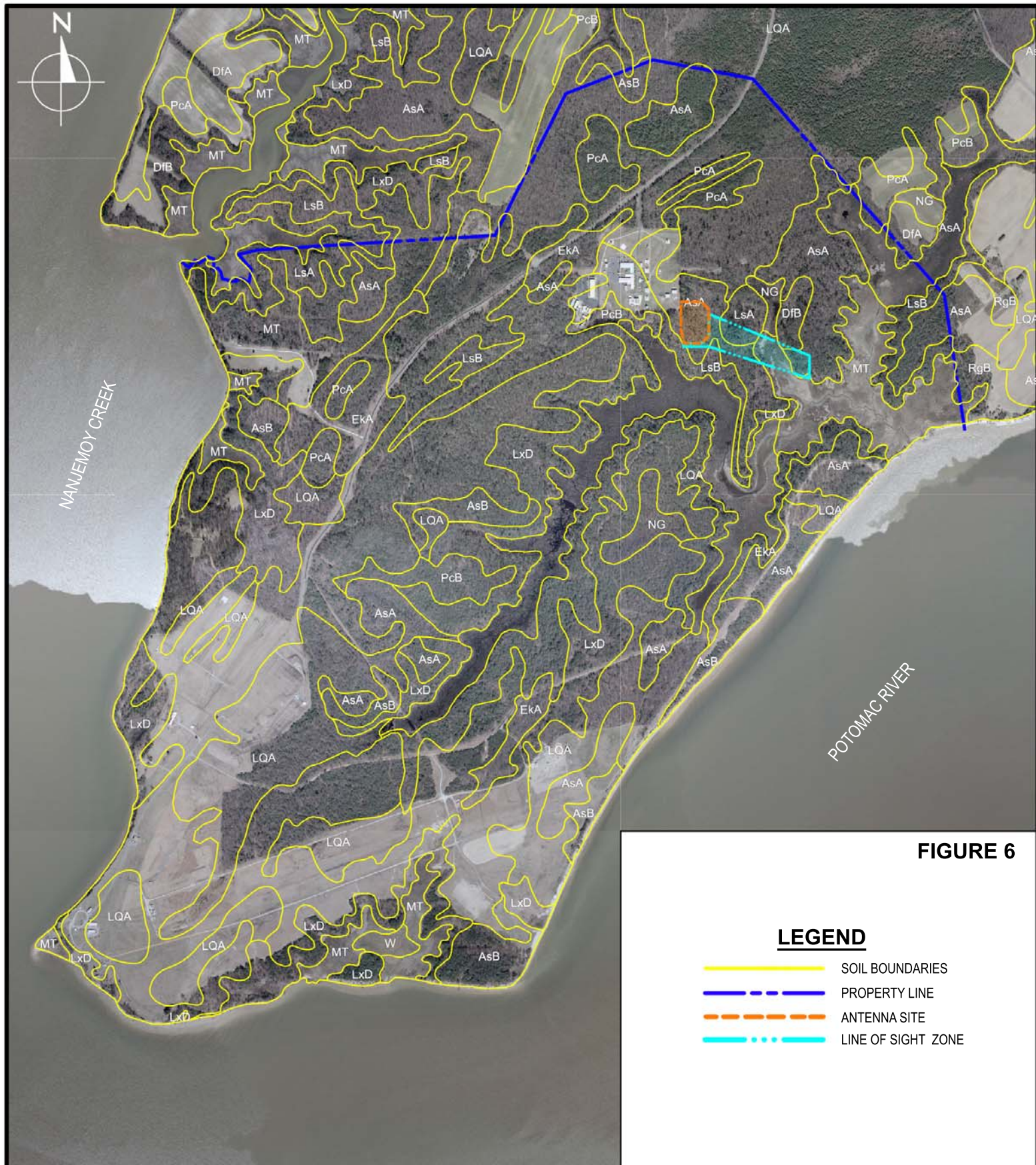


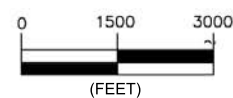
FIGURE 6

LEGEND

- SOIL BOUNDARIES
- - - PROPERTY LINE
- - - ANTENNA SITE
- . . . LINE OF SIGHT ZONE

SOILS MAP

SCALE



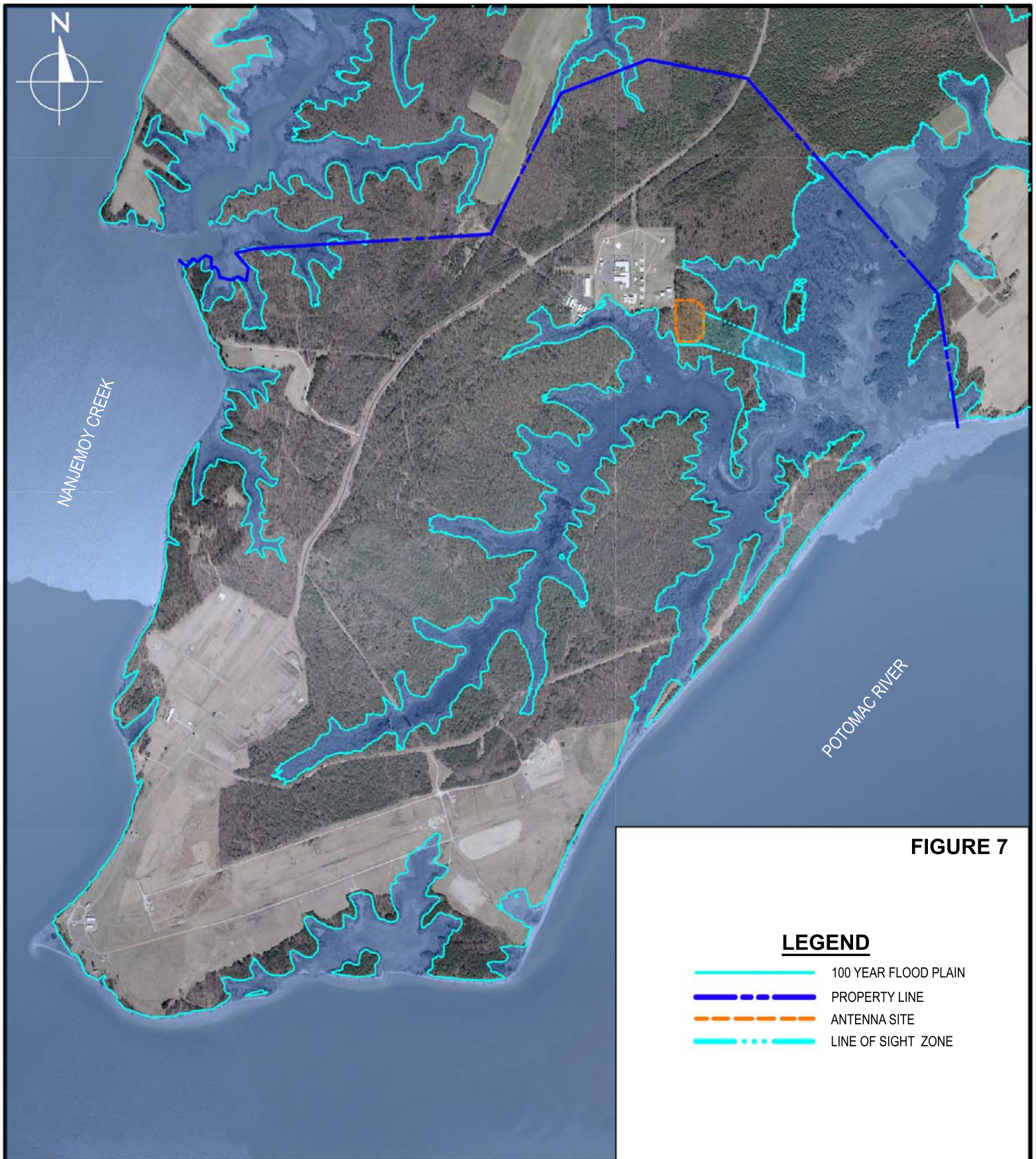
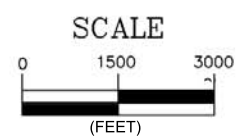


FIGURE 7

100 YEAR FLOODPLAIN MAP



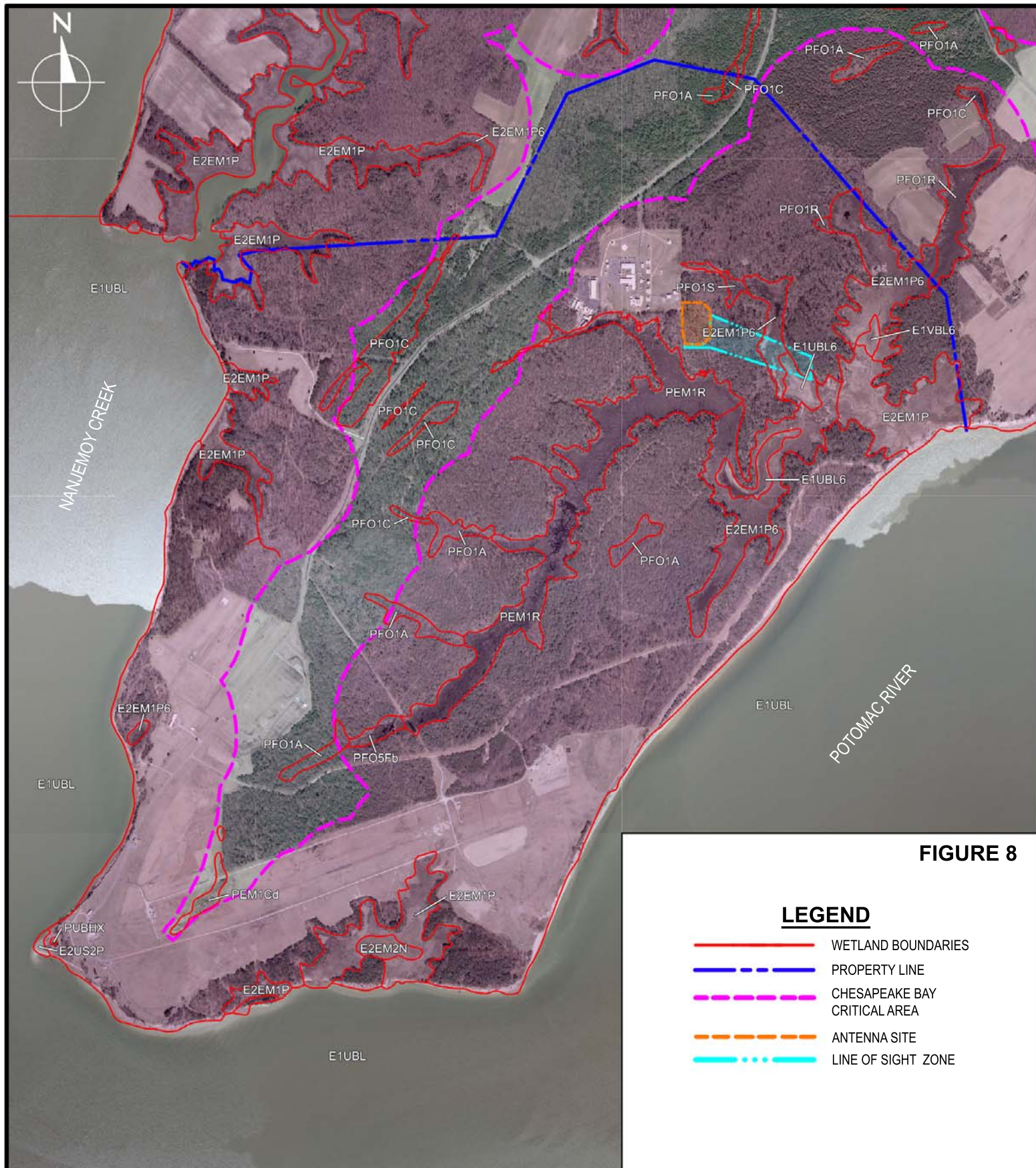
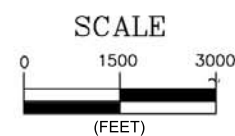


FIGURE 8

LEGEND

- WETLAND BOUNDARIES
- - - PROPERTY LINE
- - - CHESAPEAKE BAY CRITICAL AREA
- - - ANTENNA SITE
- . . . LINE OF SIGHT ZONE

WETLANDS AND CHESAPEAKE BAY CRITICAL AREA



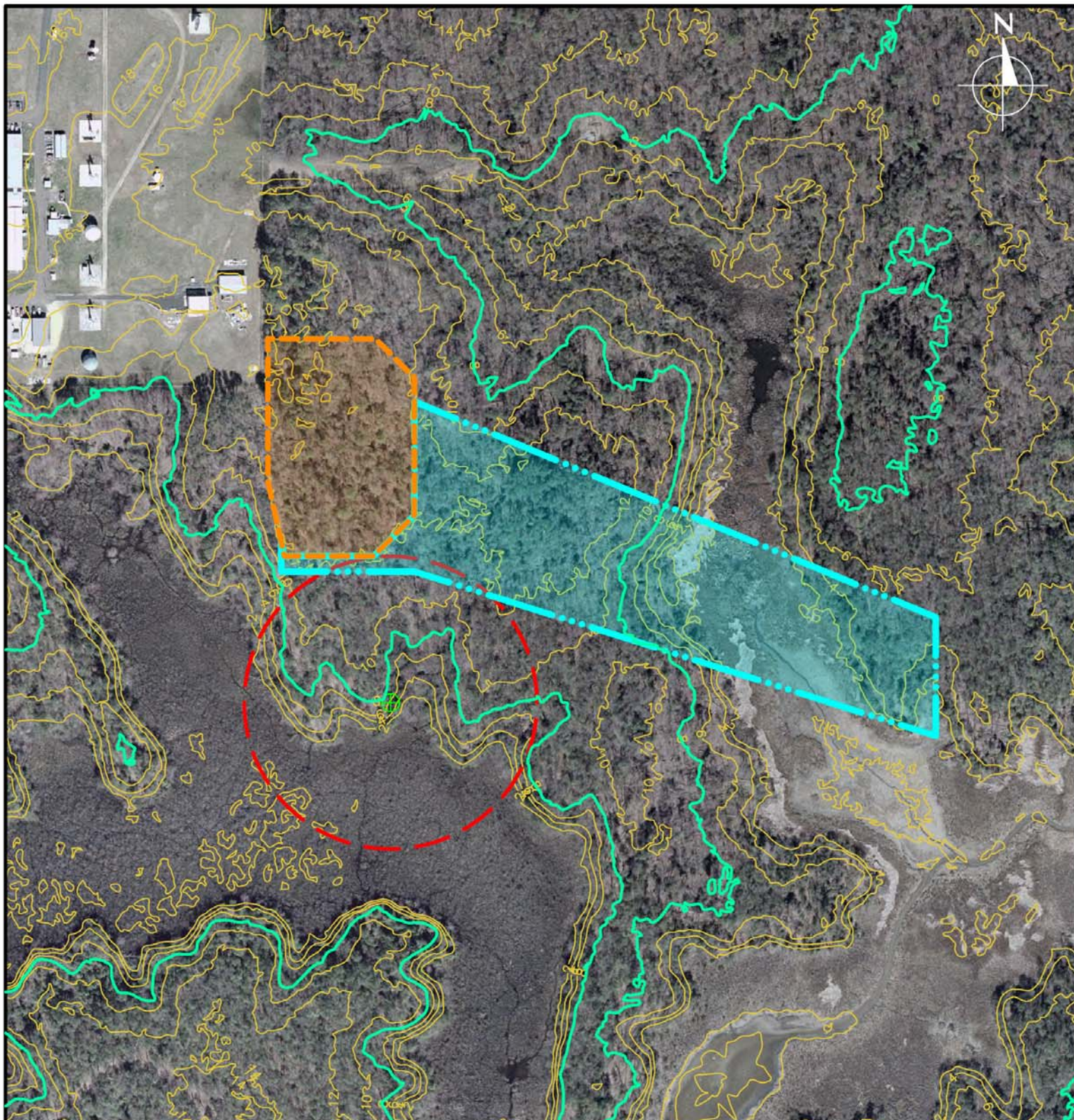
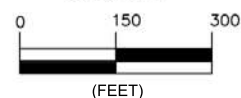


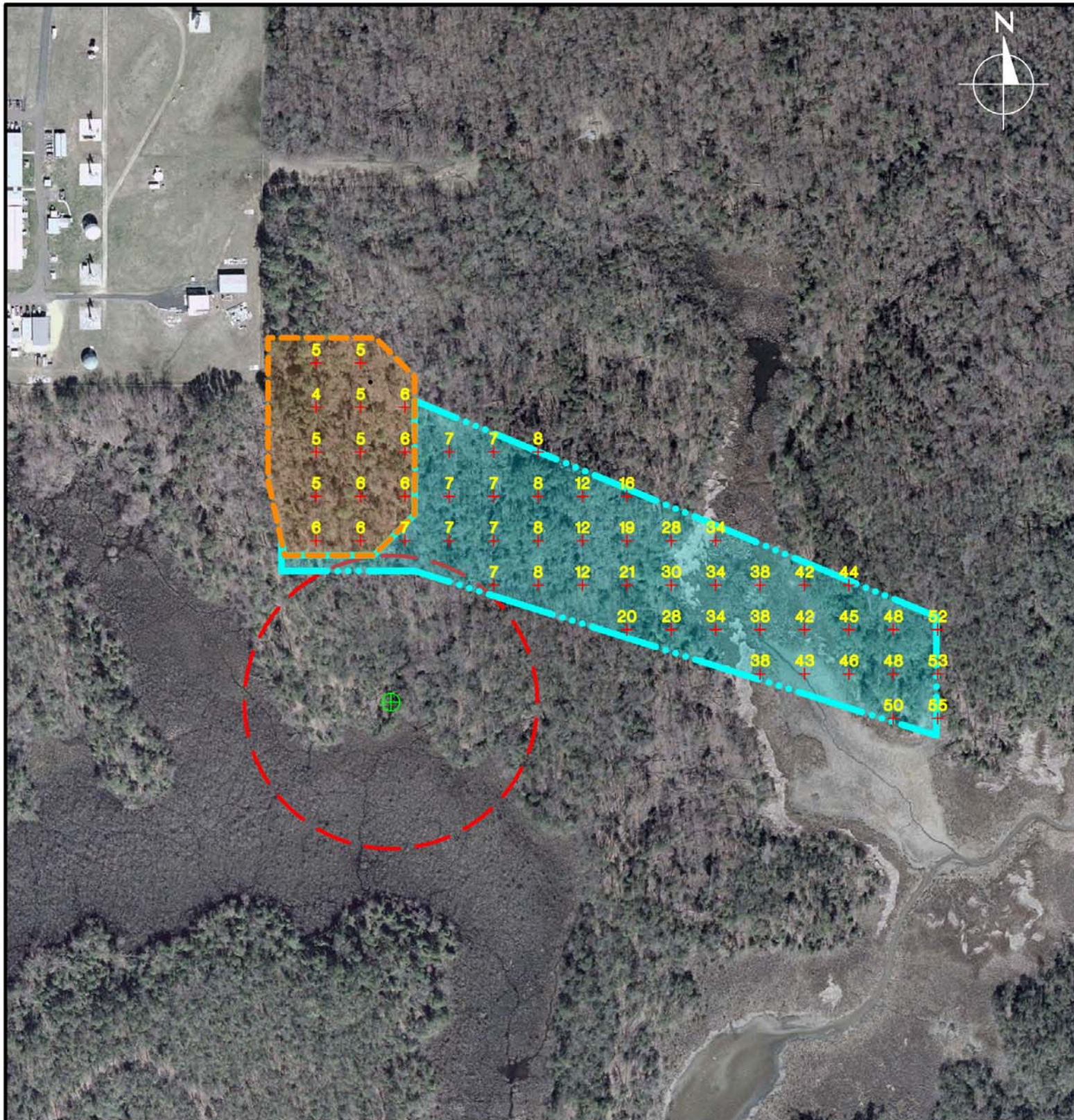
FIGURE 9

LEGEND

- ANTENNA SITE
- LINE OF SIGHT ZONE
- ⊕ EAGLE NEST #1
- EAGLE NEST RESTRICTION ZONE
- 100 YEAR FLOOD PLAIN

SCALE





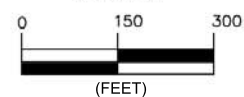
SIGHT LINE ELEVATIONS ABOVE EXISTING GROUND

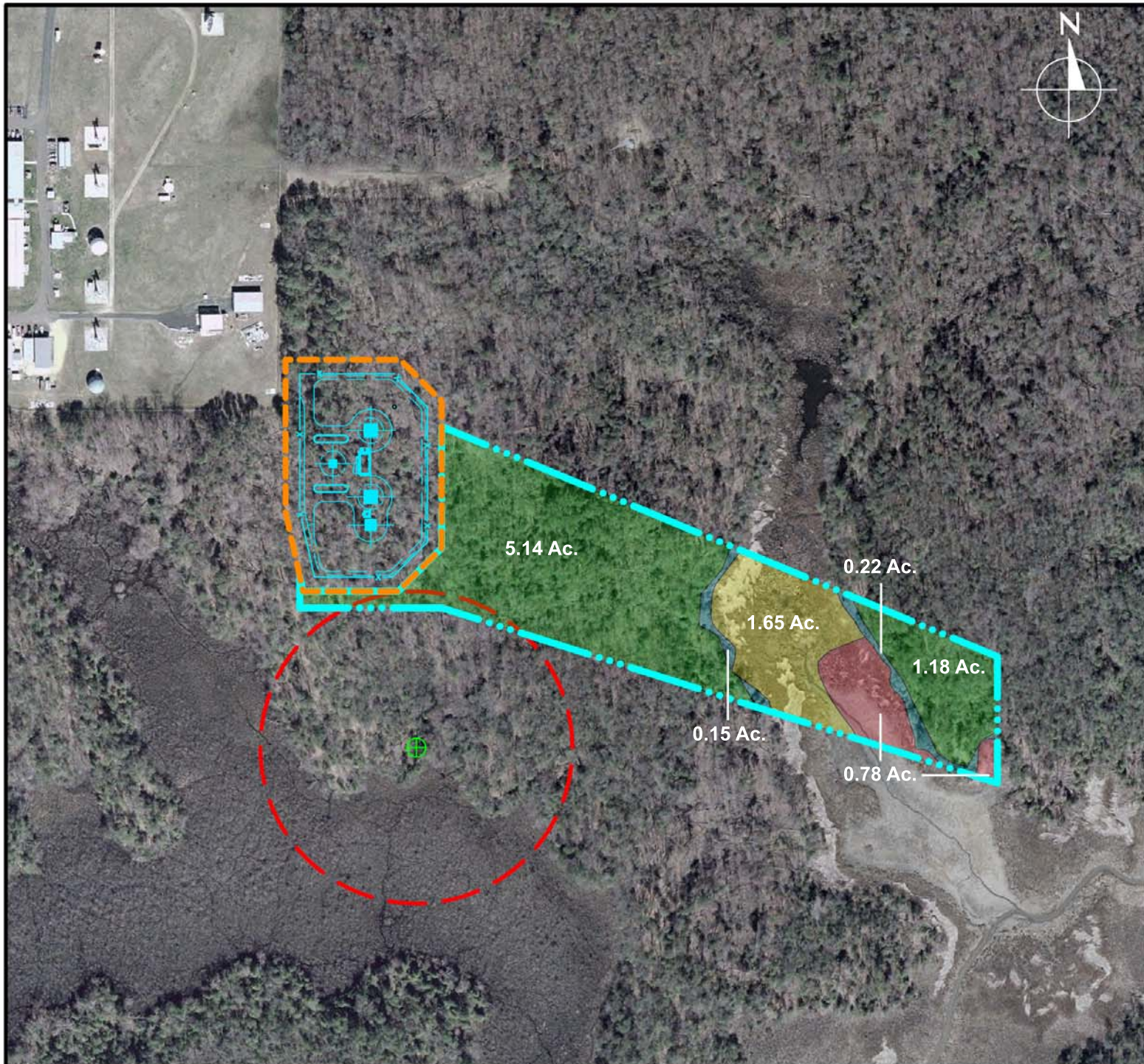
FIGURE 10

LEGEND

- ANTENNA SITE
- LINE OF SIGHT ZONE
- ⊕ EAGLE NEST #1
- EAGLE NEST RESTRICTION ZONE
- 8
+ DISTANCE FROM GROUND TO SIGHT LINE

SCALE





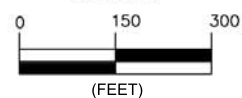
LAND COVER WITHIN LINE OF SIGHT

FIGURE 11

LEGEND

- UPLAND FOREST
- INTERTIDAL
- FORESTED WETLAND
- SUBTIDAL
- ANTENNA SITE
- LINE OF SIGHT ZONE
- + EAGLE NEST #1
- EAGLE NEST RESTRICTION ZONE

SCALE



[This page left intentionally blank]

4.0 ENVIRONMENTAL CONSEQUENCES OF PROPOSED ACTION

This section evaluates the potential environmental consequences of the proposed action and No-Action alternative. Implementation of the action alternative would involve the renovation of existing facilities, construction of the new antennas, implementation of the “LOS Zone”, and development of minor support facilities at NRL BPTF, Blossom Point USAG, Charles County, Maryland.

Potential impacts of the action alternative are discussed in this section in terms of direct short and long-term impacts as a result of construction activities. Short-term impacts are those of a limited duration, such as impacts that occur during the construction period. Long-term impacts are those of greater duration, including those that would last for the estimated life cycle of the action and beyond. The combine cumulative impacts are described in Section 5, Cumulative Impacts. Impacts judged to be minimal in significance have been assigned a range, using the terms negligible, minor and moderate, to facilitate comparisons. Negligible is defined as no real measurable adverse impacts. Minor is defined as measurable adverse impacts, but manageable with best management practices and is required to have a permit and be inspected. Moderate is defined as measurable adverse impacts, but are to be mitigated and manageable with best management practices.

Some of the potential impacts have already been assessed in Section 3.0 and include: transportation, cultural resources (historic structures and archeological resources), socioeconomic resources, environmental (sociological) justice, and protection of children. The proposed action and No-Action alternatives for these items were found to have a negligible effect on Blossom Point USAG and the surrounding community.

4.1 Geology and Soils

Proposed Action Alternative:

Minor short and long-term impacts to topography and soils at the new antenna site and “LOS Zone” would be expected as a result of the proposed action. No impact to geological resources would be expected. The proposed development would be expected to directly affect microtopography and soil as a result of grading, excavation, placement of fill, compaction, mixing, clearing and grubbing. Additional effects could result from erosion and associated sediment where soil is exposed due to removal of the vegetative cover.

BPRS and the area of BPTF contain Annemessex silty loam, Lenni and Quindocqua soils, and Liverpool silt loam, which are found on fluvio-marine terraces landforms. The “LOS Zone” is a combination of open water areas, tidal wetlands (Mispillion and Transquaking soils) and forested area that consist of silty/sandy loam alluvial soils (Annemessex, Dodon and Liverpool soils). The BPRS access drive and BPTF building renovation, water storage tanks and electric generators are located in previously disturbed areas that are occupied by government facilities. The soils outside of the BPTF development are classified as good for use in growing selective crops and moderate for building development due to seasonal high water table.

Maryland Stormwater Guidelines for State and Federal projects require that projects exceeding a set limit of soil disturbance adhere to the Guidelines. For construction projects with over 5,000 square feet or 100 cubic yards of land disturbance, an erosion and sediment control plan and stormwater management plan are required. Projects that disturb over one acre also require compliance with a NPDES Phase II stormwater permit and filing of a Notice of Intent. The area of disturbance for the proposed action would include approximately 3.7 acres for the antenna site, 1.4 acres for access drive development, 1.4 acres for support facilities in the BPTF developed area, and 8.7 acres for the “LOS

Zone.” The total disturbed area under the proposed action is 15.2 acres (662,100 square feet). Therefore, MDE and NPDES permits would be obtained and a Notice of Intent would be provided.

The purpose of the regulations is to contain and control sediment on a short-term basis during the period of construction by preventing it, to the maximum extent practicable, from leaving the site and affecting the waters of Maryland. The regulations are also intended to control the quality and quantity of stormwater runoff. Water quality volume, recharge volume and channel protection storage volume sizing criteria are the basis for those best management practices that would be employed for the proposed action, in accordance with the Maryland Stormwater Design Manuals (Volumes I and II). These practices would address stormwater quality and quantity on a long-term basis.

A stormwater management plan and an erosion and sediment control plan would be submitted to the Maryland Department of the Environment for review and permitting. The stormwater management plans would contain supporting computations, drawings and sufficient information to describe the manner, location and type of measures that would be implemented to treat and manage stormwater from the development. Adherence to these plans would be a condition of the proposed action.

Therefore, it is anticipated that the proposed action would have minor short and long-term effects to the soils of Blossom Point USAG and the surrounding community.

No-Action Alternative:

Under the No-Action alternative, the proposed action to construct the BPRS would not be implemented. The existing characteristics of the geology, topography and soils at BPTF and Blossom Point USAG would not be altered. There would be no impacts to geology, topography or soils.

4.2 Hydrology and Water Resources

Proposed Action Alternative:

BPTF and BPRS proposed action would not affect the Potomac River and Nanjemoy Creek directly. Surface runoff from the site flows to the marshy creek and through tidal wetlands before entering the Potomac River downstream of Nanjemoy Creek. No new wastewater discharges are anticipated. Sediment from the development site during construction could have an effect on the surface waters, but strict erosion and sediment control measures would be employed during all land disturbing activities and be employed until construction is complete and the disturbed exposed soils have been stabilized with vegetation. Therefore, the impact of any sediment would be minor.

BPRS, under the proposed action alternative, would obtain its water supply from the same groundwater source as BPTF. The BPTF well would be used to supply water for domestic use and to provide makeup water for the fire protection storage tanks. Initial filling of the fire protection storage tanks would be accomplished via trucked-in water. Groundwater would be minimally affected by the increased use of water for activities in the renovated Building #13 and by increased employee operations. It is anticipated that the employee operations are no greater than was originally employed at the site, with no new plumbing fixtures anticipated.

South and east of BPTF and BPRS there are forested riparian wetlands, a marshy creek, and intertidal or tidal wetlands that drain to the Potomac River. This is a prominent surface water and geographic feature of this portion of Blossom Point USAG. The creek is sinuous and roughly parallels the Potomac for a distance of approximately two miles. Most of the land area between Blossom Point Road and the Potomac River, approximately 1,020 acres, drains into the creek. The riparian buffer adjoining the creek is completely forested, except for a small area next to BPTF. The existing cleared

area for the BPTF development is in some places less than 100 feet from the creek. The northeast end of the creek extends beyond the USAG approximately 1/3 mile. This section is surrounded by a mixture of open agricultural fields and forest.

The extent of jurisdictional wetlands occurring on BPRS was determined based on criteria established in the 1987 USACE Wetlands Delineation Manual. Field investigations for the presence of wetlands and waters of the U.S. were conducted in July of 2008. Investigations consisted of the assessment of the antenna site and “LOS Zone” areas. No wetlands were identified within the antenna site. Forested riparian wetlands and open marsh tidal wetlands were found within the “LOS Zone.” The wetlands area surveyed has not been reviewed by MDE or the U.S. Army Corps of Engineers, but the limits would be reviewed and confirmed during the 404 wetland permitting process.

The proposed action would affect wetlands since some of the trees and upland vegetation in the “LOS Zone” would be removed, including some of the vegetation within the riparian buffer. The extent of clearing of trees and shrubs within existing forested areas would depend upon the extent that communication signals could be obstructed by vegetation. Closest to the antenna site, the trees and shrubs would be cut down and the stumps and root mat removed (grubbing). The area would be replanted with a native meadow mix of vegetation. Areas further from the antenna site would be altered by selectively removing taller trees and shrubs. In some areas, only the tallest trees would need to be removed. Disturbed soils would be reseeded and stabilized. Understory vegetation would be retained, and stump sprouts from harvested hardwood trees would be allowed to re-grow. After a number of years, as the taller species grow back to a height near the line-of-sight for the signal they would be cut and removed again. This would produce a wider variety of habitat in the LOS Zone than there is currently. Open marsh wetlands that are dominated by scrub/shrub and emergent vegetation would be left as they exist.

The long-term impacts would be the loss of forested areas and the development of different habitat types from open meadow to shrub and coppice-like areas of forest to forest managed using selective clearing methods. This is anticipated to increase the amount and velocity of storm drainage runoff, but should not create a long-term increase in the amount of sediment-laden runoff. The short-term impact would be that disturbed soils would be subject to possible sediment runoff.

In addition to the “LOS Zone,” access routes would be required to remove the materials from the site. Disturbed and exposed soils in the access routes would be reseeded with native species and the forest allowed to regenerate at the end of construction. Short-term disturbance of the soil would be mitigated as previously described by implementing erosion and sediment controls as permitted by the Maryland Department of the Environment.

Stormwater runoff from the construction site would not impact any structures and would flow directly to the marshy creek. The long-term storm drainage effects would be mitigated by installing stormwater management facilities permitted by the State of Maryland.

Development of the BPRS and the “LOS Zone” would also be under the jurisdiction of the Maryland Critical Area Commission through MDDNR and the Maryland Department of the Environment Wetlands and Waterways Program. Activities involving removing vegetation and planting new vegetation would be coordinated with both agencies.

Therefore, it is anticipated that the proposed action would have moderate long-term effects to the hydrology and water resources at Blossom Point USAG.

No-Action Alternative:

Under the No-Action alternative, the proposed action to construct the BPRS would not be implemented. The existing character of the hydrology and water resources at BPTF and Blossom Point USAG would not be altered. There would be no impacts to hydrology and water resources.

4.3 Air QualityProposed Action Alternative:

Short-term air pollution emissions as a result of the proposed action would result from the use of heavy equipment and construction crew traffic during the construction period. Construction emissions would include emissions from operation of construction equipment, construction crew vehicle traffic, painting of the renovated building, new stand-by electrical generators, water storage tanks and pavement parking spaces.

Long-term air pollution emissions under the proposed action would relate to BPRS employee commuter traffic and emergency operation of the stand-by electrical generators during an emergency power outage. Since Charles County is in attainment for all critical levels of air pollution, except ozone, and is in general conformance with guidelines established in 40 C.F.R. § 93, Determining Conformity of Federal Actions to State or Federal Implementation Plans, a permit is not needed.

The proposed action would not increase the commuter traffic to a higher level than existed when Building #13 was previously occupied. The stand-by electrical generators would be run on diesel fuel and would only be used during a power outage. Based on these minor emissions of air pollutants it is anticipated the BPRS would have air emission levels in line with the previously existing BPTF operations.

Therefore, it is anticipated that the proposed action would have negligible short and long-term effect to the Blossom Point USAG and the surrounding community.

No-Action Alternative:

Under the No-Action alternative, the proposed action to construct the BPRS would not be implemented. The existing character of the air quality at BPTF and Blossom Point USAG would remain as it exists. There would be no impacts to air quality.

4.4 NoiseProposed Action Alternative:

Under the proposed action, short-term minor noise impacts are anticipated during the construction of the proposed facilities at BPRS. Noise impacts associated with normal construction activities would be expected to occur. All applicable regulations would be followed and construction activities would be scheduled to create the least noise disturbance for operational activities at BPTF. This site is not located next to sensitive human noise receptors such as residences or schools. Long-term operations of the BPRS are not a source of noise, except for when the stand-by electrical generators are operated. These units would be fitted with exhaust mufflers and be housed in sound damping structures.

Therefore, it is anticipated that the proposed action would have a minimal short-term effect and a negligible long-term effect to Blossom Point USAG and the surrounding community.

No-Action Alternative:

Under the No-Action alternative, the proposal to construct the BPRS would not be implemented. The existing character of the noise levels at BPTF and Blossom Point USAG would remain as it exists. There would be no impacts to noise levels emitted from BPTF.

4.5 Solid Waste and Hazardous MaterialsProposed Action Alternative:

Under the proposed action alternative, the short-term impacts of solid waste would be a byproduct of the tree clear cutting in the "LOS Zone," access drive and new antenna site, renovation of Building #13, and demolition of Building #14. It is anticipated that the clearing and demolition materials would be salvaged by the construction contractor where possible. All other solid waste materials generated would be removed by the contractor and disposed of off government property by a registered hauler and at a Maryland licensed disposal site. Hazardous materials are not anticipated to be generated by the demolition and construction operations.

Long-term solid waste generation, handling and disposal operations of the BPRS are anticipated to be in line with those of the existing BPTF, which were described in Section 3.6. Hazardous materials are not anticipated to be stored or generated at BPRS. Diesel fuel for the generators is anticipated to be stored in above ground double-walled storage tanks at the new stand-by electrical generators.

Therefore, it is anticipated that the proposed action would have negligible short and long-term effects to solid waste handling at Blossom Point USAG.

No-Action Alternative:

Under the No-Action alternative the proposed action to construct the BPRS would not be implemented. The existing methods of solid waste and hazardous material handling at BPTF and Blossom Point USAG would remain as they exist. There would be no impacts to solid waste and hazardous materials at BPTF.

4.6 Water SupplyProposed Action Alternative:

Under the proposed action alternative, the short-term impacts of construction operation on the water supply for domestic use and fire protection would be related to the renovation of the existing Building #13 and construction of the new generators. The construction work would increase the demand for domestic water associated with construction activities and daily clean-up and dust control.

Long-term domestic water demand is not anticipated to increase over the existing demand that was provided when Building #13 was fully occupied. Renovation of the building does not anticipate any new plumbing fixtures. Expansion of the fire protection system and the addition of sprinkler system is not anticipated to increase the demand on the existing water system mains or wells as the water would only be used during a fire. Initial filling of the water storage tanks would be accomplished via trucked-in water. Operation of the new antenna site would require the extension of the fire water main and the addition of new hydrants.

Therefore, it is anticipated that the proposed action would have negligible effects short- and long-term to water supply at Blossom Point USAG. The new fire protection water storage system and building sprinkler systems would improve the health and safety conditions at BPTF.

No-Action Alternative:

Under the No-Action alternative, the proposed action to construct the BPRS would not be implemented. The existing supply and distribution of domestic water and fire protection water at BPTF and Blossom Point USAG would remain as they exist. There would be no impacts to water supply at BPTF.

4.7 Wastewater

Proposed Action Alternative:

Under the proposed action alternative, the short-term impacts of construction on the wastewater collection and disposal system at BPTF would be anticipated to be negligible. The contractor crews would not be allowed to use the existing plumbing fixtures. It is anticipated that the contractor would be required to provide their own wastewater holding tank and plumbing facilities for all of their employees and visitors to the site.

Long-term wastewater collection and treatment is anticipated to be the same as presently exists at BPTF, and as described in section 3.8. The existing waste collection and treatment capacity of Building #13 are adequate to accommodate the increased number of BPRS employees, thus no expansion of the wastewater system is required.

Therefore, it is anticipated that the proposed action would have negligible short and long-term effects to wastewater collection and treatment at BPTF and Blossom Point USAG

No-Action Alternative:

Under the No-Action alternative, the proposal to construct the BPRS would not be implemented. The wastewater collection and treatment system at BPTF and Blossom Point USAG would remain as they exist. There would be no impacts to wastewater at BPTF.

4.8 Floodplain and Flood Zone

Proposed Action Alternative:

Under the proposed action alternative, the anticipated short-term impacts of construction on the 100-year floodplain and flood zones at BPTF would be negligible. The new antenna site would not be in, nor affect the floodplain. The "LOS Zone" would affect the floodplain and flood zone area during the clearing and grubbing operations. Since the floodplain area is controlled by tidal surges, the proposed construction activity would not affect any structures or the elevation of the flood waters during a 100-year event.

Long-term impacts from the removal of trees and replacement with native grasses in the floodplain would not adversely affect the 100-year floodplain elevation or flood zone designations. The floodplain elevation is based on a tidal surge and not the fluvial flow elevation of the Potomac River or surface runoff.

Therefore, it is anticipated that the proposed action would have negligible short and long-term effects to the 100-year flood plain elevation and flood zones at BPTF and Blossom Point USAG.

No-Action Alternative:

Under the No-Action alternative, the proposed action to construct the BPRS would not be implemented. The floodplain and flood zones at BPTF and Blossom Point USAG would remain as they exist. There would be no impacts to the floodplain and the flood zone at BPTF.

4.9 Terrestrial Environment:Proposed Action Alternative:

Under the proposed action alternative, the anticipated short-term impacts of construction on the diverse terrestrial environment at Blossom Point USAG are anticipated to be moderate. The antenna site construction would entail the clearing and grubbing of approximately 3.7 of upland wooded area. The "LOS Zone" (see Figure 11) would clear and grub 5.9 acres of upland wooded area and 0.4 acres of forested wetlands. The remainder of the "LOS Zone" would be in non-forested wetlands, 2.4 acres, which would not be disturbed. The access drive to BPRS would involve clearing of 1.4 acres of upland forest. The total area of the new antenna area and "LOS Zone" would be 15.2 acres out of the 1,600 acres of Blossom Point USAG.

At the new antenna site, there are large amounts of downed timber in portions of the forest. These conditions are summarized in the following description: "In the 1981 cruise, Houser (1981) identified 66 acres of Virginia pine in 14 stands and 359 acres in 17 stands of mixed species in which Virginia pine was the principal species or a major component. When some of these stands were revisited, large areas of downed pines were encountered and only enough remnant live Virginia pine trees remained to verify the 1981 stand locations." The downed timber is predominantly Virginia pine.

Grading and clearing operations at the antenna site and clearing operations at the "LOS Zone" would be temporary and permitted for sediment controls, forest clearing and wetlands areas activities. The antenna site and security zone would be planted with turf grass and mowed regularly. Areas within the "LOS Zone" where all trees and shrubs would be removed or where earth would be disturbed would be planted with a native meadow mix. Other forested areas within the "LOS Zone" would be altered, creating areas ranging from cover dominated by small trees and shrubs to selectively cleared forest. Land disturbance and construction activities would be performed as quickly as possible and when bald eagles are not nesting. Eagle nest 330-foot buffers would be protected from direct disturbance to the maximum extent practicable.

Long-term impacts in the "LOS Zone" and the antenna site would create new terrestrial environments. These activities are consistent with the Blossom Point USAG Integrated Natural Resources Management Plan as follows: 1) Maintaining or increasing the level of biodiversity of the present ecosystems; 2) Using timber harvests and timber stand improvements to enhance both timber quality and wildlife values; and, 3) Maintaining vegetated riparian buffer zones to protect aquatic and riparian habitats and sustain the ecological productivity of terrestrial habitats. Greater diversity of terrestrial habitats would be found in the "LOS Zone."

Some loss of forest interior dwelling species (FIDS) habitat would occur. However, this is a small percentage of the existing FIDS habitat currently at Blossom Point USAG. Small sections of the forested riparian fringe bordering the marshy creek and wetlands would be altered. Vegetation preserved in the riparian areas would continue to provide habitat for breeding, foraging and dispersal of terrestrial organisms. Only vegetation with a height that interferes with the signal would be removed. This removal would be coordinated with MDDNR, FWS, the U.S. Army Corps of Engineers and Maryland Department of the Environment.

Therefore, it is anticipated that the proposed action would have moderate short-term and minor long-term effects to the terrestrial environment at BPTF and Blossom Point USAG.

No-Action Alternative:

Under the No-Action alternative, the proposed action to construct the BPRS would not be implemented. The terrestrial environment at BPTF and Blossom Point USAG would remain as it exists. There would be no impacts to the terrestrial environment at Blossom point USAG.

4.10 Aquatic Environment

Proposed Action Alternative:

Under the proposed action alternative, the anticipated short-term impacts of construction on the aquatic environment at BPTF would be minor. The aquatic environment would not be directly affected by the construction activities. Potential release of sediment from the disturbed soil areas would be controlled by sediment control facilities to minimize any adverse impacts on the open water. The construction activities sediment control measures would be permitted and inspected by the Maryland Department of the Environment to control sediment-laden stormwater runoff.

Long-term alteration of the vegetative cover would affect the aquatic environment indirectly. Existing non-forested marshy creek and tidal wetlands would be left undisturbed. New and altered vegetative cover in the "LOS Zone" would continue to buffer the effects of runoff to the wetlands. The wetlands would retain their functions and beneficial values to the aquatic environment. Maintenance of the areas outside the antenna site would be kept to a minimum. All activities in the wetlands and the wetlands buffers would be performed in conformance with the U.S. Army Corps of Engineers permits and, to the maximum extent practicable, Maryland Department of the Environment's regulations.

Therefore, it is anticipated that the proposed action would have minor short and long-term effects to the aquatic environment BPTF and Blossom Point USAG.

No-Action Alternative:

Under the No-Action alternative, the proposed action to construct the BPRS would not be implemented. The aquatic environment at BPTF and Blossom Point USAG would remain as it exists. There would be no impacts to the aquatic environment at Blossom Point USAG.

4.11 Rare, Threatened, Endangered and Sensitive Species

Proposed Action Alternative:

Under the proposed action there would be no significant short or long-term impacts to any rare, threatened, endangered or sensitive species at USAG BP. Sensitive species such as bald eagles may be minorly affected by the proposed construction noise. For this reason, no work would be performed during the nesting season for the eagles and all work would be completed as quickly as possible, with the hope of greatly limiting construction disturbance. Alteration of vegetative cover in proximity of the eagle nest would be performed outside of the nesting period and is expected to have minor short-term and negligible long-term impacts on the bald eagles. This mitigation has been coordinated with the FWS.

The proposed operations of the BPRS would be similar in character to the existing BPTF operations. Therefore, the anticipated long-term impacts are considered to be negligible.

No-Action Alternative:

Under the No-Action alternative, the proposed action to construct the BPRS would not be implemented. Any possible rare, threatened, endangered and sensitive species (eagles) at BPTF and Blossom Point USAG would remain as they exist. There would be no impacts to rare, threatened, endangered and sensitive species at Blossom Point USAG.

4.12 Land UseProposed Action Alternative:

Under the proposed action alternative, the anticipated short-term impacts of construction on land use would be negligible. Temporary earthen access drives would be constructed to allow access to remote woody vegetation from the “LOS Zone” and the new antenna site. The “LOS Zone” is anticipated to be allowed to renaturalize with grassy to shrubby vegetation, while the new antenna site will be converted to a developed use and regularly groomed.

Long-term impacts associated with the proposed action would be classified as negligible. The proposed action would allow for construction and rehabilitation of facilities within the existing BPTF and its buffer area. The proposed actions of, and land use category for, BPRS are the same as the existing BPTF.

BPRS would expand the developed area of land use at BPTF for the new antennas site and access drive. This would be in compliance with the stipulations of the Blossom Point USAG Master Plan. The renovation of Building #13, the construction of the stand-by electrical generators and additional water storage tanks would be located within the existing secured and developed land at BPTF. The “LOS Zone” would be retained as vegetated open space which does not reclassify the land use as recognized in the Charles County Zoning classification. The proposed action would not affect existing land uses in the region, nor change the land use classification of the Blossom Point USAG.

Therefore, it is anticipated that the proposed action would have negligible short and long-term effects to the land use at BPTF and Blossom Point USAG.

No-Action Alternative:

Under the No-Action alternative, the proposed action to construct the BPRS would not be implemented. The land use at BPTF and Blossom Point USAG would remain as it exists. There would be no impacts to land use at Blossom Point USAG.

4.13 Human Health and Safety, Radio Frequency RadiationProposed Action Alternative:

Under the proposed action alternative, the anticipated short-term impacts of construction on human health and safety would be negligible. Construction activities are anticipated to be performed under Occupational Safety and Health Administration standards for construction activities associated with the performance of normal construction procedures. The construction site would be secured at all times to allow only personnel associated with the construction activities and the inspection of those activities.

Long-term impacts of the proposed action would be classified as negligible. The proposed action would construct and rehabilitate facilities within the existing BPTF and its buffer area. BPRS facilities

will have the RF distribution and shielding for microwave radiation exposure to humans surveyed and implemented. RF radiation exposure standards are published by NRL and ANSI and would be complied with during the operation of the BPRS.

Long-term fire safety would be improved at BPTF as the proposed action is to expand the fire protection system capacity and add sprinkler systems to the renovated building.

Therefore, it is anticipated that the proposed action would have negligible short and long-term effects to human health and safety at BPTF and Blossom Point USAG.

No-Action Alternative:

Under the No-Action alternative, the proposed action to construct the BPRS would not be implemented. The health and human safety conditions at BPTF and Blossom Point USAG would remain as they exist. There would be no impacts to human health and safety at Blossom Point USAG.

4.14 Essential Fish Habitat

Proposed Action Alternative:

Under the proposed action alternative, the anticipated short-term impacts of construction on essential fish habitat would be minor. Clearing, grubbing and grading activities at the antenna site, along with alteration of vegetative cover in the “LOS Zone,” would be anticipated to generate sediment-laden storm drainage runoff. The construction activities would include erosion and sediment control measures that would be permitted and inspected by the Maryland Department of the Environment. Therefore, it is anticipated that the sediment would be controlled and not impact the surrounding fish habitat.

Long-term impacts associated with the proposed action would also be negligible. The proposed action would reestablish vegetative cover on all disturbed areas and the land in the “LOS Zone” would be managed for diversity using minimal, periodic maintenance. Disturbance and activity in riparian areas would be kept to the minimum amount necessary, allowing these riparian buffers to retain their beneficial value to wetlands and essential fish habitat.

It is anticipated that the proposed action would have minor short-term and negligible long-term effects to essential fish habitat at BPTF and Blossom Point USAG.

No-Action Alternative:

Under the No-Action alternative, the proposed action to construct the BPRS would not be implemented. The essential fish habitat at BPTF and Blossom Point USAG would remain as it exists. There would be no impacts to essential fish habitat at Blossom Point USAG.

4.15 Coastal Zone Management Act Considerations

Proposed Action Alternative:

Under the proposed action alternative, the anticipated short-term impacts of construction operation on the coastal zone would be minor. The proposed action would be located in Maryland’s 1000 foot “critical area” and part of the “LOS Zone” would be in the “Critical Area Buffer”. The proposed action would be to clear existing trees for the “LOS Zone” and antenna site in upland areas and in the wetlands

areas, 0.4 acres, of the 25-foot Maryland Department of the Environment wetlands buffer area and the 100-foot Maryland Critical Area Buffer¹ (1,000-foot area to require a review by the Commission). Coordination with the U.S. Army Corps of Engineers, Maryland Department of the Environment and Maryland Critical Area Commission would be undertaken prior to commencement of work, and necessary permits would be obtained as needed. Compensatory mitigation for disturbance in the wetlands and buffer areas may be required by the aforementioned agencies, and will be implemented as needed.

Long-term impacts associated with the proposed action would be classified as minor. The proposed action would entail the maintenance of wetland buffer vegetation at heights shorter than what would naturally occur. Under the proposed action, maintenance permits are anticipated to be obtained from the same agencies that would issue the construction phase permits.

It is anticipated that the proposed action would have minor short and long-term effects to the coastal zone area, as defined by the State of Maryland, at BPTF and Blossom Point USAG.

No-Action Alternative:

Under the No-Action alternative, the proposed action to construct the BPRS would not be implemented. The coastal zone at BPTF and Blossom Point USAG would remain as it exists. There would be no impacts to Coastal Zone Management areas at Blossom Point USAG.

4.16 Electric Service

Proposed Action Alternative:

The proposed action would require additional electrical service and a means of providing an uninterruptible electrical power supply. The proposed action at BPRS would provide new stand-by electrical generators to provide the uninterruptible electrical power service. It would also require an upgrade of the conductors to the renovated Building #13. Existing Building #14 would be demolished and the new stand-by electrical generators' building (approximately 50' by 45') would be constructed at that location. The building would house a new switch gear, transformers and two diesel powered electrical generators. This system would provide parallel electrical redundancy which would allow for off-line critical parts replacement and maintenance. Diesel fuel storage would be in above ground double-walled fuel storage tanks. The electrical cooperative would upgrade the conductors on the overhead lines and provide larger transformers for the upgraded service.

Under the proposed action alternative, the anticipated short-term impacts of construction on the electrical service would be negligible. Temporary short term disruption of service would be anticipated during the conversion to the upgraded power service. It is anticipated that this would be a one-time event and scheduled at an appropriate time to limit negative impacts to BPTF operations.

Long-term impacts associated with the proposed action would be classified as negligible. The proposed action would upgrade the electrical power supply to meet the needs of BPRS and would allow the installation of new stand-by electrical power sources and an un-interruptible electrical power service.

¹ The Critical Area includes all lands within 1,000 feet of the mean high water line of tidalwaters or the landward edge of tidal wetlands of the Chesapeake and Coastal Bays and their tidal tributaries. The Critical Area Buffer is an area of natural vegetation 100 feet wide, measured landward from the mean high water line of tidal waters, tributary streams, and tidal wetlands. In some instances, the buffer is expanded beyond 100 feet because of adjacent steep slopes or erodible soils.

It is anticipated that the proposed action would have negligible short and long-term effects to the electrical power service at BPTF and Blossom Point USAG

No-Action Alternative:

Under the No-Action alternative, the proposed action to construct the BPRS would not be implemented. The electrical power service at BPTF and Blossom Point USAG would remain as it exists. There would be no impacts to electric service at Blossom Point USAG.

5.0 CUMULATIVE IMPACT

The cumulative impact is defined as “the impact on the environment which results from the incremental impact of the action when added to past, present, or reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions” (40 C.F.R. § 1508.7). This section goes on to note “such impacts can result from individually minor but collectively significant actions taking place over a period of time.” Cumulative impact associated with implementation of the proposed action would include any impacts from other “actions” that would be incremental to the impacts of constructing the BPRS facilities at BPTF.

USAG BP Integrated Natural Resources Management Plan recommends procedures and guidelines for the management of natural resources when wildlife habitat and human activities interact. The U.S. Army Corps of Engineers, Maryland Department of the Environment, Maryland Department of Natural Resources and Chesapeake Bay Critical Areas Commission specify the regulated procedures for the management of coastal, water and soil resources.

Proposed Action Alternative:

The cumulative impacts of the proposed action would not have significant adverse effects on human environmental resources or socioeconomic conditions at USAG BP, BPTF, or to areas surrounding of the USAG BP. Potential moderate impacts exist from the removal of existing trees and vegetation in the antenna site and “LOS Zone” proposed construction. The antenna site would increase the amount of impervious surfaces at the BPTF. The “LOS Zone” would remove trees in wetland areas and their buffer areas, and replace them with native grasses. Maintenance on this Zone’s vegetation would require pruning of the vegetation in these areas. The wetland areas impacted would require a Section 404 Clean Water Act permit, which would be obtained through the U.S. Army Corps of Engineers with coordination with the Maryland Department of the Environment. Although USAG BP has sovereign immunity from a number of state laws, the USAG would comply with the Maryland Tidal and Non-Tidal Wetland Protection Act of 1989 to the best of its ability. Stormwater drainage from impervious surfaces at the antenna site would be treated by best management practices permitted by the Maryland Department of the Environment.

Impacts from construction would be short-term in nature and last only as long as the construction activities. Such short-term items as water resources (wetlands, coastal zone and surface water), topography, soils and biological resources (wildlife, wildlife habitat, vegetation, eagles, terrestrial and aquatic environments) would pose cumulative impacts on the BPTF area during construction. Appropriate best management practices suggested by the U.S. Army Corps of Engineers, Maryland Department of the Environment, Maryland Department of Natural Resource, U.S. Fish and Wildlife Service, and Maryland Chesapeake Bay Critical Areas Commission would be implemented to the maximum extent practicable and permits obtained where necessary.

The proposed action is anticipated to only be as described and is not anticipated to be a preamble to any reasonably foreseeable future expansion of facilities at the BPTF. Impacts mentioned throughout the EA for short and long-term effects in combination would be anticipated to be minimal and managed through the use of regulated and suggested best management practices. These practices relate to stormwater management permits, sediment and erosion control permits, Chesapeake Bay Critical Areas permits, USACE wetlands permits, and the like. With the implementation of these best management practices, any cumulative impacts from past, present and reasonably foreseeable future planning efforts would be minor.

No-Action Alternative:

Implementation of the No-Action alternative would avoid new impacts that could interact with the impacts of other past, present or reasonably foreseeable future actions. Therefore, there would be no cumulative impacts associated with the No-Action alternative.

6.0 CONCLUSIONS

The proposed action's long-term impacts would not prove significantly adverse on human environmental resources or socioeconomic conditions at USAG BP, BPTF, or to areas surrounding the USAG. Impacts would be incurred from the removal of existing trees and vegetation in the proposed construction of the antenna site and "LOS Zone." Creation of the "LOS Zone" would entail the removal of trees in wetland areas, replacing them with native grasses and shrubby vegetation. The wetland areas would be impacted and a Section 404 Clean Water Act permit would be obtained through the USACE. The Navy, as the Army's construction agent, would also consult under the Maryland Non-Tidal Wetland Protection Act of 1989 and the Maryland Tidal Wetlands Act of 1970, complying with these laws to the maximum extent practicable.

During the construction period, short-term effects would be mitigated through the use of soil erosion and sediment control measures and eagle nest buffer area restrictions. A sediment and erosion control permit would be obtained to comply with the State of Maryland and the Environmental Protection Agency's National Pollution Discharge Elimination System, Phase II regulations. The existing eagle nest restriction buffer area would be maintained, along with schedule restrictions for construction of the new antenna site and "LOS Zone" so that these activities occur as quickly as possible and outside of nesting periods for the eagles..

The proposed action was chosen because the site meets the technical requirements of the needed facility, and can be built without causing significant impacts to the human environment or adversely affecting human health and safety. Although the proposed action would affect natural resources, including forests, wetlands, terrestrial and aquatic environment, the effects are minimal and could be mitigated satisfactorily.

This Environmental Assessment supports a Finding of No Significant Impact (FONSI). The BPRS would fulfill the project's mission needs and purpose and its environmental impacts would not be significant. The No Action Alternative would seriously compromise NASA's mission goal of having an operational SNEGS-E to effectively communicate with satellites over eastern portions of the Atlantic Ocean.

[This page left intentionally blank]

7.0 COORDINATION LETTERS, LIST OF AGENCIES CONTACTED

Maryland Department of the Environment

Mr. Elder A. Ghigiarelli, Jr.
Federal Consistency Coordinator
Wetlands and Waterways Program
Maryland Department of the Environment
1800 Washington, Boulevard, Suite 430
Baltimore, MD 21230

Maryland Historical Trust

100 Community Place
Crownsville, MD 21032
Attention: Ms. Beth Cole

United States Department of the Interior

Fish and Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401
Mr. John P. Wolflin, Supervisor

Maryland Department of Natural Resources

Forest, Wildlife and Heritage Service
Tawes State Office Building
580 Taylor Avenue, Bldg. E-1
Annapolis, MD 21401

[This page left intentionally blank]



A. Morton Thomas and Associates, Inc.
Consulting Engineers



September 4, 2008

Mr. Elder A. Ghigiarelli, Jr.
Federal Consistency Coordinator
Wetlands and Waterways Program
Maryland Department of the Environment
1800 Washington, Boulevard, Suite 430
Baltimore, MD 21230

Re: Environmental Assessment for the
Construction of Antennas and "Clearance
Zone" at Blossom Point
Charles County, Maryland
AMT File No. 107-640.002

Dear Mr. Ghigiarelli:

In accordance with the Federal Coastal Zone Management Act of 1972 we are requesting a determination on the acceptability of operations associated with the construction of NASA Blossom Point Remote Station new satellite signal antennas for the Naval Research Laboratory Station #2 at Blossom Point Tracking Facility, Blossom Point US Army Garrison (USAG), Charles County, Maryland. We are preparing an environmental assessment for the antennas' construction and operations. The proposed project is to erect new antennas on a 3.7-acre site next to the existing antennas at Station #2. As part of the antennas operations a "Clearance Zone" needs to be established on 8.7 acres of the USAG property. The "Clearance Zone" will require that all vegetation be annually pruned to a manageable height. Construction of the Zone will require temporary drives or access ways. They will be constructed in and to access the "Clearance Zone" to allow for the clearing and grubbing of trees in the Zone; and then vegetated with native grasses. This letter supersedes the previous letter of August 7, 2008.

The antenna site will require about 0.10 acres of impervious surface. Stormwater runoff from the construction activities and constructed impervious areas on the 2.7 acre antenna site will be treated by sediment controls and stormwater management facilities. The "Clearance Zone" clearing operations and the establishment of native grasses will also require sediment controls. A MDE permit for the sediment control and stormwater management facilities will be obtained for this project. The affected area will also be submitted to the Chesapeake Bay Critical Area Commission for approval of the proposed clearing operations.

The proposed activities in the "Clearance Zone", 8.7 acres, will include areas of wetlands: wetlands estuary 2.4 acres, 0.4 forested wetlands, and 5.9 acres forested uplands. The new antenna construction site does not affect wetlands. Therefore, we understand the clearing and grubbing and planting of native grasses operations in the forested areas will require the obtaining of a permit from the US Army Corps of Engineers, Baltimore District and MDE. Given the general description of the clearing operations it is assumed that a permit will be issued with required controls that restrict the disturbance of existing grades and plant material outside of the forested areas.

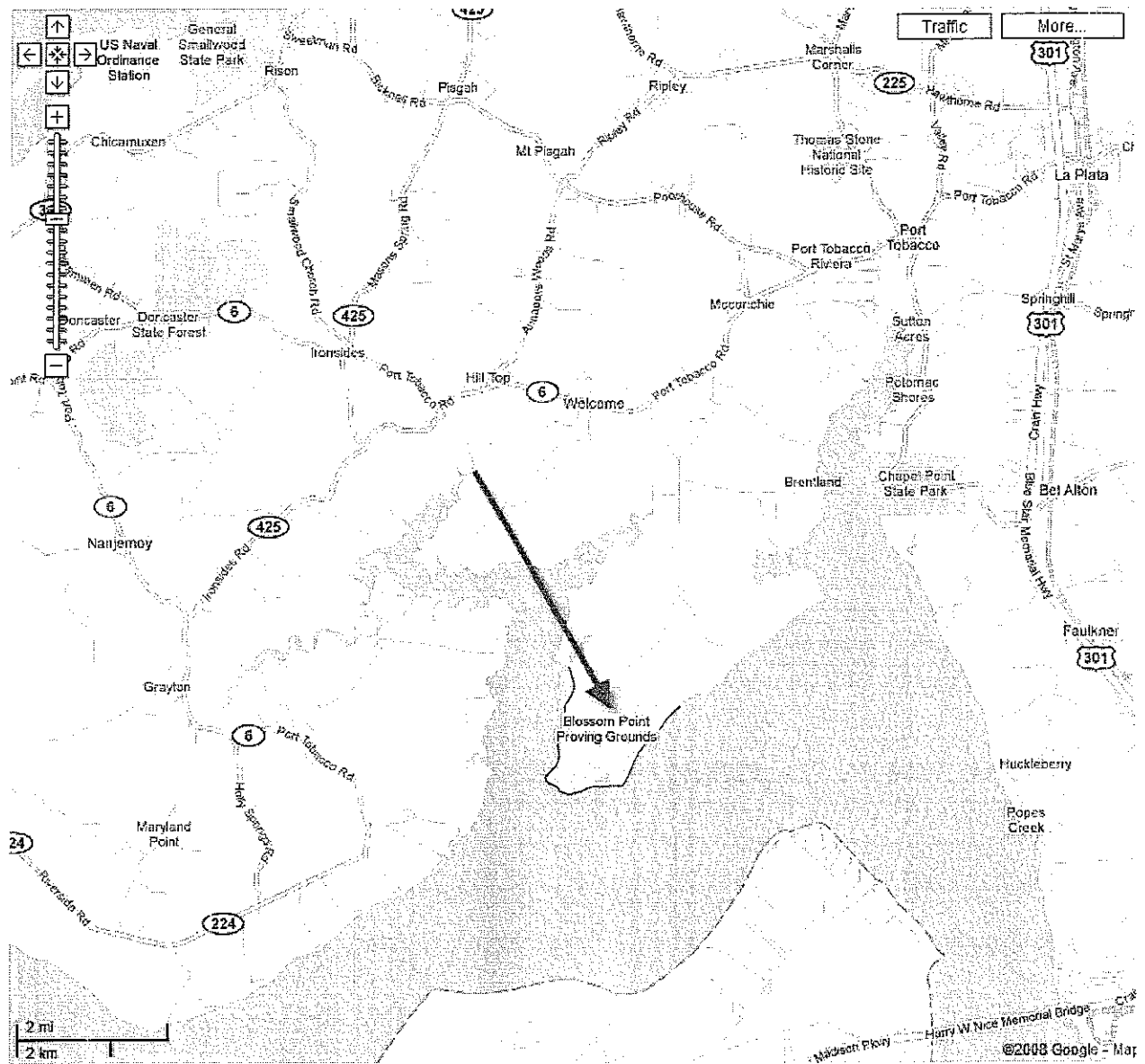
Please review this approach and assumptions concerning regulatory requirements and let us know if they are correct. As part of the environment assessment the permitting process is understood to be a means of environmental mitigation.

If you have any questions please call me at 301-980-5926. Thank you for your kind consideration of these matters

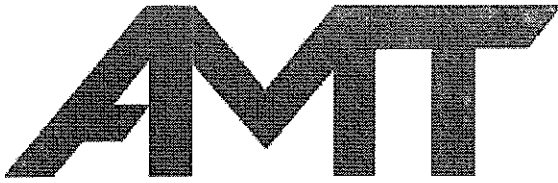
Please contact me if you have any questions or require additional information. Thank you for your help.

Sincerely,
A. MORTON THOMAS and Associates, Inc

Robert A. Warner, P.E.



Vicinity Map – Blossom Point Proving Grounds, Charles County, MD
(approximately 11.5 miles Southwest of La Plata, MD)



A. Morton Thomas and Associates, Inc.
Consulting Engineers

July 29, 2008

Mr. John P. Wolfin, Supervisor
United States Department of the Interior
Fish and Wildlife Service
Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401

RE: US Naval Research Laboratory
Blossom Point
Charles County Maryland
AMT File No. 107-640.002

Dear Mr. Wolfin:

A. MORTON THOMAS and Associates, Inc. (AMT) is preparing an environmental analysis for approximately 150 acres on the Blossom Point Proving Grounds located in Charles County (vicinity maps attached). Please advise us of records of any rare, threatened, or endangered species designated by the U.S. Fish and Wildlife Service in this vicinity.

Please contact me if you have any questions or require additional information. Thank you for your help.

Sincerely,

A. MORTON THOMAS and Associates, Inc.

Bart Bickel

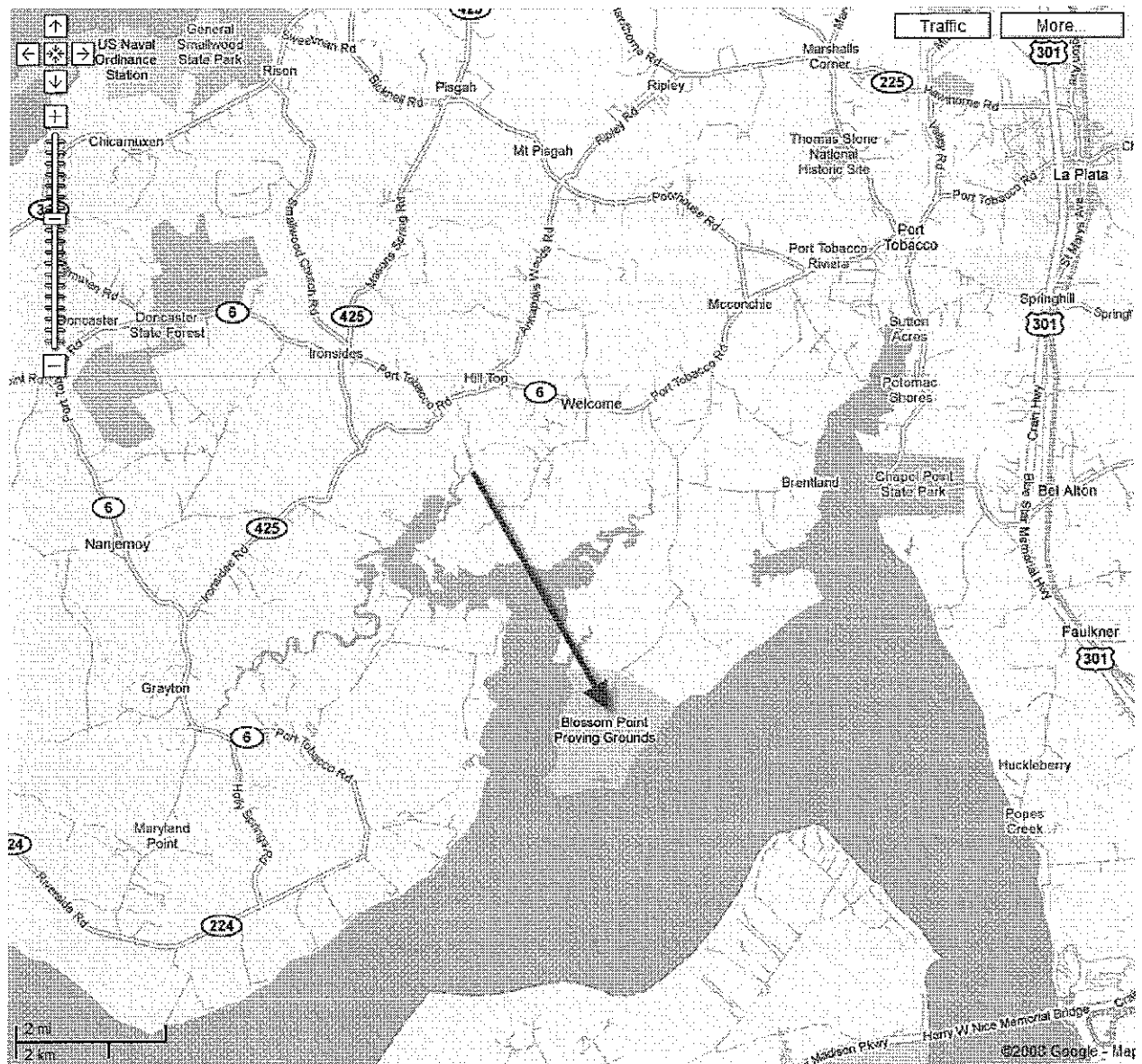
Land Planning, Landscape Architecture and
Environmental Services



Blossom Point Naval Research Laboratory – Blossom Point, Charles County, MD



Blossom Point Naval Research Laboratory – Blossom Point, Charles County, MD



Vicinity Map – Blossom Point Proving Grounds, Charles County, MD
Approximately 11.5 miles Southwest of La Plata, MD)



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Chesapeake Bay Field Office
177 Admiral Cochrane Drive
Annapolis, MD 21401



August 27, 2008

U.S. Department of the Navy
Mr. Wayne Burke
Director, CNO Special Projects
Naval Facilities Engineering Command
1322 Patterson Avenue, S.W.
Washington D.C. Navy Yard, 20374-5065

Re: Blossom Point Satellite Tracking Project

Dear Mr. Burke:

This is in response to your request for review of a proposed NASA Satellite Tracking project at the Blossom Point Facility near LaPlata, Maryland. The facility is managed and operated by the U.S. Army Research Laboratory, Adelphi, Maryland. The 1,600 acre facility serves as an active range for the Army to conduct military testing in addition to providing the Naval Research Laboratory with an operations terminal for their satellite network. Our mutual concern focuses on the protection of bald eagles (*Haliaeetus leucocephalus*), a federally protected species, which are known to occupy three nesting territories at the facility. This letter constitutes the report of the U.S. Fish and Wildlife Service (Service) and the Department of the Interior on the proposed project and is submitted in accordance with the provisions of the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c).

On August 21, 2008, the Service met with representatives from the U.S. Navy and U.S. Army to discuss the proposed NASA project which is to be constructed within the 660-foot bald eagle nest protection buffer of an active eagles nest. The project will require the clearing of approximately eight acres of forested habitat which contains part of the protective nest buffer; and possibly, may include a narrow band within the 330-foot buffer. The Service's *National Bald Eagle Management Guidelines* provide a matrix for individuals to assess whether a project is likely to cause disturbance to nesting bald eagles and if so, a requirement to obtain a federal disturbance permit to be in compliance with the Bald and Golden Eagle Protection Act.

The recently discovered eagles nest is believed to be newly constructed this season and likely an alternate nest of a pair that originally nested on the other side of the marsh. The new nest is located approximately 700-feet closer to the facility's main infrastructure than the primary nest. The pair successfully fledged two eaglets. As in most cases involving military installations, bald eagles that consistently forage or nest near active test ranges have demonstrated increased tolerance to ordnance testing and man-made infrastructure (C.Koppie, USFWS Service, pers. observ.). It is likely that the pair has acclimated to pre-existing structures such as roads, buildings, towers, satellite dishes and limited human activity including noise blasts from routine testing by the Army.

The direct impacts of the project will involve limited tree clearing of the nest buffer in order to create an unobstructed corridor in which to track and receive signals at the satellite dish. According to the Navy, this specific site would greatly minimize the need for any additional tree removal compared to other onsite locations to establish a line-of-sight corridor. In addition to clearing activities, two 50-foot satellite dishes will be mounted to pedestals within the clear-cut approximately 400 feet from the nest tree. The height of the structures will be approximately the same height as the forest canopy trees. Indirect impacts associated with the project are discountable given that after construction of the satellite dishes and associated electronic infrastructure, the station will not require on-site personnel.

Based on an analysis of the direct and indirect effects of the project, existing natural resources, man-made infrastructure, military mission activities, including bald eagle dynamics and carrying capacity, the Service believes the bald eagle pair will not likely be impacted by the proposed NASA project if the following procedures are implemented:


- 1) Initiate and complete all land clearing activities outside of the bald eagle nesting period (December 15 – June 15). Since Chesapeake Bay bald eagles remain in the general area year round, it is best to conduct clearing activities from September 15-November 15.
- 2) Initiate tree clearing activities in a manner that requires the least amount of time incorporating traditional logging standards and equipment.
- 3) Initiate and complete all construction activities outside the bald eagle nesting period.

The Service believes by implementing these procedures the bald eagle pair will continue to use their current nest tree despite modifications to the nest protection buffer. Any changes to these conditions will require the Navy to initiate a request for a bald eagle disturbance permit.

We appreciate the commitment by the U.S. Navy and U.S. Army in their strong desire to protect Chesapeake Bay bald eagles on federal lands. As we discussed earlier, we wish to offer our assistance to the Army in revising the Bald Eagle Management Plan at Blossom Point.

Should you need additional information regarding this project or future projects, please contact Craig Koppie of my staff at 410/573-4534.

Sincerely,



Leopoldo Miranda,
Field Office Supervisor

cc:

Ann Miller, NAVFACLANT, Norfolk, VA
Jack Kaiser, Blossom Point Facility
Glenn Therres, Maryland DNR, Annapolis, MD

CNO Special Project SNE East

Blossom Point, NRL, LaPlata, MD

USFWS MEETING MINUTES

15 August 2008

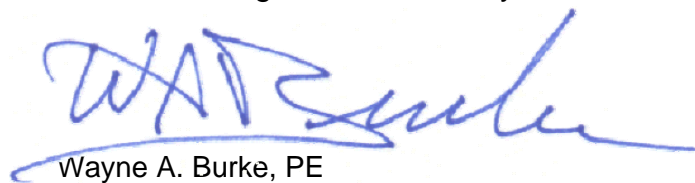
PARTICIPANTS:

USFWS Director H. Dale Hall, & Assistant Director Paul R. Schmidt (Migratory Birds), NASA (Roger Flaherty), Client #2 (Jon Cummings plus 1), NAVFAC HQ (Wayne Burke)

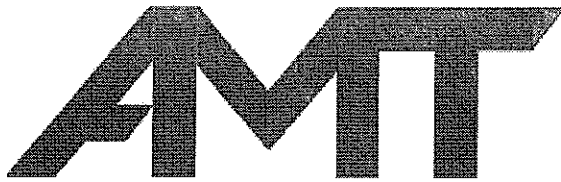
MEETING MINUTES:

1. Project scope overview and impact on existing eagle nests presented to USFW.
2. USFWS and his Assistant Director (Migratory Birds), initial evaluation of plan to stay 330' from the nest in every case and performing timber harvesting and construction only during the "off season", was likely sufficient to avoid extreme mitigation measures, i.e. a take permit. Director Hall's stated desire to avoid "take permit " situations to the greatest extent possible.
3. FWS appreciated Navy's intent to maintain a best practices approach (in keeping with our long history of being a conservation partner). It appears that we may not need to go quite as far as planned in some areas, i.e. manual/animal based tree clearing.
4. FWS clarified that since de-listing of the eagle, they are fast-tracking development of new guidelines for eagle management. The Migratory Bird Act does not allow appropriate "management" actions as the Endangered Species Act did.

Site visit tentatively scheduled for week of 18 August with USFWS experts and management personnel. Site visit will include project team representatives from NAVFAC Washington and US Army Garrison.



Wayne A. Burke, PE
Director, CNO Special Projects
Naval Facilities Engineering Command
22 Aug 2008



A. Morton Thomas and Associates, Inc.
Consulting Engineers

July 29, 2008

Ms. Lori Byrne
Maryland Department of Natural Resources
Forest, Wildlife and Heritage Service
Tawes State Office Building
580 Taylor Avenue, Bldg. E-1
Annapolis, MD 21401

Re: US Naval Research Laboratory – Blossom
Point
Charles County, Maryland
AMT File No. 107-640.002

Dear Ms. Byrne:

A. MORTON THOMAS and Associates, Inc. (AMT) is preparing an environmental analysis for approximately 150 acres on the Blossom Point Proving Grounds located in Charles County (vicinity maps attached). Please advise us of records of any rare, threatened, or endangered species designated by the U.S. Fish and Wildlife Service in this vicinity.

Please contact me if you have any questions or require additional information. Thank you for your help.

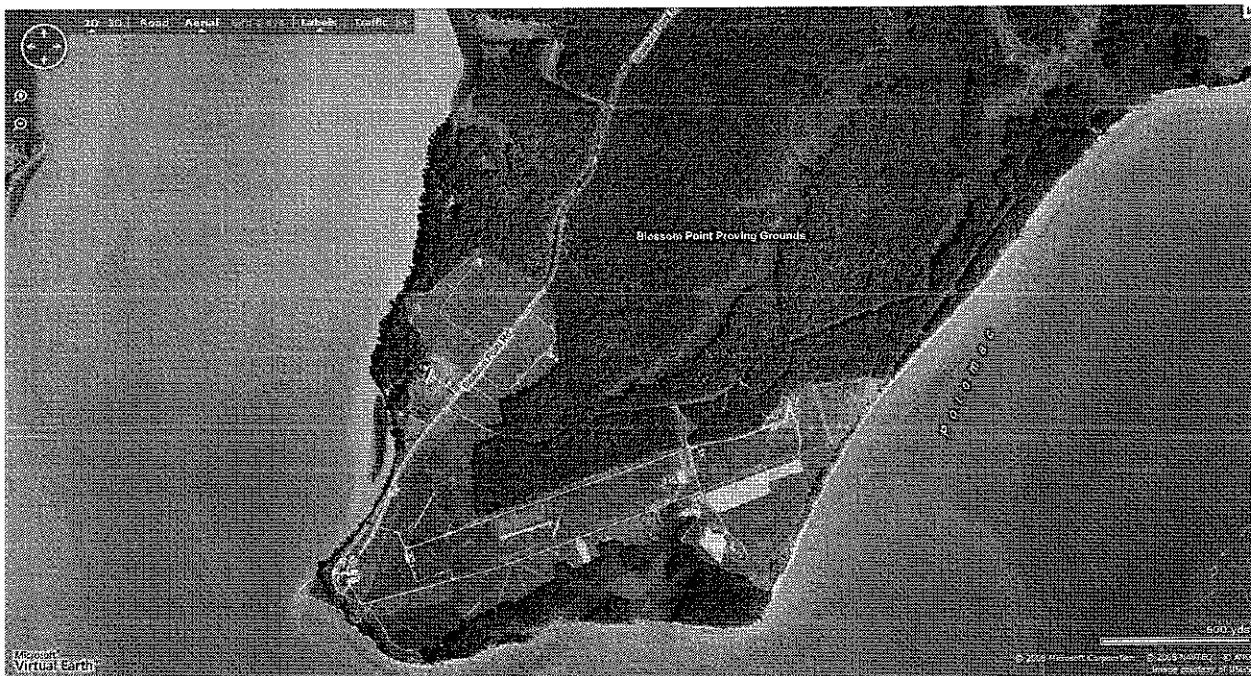
Sincerely,

Bart Bickel

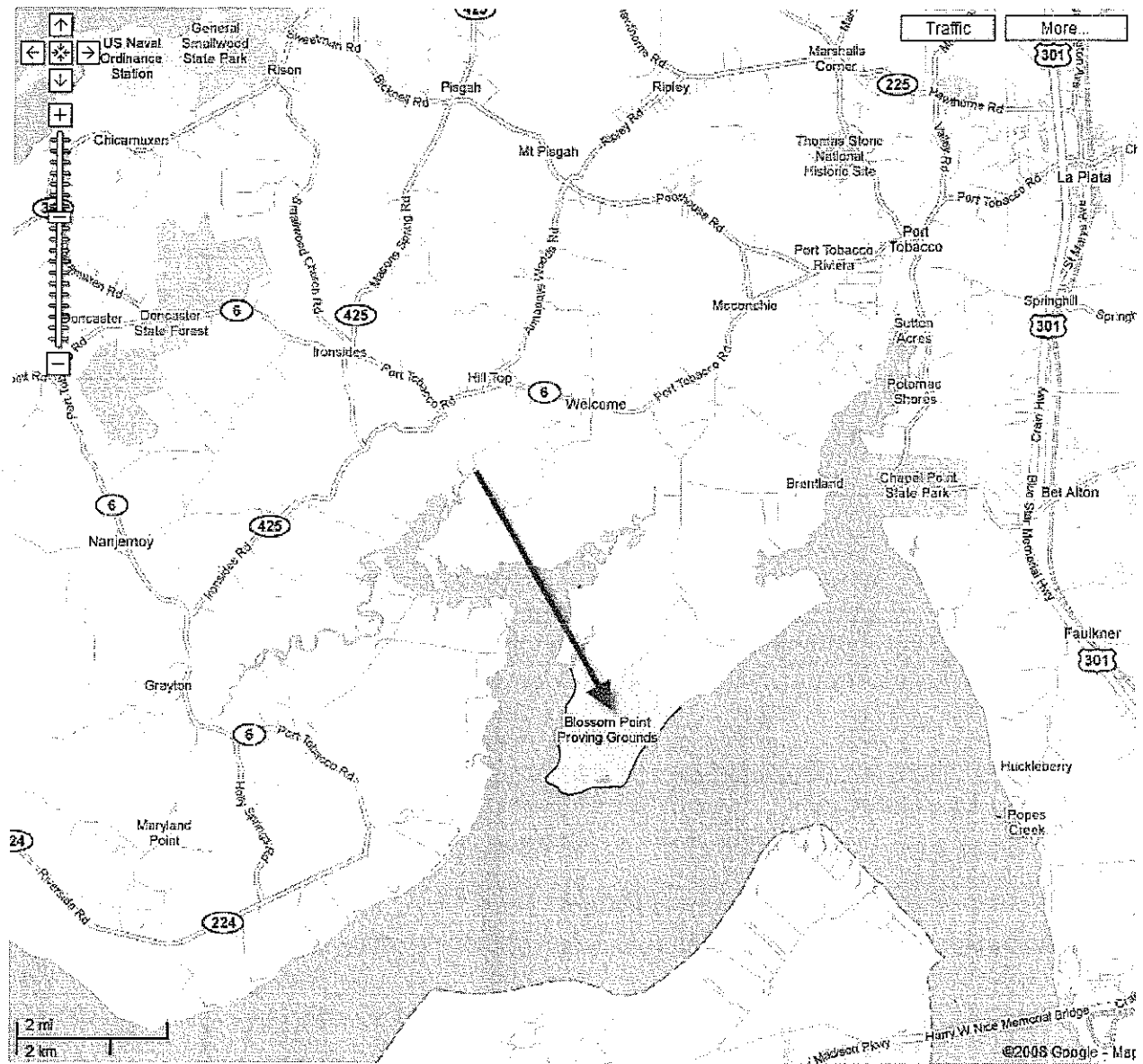
Land Planning, Landscape Architecture and
Environmental Services



Blossom Point Naval Research Laboratory – Blossom Point, Charles County, MD



Blossom Point Naval Research Laboratory – Blossom Point, Charles County, MD



Vicinity Map – Blossom Point Proving Grounds, Charles County, MD
(approximately 11.5 miles Southwest of La Plata, MD)

[This page left intentionally blank]

8.0 APPENDIX

8.1 Public Law:

Title 42, Chapter 26 of the U.S. Code (§ 2473d) requires NASA to consider rural and underdeveloped sites, and underutilized military sites first. The appropriate excerpt from Title 42 is provided below.

§ 2473d Use of abandoned and underutilized buildings, grounds, and facilities

(a) In general

In any case in which the Administrator considers the purchase, lease, or expansion of a facility to meet requirements of the National Aeronautics and Space Administration, the Administrator shall consider whether those requirements could be met by the use of one of the following:

- (1) Abandoned or underutilized buildings, grounds, and facilities in depressed communities that can be converted to National Aeronautics and Space Administration usage at a reasonable cost, as determined by the Administrator.
- (2) Any military installation that is closed or being closed, or any facility at such an installation.
- (3) Any other facility or part of a facility that the Administrator determines to be—
 - (A) owned or leased by the United States for the use of another agency of the Federal Government; and
 - (B) considered by the head of the agency involved—
 - (i) to be excess to the needs of that agency; or
 - (ii) to be underutilized by that agency.

(b) Definition

For the purposes of this section, the term “depressed communities” means rural and urban communities that are relatively depressed, in terms of age of housing, extent of poverty, growth of per capita income, extent of unemployment, job lag, or surplus labor.

The Blossom Point location was found to have underutilized facilities that might be abandoned by the military, and it was located in a rural, relatively depressed location.

In summary, in terms of public law, the Blossom Point location was the best fit for NASA's requirement to comply with Title 42, Chapter 26, Section 2473d.

8.2 Site Availability and Cost:

The USAG BP location was found to have enough acreage to accommodate a large antenna field and the clear zones needed around the antennas. Few other sites offered the acreage.

The location was found to be available almost immediately. Not all of the other sites analyzed had immediate availability. In other words, some organizations would have needed to be relocated in order to accommodate NASA facilities.

Finally, the Army and Navy organizations at the location were graciously willing to work with NASA to reduce NASA's costs in association with the project.

[This page left intentionally blank]

9.0 REFERENCES

- Astor Architects, Urban Demographers (2000). *Archeological Sites Plan*. Maryland: US Army Adelphi Laboratory Center Blossom Point Field Test Facility.
- Charles County Emergency Operations Plan*. (2002) Charles County, Maryland (PDF)
- Concept of Operations (CONOPS) for the Space Network Expansion-E (SNE-E)*. (Date Unknown) Ground System (SNEGS), Draft NASA Review
- Environmental Assessment, Construction of A Satellite Ground Communications Terminal Facility at The Blossom Point Research Facility*. (2007) La Plata, Maryland. US Army Garrison Adelphi Laboratory Center, Adelphi, MD
- Environmental Protection and Enhancement Environmental Quality, Army Regulation 200-1*. (2007) Headquarters Department of the Army (PDF)
- Final Technical Plan, Remedial Investigation, Blossom Point Field Test Activities, Volume 1, Sampling Design Plan*. (1988), Ebasco Services, Incorporated
- Kantner, Steven (2008). *System Requirements Document for the Space Network Expansion Ground System*. Goddard Space Flight Center.
- Leonard, Lesley (2008). *Blossom Point Issues*. NAVFAC Atlantic.
- Mason, Kevin (2001). *Integrated Cultural Resources Management Plan for US Army Adelphi Laboratory Center*. Maryland: Installation Office US Army Research Laboratory
- National Bald Eagle Management Guidelines*. (2007), U.S. Fish and Wildlife Service
- Office of the Sheriff Charles County, MD. (2004) *Agreement NRL and the Charles County Sheriff's Office*. (PDF)
- Reynolds, W.T. (Date Unknown). *Environmental Assessment of the Adelphi Laboratory Center at Adelphi*. W.T. Reynolds Company.
- Schirmacher, Eberhard (1994). *National Wetlands Inventory, Military Base Mapping Report Army 1A*. St. Petersburg, Florida: Department of the Interior State Fish & Wildlife Service National Wetlands Inventory.
- Sidotti, JoAnn (2008). *Concept of Operations (CONOPS) for the Space and Network Expansion-E (SNE-E)*. Lanham, MD: Honeywell Technology Solutions, Inc.
- Slaughter, T.H., and E.G Otton (1968). *Availability of Groundwater in Charles County, Maryland*. Maryland Geological Society bulletin 30,100
- SNE East Antenna Site Concept*. (2007) Honeywell Technology Solutions Inc.
- SNE East Building 13 Renovation and Supporting Facility*. (2008) La Plata, Maryland. Wetlands Delineation and Natural Resources Review, Clark – Nexsen
- SNE East Operations Center Concept*. (2007) Honeywell Technology Solutions Inc.

SNE East Tree Clearance Zone Recommendation for the Environmental Assessment. (2007) National Air and Space Administration

SNEGS-East facilities Maintenance Concept. (date unknown) (source unknown)

Space Network Expansion – East (SNE-E) – Antenna Site Selection (2008) Honeywell Technology Solutions, Inc.

Supplemental Agreement No. 1 to the Department of the Army Permit No. DACA-31-4-01-383” (2006) Department of the Navy

TAB Update Report for US Army Installation Management Agency Northeast Region. (2005) Adelphi Laboratory Center Adelphi, Maryland. Sigma Planning Group, Inc.

Thomas, R., & Reinhold, M. (1996). *Phase I Archeological Survey of Twelve Areas at the Blossom Point Field Test Facility*, Charles County, MD: MAAR Associates.

United States Department of Agriculture Natural Resources Conservation Service,”*Web Soil Survey*”, <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>, (Accessed July 28, 2008)

US Army Adelphi Laboratory Center Blossom point Field Test Facility. (2000) *Archeological Sites*. Maryland

Vanbourgondien, Louis (2007). *SNE East Antenna Site Selection*. Honeywell Technology Solutions, Inc.

Vanbourgondien, Louis (2007). *SNEGS - East Facilities Requirements Document*. Honeywell Technology Solutions, Inc.

Vanbourgondien, Louis (2008). *SNEGS - East Facilities Preliminary Engineering Report (PER)*. Honeywell Technology Solutions, Inc.

Vanbourgondien, Louis (2008). *SNEGS - East Facilities Requirements Document*. Honeywell Technology Solutions, Inc.

Wardwell, Robert (1990). *Environmental Assessment of the Adelphi Laboratory Center at Adelphi*. Maryland: Department of the US Army Laboratory Command.

Wardwell, Robert (2001). *US Army Adelphi Laboratory Center, Integrated Natural Resources Management Plan*. Adelphi, MD: Division of Public Works.

10.0 ABBREVIATIONS AND ACRONYMS

Acronym	Definition
ACAM	Alternate COMSEC Account Manager
ACRS	Automatic Conflict Resolution System
ACS	Attitude Control System
ADPE	Automated Data Processing Equipment
ANSI	American National Standards Institute
ASIC	Application Specific Integrated Circuits
BMP	Best Management Practices
BPTF	Blossom Point Tracking Facility
BPRS	Blossom Point Remote Station
CAM	COMSEC Account Manager
CCB	Configuration Control Board
CCS	Communications and Control Segment
CCTV	Closed Circuit Television
CDCN	Control and Display Computer Network
CDI	Customer Data Interface
CDPF	Customer Data Processing Facility
CDPS	Command Data Processing System
CDS	Comprehensive Discrepancy System
CEQ	Council on Environmental Quality
CESF	Central Engineering Support Facility
CFR	Code of Federal Register
CMD	Command
CMS	Control and Monitoring Subsystem
CNE	Concept Network Expansion
COM	Communications
COMSEC	Communications Security
CONOPS	Concept of Operations
COTS	Commercial Off-the-Shelf
CRAC	Computer Room Air Conditioning
CRB	Configuration Review Board
CSC	Communications Services Controller
CSCI	Computer Software Configuration Items
CSE	Chief Systems Engineer
CSM	Customer Service Management
CSS	Customer Support Subsystem
CTFS	Common Time and Frequency Subsystem
CWA	Crypto Work Area

Acronym	Definition
dB	Decibel
DCN	Documentation Change Notice
DDS	Data Distribution Subsystem
DIS	Data Interface System
DNR	Maryland Department of Natural Resources
DR	Discrepancy Report
DSN	Deep Space Network
E1	estuarine subtidal
E2	estuarine inter-tidal
EA	Environmental Assessment
EC	Engineering Change
EDIMS	Enterprise Document and Image Management System
EETS	End to End Test Subsystem
EOPS	Engineering and Operations Product Support
EPS	Electrical Power Subsystem
ETE	End-to-End
ETO	Emergency Timeout
EXC	Executive Module
FCC	Federal Communications Commission
FDF	Flight Dynamics Facility
FDM	Frequency Division Multiplexer
FONSI	Finding of No Significant Impact
FSO	Facility Security Officer
FWS	Fish and Wildlife Service
GCE	Ground Control Equipment
GCMR	Ground Control Message Requests
GCP	Goddard Corporate Park
GEO	Geostationary Earth Orbit
GN	Ground Network
GRGT	Guam Remote Ground Terminal
GRS	Guam Remote Station
GSFC	Goddard Space Flight Center
GTO	Geosynchronous Transfer Orbit
GUI	Graphical User Interface
H&S	Health and Safety
HVAC	High Voltage Air Conditioning
HMD	Hardware Maintenance Depot
HPA	High Power Amplifiers

Acronym	Definition
ICD	Interface Control Document
IDS	Intrusion Detection System
IDR	Interim Discrepancy Reports
IF	Intermediate Frequency
IFL	Intra-Facility Link
IIRV	Improved Interrange Vectors
INF	Infrastructure
IOC	Interim Operations Configuration
IONet	Internet Protocol Operational Network
ISP	InterService Periods
I&T	Integration and Test
IT	Information Technology
KuSA	Ku-band Single Access
KuSAF, R	Ku-band Single Access Forward, Return
LAN	Local Area Network
Ldn	Day-Night Average Sound Level
LEO	Low Earth Orbiting
LMT	Line Maintenance Technician
LOP	Local Operating Procedures
LOS	Line of Site
LRU	Line Replacement Unit
MCOTS	Modified COTS
MDDNR	Maryland Department of Natural Resources
MDE	Maryland Department of Environmental Resources
MMI	Man Machine Interface
MOA	Memorandum of Agreement
MOMS	Mission Operations Mission Services
MOU	Memorandum of Understanding
MTBF	Mean Time Between Failures
MTG	Maintenance Test Group
MWO	Maintenance Work Order
NASA	National Aeronautics and Space Administration
NCCDS	Network Control Center Data System
NDI	Non-Developmental Items
NENS	Near Earth Networks Services
NEPA	National Environmental Policy Act
NHB	Network Handbook
NISN	NASA Integrated Services Network

Acronym	Definition
NPDES	National Pollution Discharge Elimination System
NRL	U.S. Naval Research Laboratory
NSWC	Naval Surface Weapons Center
NTIA	National Telecommunications Information Agency
NVGD	National Vertical Geodetic Datum
OC	Operations Center
OCD	Operations Concept Document
ODM	Operational Data Messages
OEM	Original Equipment Manufacturer
OJT	On the Job Training
O&M	Operations and Maintenance
OPANI	Chief of Naval Operations Instructions
OPM	Operations Messages
OPS	Operations
ORR	Operations Readiness Review
OS	Operations Supervisor
PEM1	Palustrine Emergent
PF01	Palustrine, Forested
PM	Phase Modulation
PMO	Program Management Office
PN	Pseudorandom Noise
POC	Point-of-Contact
POCC	Payload Operations Control Center
PSHO	Pseudo Scheduling Order
PSLA	Project Service Level Agreement
PTZ	Pan-Tilt-Zoom
QA	Quality Assurance
RCVR	Receiver
RF	Radio Frequency
RFI	Radio Frequency Interference
RFQ	Request for Quote
RFR	Radio Frequency Radiation
RTE	Rare, Threatened, or Endangered Species
RTMS	Real Time Monitoring System
RTV	Return to Vendor
SA	Single Access
SARS	Subsystem, Architecture and Requirements Specification
SASR	Service Accounting Segment Replacement

Acronym	Definition
SATCON	Satellite Controller
SCP	Space Communications Program
SGAS	Second Guam Antenna System
SGL	Space-to-Ground Link
SGLAS	Space-to-Ground Link Antenna Subsystem
SGLT	Space-to Ground Link Terminal
SHO	Scheduling Order
SHPO	State Historic Preservation Organization
SMA	S-band Multiple Access
SMAF, R	S-band Multiple Access Forward, Return
SMS	Service Management Subsystem
SMTF	Software Maintenance Test Facility
SN	Space Network
SNEGS	Space Network Expansion Ground Station
SNGS	SN Ground Systems
SO	Scheduling Operator
SOH	State of Health
SOS	Site Operations Supervisor
SOW	Statement of Work
SP&M	Special Projects and Missions
SPSR	Service Planning Segment Replacement
SRD	Systems Requirement Document
SRIS	System Resources and Infrastructure Segment
SS	Shift Supervisor
SSA	S-band Single Access
SSAF, R	S-band Single Access Forward, Return
STDN	Spaceflight Tracking and Data Network
STGT	Second TDRSS Ground Terminal
SWSI	SN Web Services Interface
TA	TDRS Analyst
TDM	Tracking Data Messages
TDPS	Telemetry Data Processing System
TDRS	Tracking and Data Relay Satellite
TDRSS	Tracking and Data Relay Satellite System
TECH	Technician
TLAS	TDRSS Look Angle System
TLM	Telemetry
TOCC	TDRSS Operations Control Center

Acronym	Definition
TSI	Temporary Support Instruction
TSS	TDRS Support Subsystem
TT&C	Tracking, Telemetry, and Command
TWT	Traveling Wave Tube
TX	Transmit
UPD	User Performance Data
UPS	Uninterrupted Power Supply
US	United States
USACE	United States Army Corps of Engineers
USB	Unified S-band
USEHA	Uniformed Services Environmental Health Association
UTC	Universal Coordinated Time
UXO	Unexploded Ordnance
VCS	Voice Communication System
VSAT	Very Small Aperture Terminal
WKS	Workstations
WSC	White Sands Complex
WSCI	White Sands Communications Interface
WSGT	White Sands Ground Terminal

11.0 LIST OF PREPARERS

The Navy Technical Representatives for this document are:

Lesley D. Leonard
Code EV22
Environmental Planning
Naval Facilities Engineering Command, Atlantic
6506 Hampton Boulevard
Norfolk, Virginia 23508

And

Ann B. Miller, P.E.
Code CIEUR
Capital Improvements
Naval Facilities Engineering Command, Atlantic
6506 Hampton Boulevard
Norfolk, Virginia 23508

The contractor responsible for the preparation of this document is:

A. Morton Thomas and Associates
12750 Twinbrook Parkway
Rockville, MD 20850

Key personnel

Naval Facilities Engineering Command, Atlantic

Paul A. Block, Navy Natural Resources Specialist: University of Texas, Arlington, B.S., Biology

Lesley D. Leonard, Navy NEPA Project Manager: Old Dominion University, B.S., Biology; Old Dominion University, M.S., Biology (wetland concentration)

Ann B. Miller, P.E., SNEGS-E Capital Improvements Project Manager: Virginia Polytechnic Institute and State University, B.S., Civil Engineering; Old Dominion University, Master of Engineering Management

Naval Facilities Engineering Command, Washington

Laura R. Muhs, Navy Natural Resource Specialist: University of Michigan, B.S., Natural Resource Management and Ecology; North Carolina State University, M.S., Natural Resource Management and Hydrology.

U.S. Army Garrison, Adelphi

Julia Long

A. Morton Thomas and Associates

Matthew Ernest, P.E., Associate: University of Pittsburgh, B.S., Civil Engineering Technology

Gregory J. Osband, R.L.A., Associate, Director of Landscape Architecture, Planning and Environmental Services: Harvard University, B.A., Biology; Harvard Graduate School of Design, Master of Landscape Architecture

Robert Warner, P.E., Associate: The Pennsylvania State University, B.S., Landscape Architecture; Catholic University of America, Master of City and Regional Planning