

**FINDING OF NO SIGNIFICANT IMPACT**  
*and*  
**FINDING OF NO PRACTICABLE ALTERNATIVE**  
*for*  
**ROAD MAINTENANCE**  
*at*  
**NEW BOSTON AIR FORCE STATION, NEW HAMPSHIRE**

## **Introduction**

The U.S. Air Force (USAF) at New Boston Air Station (NBAFS), New Hampshire proposes to maintain existing installation roadways. Pursuant to Section 102(2)(c) of the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental regulations (40 CFR Sec 1500-1508) implementing procedural provisions of NEPA the Department of Defense (DOD) gives notice that an environmental assessment (EA) has been prepared for the proposed maintenance of roads at New Boston Air Force Station New Hampshire. This document serves as both a FONSI and FONPA. This FONSI/FONPA has been prepared in accordance with Executive Orders (EO) 11990 and 11988.

The EA evaluates the environmental consequences of a proposed action (Road Maintenance), and the no-action alternative (i.e., not maintaining roads). The assessment evaluates the potential for impacts to air quality, noise levels, topography, geology, soils, water resources, ecological resources (including threatened and endangered species and wetlands), cultural resources, land use, recreation, visual resources, socioeconomics, and health and safety. Based on a comparison of alternatives, the proposed action is preferred over the other alternatives.

## **Proposed Action**

The proposed action includes cleaning culverts with hand tools and heavy equipment, replacing failed or undersized culverts with culverts correctly sized to handle maximum flows. Installation of erosion control devices would include creation of water bars and broad based dips with heavy equipment and grading existing roadways.

Potential impacts to the natural and human environment associated with road maintenance at NBAFS are assessed in the attached Environmental Assessment (EA) entitled "Environmental Assessment For Road Maintenance at New Boston Air Force Station, New Hampshire" and hereby incorporated by reference.

## **Environmental Effects**

### **Air Quality and Noise**

Localized, short-term air quality impacts that could occur with the proposed action include the generation of fugitive dust, and exhaust emissions. The potential impacts on ambient air quality in the vicinity of the NBAFS site would be minor and of short duration. No violations of applicable federal and state ambient air quality standards are expected.

General conformity under the Clean Air Act, Section 176 has been evaluated for the project described in this Environmental Assessment according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to this action because the action is an exempt action under 40 CFR 93.153(c).

Noise impacts would occur from the use of machinery and vehicles. Work would occur mostly during weekday daytime hours, thus much of the equipment noise would be masked by background noises. Noise impacts associated with project activities would be minor and of short duration. Mitigating measures include ensuring work is scheduled during normal weekday work hours and ensuring the equipment noise controls are functional.

## Report Documentation Page

*Form Approved  
OMB No. 0704-0188*

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE <b>00 JUL 2004</b>	2. REPORT TYPE <b>N/A</b>	3. DATES COVERED <b>-</b>	
4. TITLE AND SUBTITLE <b>Environmental Assessment For Road Maintenance At New Boston Air Force Station, New Hampshire</b>		5a. CONTRACT NUMBER	
		5b. GRANT NUMBER	
		5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)		5d. PROJECT NUMBER	
		5e. TASK NUMBER	
		5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Environmental Assessment Division Argonne National Laboratory, Argonne, Illinois</b>		8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)		10. SPONSOR/MONITOR'S ACRONYM(S)	
		11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release, distribution unlimited</b>			
13. SUPPLEMENTARY NOTES <b>The original document contains color images.</b>			
14. ABSTRACT			
15. SUBJECT TERMS			
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>	<b>UU</b>
			18. NUMBER OF PAGES <b>43</b>
			19a. NAME OF RESPONSIBLE PERSON

## **Topography, Geology, and Soils**

No adverse impacts to geology or soils are anticipated from the proposed action. Soil erosion would be negligible due to the short-term exposure of open soils and use of Best Management Practices (BMPs). USAF personnel and contractors would conduct culvert and drain maintenance and replacement during periods of low flow. Exposed soils would be re-vegetated and would be expected to reestablish quickly after seeding with grass. Road grading activities would be implemented to insure road crowns are maintained and water is shed from the roads.

## **Water Resources**

Localized minor to negligible increases in turbidity and sedimentation of surface waters in the vicinity of maintenance activities could occur. The major source for these impacts would be runoff from exposed soil, particularly during inclement weather, erosion control practices required to meet BMP standards would mitigate any potentially adverse impacts. Long-term improvement in water resources is expected to result from the implementation of the proposed action.

## **Ecological Resources**

Impacts to ecological resources would be limited primarily to the immediate road maintenance area. Dust and other particulates and noise associated with the project, which could affect adjacent vegetation, would be produced over a short period of time and would be confined to the area adjacent to roads. The proposed road maintenance would have a negligible impact on wildlife. Wildlife in the immediate area would be disturbed during road maintenance by noise, visual disturbances from equipment, and personnel. These disturbances could cause short distance movements of wildlife, scare birds off their nests, or otherwise disrupt normal wildlife activities.

## **Threatened and Endangered Species**

Eastern hognose snake (New Hampshire, threatened) could be affected by road maintenance in the event a snake was inadvertently run over by grading equipment. All personnel would be briefed on the snake's appearance and asked to ensure avoidance. Individual snakes would be expected to move away from maintenance activities.

## **Wetlands**

Minor wetlands impacts to both jurisdictional and non-jurisdictional wetlands will be unavoidable if the proposed action is implemented. When necessary the upstream side of culverts would be cleared to ensure culverts continue to function correctly. Impacts from wetlands dredging activity (culvert cleaning) are unavoidable because the existing road network crosses many wetlands and drainages. There are no apparent options for avoidance of minor impacts to the wetlands because roads are in place; many predate the United States ownership.

## **Cultural Resources**

The proposed construction could impact known cultural resources. Several of the roads may be eligible to the National Register of Historic Places as contributing elements to a historic district or as stand alone elements (Mack Hill Road). Historical stone box culverts would be replaced by modern steel or plastic round culverts.

## **Environmental Justice**

No environmental justice impacts would be expected to either minority or low-income populations, since the proposed project would have no impact on the population immediately surrounding NBAFS.

## **No Action Alternative**

Under the no-action alternative, road maintenance would not occur. Taking no action would result in deterioration of the existing environment. The impacts associated with the road maintenance described in Section 4.1 (proposed action) would not occur. NBAFS roads would continue to receive minimal maintenance and culverts would not be

maintained. Many of the installation's roads would be expected to wash out over time and eventually become impassable.

The Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) were both made available to the affected public for a 30-day public comment period from July 30, 2004 to August 30, 2004. The affected public was notified by advertisements placed in the state's largest newspaper. The EA and FONSI were made available by placing on file in the town libraries in Amherst, Mont Vernon and New Boston, New Hampshire.

## **PRACTICABLE ALTERNATIVES AND ENVIRONMENTAL EFFECTS**

EO 11990 directs that each agency shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for (1) acquiring, managing, and disposing of Federal lands and facilities; and (2) providing Federally undertaken, financed, or assisted construction and improvements. The proposed action will have unavoidable impacts to wetlands because the existing road network at New Boston Air Force Station crosses wetlands and needs maintenance to remain passable.

### **Finding of No Significant Impact**

Based on the attached EA, conducted in accordance with the Council on Environmental Quality Regulations implementing the National Environmental Policy Act of 1969 (Public Law 91-190, 42 U.S.C. §§4321-4347), as amended, and 32 CFR 989, 15 Jul 1999, and amended 28 Mar 2001, an assessment of the identified environmental effects has been prepared for the proposed maintenance of roads at New Boston Air Force Station, New Hampshire. I find that the action will have no significant impact on the quality of the human environment; thus, an Environmental Impact Statement is not warranted.

### **Finding of No Practicable Alternative**

Pursuant to Executive Orders 11990 and 11988, the authority delegated by SAFO 780-1, and taking the submitted information into account, I find that there is no practicable alternative to this action and the proposed action includes all practical measures to minimize harm to the environment.

---

Date

---

DANIEL P. LEAF, Lieutenant General, USAF  
Vice Commander, AFSPC

**ENVIRONMENTAL ASSESSMENT  
FOR  
ROAD MAINTENANCE  
AT NEW BOSTON AIR FORCE STATION, NEW HAMPSHIRE**



**Prepared by**

**23 SOPS/MAFCVN  
U.S. Department of the Air Force  
New Boston Air Force Station  
New Hampshire**

**July 2004**

<b>TABLES.....</b>	<b>iii</b>
<b>FIGURES.....</b>	<b>iii</b>
<b>ACRONYMS AND ABBREVIATIONS.....</b>	<b>iv</b>
<b>UNITS OF MEASURE.....</b>	<b>v</b>
<b>ABSTRACT.....</b>	<b>1</b>
<b>1 PURPOSE AND NEED FOR THE PROPOSED ACTION .....</b>	<b>2</b>
<b>2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES.....</b>	<b>2</b>
2.1 Proposed Action.....	2
2.2 Alternative to the Proposed Action.....	6
2.2.2 No-Action Alternative .....	6
<b>3 AFFECTED ENVIRONMENT .....</b>	<b>7</b>
3.1 Location, History, and Current Mission .....	7
3.2 Climate, Air Quality, and Noise .....	10
3.2.1 Climate.....	10
3.2.2 Air Quality .....	10
3.2.3 Noise .....	10
3.3 Topography, Geology, and Soils .....	11
3.4 Water Resources .....	12
3.5 Ecological Resources .....	12
3.6 Cultural Resources .....	14
3.7 Land Use, Recreation, and Visual Resources .....	14
3.8 Socioeconomics .....	15
<b>4 ENVIRONMENTAL IMPACTS OF .....</b>	<b>16</b>
<b>THE PROPOSED ACTION AND ALTERNATIVES .....</b>	<b>16</b>
4.1 Environmental Consequences of the Proposed Action.....	16
4.1.1 Air Quality and Noise .....	16
4.1.2 Topography, Geology, and Soils .....	17
4.1.3 Water Resources .....	17
4.1.4 Ecological Resources .....	17
4.1.5 Cultural Resources .....	19
4.1.6 Land Use, Recreation, and Visual Resources .....	20
4.1.7 Socioeconomics .....	20
4.1.8 Health and Safety .....	20
4.2 Environmental Consequences of the No-Action Alternative.....	21
4.3 Adverse Effects that Cannot be Avoided if the Project Is Implemented .....	21
4.4 Irreversible and Irretrievable Commitment of Resources.....	21
4.5 Relationship between Short-Term Uses and Long-Term Productivity.....	21
4.6 Cumulative and Incremental Impacts .....	22
<b>5 REFERENCES.....</b>	<b>23</b>
<b>6 LIST OF PREPARERS.....</b>	<b>26</b>
<b>7 AGENCIES, ORGANIZATIONS, AND PERSONS CONTACTED .....</b>	<b>27</b>
<b>APPENDIX A, LISTED AND RARE SPECIES ON NEW BOSTON AIR FORCE</b>	
<b>STATION.....</b>	<b>I</b>
<b>APPENDIX B, Request for Environmental Impact Analysis (AF Form 813) .....</b>	<b>I</b>
<b>APPENDIX C CORRESPONDENCE.....</b>	<b>I</b>

## TABLES

1	Summary Comparison of Impacts Associated with the Proposed Action, Alternate Action, and No-Action Alternatives .....	6
A.1	Federally Listed, State Listed, and Rare Species of Plants and Animals Found on New Boston Air Station, New Hampshire .....	I
A.2	Species Listing Status and Ranking Codes Used by the Federal Government and the State of New Hampshire .....	II

## FIGURES

1	Location of the Proposed and Alternate Action.....	4
2	Water Bars	
3	Broad Based Dips	
4	Location of New Boston Air Force Station, New Hampshire .....	9
5	Station Boundaries, Roads, Facilities, and Natural Features on New Boston Air Station, New Hampshire .....	10

## ACRONYMS AND ABBREVIATIONS

AFSCN	Air Force Satellite Control Network
ANL	Argonne National Laboratory
CFR	Code of Federal Regulations
CO	carbon monoxide
CTV	cable television
EA	environmental assessment
EIAP	environmental impact analysis process
EPA	Environmental Protection Agency
MSL	mean sea level
NAAQS	National Ambient Air Quality Standards
NASA	National Aeronautics and Space Administration
NATO	North Atlantic Treaty Organization
NBAFS	New Boston Air Force Station
NEPA	National Environmental Policy Act
NHDHR	New Hampshire Division of Historical Resources
NO <sub>2</sub>	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
O <sub>3</sub>	ozone
OSHA	Occupational Health and Safety Act
PAL	Public Archaeology Laboratory, Inc.
Pb	lead
PES	Parsons Engineering Sciences, Inc.
PM <sub>2.5</sub>	particulate matter with an aerodynamic diameter of 2.5 μm
PM <sub>10</sub>	particulate matter with an aerodynamic diameter of 10 μm
SHPO	State Historic Preservation Officer
SO <sub>2</sub>	sulfur dioxide
SOPS	Space Operations Squadron
SAAQS	State of New Hampshire Ambient Air Quality Standards
USAF	United States Air Force
UXO	unexploded ordnance

## UNITS OF MEASURE

cm	centimeter(s)
dB	decibel(s)
dBA	unit of weighted sound-pressure level
ft	foot (feet)
h	hour(s)
ha	hectare(s)
in.	inch(es)
km	kilometer(s)
km <sup>2</sup>	square kilometer(s)
kV	kilovolt
L <sub>dn</sub>	day-night weighted equivalent sound level
L <sub>eq</sub>	equivalent steady sound level
m	meter(s)
m <sup>2</sup>	square meter(s)
m <sup>3</sup>	cubic meter(s)
mi	mile(s)
mi <sup>2</sup>	square mile(s)
mm	millimeter(s)
μm	micrometer(s)
yd <sup>3</sup>	cubic yard(s)

**ENVIRONMENTAL ASSESSMENT  
FOR  
ROAD MAINTENANCE  
AT NEW BOSTON AIR FORCE STATION, NEW HAMPSHIRE**

**prepared by  
23 SOPS/MAFCVN  
U.S. Department of the Air Force  
New Boston Air Force Station  
New Hampshire**

This Environmental Assessment (EA) was prepared in accordance with

- \* The National Environmental Policy Act (NEPA)
- \* The Council on Environmental Quality regulations for implementing NEPA
- \* 32 Code of Federal Regulations (CFR) Part 989, Environmental Impact Analysis Process (EIAP)
- \* AFI 32-7060, Interagency and Intergovernmental Coordination for Environmental Planning; and
- \* AFI 32-7061, The Environmental Impact Process

**ABSTRACT**

The proposed action evaluated in this Environmental Assessment (EA) is to maintain existing installation roadways. The proposed action includes cleaning culverts with hand tools and heavy equipment, replacing failed or undersized culverts with culverts correctly sized to handle maximum flows. Grading of gravel installation roads would be performed on an as needed basis throughout the year. Installation of erosion control devices would include creation of water bars and broad based dips with heavy equipment. Culvert cleaning and replacement would be performed annually during periods of low-flow.

All work described in this EA would adhere to guidance in with New Hampshire Best Management Practices (NHDFL, 2001) manual. This EA evaluated the potential impacts to air quality, noise levels, topography, geology, soils, water resources, ecological resources, cultural resources, land use, recreation, visual resources, socioeconomics, and health and safety. On the basis of this assessment, it was determined that the proposed action would result in only minor to negligible localized, short-term, or temporary impacts to the environment as compared to the no-action alternative. Culvert maintenance would result in a negligible to minor incremental addition to impacts that have occurred from other activities.

## **1 PURPOSE AND NEED FOR THE PROPOSED ACTION**

The proposed action evaluated in this Environmental Assessment (EA) is to maintain existing installation roadways. The proposed action includes cleaning culverts with hand tools and heavy equipment, replacing failed or undersized culverts with culverts correctly sized to handle maximum flows. Grading of gravel installation roads would be performed on an as needed basis throughout the year. Installation of erosion control devices would include creation of water bars and broad based dips with heavy equipment. Culvert cleaning and replacement would be performed annually during periods of low-flow.

All work described in this EA would adhere to guidance in the New Hampshire Best Management Practices (NHDFL, 2001) manual. This EA was prepared in accordance with specific tasks and procedures of the U.S. Air Force (USAF) Environmental Impact Analysis Process (EIAP), as it applies to the National Environmental Policy Act (NEPA) of 1969, 40 Code of Federal Regulations (CFR) Parts 1500-1508, as amended.

## **2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES**

This section provides a brief description of the proposed action (Section 2.1), and the no-action alternative (Section 2.2.2).

### **2.1 Proposed Action**

The proposed action evaluated in this Environmental Assessment (EA) is to maintain existing installation roadways. The proposed action includes cleaning culverts with hand tools and heavy equipment, replacing failed or undersized culverts with culverts correctly sized to handle maximum flows. Grading of gravel installation roads would be performed on an as needed basis throughout the year. Figure 1 shows the locations of existing culverts and drains throughout the installation. Installation of erosion control devices would include creation of water bars and broad based dips with heavy equipment (Figure 2 and 3). Erosion control devices would be used to stabilize roads that are not needed for regular wheeled vehicle travel. Culvert cleaning and replacement would be performed annually during periods of low-flow. NBAFS has approximately 175 culverts and 60 drains with outfalls dispersed throughout the installation.

Figure 1 Culverts

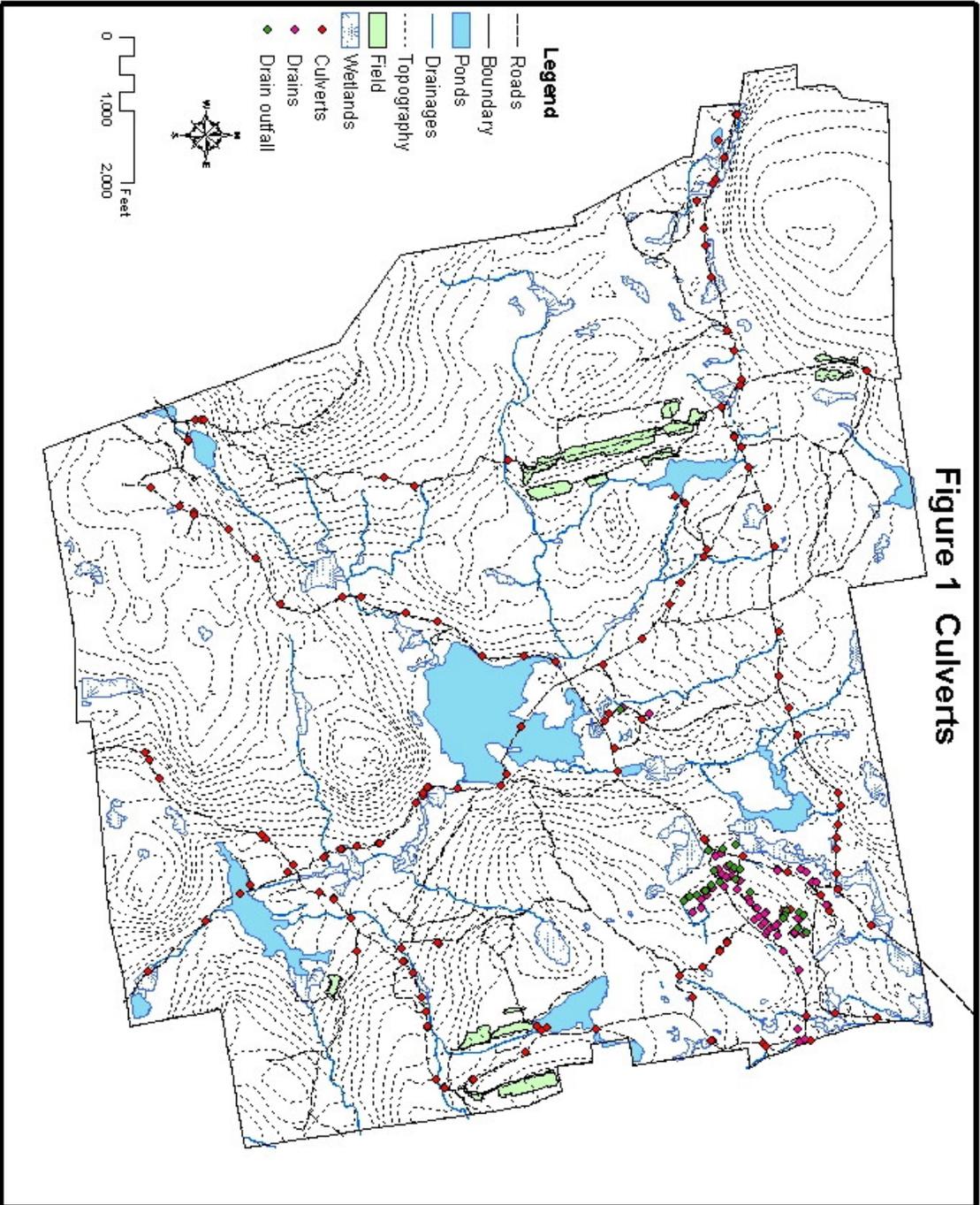


Figure 2 Water Bars

## WATER BARS

**Definition:**

An excavated channel with earthen or reinforced berm constructed across a truck road or skid trail.

**Purpose:**

To intercept and divert water from side ditches and truck road or skid trail surfaces, minimizing erosion by decreasing the slope length of surface water flow.

**Conditions Where Practice Applies:**

On any sloping truck road or skid trail where surface water runoff may cause erosion.

**Guidelines:**

- Start placement of water bars at the farthest skid trail and work back to the log landing and then to the truck road.
- Install water bars with a skidder blade, dozer blade, excavator or by hand.

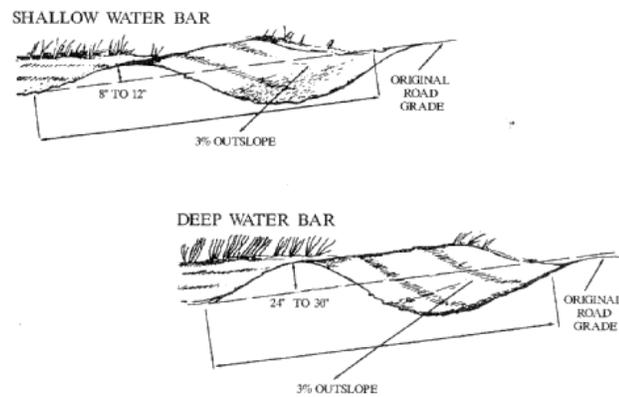
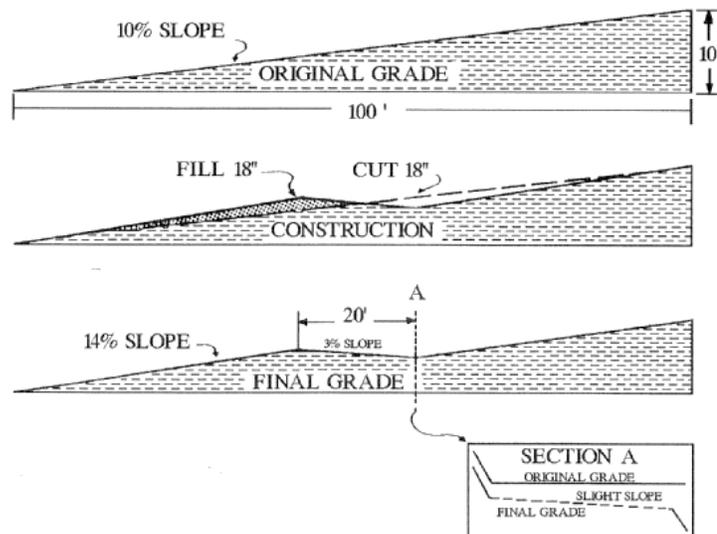


Figure 3 Broad Based Dips

## BROAD BASED DIPS

<p><input type="checkbox"/> <b>Definition:</b> A dip and reverse slope in a truck road surface with an outslope in the dip for natural cross drainage.</p> <p><input type="checkbox"/> <b>Purpose:</b> To provide cross drainage on insloped truck roads to prevent build-up of excessive surface runoff and subsequent erosion.</p> <p><input type="checkbox"/> <b>Conditions Where Practice Applies:</b> Use on truck roads and heavily used skid trails having a gradient of 10% or less. May be substituted for other cross drainage structures where no intermittent or permanent streams are present.</p>
---

### Guidelines:



## **2.2 Alternative to the Proposed Action**

### 2.2.2 No-Action Alternative

The no action alternative would be to discontinue culvert maintenance and allow roads to wash out. The slow demise of existing culvert system could lead to increased sediment loading in adjacent wetlands. Roads would eventually become impassable to normal over the road wheeled vehicles. Impassable roads at NBAFS would restrict the use of military and civilian emergency response vehicles and compromise safety throughout much of the installation.

### **3 AFFECTED ENVIRONMENT**

This section presents a general description of NBAFS and the resources that could be affected by the road maintenance. The descriptive material is drawn mostly from various EAs and natural resources reports that pertain to the NBAFS (e.g., ANL 1990, 1997, 1999; PES 1995, 1996).

#### **3.1 Location, History, and Current Mission**

NBAFS is located in south-central New Hampshire about 19 km (12 mi) west of Manchester. The 1,144-ha (2,826-acre) site is located within the towns of New Boston, Amherst, and Mont Vernon in Hillsborough County (Figure 4).

As one of the satellite command and control stations in the worldwide Air Force Satellite Control Network (AFSCN), the current mission of NBAFS is to serve as a remote tracking station for US Government and allied satellites. The 23 Space Operations Squadron (SOPS) at NBAFS provides launch, early orbit checkout, and on-orbit support for more than 140 US Government, North Atlantic Treaty Organization (NATO) and other allied nation satellites, and for National Aeronautics and Space Administration (NASA) Space Shuttle missions.

From 1941 until 1956 the site (then known as the New Boston Bombing and Gunnery Range) was used as an air-to-ground bombing and strafing range. The USAF acquired rights to the site in 1957 for use as a satellite tracking station. In 1959, the 6594<sup>th</sup> Instrumentation Squadron was activated at NBAFS. Squadron activities began in 1960 with use of mobile radar units until the permanent facilities were constructed and in operation by 1964. In the early 1960s, the Operations Area was cleared of unexploded ordnance (UXO) before the permanent facilities for the satellite-tracking mission were constructed. The site was formerly under the jurisdiction of the Air Force Systems Command, and moved under the Air Force Space Command in 1987 (PES 1995). As mentioned, the satellite tracking mission is conducted from the Operations Area. The remainder of NBAFS supports military training exercises, recreation, and natural resource management (ANL 2000).

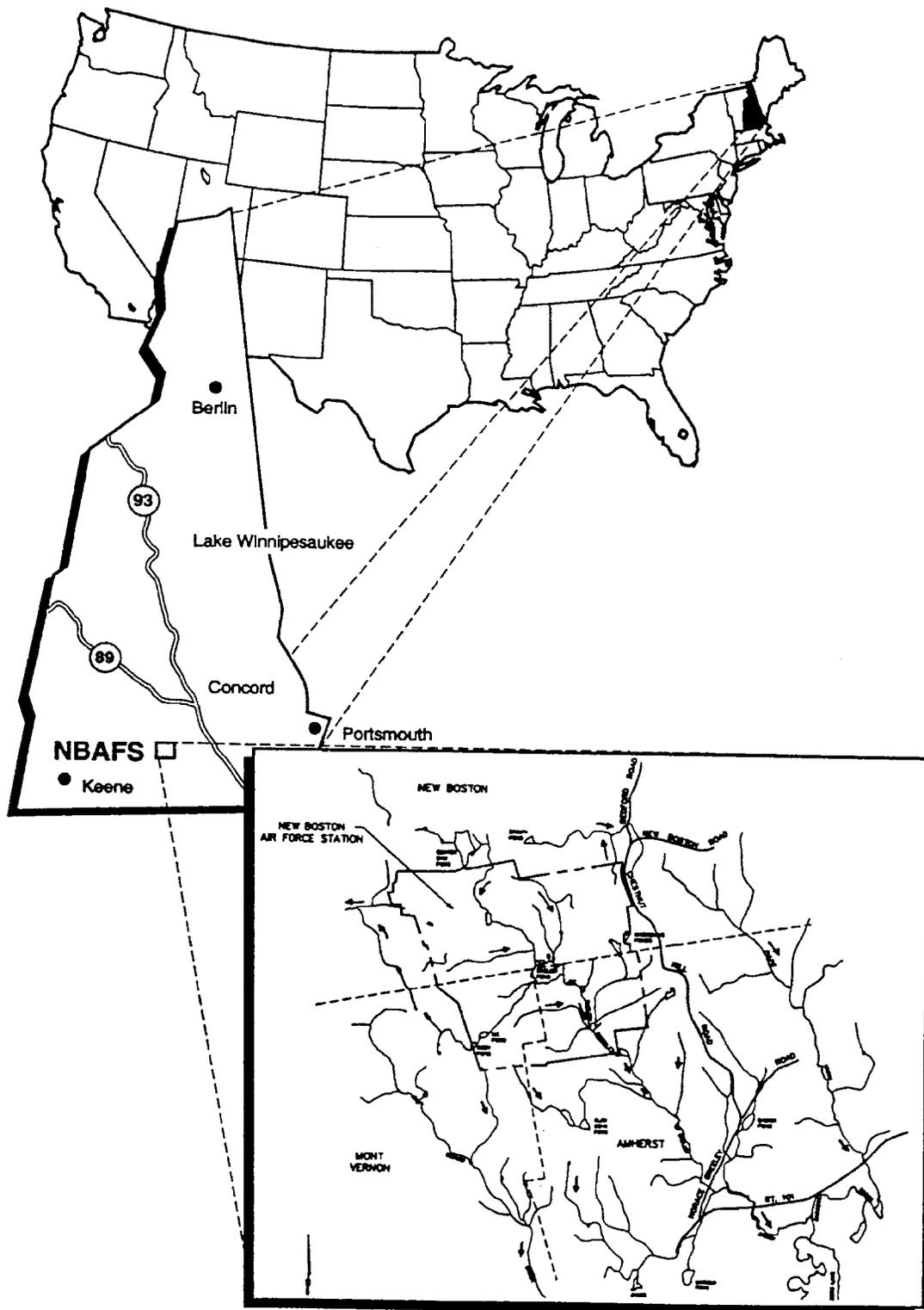
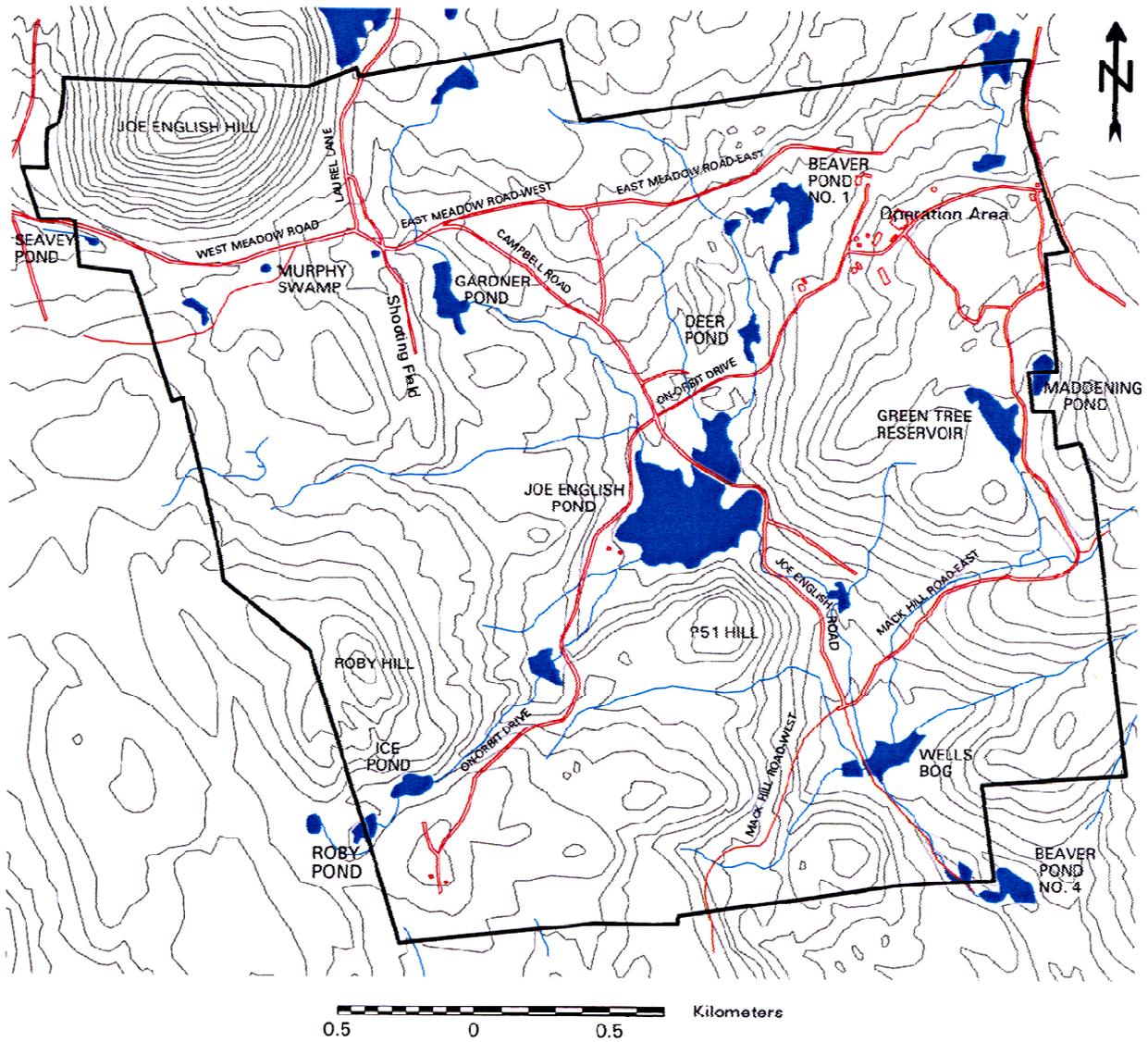


Figure 4, Location of New Boston Air Force Station, New Hampshire (Source: ENSR 1993)



**Figure 5, Station Boundaries, Roads, Facilities, and Natural Features on New Boston Air Force Station, New Hampshire (Source: ANL 1997)**

## **3.2 Climate, Air Quality, and Noise**

### 3.2.1 Climate

The region around the NBAFS is characterized by a humid continental climate. Precipitation is distributed throughout the year, with no particular wet or dry season. Coastal storms can be a serious weather hazard in southeastern New Hampshire, decreasing in importance northward (Ruffner 1985). Such storms generate very strong winds and heavy rain or snow. Storms of tropical origin affect or threaten New Hampshire about once every 2 to 3 years. Thunderstorms occur 15 to 30 times per year. Ice storms occur in the winter but are usually of short duration. However, a few widespread and prolonged ice storms have occurred. Based on the data for the 9,130 km<sup>2</sup> (3,530 mi<sup>2</sup>) area that includes the NBAFS, less than two tornadoes occur per year. The localized area effected by a tornado averages only 0.29 km<sup>2</sup> (0.11 mi<sup>2</sup>; Ramsdell and Andrews 1986) (ANL 2000).

### 3.2.2 Air Quality

The State of New Hampshire Ambient Air Quality Standards (SAAQS) are identical to the National Ambient Air Quality Standards (NAAQS) for six criteria air pollutants: sulfur oxides (as sulfur dioxide [SO<sub>2</sub>]), particulate matter with aerodynamic diameters of ≤10 μm and equal to 2.5 μm (PM<sub>10</sub> and PM<sub>2.5</sub> respectively), carbon monoxide (CO), ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), and lead (Pb) (Sanborn 1998). In 1996, New Hampshire discontinued Pb monitoring because Pb concentrations were well below the NAAQS and at the lowest levels of the detection limit (Argonne 2000). As of November 4, 2002, Hillsborough County (which includes NBAFS) was designated as an attainment area for all criteria pollutants, except ozone. New Boston AFS is located in two Ozone non-attainment areas, Boston-Lawrence-Worcester (E. MA), MA-NH Serious and Manchester NH (Marginal)(source <http://www.epa.gov/air/oaqps/greenbk/oindex.html>).

Permitted air pollution sources at NBAFS include two backup generators at the power plant (Building 157) and 15 boilers located in various buildings in the Operations Area.

### 3.2.3 Noise

Currently, no quantitative noise-limit regulations exist in New Hampshire (ANL 1999). The U.S. Environmental Protection Agency (EPA) guidelines recommend an L<sub>dn</sub> (the day-night

weighted equivalent sound level) of 55 dBA<sup>1</sup>, which is considered sufficient to protect the public from the effect of broad-band environmental noise in typically quiet outdoor and residential areas (EPA 1974). For protection against hearing loss in the general population from non-impulsive noise, the EPA guidelines recommend an  $L_{eq}$ <sup>2</sup> of 70 dBA or less per day over a 40-year period.

No noise monitoring data are available from the area around the NBAFS site. However, the acoustic environment around the NBAFS site can be considered that of a rural location, having typical residual sound levels of approximately 30 to 35 dBA (Liebich and Cristoforo 1988).

### **3.3 Topography, Geology, and Soils**

NBAFS is located within an area of hilly and mountainous terrain. The main physiographic features on NBAFS are Chestnut Hill in the northeastern section, Roby Hill in the southwestern section, and Joe English Hill in the northwestern section. Within the center of the station is Joe English Pond (Figure 5).

The bedrock geology underlying NBAFS consists of Pre-Quaternary metamorphic and igneous rocks. Generally, the bedrock is buried beneath glacial drift. Till is the dominant surficial deposit, composed of an unsorted to poorly sorted mixture of clay, silt, sand, pebble, cobbles, gravel, and boulders. However, swamp deposits and recent alluvium is also present. Glacial striations and drumlins (elongate or oval hills) are present throughout the area, providing evidence of the general north to south glacial movement. Chestnut Hill is one such glacial feature, a drumlin (PES 1995).

Over 90 percent of the soils on NBAFS were formed in glacial till; the remainder formed in outwash plains, kame terraces, or stream valleys. Soils formed in glacial till tend to be fine-textured and dense and contain many stones. Soils covering about one-half of NBAFS are classified as stony or very stony. The soils at NBAFS tend to be highly resistant to erosion if stabilized by vegetative cover. However, the soils have moderate to extreme erosion potential in

---

<sup>1</sup> dBA is a unit of weighted sound-pressure level, measured by the use of the metering characteristics and the "A" weighting specified in the *American Standard Specification for Sound Level Meters ANSI S1.4-1983 and Amendment S1.4A-1985* (Acoustical Society of America 1983, 1985).

<sup>2</sup>  $L_{eq}$  is the equivalent steady sound level that, if continuous during a specific time period, would contain the same total energy as the actual time-varying sound. For example,  $L_{eq}(1-h)$  is the 1-hour equivalent sound level.

bare areas due to the fine texture of the soils and steep slopes present in portions of NBAFS. Activities that disturb or remove vegetation are likely to increase the erosion hazard, particularly on slopes (ENSR 1993).

### **3.4 Water Resources**

Most of NBAFS is located within the Joe English Brook watershed. The station contains a number of open waters and stream segments (intermittent and perennial; Figure 5). Most surface water drains into Joe English Pond or Brook and eventually exits the installation in the South East corner.

The major aquifer system at NBAFS is in the bedrock. Groundwater levels at NBAFS range from 22 m (73 ft) below land surface to flowing artesian conditions near Joe English Pond. Six wells have been drilled into the groundwater at NBAFS for potable water (only five are currently used). Four other wells have been drilled for non-potable groundwater used for the satellite-tracking facilities (PES 1995).

No Federal Emergency Management Agency data are available for floodplains within NBAFS (PES 1995). However, major flood events (i.e., 100- to 500-year flood) would principally affect areas associated with Joe English Pond and Joe English Brook (PES 1995).

The only permitted water pollution point source is the station wastewater treatment plant. Sanitary wastewater from the Operations Area is collected by a sewer system and routed to the station's wastewater treatment plant. The plant provides primary treatment and extended aeration treatment and disinfection. Discharges from the wastewater treatment plant are then discharged through a National Pollutant Discharge Elimination System (NPDES) permitted outfall to a hillside, where it eventually discharges into Beaver Pond No. 1.

### **3.5 Ecological Resources**

The NBAFS has been identified as a Category I installation by both the New Hampshire Department of Fish and Game and the U.S. Fish and Wildlife Service. This classification indicates that the NBAFS has suitable habitat for conserving and managing fish and wildlife. An Integrated Natural Resource Management Plan has been prepared to guide management of the natural resources of NBAFS using an ecosystem approach. The relatively high biodiversity

supported on NBAFS is attributable to the presence of generally undisturbed lands throughout much of the site and to the types of low-impact activities that occur on the station (ANL 1997).

Three ecological surveys have been conducted to determine the habitats and biotic composition of NBAFS, wetland delineation (PES 1996), biodiversity survey (ANL 1997) and a bat survey (ANL 2002). The following discussion of ecological resources emphasizes those resources that may be affected by the proposed action.

NBAFS habitat is primarily mature deciduous, coniferous and mixed forests. A 1996 installation wide inventory determined Northern red oak (*Quercus rubra*) is the dominant deciduous species in the forest with 22 percent of the basal area. Red maple (*Acer rubrum*) was dominant in overall number of stems with 24 percent compared to 20.7 percent for red oak. Other common species include black birch (*Betula lenta*), white birch (*Betula papyrifera*), black oak (*Quercus velutina*) American beech (*Fagus grandifolia*). Eastern white pine (*Pinus strobus*) and Eastern hemlock (*Tsuga canadensis*) are the two dominant coniferous species found on the installation. Eastern white pine accounts for 24 percent of the basal area of all trees and 13 percent of stems, hemlock accounts for 16 percent of basal area and 14 percent of the stems.

Commonly encountered species include mourning dove, blue jay, hermit thrush, black-capped chickadee, American robin, rufous-sided towhee, dark-eyed junco, house finch, raccoon, coyote, Eastern chipmunk, woodchuck, red squirrel, red-backed vole, fisher, and white-tailed deer.

The threatened, endangered, and rare species known to occur on NBAFS are listed in Table A.1<sup>3</sup> (Appendix A). A discussion of these species and the eight rare natural communities that occur at NBAFS is provided in ANL (1997) and summarized in ANL (1999). Two state listed wildlife species have been documented in terrestrial habitats on the installation. The state listed (threatened) Eastern hognose snake (*Heterodon platyhinus*) has been well documented throughout the installation. The small-footed bat (*Myotis leibii*) was documented on the installation during a bat inventory conducted during summer 2002. Wood Turtle (*Glyptemys insculpta*) Blanding's Turtle (*Emydoidea blandingii*) and Spotted Turtle (*Clemmys guttata*) are all rare in New Hampshire (S3) and have been documented on the installation.

---

<sup>3</sup> The species listing status and ranking codes for these species are presented in Table A.2 (Appendix A).

### **3.6 Cultural Resources**

Archaeological investigations within the Merrimack River system have documented prehistoric sites dating from the Early Archaic period (8,000 to 5,500 B.C.), with very limited evidence for sites dating from the earlier Paleo-Indian period (10,500 to 8,000 B.C.). The streams and wetlands present at NBAFS and its high natural resource potential made it a suitable location for both temporary single-purpose foraging locations and possible multi-component campsites (i.e., sites containing evidence of several occupational periods). Two prehistoric sites and four isolated finds were recorded at NBAFS during subsurface testing (PAL 1993).

Twenty-eight historic sites occur on NBAFS (22 rural homesteads, 3 industrial complexes, and 3 civic sites [road, school, and trash dump]; Watford 1988; PAL 1993). These sites are distributed widely throughout NBAFS; although, 12 are clustered along the roads at the base of Joe English Hill. Twenty-six of these sites have been recommended as potentially eligible for listing on the *National Register of Historic Places* (PAL 1993) because of their potential to contain information important to the history of the area (Criterion D, as identified in 36 CFR 60.4). Further evaluation is required before a formal eligibility determination can be made (ANL 1999).

The State Historic Preservation Officer (SHPO) within the New Hampshire Division of Historical Resources (NHDHR) has indicated that seven buildings within the Operations Area may contribute to a historic district that is potentially eligible for listing on the *National Register of Historic Places* (Muller 1998)

Past activities at NBAFS have resulted in some impacts to cultural resources. Evidence of looting, erosion, and other damaging activities has been reported at several of the sites potentially eligible for listing on the *National Register of Historic Places* (PAL 1993; Loflin and Grumet 1996). The specific causes of the damages and time that they occurred are not known.

### **3.7 Land Use, Recreation, and Visual Resources**

Facilities that support the satellite-tracking operations at NBAFS occupy about 17.7 ha (44 acres) of the 1,144 ha (2,826 acre) site (ANL 1997). Over the years, NBAFS has been restoring the remainder of the land to a natural state, while maintaining a proper balance between natural resource enhancements and recreational and military training use of the station. Facilities

located within the Operations Area include four enclosed satellite dish antennae, satellite-control buildings, and satellite-tracking and communications buildings. Support facilities include maintenance and administration buildings, a fire station, and storage facilities. Enlisted housing dormitories and several home structures are also present. The unimproved portions of NBAFS are not used to actively support mission operations (ANL 1999).

Recreational use of NBAFS is restricted primarily to active and retired military staff and their families and certain members of the public. Numerous active and passive outdoor recreational opportunities are available at NBAFS, including nature watching, fishing, swimming, camping, hiking, rock climbing, hunting, archery, boating, cross-country skiing, ice fishing, ice skating, sledding, and snowmobiling (ANL 1990).

The land immediately surrounding NBAFS is heavily wooded, representing some of the least developed and most rural portions of New Boston, Amherst, and Mont Vernon. However, the primary land use designated for the area is low-density residential use (PES 1995). Low-density, single-family homes on parcels typically over one acre; undeveloped lands; and several active farms (particularly along Chestnut Hill Road and Joe English Road) occur in the immediate vicinity of NBAFS. A computer software company is located opposite the main entrance to the station (ANL 1999).

Because of the limited land area required to support satellite-tracking operations, most of NBAFS provides a natural setting (e.g., the forests, hills, wetlands, and ponds). Visual resources are therefore rated as excellent, with scenic vistas evident from the station's higher elevations.

### **3.8 Socioeconomics**

About 133 people are employed by NBAFS (11 military and the remainder civilian or civilian contract employees; PES 1995). Although rural in character, the three communities that surround NBAFS have experienced population growth because of their location within one of the most rapidly expanding areas of New England. To accommodate this growth, residential development is expected to continue in the neighborhoods surrounding NBAFS. The communities that surround NBAFS represent three of the most affluent communities of the state (all three are ranked in the top 25 of 234 communities in terms of median household income; PES 1995).

## **4 ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION AND ALTERNATIVES**

### **4.1 Environmental Consequences of the Proposed Action**

Potential impacts from the proposed alternative that were evaluated in this EA include: (1) air quality impacts; including noise increases; (2) disturbance of land, streams, and wetlands from, road maintenance; (3) land use alterations and limitations; (4) habitat modification; and (5) damage to subsurface archaeological resources. NBAFS would have to comply with all Federal, State, and local regulations pertaining to the environment (e.g., air, noise, solid wastes, water;). Adherence to these regulations would mitigate the potential for adverse impacts. Nevertheless, some environmental impacts would be unavoidable. The following sections discuss these potential environmental impacts and their significance.

#### **4.1.1 Air Quality and Noise**

Localized, short-term air quality impacts that could occur with the proposed action include the generation of fugitive dust, and exhaust emissions. The potential impacts on ambient air quality in the vicinity of the NBAFS site would be minor and of short duration. No violations of applicable federal and state ambient air quality standards are expected.

General conformity under the Clean Air Act, Section 176 has been evaluated for the project described in this Environmental Assessment according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to this action because the action is an exempt action under 40 CFR 93.153(c).

Noise impacts would occur from the use of machinery and vehicles. Work would occur mostly during weekday daytime hours, thus much of the equipment noise would be masked by background noises. Noise impacts associated with project activities would be minor and of short duration. Mitigating measures include ensuring work is scheduled during normal weekday work hours and ensuring the equipment noise controls are functional.

#### 4.1.2 Topography, Geology, and Soils

No adverse impacts to geology or soils are anticipated from the proposed action. Soil erosion would be negligible due to the short-term exposure of open soils and use of Best Management Practices (BMPs). USAF personnel and contractors would conduct culvert and drain maintenance and replacement during periods of low flow. Exposed soils would be revegetated and would be expected to reestablish quickly after seeding with grass. Road grading activities would be implemented to insure road crowns are maintained and water is shed from the roads.

#### 4.1.3 Water Resources

Localized minor to negligible increases in turbidity and sedimentation of surface waters in the vicinity of maintenance activities could occur. The major source for these impacts would be runoff from exposed soil, particularly during inclement weather, erosion control practices required to meet BMP standards would mitigate any potentially adverse impacts. Long-term improvement in water resources is expected to result from the implementation of the proposed action.

The project would not be expected to affect groundwater resources (e.g., change the depth to groundwater, alter groundwater flow direction, affect groundwater recharge, or impact groundwater quality).

#### 4.1.4 Ecological Resources

Impacts to ecological resources would be limited primarily to the immediate road maintenance area. Dust and other particulates and noise associated with the project, which could affect adjacent vegetation, would be produced over a short period of time and would be confined to the area adjacent to roads.

##### 4.1.4.1 Vegetation

Small portions of larger vegetation communities ranging from emergent wetland to upland would be disturbed. No more than 200 square feet of vegetation per culvert would be expected to be disturbed. Culvert cleaning would be limited to only areas requiring sediment and

debris removal, disturbed wetland areas would be periodically monitored for colonization by invasive species.

#### **4.1.4.2 Fish and Wildlife**

The proposed road maintenance would have a negligible impact on wildlife. Wildlife in the immediate area would be disturbed during road maintenance by noise, visual disturbances from equipment, and personnel. These disturbances could cause short distance movements of wildlife, scare birds off their nests, or otherwise disrupt normal wildlife activities.

Rare wildlife species and neotropical migrant bird species (afforded protection under the Migratory Bird Treaty Act) are distributed widely across the station and could occur in the maintenance area. Several rare and state listed species occur in terrestrial habitats throughout the installation including whip-poor-will, Eastern pipistrelle, Blanding's turtle, Wood turtle, Spotted turtle, and northern leopard frog. Individuals of these species in the immediate area could be disturbed during the project. Any impacts that would occur would be minor, and would not jeopardize the survival of these species at NBAFS. Unintentional take of migratory birds due to road maintenance is not anticipated.

Turtle nests could be inadvertently disturbed or destroyed during road grading if nests are present in the roadbed. Blanding's, spotted and wood turtle nests locations are not fully documented on the installation. The Natural Resources section at NBAFS plans further studies of the Blanding's. Any turtle nesting sites (irregardless of species) discovered in roadways will be afforded protection while nests are active.

Impacts to aquatic and wetland habitats and biota are expected to be temporary, minor, and indirect.

#### **4.1.4.3 Rare, Threatened and Endangered Species**

No known federally listed plant species or wildlife species occur on the installation. One state listed species has been identified near the proposed construction in terrestrial habitats. The E. hognose snake (*Heterodon platirhinos*), state listed threatened species has been documented throughout the installation.

E. hognose snake could be affected by road maintenance in the event a snake was inadvertently run over by grading equipment. All personnel would be briefed on the snake's

appearance and asked to ensure avoidance. Individual snakes would be expected to move away from maintenance activities.

Wood Turtle (*Glyptemys insculpta*) Blanding's Turtle (*Emydoidea blandingii*) and Spotted Turtle (*Clemmys guttata*) (New Hampshire S3) could have nests disturbed by grading and other ground disturbing activities. In non-emergency situations grading would be allowed outside the nesting season from November 1 to June 1 the following year in nesting areas.

A consultation letter was sent to New Hampshire Department of Fish and Game (appendix C), the USAF concluded New Hampshire Fish and Game concurred with our assessment of potential impacts because of a lack of response.

#### 4.1.4.4 Wetlands

Minor wetlands impacts to both jurisdictional and non-jurisdictional wetlands will be unavoidable if the proposed action is implemented. When necessary the upstream side of culverts would be cleared to ensure culverts continue to function correctly. Impacts from wetlands dredging activity (culvert cleaning) are unavoidable because the existing road network crosses many wetlands and drainages. There are no apparent options for avoidance of minor impacts to the wetlands because roads are in place; many predate the United States ownership.

Installation of water bars and broad based dips should have no direct impact on wetlands. Minimal minor direct impacts to jurisdictional wetlands would occur during culvert cleaning activities if debris accumulate directly in inlet side of a culvert. Positive indirect effects resulting from road maintenance will be the lessening of sediment loading to wetlands from eroding roads.

#### 4.1.5 Cultural Resources

The proposed construction could impact known cultural resources. Several of the roads may be eligible to the National Register of Historic Places as contributing elements to a historic district or as stand alone elements (Mack Hill Road). Historical stone box culverts would be replaced by modern steel or plastic round culverts.

In the event inadvertent discovery of archeological resources occurs during road maintenance the installation's Natural Resources Planner will be contacted for appropriate action.

A consultation letter was sent to New Hampshire Division of Historical Resources (appendix C), the USAF concluded New Hampshire Division of Historical Resources concurred with our assessment of potential impacts because of a lack of response.

#### 4.1.6 Land Use, Recreation, and Visual Resources

The proposed project would result in a localized minor short-term road closures. This would not conflict with any plans or goals for recreational or natural resource management at NBAFS.

#### 4.1.7 Socioeconomics

The nature and duration of the proposed project would not cause any significant adverse socioeconomic impacts to the local population, labor force, or economy. Road maintenance would involve a small short duration contractor work force, impacts on the capacities of public services (e.g., schools, police, fire protection) would not occur. The project would provide negligible employment benefits and associated increase in cash flow to the local economy.

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" (February 11, 1994), requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. No environmental justice impacts would be expected to either minority or low-income populations, since the proposed project would have no impact on the population immediately surrounding NBAFS.

#### 4.1.8 Health and Safety

Health and safety issues related to the project routinely center on the potential or perceived effects from exposure hazardous materials or equipment related injuries. All maintenance would be expected to follow all safety related USAF regulations.

NBAFS has 12 closed Installation Restoration Program (IRP) sites that were closed out in the late 80's early 90's. The IRP sites may have residual contamination not previously detected. It is remotely possible that road maintenance could disturb undocumented contaminants. Many of the NBAFS roads are located in areas with documented ordnance contamination. All road that

are maintained were swept for the presence of ordnance, but there is a small risk of encountering ordnance during road maintenance activities.

#### **4.2 Environmental Consequences of the No-Action Alternative**

Under the no-action alternative, road maintenance would not occur. Taking no action would result in deterioration of the existing environment. The impacts associated with the road maintenance described in Section 4.1 (proposed action) would not occur. NBAFS roads would continue to receive minimal maintenance and culverts would not be maintained. Many of the installation's roads would be expected to wash out over time and eventually become impassable.

#### **4.3 Adverse Effects that Cannot be Avoided if the Project Is Implemented**

Implementation of the proposed alternative (Road Maintenance) should not result in any long-term adverse environmental impacts.

Although no significant air quality impacts are anticipated if the project is implemented, fugitive dust and engine exhaust emissions would be released during project activities. All air quality impacts would be short-lived and limited to the immediate project surroundings.

Despite the implementation of control measures, some unavoidable increases in soil erosion could result from project activities, especially during heavy rains. Turbidity and suspended solids in nearby surface water bodies could temporarily increase.

#### **4.4 Irreversible and Irrecoverable Commitment of Resources**

Resources that would be committed irreversibly or irretrievably would include materials that could not be recovered or recycled and materials or resources that would be consumed or reduced to irrecoverable forms. Use of fuel, oil, and other materials during construction execution would constitute an irreversible and irretrievable commitment of those resources.

#### **4.5 Relationship between Short-Term Uses and Long-Term Productivity**

This section evaluates the effect of the proposed short-term use of the environment for the road maintenance on the long-term productivity of this same land and its resources. Road maintenance will provide safe road conditions throughout the installation while protecting the

environment by controlling erosion. Most adverse impacts to the environment would be temporary (e.g. increased noise).

#### **4.6 Cumulative and Incremental Impacts**

Cumulative impacts are those impacts to the environment that result from the incremental effect of the proposed project when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (ANL 2000). No adverse cumulative effects are anticipated for the proposed action. The no action alternative could result in degradation of water quality and wetland health that may be cumulative with other ongoing project (i.e., facility construction).

The potential impact on ambient air quality from emissions (e.g., fugitive dust, and engine exhaust emissions) would be a negligible short-term increase in emissions occurring from other activities at NBAFS and within Hillsborough County. However, emissions associated with the proposed action would be mostly confined to the immediate project area since most emissions would be released near ground level. Emission rates would be low, so potential impacts on ambient air quality would be minor. Under the proposed action, some equipment noise could be detectable. However, these activities would occur infrequently, so cumulative noise impacts would be localized and temporary in nature.

## 5 REFERENCES

Acoustical Society of America, 1983, *American National Standard Specification for Sound Level Meters*, ANSI S1.4-1983, New York, N.Y., Feb.

Acoustical Society of America, 1985, *American National Standard Specification for Sound Level Meters*, ANSI S1.4A-1985, Amendment to ANSI S1.4-1983, New York, N.Y., June.

ANL: see Argonne National Laboratory.

Argonne National Laboratory, 1990, *Environmental Assessment for the Conduct of Military Training, New Boston Air Force Station, New Hampshire*, prepared by Argonne National Laboratory, Environmental Assessment and Information Sciences Division, Argonne, Ill. for Department of the Air Force Headquarters, Air Force Space Command, Environmental Planning Division, Peterson Air Force Base, Colo., July.

Argonne National Laboratory, 1997, *Biodiversity Survey of New Boston Air Station, New Hampshire*, Final Report, Argonne National Laboratory, Environmental Assessment Division, Argonne, Ill., Sept.

Argonne National Laboratory, 1999, *Environmental Assessment of Military Training Activities at New Boston Air Station, New Hampshire*, prepared by Argonne National Laboratory, Environmental Assessment Division, Argonne, Ill. for U.S. Department of the Air Force, New Boston Air Station, NH, May.

Argonne National Laboratory, 2000, *Environmental Assessment for Construction of Phase II of an Underground Electrical and Communications Distribution System at New Boston Air Force Station New Hampshire*, prepared by Argonne National Laboratory, Environmental Assessment Division, Argonne, Ill. for U.S. Department of the Air Force, New Boston Air Station, NH, May 2000.

Bat Conservation International (BCI), 2001, *Bats in Eastern Woodlands*, Bat Conservation International.

Bond, R.W., and J.F. Handler, 1981, *Soil Survey of Hillsborough County, New Hampshire, Eastern Part*, U.S. Department of Agriculture, Soil Conservation Service, Oct.

DeGraaf, R.M., and D.D. Rudis, 1986, *New England Wildlife: Habitat, Natural History, and Distribution*, U.S. Department of Agriculture, Forest Service, Northeastern Forest Experiment Station, General Technical Report NE-108.

ENSR: see ENSR Consulting and Engineering.

ENSR Consulting and Engineering, 1993, *Natural Resources Management Plan for New Boston Air Force Station New Hampshire*, Prepared for U.S. Army Corps of Engineers, New England Division, July.

EPA: see U.S. Environmental Protection Agency.

Liebich, R.E., and M.P. Cristoforo, 1988, "The Use of Audibility Analysis to Minimize Community Noise Impact of Today's Smaller Generation Facilities: Located near Residential Areas," presented at American Power Conference 50th Annual Meeting, Chicago, Ill., Apr.

Loflin, B.G., and R.S. Grumet, 1996, *United States Air Force Cultural Resources Servicewide Overview Project: New Boston Air Station, Air Force Space Command, Hillsborough County, New Hampshire*, National Park Service Resource Stewardship and Partners Team, Northeast Field Area, Philadelphia, Penn., and Georgia Trust for Historic Preservation, Feb.

Muller, N.C., 1998, Letter from N.C. Muller (State Historic Preservation Officer, New Hampshire Division of Historical Resources) to S. Najjar (Natural Resources Planner, 23 SOPS/MAFCVN, New Boston Air Station), Aug. 28.

PAL: see Public Archaeology Laboratory Inc.

Parsons Engineering Science, Inc., 1995, *Preliminary Final Environmental Assessment for Unexploded Ordnance Clearance at Joe English Pond New Boston Air Force Station, New Hampshire*, prepared for New Boston Air Force Station, N.H., and 50th Space Wing (AFSPC), Falcon AFB, Colo., by Parsons Engineering Science, Inc., Boston, Mass, June.

Parsons Engineering Science, Inc., 1996, *Wetlands Delineation Report*, prepared for New Boston Air Force Station, N.H., and 50th Space Wing (AFSPC), Falcon AFB, Colo., by Parsons Engineering Science, Inc., Mass., Sept.

Parsons Engineering Science, Inc., 1998, *Survey and Evaluation of Cold War Resources, New Boston Air Station, New Boston, New Hampshire (Draft)*, prepared for 50th Space Wing (AFSPC), Falcon AFB, Colo., by Parsons Engineering Science, Inc., Mass, March.

PES: see Parsons Engineering Science, Inc.

Public Archaeology Laboratory, Inc., 1993, *Historic and Archaeological Reconnaissance/Inventory Survey, Cultural Resources Management Plan, New Boston Air Force Station, New Boston, Mont Vernon, Amherst, New Hampshire*, prepared for U.S. Army Corps of Engineers, New England Division, Waltham, Mass., June.

Ramsdell, J.V., and G.L. Andrews, 1986, *Tornado Climatology of the Contiguous United States*, NUREG/CR-4461 and PNL-5697, Pacific Northwest Laboratory, prepared for U.S. Nuclear Regulatory Commission, May.

Ruffner, J.A. (editor), 1985, *Climates of the States: National Oceanic and Atmospheric Administration Narrative Summaries*, 3rd edition, Gale Research Company, Detroit, Mich.

Sanborn, P., 1998, personal communication from P. Sanborn (Department of Environmental Services, Air Resources Division, Concord, N.H.) to Y.-S. Chang (Argonne National Laboratory, Argonne, Ill.), Nov. 19.

USAF: see U.S. Air Force.

U.S. Environmental Protection Agency, 1974, *Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety*, EPA-550/9-74-004, Office of Noise Abatement and Control, Washington, D.C., March.

Watford, R., 1988, *Preservation Plan, New Boston Air Force Station, New Hampshire*, prepared by Department of Anthropology, Northern Arizona University, Flagstaff, Ariz., Aug.

## 6 LIST OF PREPARERS

Name	Education/Experience	Contribution
Stephen Najjar	MS Natural Resources 7 Years Natural Resources Management	Responsible for all phases of EA preparation
Capt Raymond Tramposch	BS Computer Science and Engineering Communications Officer USAF, 7 years	Engineering/Editing

## **7 AGENCIES, ORGANIZATIONS, AND PERSONS CONTACTED**

Dennis Dyke, Capt, USAF  
Staff Judge Advocate  
50 SW/JA  
608 Navstar Street Suite 18  
Schriever Air Force Base, CO 8012

Mr. James McConaha  
State Historic Preservation Officer  
19 Pillsbury Street  
PO Box 2043  
Concord, NH 03302-2043

New Hampshire Fish and Game Department  
William S. Bartlett, Jr.  
Executive Director  
2 Hazen Drive  
Concord, NH 03301

**APPENDIX A, LISTED AND RARE SPECIES ON NEW BOSTON AIR FORCE STATION**

**Table A.1 Federally Listed, State Listed, and Rare Species of Plants and Animals Found on New Boston Air Force Station, New Hampshire.<sup>a</sup>**

<b>Common Name</b>	<b>Scientific Name</b>	<b>Federal Status</b>	<b>State Status</b>	<b>State Rank</b>
<b><u>Plants</u></b>				
Fern-leaved false foxglove	<i>Aureolaria pedicularia</i> var <i>intercedens</i>	- <sup>b</sup>	LE	S1
<b><u>Moths</u></b>				
No common name	<i>Aphareta purpurea</i>	-	-	S2
Orange-spotted idia	<i>Idia diminuendis</i>	-	-	S2S4
<b><u>Butterflies and Skippers</u></b>				
Appalachian brown	<i>Satyrodes appalachia</i>	-	-	S1?
Delaware skipper	<i>Atrytone logan</i>	-	-	S3S4
Mulberry wing	<i>Poanes massasoit</i>	-	-	S1S3
Little glassywing	<i>Pompeius verna</i>	-	-	SU
<b><u>Reptiles</u></b>				
Blanding's turtle	<i>Emydoidea blandingii</i>	-	-	S3
Eastern hognose snake	<i>Heterodon platirhinos</i>	-	LT	S2
<b><u>Birds</u></b>				
Pied-billed grebe	<i>Podilymbus podiceps</i>	-	LE	S1B/ZN
American bittern	<i>Botaurus lentiginosus</i>	-	-	S3B
Osprey	<i>Pandion haliaetus</i>	-	LT	S2B/ZN
Bald eagle	<i>Haliaeetus leucocephalus</i>	LT	LE	S1
Northern harrier	<i>Circus cyaneus</i>	-	LT	S2B
Cooper's hawk	<i>Accipiter cooperi</i>	-	LT	S2B/ZN
Whip-poor-will	<i>Caprimulgus vociferus</i>	-	-	S3B
<b><u>Mammals</u></b>				
Small footed bat	<i>Myotis leibii</i>		LE	S1
Eastern pipistrelle	<i>Pipistrellus subflavus</i>			S1N/SUB

<sup>a</sup> Federal and state listing status codes and state ranks are defined in Table A.2 (Appendix A). State ranks do not confer any official or legal status to a species. These ranks are assigned by the New Hampshire Natural Heritage Inventory to provide information on the population status of species within the state.

<sup>b</sup> A dash (-) indicates that the status is not applicable to that species. A question mark (?) indicates that the status shown is expected, but not known with certainty.

Source: ANL (1997), modified Jan 03.

## **Table A.2 Species Listing Status and Ranking Codes Used by the Federal Government and the State of New Hampshire.**

---

### **Federal Listing Status Codes<sup>1</sup>**

- LE Listed as Endangered Species in the List of Endangered and Threatened Wildlife and Plants under the provisions of the Endangered Species Act. Defined as any species which is in danger of extinction throughout all or a significant portion of its range.
- PE Proposed for addition to the List of Endangered and Threatened Wildlife and Plants as Endangered Species.
- LT Listed as Threatened Species. Defined as any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.
- PT Proposed for listing as Threatened Species.
- C Candidate Species for addition to the list of Endangered and Threatened Wildlife and Plants. Taxa for which the USFWS currently has substantial information on hand to support the biological appropriateness of proposing to list the species as endangered or threatened.
- LTSA Threatened due to similarity of appearance.
- NL Not currently listed, nor currently being considered for addition to the List of Endangered and Threatened Wildlife and Plants.

### **State Listing Status Codes<sup>2</sup>**

- LE Endangered; those native species whose prospects for survival in New Hampshire are in immediate danger because of a loss or change in habitat, over-exploitation, predation, competition, disease, disturbance or contamination. Assistance is needed to ensure continued existence as a viable component of the State's wildlife community.
- LT Threatened; those species which may become endangered if conditions surrounding them begin, or continue to deteriorate.
- SC Special concern; those species which do not meet the definition of threatened or endangered species but, because of their beauty, commercial value, excessive collecting, or other factors, require monitoring or regulation.

### **State Rank Codes<sup>3</sup>**

- S1 Critically imperiled because of extreme rarity (5 or fewer occurrences, or very few remaining individuals), or because of some factor of its biology making it especially vulnerable to extinction.
- S2 Imperiled because of rarity (6 to 20 occurrences), or because of other factors demonstrably making it very vulnerable to extinction throughout its range.

- S3      Either very rare and local throughout its range, or found locally (even abundantly at some of its locations) in a restricted range, or vulnerable to extinction throughout its range because of other factors; in the range of 21 to 100 occurrences.
- S4      Apparently secure, though it may be quite rare in parts of its range, especially at the periphery.
- 

**Table A.2 (continued).**

---

**State Rank Codes<sup>3</sup> (continued)**

- S5      Demonstrably secure, though it may be quite rare in parts of its range, especially at the periphery.
- SU      Possibly in peril, but status uncertain; more information needed.
- SH      Historically known; may be rediscovered.

**State Rank Modifiers**

- A      Accidental in the state; including species (usually birds or butterflies) recorded very infrequently, hundreds or thousands of miles outside their usual range.
- B      Breeding status for a migratory species. Example: S1B, SZN - breeding occurrences for the species are ranked S1 (critically imperiled) in the state, nonbreeding occurrences are not ranked in the state.
- E      An exotic established in the state; may be native in nearby regions.
- N      Non-breeding status for a migratory species. Example: S1B,SZN - breeding occurrences for the species are ranked S1 (critically imperiled) in the state, non-breeding occurrences are not ranked in the state.
- Z      Ranking not applicable.
- ?      Ranking suspected, but uncertain.
- 

<sup>1</sup>List maintained by the U.S. Fish and Wildlife Service.

<sup>2</sup>List maintained by the New Hampshire Department of Fish and Game

<sup>3</sup> State species ranking codes do not confer any official or legal status to a species. These ranks are developed by the New Hampshire Natural Heritage Inventory to provide information on the population status of species within the state.

## APPENDIX B, Request for Environmental Impact Analysis (AF Form 813)

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS		Report Control Symbol RCS:
INSTRUCTIONS: Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).		
<b>SECTION I - PROPONENT INFORMATION</b>		
1. TO (Environmental Planning Function) MAFCVN	2. FROM (Proponent organization and functional address symbol) MAFCVN	2a. TELEPHONE NO. 2209
3. TITLE OF PROPOSED ACTION Conduct road maintenance including grading and culvert replacement.		
4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date) Gravel roads need to be regularly maintained to prevent erosion and ensure safe passage of motor vehicles.		
5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (DOPAA) (Provide sufficient details for evaluation of the total action.) Conduct grading and culvert replacement as needed, no action		
6. PROPONENT APPROVAL (Name and Grade) RAYMOND J. TRAMPOSCH, Capt, USAF	6a. SIGNATURE 	6b. DATE 25 May 04
<b>SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY.</b> (Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U = unknown effect)		+   0   -   U
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)	<input type="checkbox"/> + <input checked="" type="checkbox"/> 0 <input type="checkbox"/> - <input type="checkbox"/> U	
8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.)	<input type="checkbox"/> + <input type="checkbox"/> 0 <input type="checkbox"/> - <input type="checkbox"/> U	
9. WATER RESOURCES (Quality, quantity, source, etc.)	<input checked="" type="checkbox"/> + <input type="checkbox"/> 0 <input type="checkbox"/> - <input type="checkbox"/> U	
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity-distance, bird/wildlife aircraft hazard, etc.)	<input type="checkbox"/> + <input checked="" type="checkbox"/> 0 <input type="checkbox"/> - <input type="checkbox"/> U	
11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.)	<input type="checkbox"/> + <input checked="" type="checkbox"/> 0 <input type="checkbox"/> - <input type="checkbox"/> U	
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, threatened or endangered species, etc.)	<input type="checkbox"/> + <input checked="" type="checkbox"/> 0 <input type="checkbox"/> - <input type="checkbox"/> U	
13. CULTURAL RESOURCES (Native American burial sites, archaeological, historical, etc.)	<input type="checkbox"/> + <input checked="" type="checkbox"/> 0 <input type="checkbox"/> - <input type="checkbox"/> U	
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)	<input checked="" type="checkbox"/> + <input type="checkbox"/> 0 <input type="checkbox"/> - <input type="checkbox"/> U	
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)	<input type="checkbox"/> + <input checked="" type="checkbox"/> 0 <input type="checkbox"/> - <input type="checkbox"/> U	
16. OTHER (Potential impacts not addressed above.)	<input type="checkbox"/> + <input type="checkbox"/> 0 <input type="checkbox"/> - <input type="checkbox"/> U	
<b>SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION</b>		
17. <input type="checkbox"/> PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # _____; OR <input checked="" type="checkbox"/> PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.		
18. REMARKS		
19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade) STEPHEN NAJJAR, GS-11	19a. SIGNATURE 	19b. DATE 25 May 04

## APPENDIX C CORRESPONDENCE



DEPARTMENT OF THE AIR FORCE  
50TH SPACE WING (AFSPC)

*4 May 04*

MEMORANDUM FOR NH DIVISION OF HISTORICAL RESOURCES  
ATTN: JAMES MCCONAHA  
STATE HISTORIC PRESERVATION OFFICER  
STATE OF NH DEPARTMENT OF CULTURAL AFFAIRS  
19 PILLSBURY STREET BOX 2043  
CONCORD NH 03302-2043

FROM: 23 SOPS/CC  
317 Chestnut Hill Road  
New Boston AFS NH 03070-5125

SUBJECT: Finding of No Historic Properties Adversely Affected for Road Maintenance

1. Pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, we are requesting comments from your office regarding the United States Air Force proposal to implement road maintenance activities for New Boston Air Force Station (NBAFS) in Hillsborough County, NH.
2. Roads on NBAFS appear on a variety of maps from the 1800s as documented in the 1992 Cultural Resources Management Plan for NBAFS, Volume 1 (Public Archeological Laboratory 1992, on file in SHPO office). Mack Hill Road, Historic site 14, is identified in the 1992 plan as potentially eligible to the National Register.
3. The proposed action includes cleaning culverts with hand tools and heavy equipment, replacing failed or undersized culverts with culverts correctly sized to handle maximum flows. Installation of erosion control devices would include creation of water bars and broad based dips with heavy equipment and grading existing roadways.
4. On the basis of the enclosed information, we request your concurrence that the proposed implementation of the road maintenance activities will result in a finding of "no historic properties adversely affected" (in accordance with 800.5 (d)(1)). If you have any questions regarding this matter, please contact the NBAFS Natural Resources Planner, Mr. Stephen Najjar, at (603) 471-2426.

  
CHARLES H. CYNAMON, Lt Col, USAF  
Commander

Attachment:  
NBAFS Road Map



DEPARTMENT OF THE AIR FORCE  
50TH SPACE WING (AFSPC)

26 May 04

MEMORANDUM FOR NEW HAMPSHIRE DEPARTMENT OF FISH AND GAME  
ATTENTION: WILLIAM S. BARTLETT, JR  
EXECUTIVE DIRECTOR  
2 HAZEN DRIVE  
CONCORD NH 03301

FROM: 23 SOPS/CC  
317 Chestnut Hill Road  
New Boston AFS NH 03070-5125

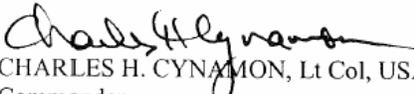
SUBJECT: Preparation of an Environmental Assessment (EA) for Road Maintenance

1. I am requesting information from your office regarding potential impacts to state-listed rare, threatened, and endangered plant and animal species that may result from road maintenance at New Boston Air Force Station (NBAFS).
2. The proposed action includes cleaning culverts with hand tools and heavy equipment, and replacing failed or undersized culverts with culverts correctly sized to handle maximum flows. Installation of erosion control devices would include creation of water bars and broad-based dips with heavy equipment, and grading existing roadways.
3. NBAFS is a satellite-tracking station that occupies approximately 2,836 acres in Hillsborough County of south-central New Hampshire (see Atch 1). The station is predominantly undeveloped forest with a mix of deciduous and coniferous trees that varies in species dominance and seral stage across the site. Two surveys for threatened, endangered and rare species have been conducted at NBAFS: a two-year biodiversity survey conducted from 1994 to 1996 (Argonne National Laboratory 1997), and a bat survey conducted in 2002 (Argonne National Laboratory 2002). State-listed species found on NBAFS included fern-leaved false foxglove (*Aureolaria pedicularia* var *intercedens*), eastern hognose snake (*Heterodon platirhinos*), pied-billed grebe (*Podilymbus podiceps*), osprey (*Pandion haliaetus*), bald eagle (*Haliaeetus leucocephalus*), northern harrier (*Circus cyaneus*), Cooper's hawk (*Accipiter cooperi*), and small-footed bat (*Myotis leibii*). The bald eagle and northern harrier were not observed to use station habitat, but were observed in flight over the site during fall migration. One bald eagle was observed during the winter (several years ago) feeding on a deer carcass at Joe English Pond in the central portion of the station. Two adult female small-footed bats (one pregnant, the other nonreproductive) were captured near Joe English Hill. The rock slabs and crevices that are abundant on this landscape feature may provide roost areas for this species. See Atch 2 for a complete list of protected and rare species and natural communities found on NBAFS.

MASTER OF SPACE

4. The Air Force has determined that the project requires preparation of an EA. Based on the information presented above, the Air Force expects the proposed action to have negligible impact on state-listed rare, threatened, and endangered species. I would appreciate, however, if you could forward any information or concerns you may have regarding impacts on any such species or other ecological resources. The Air Force will use the information you provide in preparing the EA.

5. If you have any questions on this matter, please contact my Natural Resources Planner, Mr. Stephen Najjar, at (603) 471-2426.

  
CHARLES H. CYNAMON, Lt Col, USAF  
Commander

Attachments:

1. Location of NBAFS
2. Listed and Rare Species and Communities on NBAFS



CC: DO  
MA  
MARCVN

NEW HAMPSHIRE DIVISION OF HISTORICAL RESOURCES

State of New Hampshire, Department of Cultural Resources 603-271-3483  
19 Pillsbury Street, P.O. Box 2043, Concord, NH 03302-2043 603-271-3558  
TDD Access: Relay NH 1-800-735-2964 FAX 603-271-3433  
<http://webster.state.nh.us/nhdhr> [preservation@nhdhr.state.nh.us](mailto:preservation@nhdhr.state.nh.us)

July 22, 2004

Charles H. Cynamon, Lt. Col., USAF  
Commander  
Department of the Air Force  
23 SOPS/CC  
317 Chestnut Hill Road  
New Boston AFS, NH 03070

RE: New Boston Air Station Road Maintenance, New Boston, NH

Dear Commander Cynamon:

This letter is provided to complete your file with regard to your request for Section 106 review. In accordance with the National Historic Preservation Act of 1966 (P.L. 89-655), as amended, and as implemented by regulations of the Federal Advisory Council on Historic Preservation ("36 CFR Part 800: Protection of Historic Properties"), the New Hampshire Division of Historical Resources/State Historic Preservation Office has reviewed the undertaking referenced above to identify potential effects on properties listed, or potentially eligible for listing, in the National Register of Historic Places.

Based upon the information currently available, it has been determined that there are no known properties of architectural, historical, archaeological, engineering, or cultural significance within the area of the undertaking's potential impact and no identification or evaluative studies are recommended.

If any other resources are discovered or affected as a result of project planning or implementation, the Division of Historical Resources is to be consulted on the need for appropriate evaluative studies, determinations of National Register eligibility, and mitigative measures (redesign, resource protection, or data recovery) as required by federal law and regulations.

For the purpose of compliance with the Advisory Council on Historic Preservation procedures (36 CFR 800), I request that this determination be construed as a finding of "No Historic Properties Affected".

Sincerely,

James McConaha  
State Historic Preservation Officer

JM:EF:dg

