Hill Air Force Base, Utah

Final

Environmental Assessment:

Proposed Composite Aircraft Inspection Facilities, Hill Air Force Base, Utah

October 2, 2008

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Final

Environmental Assessment (EA): Proposed Composite Aircraft Inspection Facilities, Hill Air Force Base, Utah

Contract FA 8222-05-D-0001, Delivery Order #0012

Department of the Air Force
Air Force Materiel Command
Hill Air Force Base, Utah 84056

October 2, 2008

Prepared in accordance with the Department of the Air Force Environmental Impact Analysis Process (EIAP) 32 CFR Part 989, Effective July 6, 1999, which implements the National Environmental Policy Act (NEPA), the President's Council on Environmental Quality (CEQ) regulations.

FINDING OF NO SIGNIFICANT IMPACT

1. NAME OF ACTION: Construct Composite Aircraft Inspection Facilities at Hill Air Force Base (AFB), Utah.

2. DESCRIPTION OF THE PROPOSED ACTION: Hill AFB proposes to accommodate current United States Air Force (USAF) missions by constructing aircraft inspection facilities in support of the Hill AFB mission to repair and modify F-22 and F-35 composite aircraft. The two necessary facilities are the proposed radar cross section (RCS) facility and the proposed non-destructive inspection (NDI) facility.

The proposed RCS facility would be located east of Building 680. A high bay industrial production facility (initially a 42,000 square foot footprint with a planned addition of up to 10,000 square feet) would be constructed. The proposed location for the NDI facility is north of Building 505. A medium sized hangar with a 28,000 square foot footprint would be constructed. Pavements and utilities would be provided.

3. SELECTION CRITERIA: The following criteria were used to assemble alternatives. The facilities that provide composite aircraft inspection capability on Hill AFB should:

- incorporate the use of both RCS and NDI technologies;
- in the case of NDI, inspect the entire airframe in one session robotically;
- have sufficient space to accommodate all equipment, materials, and workers;
- be located near existing utilities and in a location compatible with other Hill AFB land uses; and
- be protective of facilities, human health, and the environment.

4. ALTERNATIVES CONSIDERED OTHER THAN THE PROPOSED ACTION:

The no action alternative would continue the current methods and levels of operation. Composite aircraft would continue being flown to Marietta, Georgia and Fort Worth, Texas for RCS inspections. When further modifications are necessary to improve the low observable qualities of an aircraft's radar signature, it would be returned to Hill AFB for further modification, and then inspected again at the Georgia or Texas facility. NDI activities would continue to use inadequate hand-held inspection methods and technicians would continue to be exposed to ionizing radiation.

In addition to the proposed alternative, a third alternative would consist of constructing and operating the same RCS and NDI facilities as the proposed action. The location for the RCS facility in the third alternative would be north of Building 503.

Various locations were considered by the Hill AFB facility board for siting the composite aircraft inspection facilities. These other locations were eliminated from detailed study due to: conflicts with existing structures, conflicts with existing roads and/or utilities, conflicts with the use of existing airfield and radar facilities, and/or distance from related workloads.

5. SUMMARY OF ANTICIPATED ENVIRONMENTAL EFFECTS:

Issue	Alternative A No Action	Alternative B Proposed Action	Alternative C Alternate Location
Air Quality	No effects	Construction equipment would create temporary emissions. Fugitive dust emissions would be mitigated. Air emissions from solvents and alcohols would be less than 30 pounds per year (for volatile organic compounds and for hazardous air pollutants).	Construction equipment would create temporary emissions. Fugitive dust emissions would be mitigated. Air emissions from solvents and alcohols would be less than 30 pounds per year (for volatile organic compounds and for hazardous air pollutants).
Solid and Hazardous Wastes	No effects	If contaminated soils are identified, they would be properly handled during the construction process. Solid and liquid wastes containing regulated substances would all be properly contained, stored, transported, disposed, re-used, and/or recycled.	If contaminated soils are identified, they would be properly handled during the construction process. Solid and liquid wastes containing regulated substances would all be properly contained, stored, transported, disposed, re-used, and/or recycled.
Biological Resources	No effects	Loss of low-quality habitat would be mitigated in accordance with the Hill AFB habitat trading and replacement plan. To discourage bird activity, overhangs, covered ledges, and holes in structures would all be avoided during the design and construction process.	No vegetation is present. To discourage bird activity, overhangs, covered ledges, and holes in structures would all be avoided during the design and construction process.
Water Quality	No effects	During construction and operations, water quality would be protected by implementing stormwater management practices. If contaminated groundwater migrates to the facility, all requirements would be met for handling, storage, treatment, and/or disposal of any contaminated groundwater that is pumped from the excavation or pumped (such as by use of sump pumps) from the facility during operations. Wellhead protection requirements would be met.	During construction and operations, water quality would be protected by implementing stormwater management practices. No contaminated groundwater or wellhead protection issues exist.

6. FINDING OF NO SIGNIFICANT IMPACT: Based on the above considerations, a Finding of No Significant Impact (FONSI) is appropriate for this assessment.

Approved by: _____ Date: 20 Jun 08

HARRY BRIESMASTER III, Colonel, USAF
Commander, 75th Civil Engineer Group

EXECUTIVE SUMMARY

Purpose and Need

The purpose of the proposed action is to construct aircraft inspection facilities in support of the Hill Air Force Base (AFB) mission to repair and modify F-22 and F-35 composite aircraft. The two necessary facilities are the proposed radar cross section (RCS) facility and the proposed non-destructive inspection (NDI) facility.

The proposed action is needed to allow Hill AFB to accommodate its assigned workloads for repairing F-22 and F-35 composite aircraft. Each F-22 and F-35 fighter aircraft that receives a certain level of repair and modification at Hill AFB must have an RCS inspection to ensure that it has maintained the required level of radar stealth after it has undergone all required repairs and modifications. In fiscal year 2009, Hill AFB is scheduled to provide analytical condition inspection of composite aircraft. An NDI facility using robotic x-ray technology is essential in accomplishing this mission. A facility is needed to enable Hill AFB to inspect the structural integrity of a composite airframe in one session without disassembling the aircraft.

Scope of Review

During a scoping meeting and subsequent interactions, the following environmental issues were addressed:

- air quality;
- solid and hazardous wastes (including liquid waste streams);
- biological resources;
- geology and surface soils;
- water quality;
- cultural resources;
- occupational safety and health;
- air installation compatible use zone (AICUZ); and
- socioeconomic resources.

As explained in the body of this document, the issues that were identified for detailed consideration are: air quality, solid and hazardous wastes (including liquid waste streams), biological resources, and water quality.

Selection Criteria

The facilities that provide composite aircraft inspection capability on Hill AFB described in this document should:

- incorporate the use of both RCS and NDI technologies;
- in the case of NDI, inspect the entire airframe in one session robotically;
- have sufficient space to accommodate all equipment, materials, and workers;
- be located near existing utilities and in a location compatible with other Hill AFB land uses; and

- be protective of facilities, human health, and the environment.

Alternatives Considered in Detail

Alternative A (No Action Alternative) - The no action alternative would continue the current methods and levels of operation. Composite aircraft would continue being flown to Marietta, Georgia and Fort Worth, Texas for RCS inspections. When further modifications are necessary to improve the low observable qualities of an aircraft's radar signature, it would be returned to Hill AFB for further modification, and then inspected again at the Georgia or Texas facility. NDI activities would continue to use inadequate hand-held inspection methods and technicians would continue to be exposed to ionizing radiation.

Alternative B (Proposed Action - Construct Composite Aircraft Inspection Facilities With the RCS Facility East of the Hill AFB Runway) - The proposed RCS facility would be located east of Building 680. A high bay industrial production facility (initially a 42,000 square foot footprint with a planned addition of up to 10,000 square feet) would be constructed. Pavements and utilities would be provided. Accommodations would be required for nearby contaminated groundwater and a wellhead protection zone.

The proposed location for the NDI facility is north of Building 505. A medium sized hangar with a 28,000 square foot footprint would be constructed. Pavements and utilities would be provided.

Alternative C (Construct Composite Aircraft Inspection Facilities With the RCS Facility West of the Hill AFB Runway) - Alternative C would consist of constructing and operating the same RCS and NDI facilities as the proposed action. The location for the RCS facility in Alternative C would be north of Building 503.

Decisions That Must Be Made

Hill AFB must decide which alternative to select:

- Do not construct composite aircraft inspection facilities (no action).
- Construct composite aircraft inspection facilities with the RCS facility east of the Hill AFB runway.
- Construct composite aircraft inspection facilities with the RCS facility west of the Hill AFB runway.

Results of the Environmental Assessment

Alternatives A, B, and C were all considered in detail. The results of the environmental assessment are summarized in the following table.

Summary Comparison of Alternatives

Issue	Alternative A No Action	Alternative B Proposed Action	Alternative C Alternate Location
Air Quality	No effects	Construction equipment would create temporary emissions. Fugitive dust emissions would be mitigated. Air emissions from solvents and alcohols would be less than 30 pounds per year (for volatile organic compounds and for hazardous air pollutants).	Construction equipment would create temporary emissions. Fugitive dust emissions would be mitigated. Air emissions from solvents and alcohols would be less than 30 pounds per year (for volatile organic compounds and for hazardous air pollutants).
Solid and Hazardous Wastes	No effects	If contaminated soils are identified, they would be properly handled during the construction process. Solid and liquid wastes containing regulated substances would all be properly contained, stored, transported, disposed, re-used, and/or recycled.	If contaminated soils are identified, they would be properly handled during the construction process. Solid and liquid wastes containing regulated substances would all be properly contained, stored, transported, disposed, re-used, and/or recycled.
Biological Resources	No effects	Loss of low-quality habitat would be mitigated in accordance with the Hill AFB habitat trading and replacement plan. To discourage bird activity, overhangs, covered ledges, and holes in structures would all be avoided during the design and construction process.	No vegetation is present. To discourage bird activity, overhangs, covered ledges, and holes in structures would all be avoided during the design and construction process.
Water Quality	No effects	During construction and operations, water quality would be protected by implementing stormwater management practices. If contaminated groundwater migrates to the facility, all requirements would be met for handling, storage, treatment, and/or disposal of any contaminated groundwater that is pumped from the excavation or pumped (such as by use of sump pumps) from the facility during operations. Wellhead protection requirements would be met.	During construction and operations, water quality would be protected by implementing stormwater management practices. No contaminated groundwater or wellhead protection issues exist.

Identification of the Preferred Alternative

Both Alternatives B and C fully satisfy the selection criteria presented in Section 1.4. Hill AFB aircraft maintenance managers prefer Alternative B (the proposed action) for the following reasons. The RCS facility would be constructed primarily to accommodate F-22 aircraft, which would be repaired in hangars also being constructed on the east side of the Hill AFB runway. The NDI facility would be constructed to accommodate a variety of aircraft types, approximately 1,600 of which would be repaired on the west side of the runway, and 200 of which would be

repaired on the east side of the runway. Placing the RCS and NDI facilities as described under Alternative B would result in shorter process times and would avoid to the greatest extent possible, towing aircraft across the Hill AFB runway and disrupting airfield activities.

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LIST OF ACRONYMS AND CHEMICAL TERMS

AFB	Air Force Base
AFOSH	Air Force Occupational Safety and Health
AICUZ	Air Installation Compatible Use Zone
ALC	Air Logistics Center
AMXG	Aircraft Maintenance Group
APE	Area of Potential Effect
bgs	Below the Ground Surface
CAA	Clean Air Act
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CWA	Clean Water Act
DAQ	Division of Air Quality (Utah)
dBA	Decibel (A-weighted)
DCE	Dichloroethene
DRMO	Defense Reutilization and Marketing Office
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency (United States)
FFA	Federal Facility Agreement
FONSI	Finding of No Significant Impact
FQI	Floristic Quality Index
FY	Fiscal Year
HAP	Hazardous Air Pollutant
IWTP	Industrial Wastewater Treatment Plant
JSF	Joint Strike Fighter
kVp	Kilovolt Peak
MILCON	Military Construction
MS4	Municipal Separate Storm Sewer Systems
MXW	Aircraft Maintenance Wing

NAAQS	National Ambient Air Quality Standards
NDI	Non-Destructive Inspection
NDSD	North Davis Sewer District
NEPA	National Environmental Policy Act
NO_x	Oxides of Nitrogen
NRHP	National Register of Historic Places
O_3	Ozone
OSHA	Occupational Safety and Health Administration
PCB	Polychlorinated Biphenyl
PM-10	Particulates Smaller Than 10 Microns in Diameter
PM-2.5	Particulates Smaller Than 2.5 Microns in Diameter
ppm	Parts Per Million
RCRA	Resource Conservation and Recovery Act
RCS	Radar Cross Section
RHI	Range Health Index
ROD	Record of Decision
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SOC	Species of Concern
SO_x	Oxides of Sulfur
SWPPP	Stormwater Pollution Prevention Plan
UAC	Utah Administrative Code
UBC	Uniform Building Code
UPDES	Utah Pollutant Discharge Elimination System
USAF	United States Air Force
USC	United States Code
VOC	Volatile Organic Compound
WCI	Wildlife Community Index
WFRC	Wasatch Front Regional Council

1 PURPOSE OF AND NEED FOR ACTION

1.1 Introduction

Hill Air Force Base (AFB) is located approximately 25 miles north of downtown Salt Lake City and seven miles south of downtown Ogden, Utah (Figure 1). Hill AFB is surrounded by several communities: Roy and Riverdale to the north; South Weber to the northeast; Layton to the south; and Clearfield, Sunset, and Clinton to the west. The base lies primarily in northern Davis County with a small portion located in southern Weber County.

Hill AFB is an Air Logistics Center (ALC) that maintains aircraft, missiles, and munitions for the United States Air Force (USAF). In support of that mission, Hill AFB: provides worldwide engineering and logistics management for the F-22 Raptor, F-35 Joint Strike Fighter (JSF), F-16 Fighting Falcon, and A-10 Thunderbolt; accomplishes depot repair, modification, and maintenance of the F-16, A-10 Thunderbolt, and C-130 Hercules aircraft; and overhauls and repairs landing gear, wheels and brakes for military aircraft, rocket motors, air munitions, guided bombs, photonics equipment, training devices, avionics, instruments, hydraulics, software, and other aerospace-related components.

Hill AFB is the Air Force's center of industrial and technical excellence for repair and modification of composite aircraft. Specialized facilities are used to inspect low observable radar characteristics and structural integrity of repaired aircraft before these aircraft can be returned to their home units.

1.2 Purpose of the Action

The purpose of the proposed action is to construct aircraft inspection facilities in support of the Hill AFB mission to repair and modify the F-22 and F-35 composite aircraft. The two necessary facilities are the proposed radar cross section (RCS) facility and the proposed non-destructive inspection (NDI) facility (see Figure 1 for the approximate locations).

1.3 Need for the Action

The proposed action is needed to allow Hill AFB to accommodate its assigned workloads for repairing F-22 and F-35 composite aircraft.

Each F-22 and F-35 fighter aircraft that receives a certain level of repair and modification at Hill AFB must have an RCS inspection to ensure that it has maintained the required level of radar stealth after it has undergone all required repairs and modifications. Without the RCS inspection facility, aircraft would not be able to be RCS inspected at Hill AFB, but instead flown to a Marietta, Georgia facility (for the F-22) or Fort Worth, Texas (for the F-35) for inspection. If further modifications are necessary to improve the low observable qualities of an aircraft's radar signature, it would be returned to Hill AFB for further modification, and then inspected again at the Georgia or Texas facility.

In fiscal year (FY) 2009, Hill AFB is scheduled to provide analytical condition inspection of composite aircraft. An NDI facility using robotic x-ray technology is essential in accomplishing

this mission. A facility is needed to enable Hill AFB to inspect the structural integrity of a composite airframe in one session without disassembling the aircraft. The proposed NDI facility would provide more accurate, repeatable, high fidelity aircraft component inspections compared to the existing method, as well as increasing the efficiency and safety of operations. Robotic NDI would provide repeatable analytical condition inspections, allowing comparison with previous such inspections. The digital medium would provide compact storage while allowing frequent comparisons on previous inspections. Crack growth, deterioration and hidden damage could be cataloged for repair. Inspection results using the existing method are often incomplete and inconsistent, making it almost impossible to ensure that the entire aircraft has been adequately inspected.

Currently, when x-ray inspections are performed on an intact aircraft, it is accomplished by taking many exposures using tripods or mechanical booms during nights and weekends. X-ray technicians receive exposures to ionizing radiation that would be eliminated by the proposed facility.

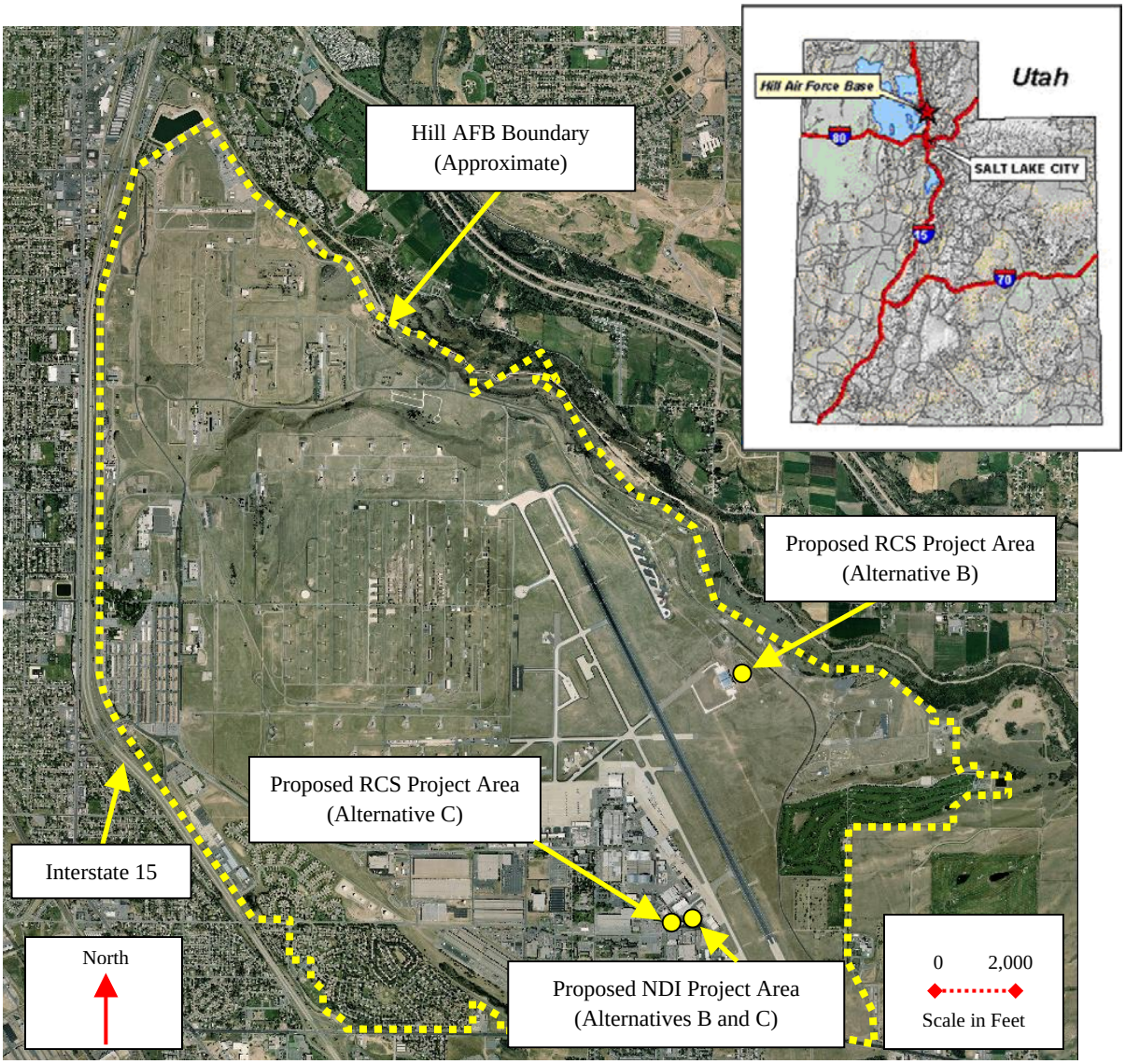

Figure 1: Location of the Proposed Action on Hill AFB

1.4 Alternative Selection Criteria

Due to the considerations presented in the preceding sections, the following selection criteria were established. The facilities that provide composite aircraft inspection capability on Hill AFB described in this document should:

- incorporate the use of both RCS and NDI technologies;
- in the case of NDI, inspect the entire airframe in one session robotically;
- have sufficient space to accommodate all equipment, materials, and workers;
- be located near existing utilities and in a location compatible with other Hill AFB land uses; and
- be protective of facilities, human health, and the environment.

1.5 Relevant Plans, EISs, EAs, Laws, Regulations, and Other Documents

During the scoping process, no relevant plans, environmental impact statements (EISs), or environmental assessments (EAs) were identified.

The following federal, state, and local laws, regulations, and permits would apply to the proposed action:

- The National Environmental Policy Act (NEPA), Title 42 of the United States Code (USC) Section 4321 *et seq*.
- Council on Environmental Quality regulations, Title 40 of the Code of Federal Regulations (CFR) Parts 1500-1508.
- USAF-specific requirements contained in 32 CFR Part 989, Environmental Impact Analysis Process (EIAP).
- Safety guidelines of the Occupational Safety and Health Administration (OSHA).
- Relevant Air Force Occupational Safety and Health (AFOSH) standards.
- Utah's fugitive emissions and fugitive dust rules (Utah Administrative Code [UAC] Section R307-309).
- Utah's State Implementation Plan (UAC Section R307-110), which complies with the General Conformity Rule of the Clean Air Act (CAA), Section 176 (c).
- Determining Conformity of Federal Actions to State or Federal Implementation Plans, 40 CFR Part 93.154.

- The Hill AFB Title V Operating Permit (Permit Number: 1100007001, and subsequent versions).

- Utah Asbestos Rules, UAC, Section R307-801.

- The Resource Conservation and Recovery Act (RCRA), 42 USC Chapter 82, and regulations promulgated thereunder, 40 CFR Part 260 *et seq*.

- Federal facility agreement (FFA) dated April 10, 1991 under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 42 USC Section 9601 *et seq*.

- Utah hazardous waste management regulations contained in UAC Section R315, and the Hill AFB *Hazardous Waste Management Plan* dated May, 2001, and subsequent versions.

- The Clean Water Act (CWA), 33 USC Section 1251 *et seq*.

- Industrial pretreatment permit number 110 issued by the North Davis Sewer District (NDSD), dated November 1, 2007, and subsequent versions.

- General Multi-Sector Permit for Storm Water Discharges Associated with Industrial Activity permit number UTR000444, which expired December 2007 (but will be valid until a new permit is issued, the application for which has been submitted), and subsequent versions.

- Utah Pollutant Discharge Elimination System (UPDES) General Permit for Discharges from Small Municipal Separate Storm Sewer Systems (MS4s), permit number UTR090028, which expired December 2007 (but will be valid until a new permit is issued, the application for which has been submitted), and subsequent versions.

- The Hill AFB *Stormwater Management Plan Municipal Stormwater Permit*, dated April, 2007, and subsequent versions.

- The Hill AFB *Integrated Natural Resources Management Plan*, dated 2006, and subsequent versions.

- The Hill AFB *Integrated Cultural Resources Management Plan*, dated January, 2007, and subsequent versions.

- The National Historic Preservation Act (NHPA), 16 USC Section 470 et seq.

During the scoping process, no other documents were identified as being relevant to the proposed action.

1.6 Decisions That Must Be Made

Hill AFB must decide whether to:

- not construct composite aircraft inspection facilities (no action); or
- construct composite aircraft inspection facilities.

If Hill AFB decides to construct composite aircraft inspection facilities, the proponent and environmental managers would then decide what mitigation and/or monitoring measures, if any, should be implemented.

If Hill AFB decides to construct composite aircraft inspection facilities, the base would then decide if the selected alternative would or would not be a major federal action significantly affecting the quality of the human environment. If judged as not significantly affecting the quality of the human environment, then a finding of no significant impact (FONSI) would be prepared and signed, and the project would proceed. If judged as significantly affecting the quality of the human environment, then an EIS and a record of decision (ROD) would have to be prepared and signed before the project could proceed.

1.7 Scope of this Environmental Analysis

The scope of the current environmental analysis is to explore environmental issues related to the proposed action (construct composite aircraft inspection facilities) and the reasonable alternatives identified within this document.

1.7.1 History of the Planning and Scoping Process

Scoping discussions were held: to identify potential environmental concerns; to facilitate an efficient environmental analysis process; to identify issues and alternatives that would be considered in detail while devoting less attention and time to less important issues; and to save time in the overall process by helping to ensure that draft documents would adequately address relevant issues, thereby reducing the time required to proceed to a final document.

On June 2, 2008, an initial scoping meeting was conducted in Building 5, Hill AFB. Attendees included proponents of the proposed action, managers of Hill AFB's NEPA program, other environmental program managers, and the authors of this document.

During this meeting and subsequent scoping interaction, the following environmental issues were addressed:

- air quality;
- solid and hazardous wastes (including liquid waste streams);
- biological resources;

- geology and surface soils;
- water quality;
- cultural resources;
- occupational safety and health;
- air installation compatible use zone (AICUZ); and
- socioeconomic resources.

1.7.2 Issues Studied in Detail

The issues that have been identified for detailed consideration and are therefore presented in Sections 3 and 4 are:

- **Air Quality** (attainment status, emissions, Utah's state implementation plan [SIP])

  Air emissions would be produced by construction equipment. Operating the proposed action would create air emissions. Air quality effects are discussed in Section 4 of this document.

- **Solid and Hazardous Wastes** (materials to be used, stored, recycled, or disposed, including liquid waste streams; existing asbestos, lead-based paint, mercury, and polychlorinated biphenyls [PCBs])

  During construction, solid wastes would be generated, and other hazardous wastes might be generated that would require proper treatment and/or disposal. Additional hazardous wastes could be generated if a spill of fuel, lubricants, or construction-related chemicals were to occur.

  Operating the proposed action would create solid and hazardous wastes (to include solid and liquid wastes). Effects related to solid and hazardous wastes are discussed in Section 4 of this document.

- **Biological Resources** (threatened, endangered, sensitive species, wetlands, floodplains)

  Constructing the RCS facility proposed in Alternative B would disturb approximately two acres of undeveloped land (all other areas are currently occupied by structures or pavement). Constructing and operating the proposed action could create roosting or nesting areas for birds (which are a nuisance, as well as being a hazard to aircraft). Effects related to biological resources are discussed in Section 4 of this document.

- **Water Quality** (surface water, groundwater, water quantity, wellhead protection zones)

  Based on building sizes and the Hill AFB preliminary siting diagrams for the proposed action, the land area to be disturbed would be approximately five acres in size (the RCS facility comprising approximately two acres, the NDI facility comprising approximately three acres). The proposed action would be subject to stormwater permit requirements both during the construction period and during operations.

  Contamination of groundwater is known to exist approximately 15 feet below the ground surface (bgs) in the vicinity of the RCS facility proposed in Alternative B, and approximately 100 feet bgs in the vicinity of the remaining locations (north of Buildings 503 and 505). The proposed RCS facility could require excavations as deep as 25 feet bgs.

  The scoping discussions did not identify any issues related to quantity of water.

  A wellhead protection zone exists in the vicinity of the RCS facility proposed in Alternative B.

  Effects related to water quality are discussed in Section 4 of this document.

  Liquid waste streams created during construction and from operating the proposed action are included in the discussions related to solid and hazardous wastes (Section 4 of this document).

1.7.3 Issues Eliminated From Further Study

The issues that were not carried forward for detailed consideration in Sections 3 and 4 are:

- **Geology and Surface Soils** (seismicity, topography, minerals, geothermal resources, land disturbance, known pre-existing contamination)

  The scoping discussions did not identify any issues related to seismicity, topography, minerals, or geothermal resources.

  Excavations would be necessary to install: footings; foundations; and buried utilities consisting of water, electricity, natural gas, steam lines, sanitary sewer, and storm sewer. Discussions related to preventing soil erosion (stormwater pollution prevention) are addressed under water quality effects (Section 4 of this document).

  Contamination of shallow soil is not known to exist in the vicinity of the proposed action. Potential discovery of suspicious soils during excavation is addressed under solid and hazardous wastes (Section 4 of this document).

- **Cultural Resources** (archaeological, architectural, traditional cultural properties)

  No significant cultural resources have been identified in the area of potential effect (APE) for the proposed action. Three previous inventories were conducted on Hill AFB for archaeological resources in 1991, 1995, and 2001, compromising 840 acres total. This has resulted in the survey of 12.5 percent of the total area of Hill AFB. Results from these projects included the recordation of one historic refuse dump and two prehistoric isolates, all determined ineligible for listing in the National Register of Historic Places (NRHP). None of the previous inventories included the APE of the proposed action. Given the lack of previous findings and the extensive development and disturbance of Hill AFB, the potential for historic properties is extremely low. However, if any are found during construction, ground-disturbing activities in the immediate vicinity will cease, the Hill AFB Cultural Resources Program will be notified, and unanticipated discovery of archaeological deposits procedures will be implemented with direction from the Hill AFB Cultural Resources Program in accordance with Standard Operating Procedure 5 in the Hill AFB *Integrated Cultural Resources Management Plan* (Hill 2007a). The Utah State Historic Preservation Office (SHPO) concurred with a finding of no adverse effect after reviewing the proposed action (Appendix A). Hill AFB has determined formal consultation with American Indian Tribes is not warranted given the absence of resources that may be reasonably construed as being of interest to them.

- **Occupational Safety and Health** (physical and chemical hazards, radiation, explosives, bird and wildlife hazards to aircraft)

  Throughout the construction phase of the project, Hill AFB contractors would follow OSHA safety guidelines as presented in the CFR. Hazardous materials that could be used during construction are included in the discussions related to solid and hazardous wastes (Section 4 of this document).

  Related to Hill AFB military personnel and civilian employees, the Bio-environmental Engineering Flight (75 AMDS/SGPB) is responsible for implementing AFOSH standards. The AFOSH program addresses (partial list): hazard abatement, hazard communication, training, personal protective equipment and other controls to ensure that occupational exposures to hazardous agents do not adversely affect health and safety, and acquisition of new systems.

  The scoping discussions did not identify any issues related to occupational safety and health that would not be routinely addressed by OSHA rules and/or the Bio-engineering Flight.

- **AICUZ** (noise, accident potential, airfield encroachment)

  The proposed facilities described in this document lie in the 85 A-weighted decibel (dBA) noise level zone (documented in the current version of the Hill

AFB AICUZ report). The primary source is external jet noise from the Hill AFB runway. At this noise level, appropriate noise reduction must be assured, based on the specific activities to be conducted in each work area. The external jet noise would be addressed by incorporating noise level reduction measures into construction design, in compliance with the Uniform Building Code (UBC) Chapter 35, and the current version of the Hill AFB AICUZ report. Since noise mitigation measures would be provided by design engineers through structural controls, noise effects will not be addressed in a detailed fashion in this document.

Other than discouraging new bird populations near the Hill AFB runway (discussed under biological effects in Section 4 of this document), the scoping discussions did not identify any issues related to aircraft accident potential or airfield encroachment.

- **Socioeconomic Resources** (local fiscal effects including employment, population projections, and schools)

  Opportunities would exist for local construction workers when the proposed action is constructed. The proposed action is expected to create up to 50 permanent jobs at Hill AFB for individuals with technical skills related to aviation and inspecting composite aircraft. Compared to the existing 250,000 jobs in the Ogden-Clearfield metropolitan statistical area (Economic 2008), 50 new jobs would not be significant. The scoping discussions did not identify any issues related to population projections or schools.

1.8 Applicable Permits, Licenses, and Other Coordination Requirements

References to applicable permits and licenses are included in Section 1.5 of this document.

The proponents would coordinate with the Hill AFB hazardous materials program manager (75 CEG/CEVC) to discuss hazardous materials brought on base to construct the proposed action and to be used in the proposed composite aircraft inspection facilities.

2.0 ALTERNATIVES, INCLUDING THE PROPOSED ACTION

2.1 Introduction

This section discusses the process used to develop the alternatives, describes the alternatives, and compares (in a brief summary fashion) the alternatives and their expected effects. Finally, this section states the Air Force's preferred alternative.

2.2 Process Used to Develop the Alternatives

As discussed in Sections 1.3 and 1.4 of this document, Hill AFB intends to construct composite aircraft inspection facilities. The proposed facilities described in this document would comply with all relevant design standards and would have sufficient space to accommodate all RCS and NDI program needs.

Hill AFB's 309 Aircraft Maintenance Group (AMXG) investigated other potential locations for siting the proposed composite aircraft inspection facilities (see Section 2.3.4).

2.3 Description of Alternatives

2.3.1 Alternative A: No Action

Under the no action alternative, the composite aircraft inspection facilities would not be constructed. Composite aircraft would continue being flown to Marietta, Georgia and Fort Worth, Texas for RCS inspections. When further modifications are necessary to improve the low observable qualities of an aircraft's radar signature, it would be returned to Hill AFB for further modification, and then inspected again at the Georgia or Texas facility. NDI activities would continue to use the inadequate hand-held inspection methods and technicians would continue to be exposed to ionizing radiation.

2.3.2 Alternative B: Proposed Action - Construct Composite Aircraft Inspection Facilities With the RCS Facility East of the Hill AFB Runway

The proposed action is to construct composite aircraft inspection facilities on Hill AFB. Under this alternative, the RCS facility would be located east of Building 680 (Figure 2). The proposed location for the NDI facility is north of Building 505 (Figure 3).

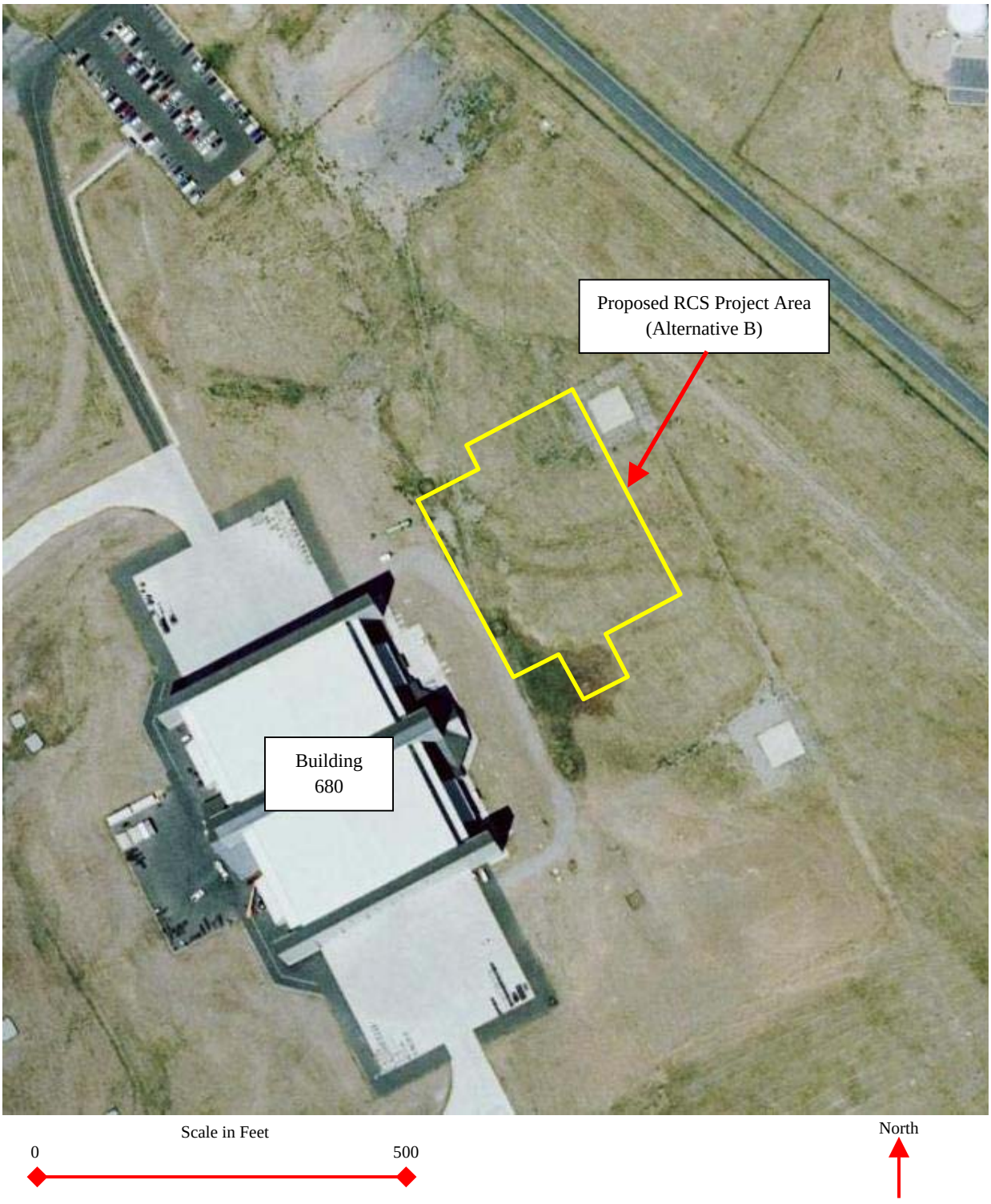

Figure 2: Proposed RCS Location (Alternative B)

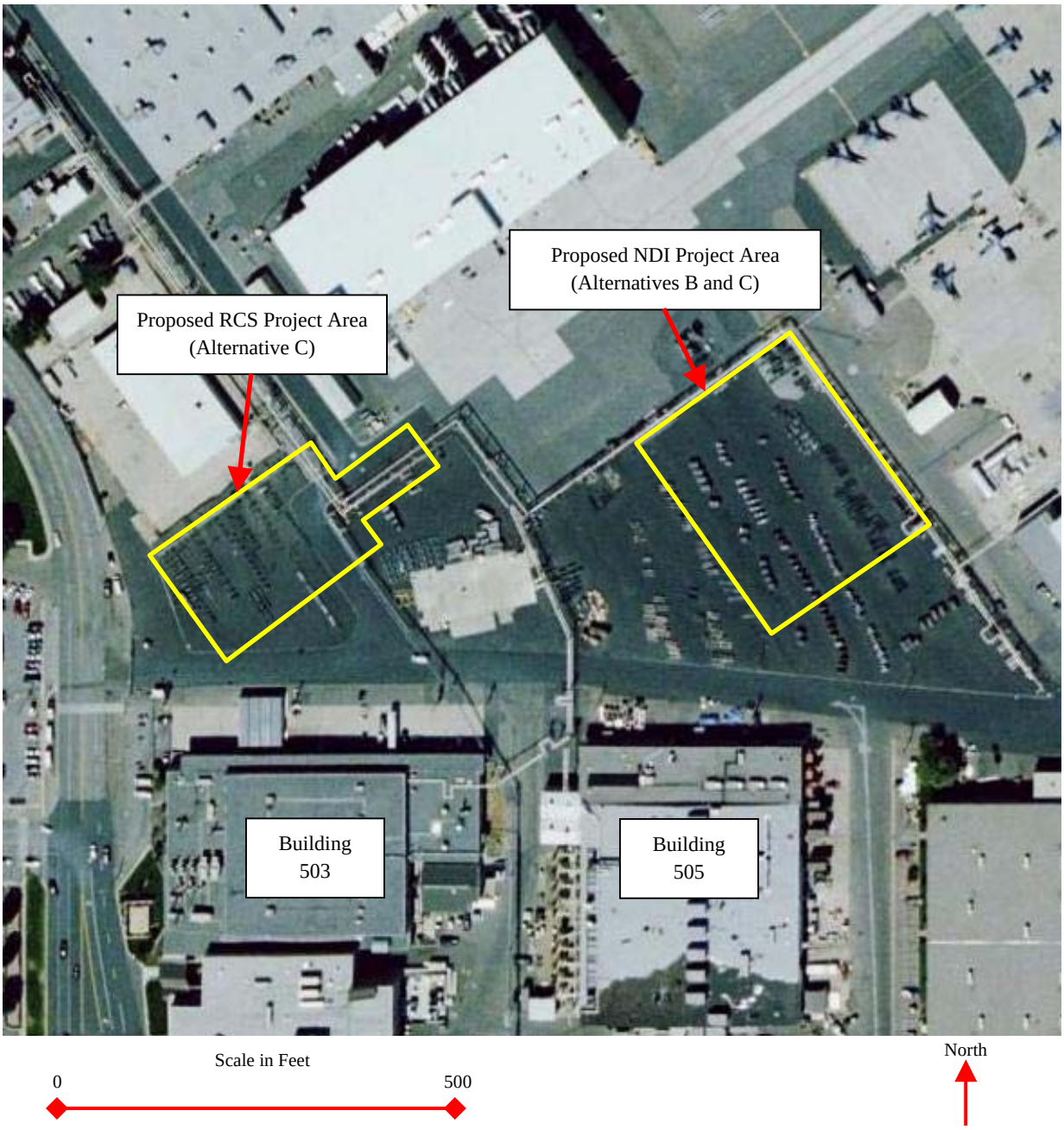

Figure 3: Proposed RCS Location (Alternative C), Proposed NDI Location (for Both Alternatives B and C)

The proposed action would consist of:

For the RCS Facility

- Constructing a high bay (100 feet high) industrial production facility with concrete foundation, floor slab, structural steel frame, insulated walls and roof, with a 42,000 square foot footprint.

  Components of the facility would include an aircraft vestibule, a radar cross section inspection bay, a radar control room, one restroom, lightning protection, fire detection and prevention systems, and security and communication systems.

  A potential addition to the facility (included in these analyses - 10,000 square feet or less) could be required to support RCS inspections of parts for B-2 Spirit Bomber aircraft.

- Providing pavements and tow aprons for aircraft access to the facility.

- Providing buried utilities to include: water, electricity, natural gas, steam lines, sanitary sewer, and storm sewer.

For the NDI Facility

- Constructing a medium sized hangar with steel-reinforced concrete footings, foundations, poured-in-place steel-reinforced concrete walls, and insulated standing seam metal roof, with a 28,000 square foot footprint. Included technologies would be robotic x-ray technology, ultrasonics, laser shearography, and digital radiography.

  Two large inspection bays would each accommodate one F-22 aircraft and robotic x-ray inspection equipment. Six smaller bays would accommodate large aircraft components (two ultrasonic inspection bays, two laser shearography inspection bays, and two digital radiography inspection bays). The two large bays and the two smaller digital radiography bays would be radiation protective to a 300 kilovolt peak (kVp) energy level.

  Additional components of the facility would include thickened steel-reinforced concrete footing/isolation pads for the robotic equipment, offices, inspection test assessment rooms, equipment storage, break room, restrooms, lightning protection, fire detection and prevention systems, and security and communication systems.

- Providing buried utilities to include: water, electricity, natural gas, steam lines, sanitary sewer, and storm sewer.

2.3.3 Alternative C: Construct Composite Aircraft Inspection Facilities With the RCS Facility West of the Hill AFB Runway

The only difference between the Alternative C and Alternative B (proposed action) is that Alternative C would site the RCS facility north of Building 503 (see Figure 3).

2.3.4 Alternatives Eliminated From Detailed Study

Various locations were considered by the Hill AFB facility board for siting the composite aircraft inspection facilities. These other locations were eliminated from detailed study due to:

- conflicts with existing structures;
- conflicts with existing roads and/or utilities;
- conflicts with the use of existing airfield and radar facilities; and/or
- distance from related workloads.

The other locations considered for the RCS facility included:

- southwest of Building 269;
- west of Building 100;
- west of the 388 Fighter Wing facilities;
- east of Building 238; and
- west of Building 590.

The other location considered for the NDI facility was:

- south of Building 680.

2.4 Summary Comparison of the Activities, the Predicted Achievement of the Project Objectives and the Predicted Environmental Effects of All Alternatives

2.4.1 Summary Comparison of Project Activities

The no action alternative would be to continue the current methods and levels of operation.

Under both Alternatives B (proposed action - construct composite aircraft inspection facilities with the RCS facility east of the hill AFB runway) and C (construct composite aircraft inspection facilities with the RCS facility west of the hill AFB runway), the proposed facilities, utilities, and associated parking spaces would be constructed, comprising approximately five acres. The facilities would enable Hill AFB to efficiently inspect, repair, and modify F-22 and F-35 composite aircraft.

2.4.2 Summary Comparison of Predicted Achievement of Project Objectives

Description of the Project Objective	Alternative A (No Action)	Alternative B (Proposed Action)	Alternative C
Incorporate the use of both RCS and NDI technologies	No	Yes	Yes
In the case of NDI, inspect the entire airframe in one session robotically	No	Yes	Yes
Have sufficient space to accommodate all equipment, materials, and workers	No	Yes	Yes
Be located near existing utilities and in a location compatible with other Hill AFB land uses	No	Yes	Yes
Be protective of facilities, human health, and the environment	Yes	Yes	Yes

Table 1: Summary Comparison of Predicted Achievement of Project Objectives

2.4.3 Summary Comparison of Predicted Environmental Effects

Issue	Alternative A No Action	Alternative B Proposed Action	Alternative C Alternate Location
Air Quality	No effects	Construction equipment would create temporary emissions. Fugitive dust emissions would be mitigated. Air emissions from solvents and alcohols would be less than 30 pounds per year (for volatile organic compounds and for hazardous air pollutants).	Construction equipment would create temporary emissions. Fugitive dust emissions would be mitigated. Air emissions from solvents and alcohols would be less than 30 pounds per year (for volatile organic compounds and for hazardous air pollutants).
Solid and Hazardous Wastes	No effects	If contaminated soils are identified, they would be properly handled during the construction process. Solid and liquid wastes containing regulated substances would all be properly contained, stored, transported, disposed, re-used, and/or recycled.	If contaminated soils are identified, they would be properly handled during the construction process. Solid and liquid wastes containing regulated substances would all be properly contained, stored, transported, disposed, re-used, and/or recycled.
Biological Resources	No effects	Loss of low-quality habitat would be mitigated in accordance with the Hill AFB habitat trading and replacement plan. To discourage bird activity, overhangs, covered ledges, and holes in structures would all be avoided during the design and construction process.	No vegetation is present. To discourage bird activity, overhangs, covered ledges, and holes in structures would all be avoided during the design and construction process.
Water Quality	No effects	During construction and operations, water quality would be protected by implementing stormwater management practices. If contaminated groundwater migrates to the facility, all requirements would be met for handling, storage, treatment, and/or disposal of any contaminated groundwater that is pumped from the excavation or pumped (such as by use of sump pumps) from the facility during operations. Wellhead protection requirements would be met.	During construction and operations, water quality would be protected by implementing stormwater management practices. No contaminated groundwater or wellhead protection issues exist.

Table 2: Summary Comparison of Predicted Environmental Effects

2.5 Identification of the Preferred Alternative

Both Alternatives B and C fully satisfy the selection criteria presented in Section 1.4. Hill AFB aircraft maintenance managers prefer Alternative B (the proposed action) for the following reasons. The RCS facility would be constructed primarily to accommodate F-22 aircraft, which would be repaired in hangars also being constructed on the east side of the Hill AFB runway.

The NDI facility would be constructed to accommodate a variety of aircraft types, approximately 1,600 of which would be repaired on the west side of the runway, and 200 of which would be repaired on the east side of the runway. Placing the RCS and NDI facilities as described under Alternative B would result in shorter process times and would avoid to the greatest extent possible, towing aircraft across the Hill AFB runway and disrupting airfield activities.

3.0 AFFECTED ENVIRONMENT

3.1 Introduction

Section 3 of this document discusses the existing conditions of the potentially affected environment, establishing a resource baseline against which the effects of the various alternatives can be evaluated. It presents relevant facilities and operations, environmental issues, pre-existing environmental factors, and existing cumulative effects due to human activities in the vicinity of the proposed action or the alternative locations.

Issues discussed during scoping meetings, but eliminated from detailed consideration (see Section 1.7.3) include:

- geology and surface soils (seismicity, topography, minerals, geothermal resources, land disturbance, known pre-existing contamination);
- cultural resources (archaeological, architectural, traditional cultural properties);
- occupational safety and health (physical and chemical hazards, radiation, explosives, bird and wildlife hazards to aircraft);
- AICUZ (noise, accident potential, airfield encroachment); and
- socioeconomic resources (local fiscal effects including employment, population projections, and schools).

3.2 Description of Relevant Facilities and Operations

The facilities and operations directly affected by the proposed action were identified in Section 2.3. The proposed RCS facility is related to aircraft repairs and modifications that occur in Building 680 (Figure 2). 309 AMXG managers would prefer to locate the RCS facility adjacent to Building 680 to maximize efficiency of workflow. No other relevant facilities or operations were identified.

3.3 Description of Relevant Affected Issues

3.3.1 Air Quality

Hill AFB is located in Davis and Weber Counties, Utah. Neither county is in complete attainment status with federal clean air standards (Figure 4). Nonattainment areas fail to meet national ambient air quality standards (NAAQS) for one or more of the criteria pollutants: oxides of nitrogen (NOx), sulfur dioxide (SO_2), ozone (O_3), particulates less than 10 microns in diameter (PM-10), particulates less than 2.5 microns in diameter (PM-2.5), carbon monoxide (CO), and lead. Davis County (the county in which the proposed action lies) is currently designated as a maintenance area for ozone. Due to this designation, emission offsets are

required for new sources emitting NOx and volatile organic compounds (VOCs), which are precursors to ozone formation.

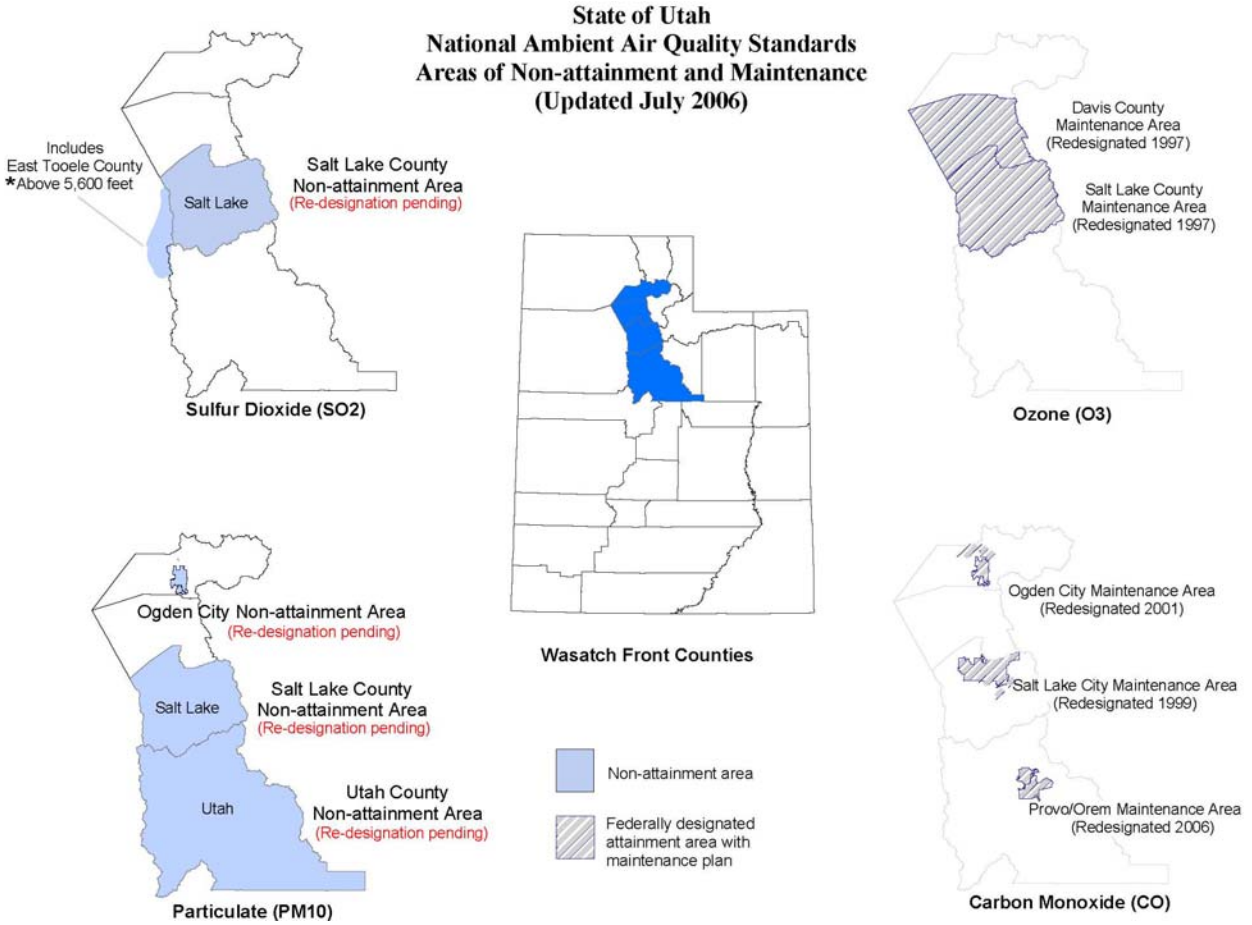

Figure 4: State of Utah National Ambient Air Quality Standards, Areas of Non-Attainment and Maintenance

The current air quality trend at Hill AFB is one of controlling emissions as Hill AFB managers implement programs to eliminate ozone-depleting substances, limit use of VOCs, switch to lower vapor pressure solvents and aircraft fuel, convert internal combustion engines from gasoline and diesel to natural gas, and improve the capture of particulates during painting and abrasive blasting operations (in compliance with the base's Title V air quality permit).

Published emission estimates are available for criteria air pollutants and hazardous air pollutants (HAPs) for Hill AFB (Hill 2007b), and criteria air pollutants for Davis and Weber Counties (Division of Air Quality - DAQ 2006). The estimates, shown below in Table 3 were based on data from calendar year 2006 for Hill AFB, and for calendar year 2002 for Davis and Weber Counties.

Location	VOC	CO	NOx	PM-10	HAP	SOx
Hill AFB	290.47	215.42	225.80	41.61	75.75	6.40
Davis County	18,878.71	78,777.83	11,086.59	3,378.55	not reported	2,441.04
Weber County	16,184.75	62,246.82	6,933.27	2,768.36	not reported	296.89

Table 3: Baseline Criteria Pollutants and HAPs (tons/year)

3.3.2 Solid and Hazardous Wastes

In general, hazardous wastes include substances that, because of their concentration, physical, chemical, or other characteristics, may present substantial danger to public health or welfare or to the environment when released into the environment or otherwise improperly managed. Potentially hazardous and hazardous wastes generated at Hill AFB are managed as specified in the *Hill AFB Hazardous Waste Management Plan* with oversight by personnel from the Environmental Management Division and the Defense Reutilization and Marketing Office (DRMO). Hazardous wastes at Hill AFB are properly stored during characterization, and then manifested and transported off site for treatment and/or disposal.

The proposed action would respond to new workload on Hill AFB. There are no existing solid or hazardous wastes being generated.

3.3.3 Biological Resources

No federal or state endangered or threatened species are known to occur on Hill AFB (Hill 2006) and no likely habitat for any such species would be disturbed by the proposed action. Two species on Utah's species of concern (SOC) list have been sighted on Hill AFB, the Long Billed Curlew and the Bobolink. Those sighting were unusual for these species and occurred during the fall migration. There are no wetlands or floodplains in the vicinity of the alternatives discussed in this document. The alternatives discussed in this document are located in or near developed areas on Hill AFB.

The seven acres within the boundary of the proposed action consist of a mowed grass/forb habitat with ten different invasive plants and numerous native plants. Based on recent observations, the calculated range health index (RHI) for the proposed area is 0.60, the wildlife community index (WCI) is 0.24, and the floristic quality index (FQI) is 0.46. There are several Northern Pocket Gopher burrows within the boundary of the proposed action.

Several bird species known to use this area for foraging are listed in Table 4.

Type of Bird	Feed and/or Hunt
American Kestrel	✓
American Robin	✓
Barn Swallow	✓
Black-billed Magpie	✓
Brewer's Blackbird	✓
Brown Headed Cowbird	✓
California Gull	✓
Common Raven	✓
European Starling	✓
Franklin's Gull	✓
Horned Lark	✓
House Finch	✓
House Sparrow	✓
Killdeer	✓
Mourning Dove	✓
Prairie Falcon	✓
Red-tailed Hawk	✓
Rock Dove	✓
Swainson's Hawk	✓
Western Kingbird	✓
Western Meadowlark	✓

Table 4: List of Birds That Forage in the Area

3.3.4 Water Quality

In areas of Hill AFB that are not heavily developed, runoff is allowed to infiltrate into the ground through overland flow or surface ditches, discharging to large unoccupied areas. In developed areas, stormwater is conveyed to 15 retention or detention ponds within Hill AFB boundaries. Stormwater from retention ponds percolates and evaporates, resulting in zero discharge. Detention ponds are checked for presence of an oil sheen prior to discharging stormwater by manually opening the outfall valves.

For the area east of Building 680 (the proposed RCS facility location in Alternative B), no surface water bodies are present. Most of the precipitation falling on this unoccupied area would be expected to infiltrate into the ground. Based on a review of the Hill AFB *Hill AFB Stormwater Management Plan - Municipal Stormwater Permit* (Stantec 2007) and site topography, any excess runoff from this area of Hill AFB is conveyed by storm drains to Pond 10 (a retention pond).

For the area north of Buildings 503 and 505 (the proposed RCS facility location in Alternative C and the proposed NDI facility location in Alternatives B and C), no surface water bodies are present. All areas are currently occupied by structures or pavement. Based on a review of the Hill AFB *Hill AFB Stormwater Management Plan - Municipal Stormwater Permit* (Stantec 2007), storm drains convey surface runoff from this area of Hill AFB to Pond 1 (a detention pond).

Groundwater east of Building 680 is found approximately 15 feet bgs, and is contaminated with dichloroethene (DCE), as shown in Figure 5.

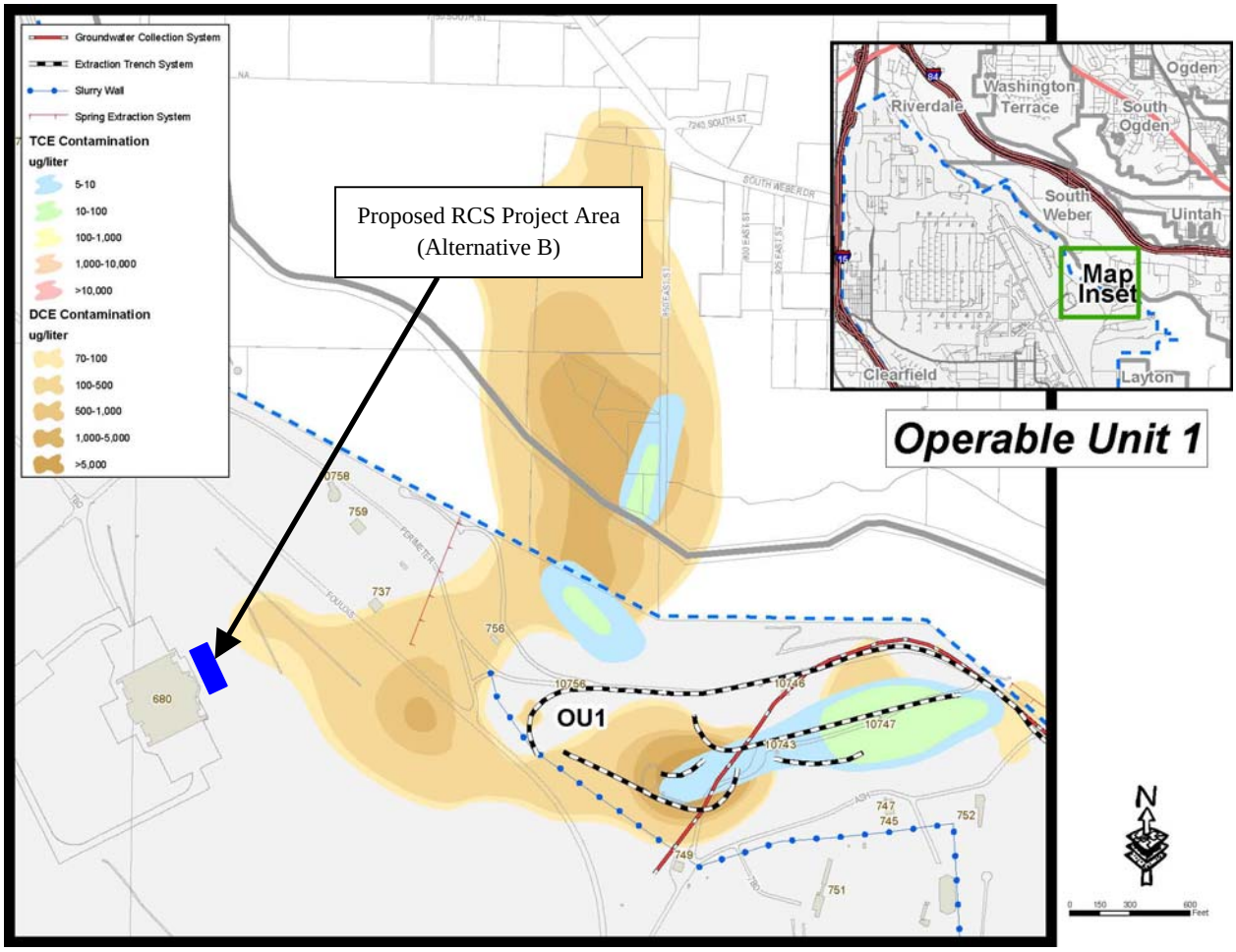

Figure 5: Groundwater Contamination East of Building 680

A wellhead protection zone exists in the vicinity of the RCS facility proposed in Alternative B.

3.4 Description of Relevant Pre-Existing Environmental Factors

The Wasatch Front Regional Council (WFRC 2003) assessed earthquake hazards for Davis County, Utah, including the portion of Hill AFB that includes the alternatives discussed in this document. The Davis County liquefaction potential map shows this area of Hill AFB to be in the zone labeled as very low risk. The Davis County earthquake hazard map shows this area of Hill AFB to be outside of known fault zones. The Davis County landslide hazard map shows this area of Hill AFB to be outside of known landslide risk zones.

During scoping discussions and subsequent analysis, no other pre-existing environmental factors (e.g., hurricanes, tornados, floods, droughts) were identified for the proposed action.

3.5 Description of Areas Related to Cumulative Effects

For air quality, the area related to cumulative effects would include Hill AFB, Davis County, and Weber County.

For solid and hazardous wastes, the area related to cumulative effects would include Hill AFB.

For biological resources, the area related to cumulative effects would include Hill AFB.

For water quality, the area related to cumulative effects would include Hill AFB and waters downstream from the Hill AFB stormwater retention ponds.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

This section begins by presenting, in Section 4.2, the predicted attainment of project objectives for all alternatives.

Section 4.3 discusses effects to the resources that were identified for detailed analysis in Section 1.7.2, and for which existing conditions were presented in Section 3.3. For each of these resources, the following analyses are presented:

- direct, indirect, and cumulative effects of the no action alternative;
- direct, indirect, and cumulative effects of the proposed action; and
- direct, indirect, and cumulative effects of Alternative C.

4.2 Predicted Attainment of Project Objectives of All Alternatives

Table 5 addresses the ability of each alternative to attain project objectives.

Description of the Project Objective	Alternative A (No Action)	Alternative B (Proposed Action)	Alternative C
Incorporate the use of both RCS and NDI technologies	No	Yes	Yes
In the case of NDI, inspect the entire airframe in one session robotically	No	Yes	Yes
Have sufficient space to accommodate all equipment, materials, and workers	No	Yes	Yes
Be located near existing utilities and in a location compatible with other Hill AFB land uses	No	Yes	Yes
Be protective of facilities, human health, and the environment	Yes	Yes	Yes

Table 5: Predicted Attainment of Project Objectives

4.3 Predicted Effects to Relevant Affected Resources of All Alternatives

4.3.1 Predicted Effects to Air Quality

4.3.1.1 Alternative A: No Action

With respect to air quality, the no action alternative would have no direct effects, no indirect effects, and no cumulative effects.

4.3.1.2 Alternative B (Proposed Action): Construct Composite Aircraft Inspection Facilities With the RCS Facility East of the Hill AFB Runway

Direct Effects Due to Construction

- **Fugitive Dust**: Fugitive emissions from construction activities would be controlled according to UAC Section R307-205, Emission Standards: Fugitive Emissions and Fugitive Dust and the Hill AFB *Fugitive Dust Plan*. Good housekeeping practices would be used to maintain construction opacity at less than 20 percent. Haul roads would be kept wet. Any soil that is deposited on nearby paved roads by construction vehicles would be removed from the roads and either returned to the site or placed in an appropriate disposal facility.

- **Heavy Equipment**: The internal combustion engines of heavy equipment would generate emissions of VOCs, CO, NOx, PM-10, PM-2.5, HAPs, and oxides of sulfur (SOx). Assumptions and estimated emissions for the construction period are listed in Tables 6 and 7.

Data Assumptions

Equipment Type	Diesel Emission Factor (lbs/hr)					
	VOC (HC)	CO	NOx	PM10	HAPs	SOx
Asphalt Paver	0.28	1.24	2.96	0.24	0.05	0.25
Bobcat Loader	0.14	0.67	1.00	0.10	0.01	0.08
Cable Plow	0.59	3.75	4.49	0.59	0.08	0.38
Compressor (boring)	0.25	1.62	1.94	0.25	0.04	0.16
Concrete Truck	0.80	3.55	8.50	0.69	0.15	0.72
Crane	2.14	6.96	17.08	2.39	0.33	1.54
Dump Truck	0.63	2.04	6.98	0.58	0.16	0.65
Flat Bed Truck	0.48	1.54	5.29	0.44	0.12	0.49
Fork Lift	0.42	2.47	1.98	0.40	0.05	0.23
Generator	0.02	0.10	0.12	0.02	0.00	0.01
Loader/Backhoe	0.87	4.12	6.12	0.64	0.06	0.52
Motored Grader	0.83	2.01	5.08	0.53	0.06	0.46
Scraper	0.33	2.31	4.03	0.58	0.13	0.42
Track Hoe	0.91	6.65	13.75	1.84	0.26	1.19
Vibratory Compactor	0.38	1.44	4.31	0.36	0.09	0.46
Water Truck	1.10	3.58	12.28	1.02	0.28	1.14
Wheeled Dozer	0.46	1.48	5.08	0.35	0.08	0.49

Note: VOCs = Hydrocarbons and HAPs = Aldehydes
Source: Industry Horsepower Ratings and EPA 460/3-91-02

Construct RCS Facility

EQUIPMENT TYPE	HOURS OF OPERATION	Diesel Emissions (lbs)					
		VOC	CO	NOx	PM10	HAPs	SOx
Asphalt Paver	160	44.8	198.4	473.6	38.4	8.0	40.0
Bobcat Loader		0.0	0.0	0.0	0.0	0.0	0.0
Cable Plow		0.0	0.0	0.0	0.0	0.0	0.0
Compressor (boring)		0.0	0.0	0.0	0.0	0.0	0.0
Concrete Truck	480	384.0	1704.0	4080.0	331.2	72.0	345.6
Crane	600	1284.0	4176.0	10248.0	1434.0	198.0	924.0
Dump Truck	7560	4762.8	15422.4	52768.8	4384.8	1209.6	4914.0
Flat Bed Truck	900	432.0	1386.0	4761.0	396.0	108.0	441.0
Fork Lift	300	126.0	741.0	594.0	120.0	15.0	69.0
Generator		0.0	0.0	0.0	0.0	0.0	0.0
Loader/Backhoe		0.0	0.0	0.0	0.0	0.0	0.0
Motored Grader	360	298.8	723.6	1828.8	190.8	21.6	165.6
Scraper		0.0	0.0	0.0	0.0	0.0	0.0
Track Hoe	1160	1055.6	7714.0	15950.0	2134.4	301.6	1380.4
Vibratory Compactor	1060	402.8	1526.4	4568.6	381.6	95.4	487.6
Water Truck	490	539.0	1754.2	6017.2	499.8	137.2	558.6
Wheeled Dozer		0.0	0.0	0.0	0.0	0.0	0.0
TOTAL ESTIMATED EMISSIONS (lbs)		**9329.8**	**35346.0**	**101290.0**	**9911.0**	**2166.4**	**9325.8**
TOTAL ESTIMATED EMISSIONS (tons)		**4.66**	**17.67**	**50.65**	**4.96**	**1.08**	**4.66**

Source of Hours: Dave Gange, Hill AFB Lead Facility Engineer

Table 6: Calculated Heavy Equipment Emissions, RCS Facility East Side

Data Assumptions

Equipment Type	Diesel Emission Factor (lbs/hr)					
	VOC (HC)	CO	NOx	PM10	HAPs	SOx
Asphalt Paver	0.28	1.24	2.96	0.24	0.05	0.25
Bobcat Loader	0.14	0.67	1.00	0.10	0.01	0.08
Cable Plow	0.59	3.75	4.49	0.59	0.08	0.38
Compressor (boring)	0.25	1.62	1.94	0.25	0.04	0.16
Concrete Truck	0.80	3.55	8.50	0.69	0.15	0.72
Crane	2.14	6.96	17.08	2.39	0.33	1.54
Dump Truck	0.63	2.04	6.98	0.58	0.16	0.65
Flat Bed Truck	0.48	1.54	5.29	0.44	0.12	0.49
Fork Lift	0.42	2.47	1.98	0.40	0.05	0.23
Generator	0.02	0.10	0.12	0.02	0.00	0.01
Loader/Backhoe	0.87	4.12	6.12	0.64	0.06	0.52
Motored Grader	0.83	2.01	5.08	0.53	0.06	0.46
Scraper	0.33	2.31	4.03	0.58	0.13	0.42
Track Hoe	0.91	6.65	13.75	1.84	0.26	1.19
Vibratory Compactor	0.38	1.44	4.31	0.36	0.09	0.46
Water Truck	1.10	3.58	12.28	1.02	0.28	1.14
Wheeled Dozer	0.46	1.48	5.08	0.35	0.08	0.49

Note: VOCs = Hydrocarbons and HAPs = Aldehydes
Source: Industry Horsepower Ratings and EPA 460/3-91-02

Construct NDI Facility

EQUIPMENT TYPE	HOURS OF OPERATION	Diesel Emissions (lbs)					
		VOC	CO	NOx	PM10	HAPs	SOx
Asphalt Paver	160	44.8	198.4	473.6	38.4	8.0	40.0
Bobcat Loader		0.0	0.0	0.0	0.0	0.0	0.0
Cable Plow		0.0	0.0	0.0	0.0	0.0	0.0
Compressor (boring)		0.0	0.0	0.0	0.0	0.0	0.0
Concrete Truck	480	384.0	1704.0	4080.0	331.2	72.0	345.6
Crane	920	1968.8	6403.2	15713.6	2198.8	303.6	1416.8
Dump Truck	7560	4762.8	15422.4	52768.8	4384.8	1209.6	4914.0
Flat Bed Truck	900	432.0	1386.0	4761.0	396.0	108.0	441.0
Fork Lift	300	126.0	741.0	594.0	120.0	15.0	69.0
Generator		0.0	0.0	0.0	0.0	0.0	0.0
Loader/Backhoe		0.0	0.0	0.0	0.0	0.0	0.0
Motored Grader	360	298.8	723.6	1828.8	190.8	21.6	165.6
Scraper		0.0	0.0	0.0	0.0	0.0	0.0
Track Hoe	1480	1346.8	9842.0	20350.0	2723.2	384.8	1761.2
Vibratory Compactor	1060	402.8	1526.4	4568.6	381.6	95.4	487.6
Water Truck	490	539.0	1754.2	6017.2	499.8	137.2	558.6
Wheeled Dozer		0.0	0.0	0.0	0.0	0.0	0.0
TOTAL ESTIMATED EMISSIONS (lbs)		**10305.8**	**39701.2**	**111155.6**	**11264.6**	**2355.2**	**10199.4**
TOTAL ESTIMATED EMISSIONS (tons)		**5.15**	**19.85**	**55.58**	**5.63**	**1.18**	**5.10**

Source of Hours: Dave Gange, Hill AFB Lead Facility Engineer

Table 7: Calculated Heavy Equipment Emissions, NDI Facility

Direct Effects Due to Operations

Based on information received during the scoping meeting held on June 2, 2008, no air emissions were identified due to operating the proposed RCS facility.

Based on a conversation with Hill AFB engineer Ken Bakes (June 17, 2008), air emissions due to operating the proposed NDI facility would be produced by the dye penetrant process. Approximately four gallons per year of solvents and alcohols (combined) would be used to remove penetrant and developer from aircraft parts being inspected. Assuming a worst case scenario, with the liquids containing both VOCs and HAPs and completely evaporating, less than 30 pounds each of VOCs and HAPs would be emitted.

Prior to operating the proposed action, Hill AFB air quality managers would submit the notices of intent, seven day notifications, and modification requests (all described above) to DAQ. Hill AFB would not be allowed to operate the facilities until DAQ concurs that federal and state requirements are being met. Following this existing Hill AFB process would ensure conformity with the CAA by virtue of complying with Environmental Protection Agency (EPA) regulations and Utah's SIP.

Indirect Effects

During scoping and the detailed analysis, no indirect effects related to air quality were identified for the proposed action.

Cumulative Effects

- ***Construction***: Construction-related air emissions would be limited to a duration of several months. Comparing the magnitude of predicted construction-related air emissions (Tables 6 and 7) to existing emissions for Hill AFB, Davis and Weber Counties (Table 3), there would not be significant cumulative effects to air quality associated with constructing the proposed action.

- ***Operations***: Hill AFB air quality managers would ensure that long-term operation of the proposed action complies with the Hill AFB Title V Permit, any relevant approval orders, EPA regulations, and the Utah SIP. Any required air quality control devices would be installed and tested prior to allowing newly installed equipment to begin operating. Comparing the magnitude of predicted operational air emissions to existing emissions in Hill AFB, Davis and Weber Counties (Table 3), no cumulative effects to air quality were identified for operating the proposed action.

4.3.1.3 Alternative C: Construct Composite Aircraft Inspection Facilities With the RCS Facility West of the Hill AFB Runway

With the exception of construction-related air emissions, air quality effects due to selecting Alternative C would be similar to those presented for Alternative B (the proposed action). The reason for higher construction-related air emissions with the RCS facility being placed north of Building 503 would be extensive relocation of existing buried utilities. Table 8 presents the

calculated air emissions for constructing the RCS facility north of Building 503, and can be compared to Table 6 for Alternative B.

Data Assumptions

Equipment Type	Diesel Emission Factor (lbs/hr)					
	VOC (HC)	CO	NOx	PM10	HAPs	SOx
Asphalt Paver	0.28	1.24	2.96	0.24	0.05	0.25
Bobcat Loader	0.14	0.67	1.00	0.10	0.01	0.08
Cable Plow	0.59	3.75	4.49	0.59	0.08	0.38
Compressor (boring)	0.25	1.62	1.94	0.25	0.04	0.16
Concrete Truck	0.80	3.55	8.50	0.69	0.15	0.72
Crane	2.14	6.96	17.08	2.39	0.33	1.54
Dump Truck	0.63	2.04	6.98	0.58	0.16	0.65
Flat Bed Truck	0.48	1.54	5.29	0.44	0.12	0.49
Fork Lift	0.42	2.47	1.98	0.40	0.05	0.23
Generator	0.02	0.10	0.12	0.02	0.00	0.01
Loader/Backhoe	0.87	4.12	6.12	0.64	0.06	0.52
Motored Grader	0.83	2.01	5.08	0.53	0.06	0.46
Scraper	0.33	2.31	4.03	0.58	0.13	0.42
Track Hoe	0.91	6.65	13.75	1.84	0.26	1.19
Vibratory Compactor	0.38	1.44	4.31	0.36	0.09	0.46
Water Truck	1.10	3.58	12.28	1.02	0.28	1.14
Wheeled Dozer	0.46	1.48	5.08	0.35	0.08	0.49

Note: VOCs = Hydrocarbons and HAPs = Aldehydes
Source: Industry Horsepower Ratings and EPA 460/3-91-02

Construct RCS Facility

EQUIPMENT TYPE	HOURS OF OPERATION	Diesel Emissions (lbs)					
		VOC	CO	NOx	PM10	HAPs	SOx
Asphalt Paver	160	44.8	198.4	473.6	38.4	8.0	40.0
Bobcat Loader		0.0	0.0	0.0	0.0	0.0	0.0
Cable Plow		0.0	0.0	0.0	0.0	0.0	0.0
Compressor (boring)		0.0	0.0	0.0	0.0	0.0	0.0
Concrete Truck	480	384.0	1704.0	4080.0	331.2	72.0	345.6
Crane	600	1284.0	4176.0	10248.0	1434.0	198.0	924.0
Dump Truck	30960	19504.8	63158.4	216100.8	17956.8	4953.6	20124.0
Flat Bed Truck	900	432.0	1386.0	4761.0	396.0	108.0	441.0
Fork Lift	300	126.0	741.0	594.0	120.0	15.0	69.0
Generator		0.0	0.0	0.0	0.0	0.0	0.0
Loader/Backhoe		0.0	0.0	0.0	0.0	0.0	0.0
Motored Grader	360	298.8	723.6	1828.8	190.8	21.6	165.6
Scraper		0.0	0.0	0.0	0.0	0.0	0.0
Track Hoe	5840	5314.4	38836.0	80300.0	10745.6	1518.4	6949.6
Vibratory Compactor	3400	1292.0	4896.0	14654.0	1224.0	306.0	1564.0
Water Truck	1660	1826.0	5942.8	20384.8	1693.2	464.8	1892.4
Wheeled Dozer		0.0	0.0	0.0	0.0	0.0	0.0
TOTAL ESTIMATED EMISSIONS (lbs)		**30506.8**	**121762.2**	**353425.0**	**34130.0**	**7665.4**	**32515.2**
TOTAL ESTIMATED EMISSIONS (tons)		**15.25**	**60.88**	**176.71**	**17.07**	**3.83**	**16.26**

Source of Hours: Dave Gange, Hill AFB Lead Facility Engineer

Table 8: Calculated Heavy Equipment Emissions, RCS Facility West Side

4.3.2 Predicted Effects to Solid and Hazardous Waste

4.3.2.1 Alternative A: No Action

With respect to solid and hazardous waste, the no action alternative would have no direct effects, no indirect effects, and no cumulative effects.

4.3.2.2 Alternative B (Proposed Action): Construct Composite Aircraft Inspection Facilities With the RCS Facility East of the Hill AFB Runway

Direct Effects Due to Construction

- ***Waste Generation***: During the proposed construction activities, solid wastes expected to be generated would be construction debris consisting mainly of concrete, metal, and building materials. These items would be treated as uncontaminated trash. It is possible that equipment failure or a spill of fuel, lubricants, or construction-related chemicals could generate solid or hazardous wastes. In the event of a spill of regulated materials, Hill AFB environmental managers and their contractors would comply with all federal, state, and local spill reporting and cleanup requirements.

- ***Waste Management***: Hill AFB personnel have specified procedures for handling construction-related solid and hazardous wastes in their engineering construction specifications. The procedures are stated in Section 01000, General Requirements, Part 1, General, Section 1.24, Environmental Protection. All solid non-hazardous waste is collected and disposed or recycled on a routine basis. Samples from suspect wastes are analyzed for hazardous vs. non-hazardous determination. The suspect waste is safely stored while analytical results are pending. Hazardous wastes are stored at sites operated in accordance with the requirements of 40 CFR 265. The regulations require the generator to characterize hazardous wastes with analyses or process knowledge. Hazardous wastes are eventually labeled, transported, treated, and disposed in accordance with federal and state regulations.

- ***Excavated Soils***: If unusual odors or soil discoloration were to be observed during any excavation or trenching necessary to complete the proposed action, or if any monitoring points are encountered, remedial managers from the Hill AFB Environmental Restoration Branch (75 CEG/CEV) would be notified. Samples from suspect soils on Hill AFB would be analyzed for hazardous vs. non-hazardous determination. The suspect soils would be stored at sites operated in accordance with the requirements of 40 CFR 265 while analytical results are pending. Any soils determined to be hazardous would be eventually labeled, transported, treated, and disposed in accordance with federal and state regulations. Soil from the construction project would not be taken off base without prior 75 CEG/CEV approval.

Direct Effects Due to Operations

Based on information received during the scoping meeting held on June 2, 2008, no issues related to solid and hazardous waste were identified due to operating the proposed RCS facility.

Based on a conversation with Hill AFB engineer Ken Bakes (June 17, 2008), solid and hazardous waste would be produced by the dye penetrant process and the x-ray film process when operating the proposed NDI facility. The following four issues were identified:

- ***Containment*:** The proposed action would provide proper secondary containment and security controls for chemical storage areas, waste accumulation points, and any areas where hazardous liquids would be present.

- ***Dye Penetrant Solids*:** Disposable wipes of three types would be produced:

  Wipes from occasionally cleaning parts prior to inspection would fill approximately one 55-gallon drum per year, would contain grease and/or jet fuel, and would be sent off base for disposal as hazardous waste.

  Wipes from wiping penetrant prior to applying developer would fill approximately one 55-gallon drum per year, would contain solvent residue and penetrant (oil and fluorescent dye), and would be sent off base for disposal as either hazardous waste, or as normal solid waste (if characterized as non hazardous).

  Wipes from wiping developer would fill approximately one 55-gallon drum per year, would contain talc and alcohol residue, and would be sent off base for disposal as either hazardous waste, or as normal solid waste (if characterized as non hazardous).

- ***X-ray Film Solids*:** The processed film would contain silver, and up to 32 cubic feet per year could be generated. This waste would be sent to DRMO for silver recovery. The water treatment processes would also produce solid waste. The electroplating unit would produce metallic silver (which would be recovered). The ion exchange unit would produce spent resin cartridges (which would be sent to DRMO for silver recovery). Any solid waste from a final on-site water polishing system (unspecified at this time) would either be sent for silver recovery or for disposal as hazardous waste.

- ***X-ray Film Liquids*:** Effluent from the x-ray film processing equipment would be pretreated on site using an electroplating unit followed by an ion exchange unit. The final effluent (1,000 gallons per year or less) would contain approximately 1 part per million (ppm) silver. Any of the following three options could be used by facility designers to ensure the liquid effluent complies with all federal and local wastewater regulations:
  - send the effluent off base in containers as hazardous waste;
  - treat the effluent using the Hill AFB Industrial Wastewater Treatment Plant (IWTP); or
  - provide a final on-site water polishing system that would allow the effluent to be routed to the off-base sewage treatment plant operated by NDSD.

Indirect Effects

During scoping and the detailed analysis, no indirect effects related to solid and hazardous waste were identified for the proposed action.

Cumulative Effects

Proper handling of solid and hazardous waste eliminates releases of contaminants to the environment. There are no cumulative solid or hazardous waste effects associated with the proposed action.

4.3.2.3 Alternative C: Construct Composite Aircraft Inspection Facilities With the RCS Facility West of the Hill AFB Runway

Solid and hazardous waste effects due to selecting Alternative C would be the same as those presented for Alternative B (the proposed action).

4.3.3 Predicted Effects to Biological Resources

4.3.3.1 Alternative A: No Action

With respect to biological resources, the no action alternative would have no direct effects, no indirect effects, and no cumulative effects.

4.3.3.2 Alternative B (Proposed Action): Construct Composite Aircraft Inspection Facilities With the RCS Facility East of the Hill AFB Runway

Direct Effects Due to Construction

- ***Threatened or Endangered Species*:** As stated in Section 3.3.3, no federal or state threatened or endangered species are known to occur on Hill AFB and no likely habitat for any such species would be disturbed by the proposed action. There are no wetlands or floodplains in the vicinity of the proposed action.

- ***Construction*:** Construction of the proposed RCS facility east of Building 680 would eliminate forage for birds and displace several Northern Pocket Gophers. Overall, the loss of habitat would not be significant, based on the small size of the proposed action and the low quality of forage and structure. For the proposed NDI facility, no vegetated areas would be disturbed by the proposed action (all areas are currently occupied by structures or pavement).

  Improper building design and construction could create roosting or nesting areas for birds (which are a nuisance, as well as being a hazard to aircraft). To discourage bird activity for the applicable bird species (such as European Starlings, Pigeons, and House Finches) overhangs, covered ledges, and holes in structures would all be avoided during the design and construction process.

- ***Mitigation*:** Mitigation for loss of habitat destroyed as a result of constructing the proposed action should be in accordance with the Hill AFB habitat trading and replacement plan as explained in the *Integrated Natural Resources Management Plan* (Hill 2006).

If construction would occur during nesting season (usually April through August), an avian survey would be conducted, and an appropriate certificate of registration would be obtained to permit the taking of any protected species.

Direct Effects Due to Operations

Operating the proposed action would not create any interaction with biological resources, and therefore, no effects to biological resources were identified.

Indirect Effects

During scoping and the detailed analysis, no indirect effects related to biological resources were identified for the proposed action.

Cumulative Effects

- ***Construction***: Past human actions have produced a degraded habitat as measured by the indices described in Section 3.3.3. Construction of the proposed action is projected to reduce all indices to low scores, most likely near 0.10 or less. Overall, the loss of habitat would not be significant, based on the small size of the proposed action and the low quality of forage and structure. Significant cumulative effects to biological resources were not identified for the proposed action.

- ***Operations***: Since no effects to biological resources were identified for operating the proposed action, no cumulative effects would exist.

4.3.3.3 Alternative C: Construct Composite Aircraft Inspection Facilities With the RCS Facility West of the Hill AFB Runway

Alternative C would have a lower impact on biological resources than the proposed action since no vegetated areas would be disturbed by either the RCS facility or the NDI facility (all areas are currently occupied by structures or pavement).

4.3.4 Predicted Effects to Water Quality

4.3.4.1 Alternative A: No Action

With respect to water quality, the no action alternative would have no direct effects, no indirect effects, and no cumulative effects.

4.3.4.2 Alternative B (Proposed Action): Construct Composite Aircraft Inspection Facilities With the RCS Facility East of the Hill AFB Runway

Direct Effects Due to Construction

Based on building sizes and the Hill AFB preliminary siting diagrams for the proposed action, the land area to be disturbed would be approximately five acres in size (the RCS facility comprising approximately two acres, the NDI facility comprising approximately three acres).

The proposed action would therefore be covered under Utah's general construction permit rule for stormwater compliance. Prior to initiating any construction activities, this permit must be obtained and erosion and sediment controls must be installed according to a stormwater pollution prevention plan (SWPPP). The SWPPP would specify measures to prevent soil from leaving the construction site on the wheels of construction vehicles, thereby controlling the addition of sediments to the storm drain system. The proponents would coordinate with the Hill AFB water quality manager (75CEV/CEGOC) prior to submitting an application for a Utah construction stormwater permit.

The SWPPP and Hill AFB construction specifications would require the contractor to restore the land to a non-erosive condition. All areas disturbed by excavation would be backfilled, and then either be covered by pavements, gravel, or re-planted, re-seeded, or sodded to prevent soil erosion.

Direct Effects Due to Operations

The proposed facilities would be subject to Utah's general multi-sector permit rule for stormwater compliance. The *Hill AFB Stormwater Management Plan - Municipal Stormwater Permit* establishes good housekeeping measures and other best management practices to prevent contamination of runoff.

For the area east of Building 680 (the proposed RCS facility location in Alternative B), Pond 10 serves as a retention pond. Stormwater from this pond percolates and evaporates, resulting in zero discharge. Since the proposed RCS facility would convert two acres of vegetation to structures and paved surfaces, an increase to stormwater inflow for Pond 10 would be expected.

For the area north of Building 505 (the proposed NDI facility location in Alternative B), Pond 1 serves as a detention pond, and this pond is checked for an oil sheen prior to stormwater being discharged by manually opening the outfall valve. Since the proposed NDI facility would be located in an area currently occupied by structures or pavement, no increase to stormwater runoff volume would be expected.

Groundwater

Groundwater contaminated with DCE has been identified in the vicinity of the proposed RCS facility location in Alternative B (Figure 5). Depth to groundwater is approximately 15 feet bgs, and the anticipated depth of excavation for the RCS facility is 25 feet bgs. As a result, the excavation would need to be dewatered for a period of several months during construction of the RCS facility. Water removed from the excavation would most likely be contaminated with DCE.

Special construction techniques would be required in an attempt to ensure the lower elevations of the RCS facility (any portion that could lie below the fluctuating water table) are completely waterproof. Hill AFB facility engineers believe that installing a thick bentonite seal and/or special waterproof coatings adjacent to the exterior concrete surfaces would accomplish this goal. Because the waterproofing methods might not perform as designed, a permanent facility dewatering system would installed. Should this facility dewatering system be used, water (potentially contaminated with DCE) would be discharged/treated.

Should Alternative B become the selected alternative, RCS facility designers, construction managers, and operators would be required to work closely with Hill AFB 75 CEG/CEV project managers to ensure all federal, state, and FFA requirements are met for handling, storage, treatment, and/or disposal of any contaminated groundwater that is pumped from the excavation or pumped (by use of the facility dewatering system described above) from the facility during operations.

Indirect Effects

A wellhead protection zone exists in the vicinity of the RCS facility proposed in Alternative B. If this is the selected alternative, design and construction would be conducted in accordance with requirements stated in the applicable Hill AFB wellhead protection plan.

During scoping and the detailed analysis, no other indirect effects related to water quality were identified for the proposed action.

Cumulative Effects

On-base and off-base water quality would be protected during and after construction activities. Hill AFB water quality managers monitor the capacity of the retention and detention ponds relative to projected inflows from the 24-hour, 100-year storm event. Ponds 1 and 10 would be dredged and/or expanded to provide additional capacity if necessary, or additional stormwater facilities would be constructed. There are no cumulative water quality effects associated with the proposed action.

4.3.4.3 Alternative C: Construct Composite Aircraft Inspection Facilities With the RCS Facility West of the Hill AFB Runway

Alternative C would have no effects related to groundwater or wellhead protection zones. Construction stormwater effects would be similar to Alternative B. During operations, all stormwater runoff would be conveyed to Pond 1.

5.0 LIST OF PREPARERS

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6.0 LIST OF PERSONS AND AGENCIES CONSULTED

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7.0 REFERENCES

CFR: *Code of Federal Regulations*, US Government Printing Office, Office of the Federal Register (various sections and dates).

DAQ 2006: *Division of Air Quality Annual Report for 2005*, Utah Division of Air Quality, 2006.

DAQ 2007: *State of Utah National Ambient Air Quality Standards, Areas of Non-Attainment and Maintenance (Updated July 2006)*, Utah Division of Air Quality Website, July, 2008.

Economic 2008: *Utah Labor Force: (Section 5 of the Utah Business & Economic Profile)*, Economic Development Corporation of Utah, January 31, 2008.

EPA 1991: *Nonroad Engine and Vehicle Emission Study - Report*, Table 2-07a, US Environmental Protection Agency, 1991.

EPA 1998: *National Air Pollutant Emission Trends, Procedures Document for 1900-1996*, US Environmental Protection Agency, Page 4-285, 1996.

Hill AFB: *Construction Specifications, Section 01000, General Requirements, Part 1, General, Section 1.24, Environmental Protection*, Hill AFB, UT, current version.

Hill 2006: *Integrated Natural Resources Management Plan*, Hill AFB, 2006.

Hill 2007a: *Integrated Cultural Resources Management Plan*, Hill AFB, 2007.

Hill 2007b: *2006 Annual Criteria and Toxic Pollutant Emission Inventory*, Hill AFB, April, 2007.

Stantec 2007: *Hill AFB Stormwater Management Plan - Municipal Stormwater Permit*, Stantec Consulting, April, 2007.

WFRC 2003: *Natural Hazard Pre-Disaster Mitigation Plan, Utah's Wasatch Front*, Wasatch Front Regional Council, December 2003.

APPENDIX A

CULTURAL RESOURCES FINDING OF NO ADVERSE EFFECT

DEPARTMENT OF THE AIR FORCE
75TH CIVIL ENGINEER GROUP (AFMC)
HILL AIR FORCE BASE UTAH

7 July 2008

Dr. W. Robert James
Chief, Environmental Management Division
75th CEG/CEV
7274 Wardleigh Road
Hill Air Force Base, Utah 84056-5137

Mr. Wilson Martin
State Historic Preservation Officer
300 Rio Grande
Salt Lake City, Utah 84101

Dear Mr. Martin

Hill Air Force Base (AFB) is currently proposing to construct aircraft inspection facilities in support of the mission to repair and modify F-22 and F-35 composite aircraft. The two necessary facilities are the proposed Radar Cross Section (RCS) facility and the proposed Nondestructive Inspection (NDI) facility. The Area of Potential Effect (APE) is approximately five acres of property (Attachment 1, Area of Potential Effect for Proposed Radar Cross Section and Nondestruction Inspection Facilities). The proposed action includes construction of the two facilities along with providing buried utilities to both sites.

Within Hill AFB, three previous inventories have comprised cultural resources survey of 840 acres (U-91-WC-687m, U-95-WC-280p, and U-01-HL-0164m). Results from these projects include the recordation of one historic refuse dump (42Dv51) and two prehistoric isolates, all determined ineligible for listing in the National Register of Historic Places. Inventory efforts have resulted in the survey of 12.5 percent of the total area of Hill AFB. A small portion of the current APE falls within the 1995 inventory area.

Building construction and associated infrastructure will encompass the entire APE of the current project. Given the lack of previous findings and the extensive development and disturbance of Hill AFB, the potential for archaeological historic properties is extremely low; however, if any archaeological resources are found during construction, ground-disturbing activities in the immediate vicinity will cease, the Hill AFB Cultural Resources Program will be notified, and the unanticipated discovery of archaeological deposits procedures shall be implemented with direction from the Hill AFB Cultural Resources Program and in accordance with the Hill AFB Integrated Cultural Resources Management Plan (Attachment 2, Unanticipated Discovery of Archaeological Deposits).

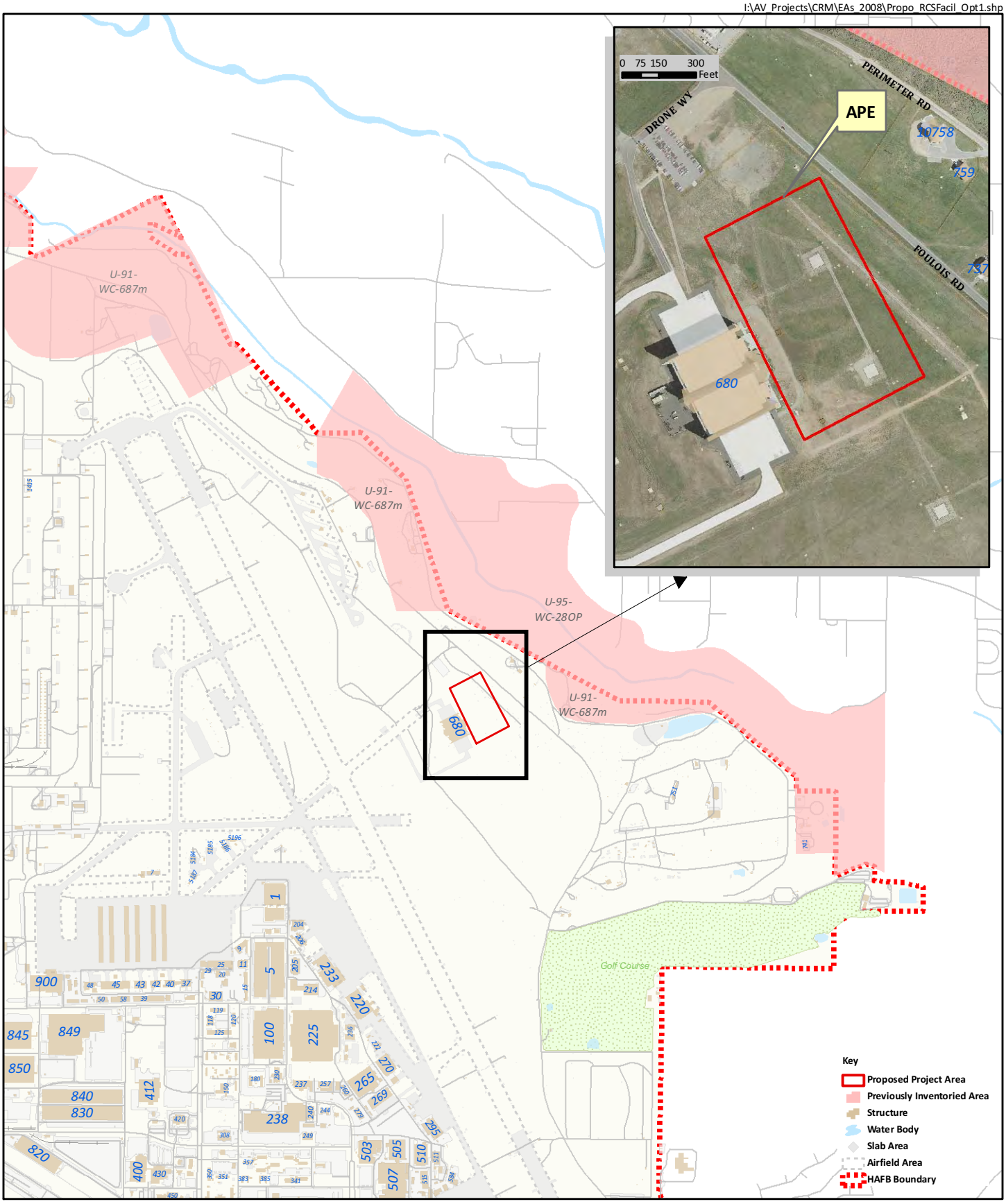
Therefore, Hill AFB has determined the proposed project will have no adverse effect to historic properties [36 CFR §800.4(d)(1)]. I request your concurrence in these determinations as specified in 36 CFR §800.

An Environmental Assessment has been prepared for the proposed RCS-NDI facilities. If you would like a copy of this document to review, or should you or your staff have any questions about the project, please contact our archaeologist, Ms. Jaynie Hirschi, 75th CEG/CEVOR, at (801) 775-6920 or at jaynie.hirschi@hill.af.mil.

Sincerely

W. ROBERT JAMES, Ph.D., P.E.
Chief, Environmental Management Division
75th Civil Engineer Group

Attachments:
1. Area of Potential Effect for Proposed Radar Cross Section and Nondestruction Inspection Facilities
2. Unanticipated Discovery of Archaeological Deposits



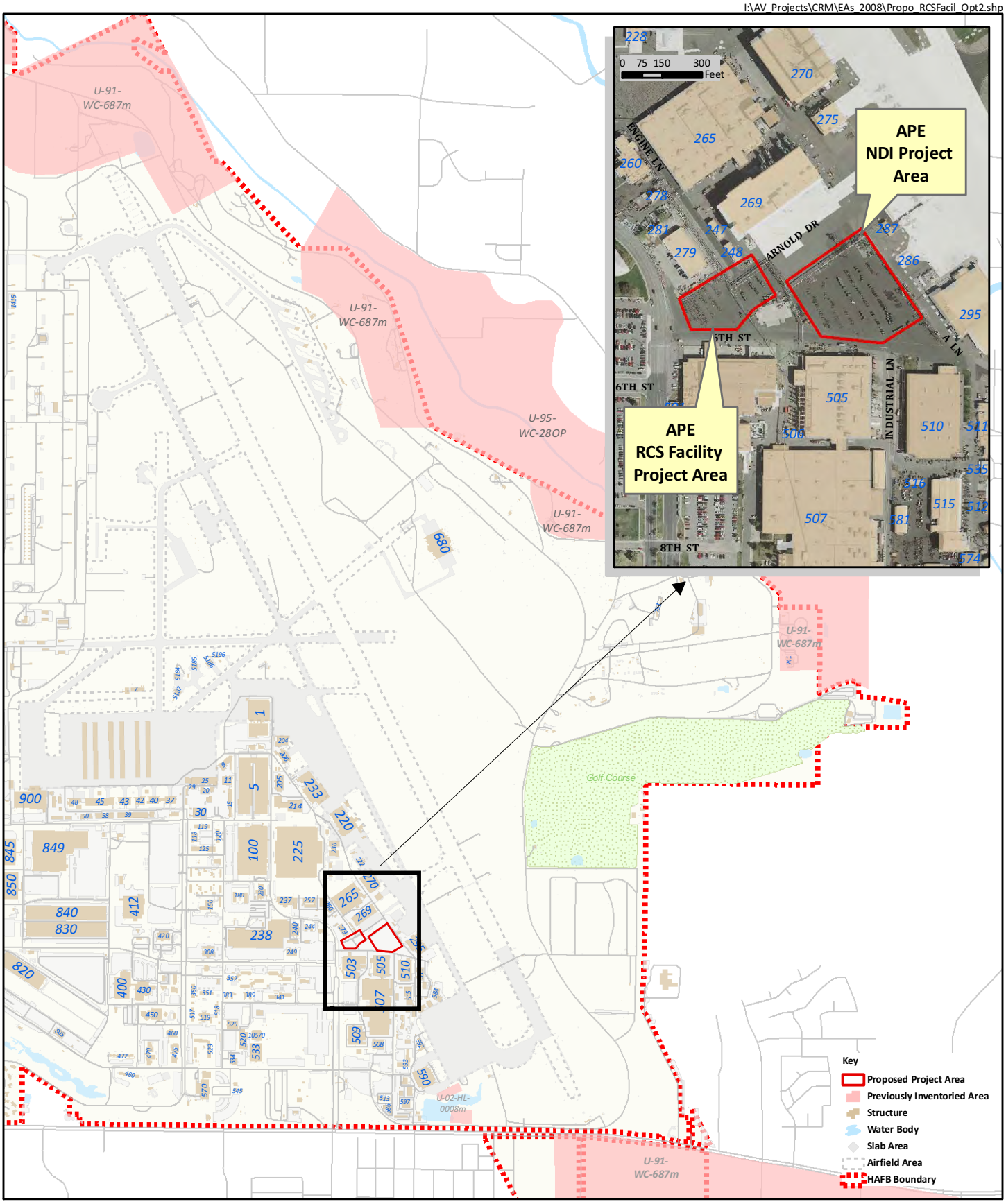
Area of Potential Effects for the
Proposed Radar Cross Section Facility, Option 1
Hill Air Force Base, Utah

1:24,000

0 750 1,500 3,000 Feet

0 255 510 1,020 Meters

N



Area of Potential Effects for the
Proposed Radar Cross Section Facility, Option 2 and
the Proposed Non-Destructive Inspection Facility
Hill Air Force Base, Utah

1:24,000

0 750 1,500 3,000 Feet

0 250 500 1,000 Meters

N

Standard Operating Procedure

UNANTICIPATED DISCOVERY OF ARCHAEOLOGICAL DEPOSITS

APPLICABLE LAWS AND REGULATIONS

- National Historic Preservation Act
- National Environmental Policy Act
- Native American Graves Protection and Repatriation Act
- AFI 32–7065 (June 2004), *Cultural Resources Management Program*

OVERVIEW

All undertakings that disturb the ground surface have the potential to discover buried and previously unknown archaeological deposits. The accidental discoveries of archaeological deposits during an undertaking can include but are not limited to:

- Undiscovered/undocumented structural and engineering features; and
- Undiscovered/undocumented archaeological resources such as foundation remains, burials, artifacts, or other evidence of human occupation.

POLICY

When cultural resources are discovered during the construction of any undertaking or ground-disturbing activities, Hill AFB shall:

- Evaluate such deposits for NRHP eligibility.
- Treat the site as potentially eligible and avoid the site insofar as possible until an NRHP eligibility determination is made.
- Make reasonable efforts to minimize harm to the property until the Section 106 process is completed.
- **The BHPO will ensure that the provisions of NAGPRA are implemented first if any unanticipated discovery includes human remains, funerary objects, or American Indian sacred objects (see SOP #6).**

PROCEDURE

Step 1: Work shall cease in the area of the discovery (Figure 5-5). Work may continue in other areas.

- The property is to be treated as eligible and avoided until an eligibility determination is made. Hill AFB will continue to make reasonable efforts to avoid or minimize harm to

Further construction activities in the vicinity of the site will be suspended until an agreed-upon testing strategy has been carried out and sufficient data have been gathered to allow a determination of eligibility. The size of the area in which work should be stopped shall be determined in consultation with the **BHPO**.

the property until the Section 106 process is completed.

Step 2: Immediately following the discovery, the **Project Manager** shall notify the installation **BHPO**.

Step 3: The **BHPO** or a professional archaeologist shall make a field evaluation of the context of the deposit and its probable age and significance, record the findings in writing, and document with appropriate photographs and drawings.

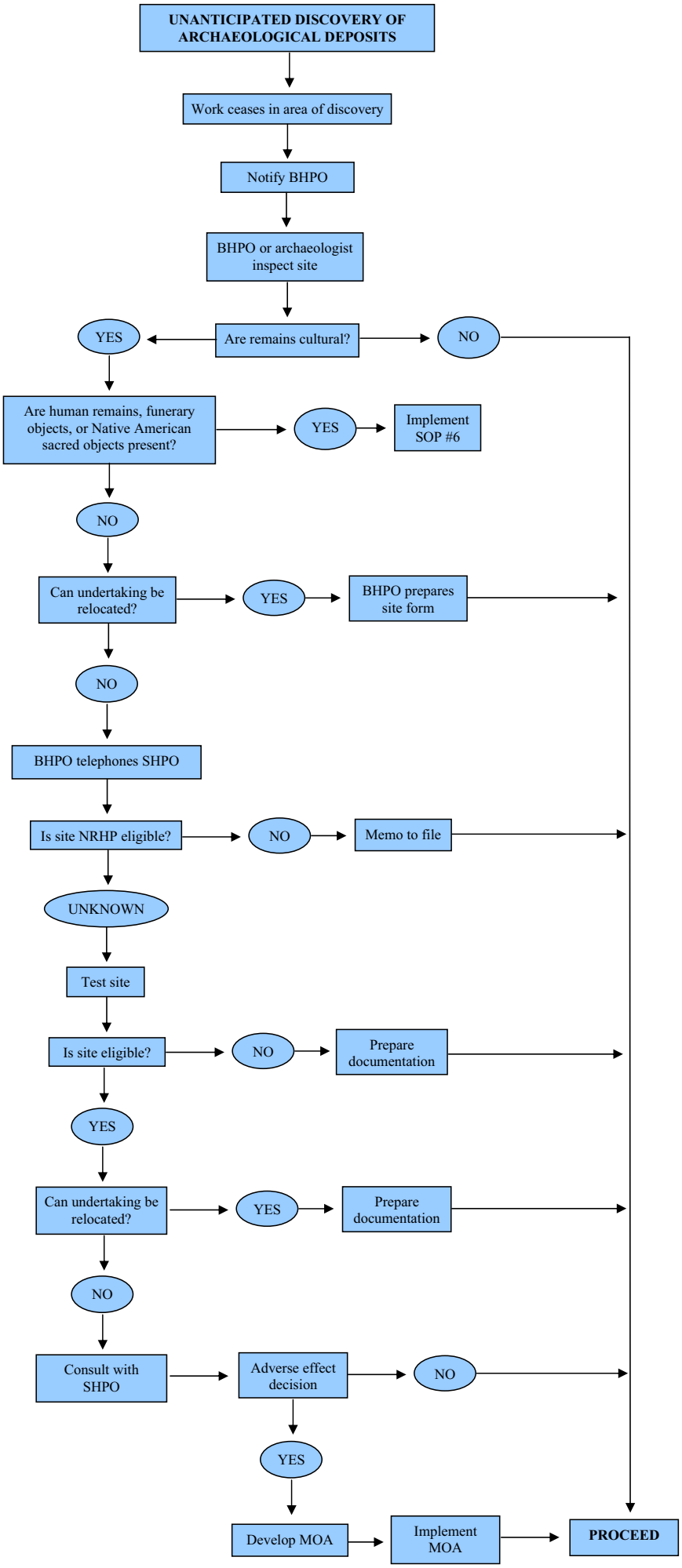
- If disturbance of the deposits is minimal and the excavation can be relocated to avoid the site, the **BHPO** will file appropriate site forms in a routine manner.
- If the excavation cannot be relocated, the **BHPO** shall notify the office of the **SHPO** to report the discovery and to initiate an expedited consultation.

The Section 106 review process is initiated at this point.

- If the deposits are determined to be ineligible for inclusion in the NRHP, then Hill AFB **BHPO** will prepare a memorandum for record and the construction may proceed.
- If the existing information is inadequate for an NRHP eligibility determination, Hill AFB **BHPO** shall develop an emergency testing plan in coordination with the SHPO.

Step 4: Hill AFB shall have qualified personnel conduct test excavations of the deposits to determine NRHP eligibility.

- Hill AFB BHPO, in consultation with the SHPO, will determine appropriate methodology for NRHP eligibility determination.
- If the SHPO and Hill AFB agree that the deposits are ineligible for inclusion in the NRHP, then work on the undertaking may proceed.
- If the deposits appear to be eligible, or Hill AFB and the SHPO cannot agree on the question of eligibility, then Hill AFB shall implement alternative actions, depending on the urgency of the proposed action.
  - Hill AFB may relocate the project to avoid the adverse effect.
  - Hill AFB may request the Keeper of the National Register to provide a determination.
  - Hill AFB may proceed with a data recovery plan under a MOA developed in coordination with the SHPO and possibly the ACHP and interested parties.
  - **Hill AFB may request comments from the ACHP and may develop and implement actions that take into account the effects of the undertaking on the property to the extent feasible and the comments of the SHPO, ACHP, and interested parties. Interim comments must be provided to Hill AFB within 48 hours; final comments must be provided within 30 days.**


UNANTICIPATED DISCOVERY OF ARCHAEOLOGICAL DEPOSITS
Work ceases in area of discovery
Notify BHPO
BHPO or archaeologist inspect site
Are remains cultural?
YES
NO
Are human remains, funerary objects, or Native American sacred objects present?
YES
Implement SOP #6
NO
Can undertaking be relocated?
YES
BHPO prepares site form
NO
BHPO telephones SHPO
Is site NRHP eligible?
NO
Memo to file
UNKNOWN
Test site
Is site eligible?
NO
Prepare documentation
YES
Can undertaking be relocated?
YES
Prepare documentation
NO
Consult with SHPO
Adverse effect decision
NO
YES
Develop MOA
Implement MOA
PROCEED

Hirschi, Jaynie Civ USAF AFMC 75 CEG/CEVOR

From: Janice Reed-Campbell [cehistry.jcampbel@utah.gov]
Sent: Friday, July 25, 2008 3:45 PM
To: Hirschi, Jaynie Civ USAF AFMC 75 CEG/CEVOR
Subject: Hill AFB Aircraft Inspection Facility

RE: Hill AFB Aircraft Inspection Facility 106 Case

(08-1196)

Dear Ms Hirschi:

We received the above referenced report from your office on July 8, 2008. Thank you for consulting with our office on your undertaking. Unfortunately, due to time and caseload restraints, we are not able to render a formal comment on your consultation request. However, our office will not raise an objection (per 36CFR800.4(d)(1)(i), or Utah Code 9-8-4-4(2)(a)) to the project within the 30 days that we have to comment. By our understanding of the regulations, you need no further formal comment from our office regarding this project as part of your overall compliance with Section 106 of the National Historic Preservation Act.

This e-mail can be used for your files as an indication that you have allowed the Utah State Historic Preservation Officer an opportunity to comment on the proposed project. By our understanding of the regulations for implementation of the National Historic Preservation Act, this email should meet the standards for adequacy of documentation under 36CFR800.11(a).

If you feel you need written notification from our office, please let us know by responding to this email at jreedcam@utah.gov, and one will be sent to you.

We wish to note that the regulations in 36CFR800 and in Utah Code 9-8-404 do not require the State Historic Preservation Officer to provide written or any other comment on any case. We may not be able, or we may choose not to provide a comment on any case submitted to our office. Per 36CFR800.3(c)(4) and our understanding of Utah Code 9-8-404, if our office has not responded within 30 days of receipt of any consultation request, the agency does not need further comment from our office. This email is provided for your files as a courtesy, and we may not always be able or choose to respond to every case.

Thank you for considering cultural resources as you plan your undertaking. As always, do not hesitate to contact our office if you have any questions or wish to consult on any project.

Sincerely,

James L. Dykmann
Acting Deputy State Historic Preservation Officer - Archaeology

State of Utah

JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

Department of Community and Culture

PALMER DePAULIS
Executive Director

State History

PHILIP F. NOTARIANNI
Division Director

July 28, 2008

Ms Jaynie Hirschi
75th CEG/CEVOR
7274 Wardleigh Road
Hill Air Force Base UT 84056-5137

RE: Radar Cross Section (RCS) Facility and the Nondestructive Inspection (NDI) Facility, Hill Air Force Base

In Reply Please Refer to Case No. 08-1190

Dear Ms Hirschi:

The Utah State Historic Preservation Office received your request for our comment on the above-referenced project on July 9, 2008. From the information you provided, it appears that no cultural resources were located in the project Area of Potential Effects. We concur with your determination of **No Historic Properties Affected** for this project.

This letter serves as our comment on the determinations you have made, within the consultation process specified in §36CFR800.4. If you have questions, please contact me at (801) 533-3555 or jdykman@utah.gov.

As ever,

James L. Dykmann
Acting Deputy State Historic Preservation Officer - Archaeology

UTAH STATE HISTORY

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